



Virgin Islands Department of  
**EDUCATION**



**TWO YEAR TECHNOLOGY PLAN  
2013-2015**

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# 1. Introduction

## Background

The following plan provides strategic direction and establishes specific action steps related to how the instructional technology will continue to be implemented so as to benefit teaching and learning in Virgin Islands schools over the next two calendar years. The Technology Plan is designed to provide a blueprint for territory level actions as well as guidance and flexibility for district and school technology planning.

The basic premise of this plan – as informed by research -- is that pedagogy and curriculum must drive instructional technology use. Beyond this, the plan is also built upon the knowledge that Virgin Island students need teachers who understand how to teach in ways that foster the development of thinking skills as well as the acquisition of content knowledge. Technology has a role to play in supporting teachers in both of these tasks, even if at present most teachers are largely only familiar with the use of technology for teaching content or perhaps with the teaching of technology skills as content. The strategic directions of this plan aim to develop teacher skills, and to facilitate teacher use of technology to accomplish new tasks and to truly bring our schools and the work that occurs within them into the 21<sup>st</sup> Century.

We realize that we face considerable obstacles in achieving our overall goal of utilizing technology tools to enrich and improve learning for all students. As the **Current Status** (Chapter 2) section of this document shows, at present all too many of our classrooms are organized as teacher-centered environments that are more characteristic of the 19<sup>th</sup> century than the 21<sup>st</sup> century learning spaces that they aspire to be. While many of our schools and classrooms have modern technology within them, our teachers do not yet possess the skills in pedagogy to utilize these tools effectively to produce the desired learning outcomes. The complete supports and training necessary to bring these teachers into the 21<sup>st</sup> century do not exist. Nor do we generally have all the policies in place to establish the accountability necessary to insure that teachers are teaching in the ways we know are necessary to prepare our students the futures that we imagine for them.

Armed with the knowledge that we need to change how teachers think about learning and pedagogy and the tools used to accomplish both, a major thrust of this new Technology Plan is teacher professional development. At the Territorial level, the State Educational Systemic Improvement Process (eSIP) Team, comprised of VIDE Curriculum and Instruction, Human Resources, Planning Research and Evaluation, Cultural Education, OIT and other divisions will create professional development models and resources that can be implemented at the district level. As part of the support to districts in their own technology planning work, districts will be continuously provided insight into the state plans and the tools/resources that will be made available to them. These should then be incorporated into district plans and will thereby be moved on to schools. In this way, the actions of this Territorial plan will ultimately be manifested in and have impact at the teacher/classroom level. This continues existing work on projects such as upgrading the Virgin Islands Department of Education (VIDE) Education Territory Area Network (E-TAN) and expanding wireless coverage as needed to provide access to mobile devices and digital resources and tools in every area of a school campus as required to support learning. All of this requires considerable professional development to ensure successful use. Ongoing professional development efforts include the NETS standards, and using technology tools to achieve the teaching of 21<sup>st</sup> Century learning skills aligned with curriculum in classrooms.

As noted above, a central principle that underlies this Technology Plan is that achievement of the ISTE NETS standards for students, teachers and administrators drives the work of this plan. For the most part, NETS describe the desired outcomes for students/teachers/administrators as related to how technology is used to support 21<sup>st</sup> Century learning. Meeting the NETS standards means creating those learning environments that facilitate the development and practice of the types of thinking and learning that are necessary to success as a lifelong learner. This too is the over-arching goal of VIDE's Strategic Technology Plan. Therefore, it is reasonable to say that the point of this plan is to enable all VI teachers, students and administrators to achieve the NETS standards. Much of what follows then is about how VIDE OIT will establish the professional development, infrastructure, and accountability process for meeting NETS standards and thereby supporting 21<sup>st</sup> Century learning for all students.

This plan is meant to be a living document that is referred to frequently and adjusted as necessary. In addition, the Plan has been drafted to align with the individual school, district and Territory improvement plans developed under the following five E-Rate program requirements:

- The plan must establish clear goals and a realistic strategy for using telecommunications and information technology to improve education or library services;
- The plan must have a professional development strategy to ensure that staff know how to use these new technologies to improve education or library services;
- The plan must include an assessment of the telecommunication services, hardware, software, and other services that will be needed to improve education or library services;
- The plan must provide for a sufficient budget to acquire and support the non-discounted elements of the plan: the hardware, software, professional development, and other services that will be needed to implement the strategy; and
- The plan must include an evaluation process that enables the school or library to monitor progress toward the specified goals and make mid-course corrections in response to new developments and opportunities as they arise.

The Virgin Islands Technology Plan for 2013 – 2015 addresses and more than fulfills the intent of all of the E-Rate program requirements.

## **VIDE Technology Organization**

There has never been a centralized organization and/or structure in the Virgin Islands Department of Education (VIDE) for delivering and supporting the technology services needed to accomplish department, district and program mission, goals and objectives. Historically, many divisions within VIDE hire technology support staff and plan, design, procure and implement technology solutions individually and outside of any established centralized IT department. Among other issues, this has led to internal and external confusion by stakeholders. The results of two studies supported this view and recommended that the department move towards a centralized IT organization responsible for managing all IT staff and services. The recommendation was presented to the department but has not yet been implemented.

Currently the State Office of Instructional Technology (OIT) has the primary responsibility for managing technology wide area network services in the Territory. The Divisions of Testing, Research and Evaluation, Human Resources, Special Education, Public Relations, Government TV, and Computer Operations also retain technical staff and or technology related services such as student, employee, and enterprise data, special needs access, video teleconferencing, electronic time and attendance data and network-based facilities access and security. While each group oversees critical technology programs, the focus of this Technology Plan is on the activities of the Office of Instructional Technology, specifically as they relate to the district and school plans for technology integration in the classroom and improving student performance.

### ***The Office of Instructional Technology***

The Office of Instructional Technology is a Unit under the Office of the Commissioner of Education. It is currently managed by a Director, and staff consisting of one Executive Secretary, a Program Manager, and five (5) Network Engineers. This team is responsible for providing wide area network infrastructure and services to the two districts, and schools and instructional support programs on St. Croix, St. Thomas and St. John. The program provides numerous services including but not limited to technology vision, standards, planning, evaluation, email, voice mail, VoIP telephone, Internet access, web-hosting, homework hotline, video and instructional video conferencing. Each of the technology programs and services described in this plan will be managed and administered by the Office of Instructional Technology.

### ***Office of Computer Operations***

This activity center is under the Division of Fiscal and Administrative Services, which is responsible for the fiscal and technology activities of the Department of Education. It provides computerized support and development services to the Department of Education for administrative applications. It includes the development of new applications and the operation of existing ones. Several databases maintains student data records and employees records for Human Resources NOPA processes (i.e. new, changes, temporary and extensions, salary increase and retroactive payments), Budget Control processes (i.e. budget preparation and projections), and computerized information that are shared between the Office of Management and Budget, Department of Finance, Department of Personnel, Board of Education, Legislature, etc. Various exception reports are generated by Computer Operations. The Computer Operations Division also provides consulting services as needed for the various offices.

The ERP Tyler Munis system has been implemented in the VIDE and throughout the local government. ERP has several benefits. It will allow school based and activity center program managers to quickly input, print, track, follow up on inventories, requisitions, contracts, and other documents using stable, reliable, upgradeable, state-of-the art equipment from user remote locations. This has helped to reduce the number of steps needed to process a requisition. It also enables each classroom, office, and school based, activity center program manager to receive access to qualified teachers, substitution teacher pool, classroom and office supplies, and services in a timely manner.

Under a Compliance Agreement with the United States Department of Education, the USVI government was required to develop a single, credible central financial management system which records accounts for all draws and expenditures of federal education funds. The ERP system helps to address this requirement.

With ERP, USVI agencies and single auditors will be able to rely on a central system as an accurate system of record. The USDOE is also requiring the Department of Property and Procurement (DP&P) to account for all DOE inventories down to the classroom that use federal funds. Through ERP, USVI government manner of managing inventory will be such that items purchased with federal program funds can be tracked, are distributed timely, and are used for the benefit of students. This system has the ability to comply with federal regulations and include tagging and tracking of inventory and prompt delivery of property purchased with federal funds to the appropriate location, so that items may be used for the purposes of the program under which they were purchased. The inventory policy will include an established procedure for replacement or payback of any items in the inventory that cannot be located, consistent with federal regulations. At a minimum, the inventory management system will reflect when items are ordered, when ordered items arrive, when items are logged into the system, and when they are delivered to the intended location.

### ***Office of Testing, Planning, Research and Evaluation***

The Division of Testing, Planning, Research and Evaluation is responsibility for the following:

- Collecting student demographic and outcomes data from all operating K-12 schools in the territory.
- Providing student demographic information to school district staff.
- Providing schools with data collection instruments and data standards that help produce quality information.
- Training about data collection and reporting methods.
- Developing statistical reports, evaluations and research based informational reports that help support policy and decision making.

The establishment of an electronic data collection management information system infrastructure to enhance collection, storage, retrieval, analysis and reporting of information is a central focus of the unit. As the central depository for educational data, PRE is the main unit that provides educational data to the National Center for Educational Statistics on the Common Core of Data Surveys and other federal programs such as Impact Aid, Guns and Firearm, Science & Mathematics Indicators, and Student Loan Cancellation Eligibility Survey.

The Division works closely with district personnel collaborating on initiatives to improve the data collection and management systems to enable integration of district data at the state level useful for reporting and examination of policies and procedure. Professional development training is offered through collaborative arrangements with the district as appropriate. This Division also partners with other agencies such as the Community Foundation of the Virgin Islands, the Housing Authority, The Bureau of Economic Development and Research, the Department of Labor, the University of the Virgin Islands and the non-public schools in the territory.

The Division has been awarded a grant to implement a Longitudinal Data System and has developed a website to provide access to VI student data (NCLB Report Cards).

## **Mission**

The Virgin Islands Department of Education (VIDE) is committed to the superior preparation and performance of every student for continuing education, rewarding employment, and responsible citizenship.

## **Vision**

The Division of Instructional Technology leads and empowers VIDE community stakeholder to access and leverage enterprise network technology infrastructure and services to improve communication, collaboration and learning.

## 2. Technology Needs – Current Status

### Current Status of Technology Use in VI Schools

#### Introduction

During the week of May 6<sup>th</sup> (2013), a program evaluator from the International Society for Technology in Education's Research and Evaluation Department (ISTE R&E) visited 16 schools and interviewed principals, district leaders, and state department personnel to support evaluation of the Virgin Islands Department of Education (VIDE) technology integration.

This report presents the results of the classroom observations and interviews, along with recommendations for future planning and implementation around technology integration and VIDE's technology plan. In general, the report treats schools on St. Thomas and St. Croix separately. Governed by different agencies that have their own Information Technology (IT) and Curriculum and Instruction (C&I) departments, educators from the two school districts reported somewhat different experiences around technology access and integration, although many of the needs regarding professional development (PD) and use of technology standards were similar.

#### Executive Summary

In May 2013, an evaluator from ISTE's Research and Evaluation department observed technology integration in K-12 classrooms, and conducted interviews with school principals, district officials from Curriculum & Instruction (C&I) and Information Technology (IT), and state department IT and C&I staff. The goal of this evaluation is to assess the current status of and needs regarding technology access, technology integration, professional development (PD), and technology literacy for Virgin Islands Department of Education (VIDE) K-12 schools. Information from this evaluation will support revisions to the VIDE technology plan, and alignment of PD with the state-adopted technology literacy standards, the NETS.

During the week of May 6<sup>th</sup>, the evaluator visited 16 classroom observations (7 on St. Thomas, 2 on St. John, and 7 on St. Croix) to assess technology integration in K-12 classrooms. In general, certain teacher roles and classroom activities were associated with more NETS-S for Students (NETS-S) standards, including teachers in facilitation roles and students conducting research and creating artifacts (such as presentations) using technology. Teacher technology use was negatively correlated with NETS-S indicators, while student technology use was positively correlated with those standards. While the ratio of devices to student was un-related to student engagement, the need for technology was strongly related, such that activities that utilized technology to facilitate learning that goes beyond rote information assimilation, such as the traditional direct instruction and drill & practice methods. St. Thomas teachers were more successful at creating NETS-S rich learning environments than were those in St. Croix, who relied on the aforementioned "traditional" methods associated with teacher-centered instruction.

While at the schools, the evaluator also interviewed principals, focusing on needs of teachers and the school around technology access, technology integration, PD, and technology literacy. In general, principals presented one of two visions around technology integration. Some believed that it was the school's job to prepare students for the world of post-secondary education and (especially) work by making sure teachers were using technology in their teaching. This often took the form of teachers using Promethean boards, and students completing assignments using computers. In contrast, other principals argued that students come to school with technology skills and the ability to learn quickly, and that schools must keep up with them. These administrators emphasized a transformation away from teacher-centered instructional environments to those where students had more autonomy in a process of discovery and creation, and that technology provided a set of tools that make such student-centered classrooms possible. Technology literacy standards associated with 21<sup>st</sup> century skills played a more prominent role for principals in this latter category, helping to frame what their schools should look like today.



The evaluator also conducted interviews with IT and C&I leaders from both districts and VIDE. These interviews focused on the same areas as did principal interviews, but from the provider perspective, as both the Department and districts are responsible for providing IT support and training to teachers, principals, and their schools. Aging desktop computers were cited as a major need at this time, especially with the roll-in of the Common Core standards and online PARCC OR SMARTER BALANCED assessments for the 2013-14 school year. Thin client solutions were recommended for replacing those machines as they are less expensive than regular desktops, and maintenance is consolidated to one server, which is more affordable and feasible for schools. The main challenge around district/Department communication focuses on the use of the new (as of this year) Help Desk ticketing system. Appointed persons at schools can use the Help Desk to submit requests for tech support. Those tickets are processed by VIDE, and assigned to either a VIDE technician or a district technician, depending on the nature of the problem. Long wait times and a lack of communication about closing tickets were problems this year, suggesting a need for prompter responses to requests, and more consistent use of the ticketing systems or centralized control over tech support for sites.

Districts and VIDE agreed that professional development was critical to improving technology integration, which they took to mean making classrooms more project-based and student-centered, where students (and teachers) use technology in ways that support learning in content areas and 21<sup>st</sup> century skills. Historically, much PD from VIDE or districts has been voluntary (for teachers) and involved little to no follow-up support. Leaders acknowledged that, for change to be systematic, trainings should be mandatory, and include hands-on skills building, job-embedded coaching, and follow-up activities that support integration. Including technology integration in teacher evaluation could further support integration.

Future PD should support greater understanding around technology literacy for both teachers and administrators. Instructional PD should focus on helping teachers create and re-write lesson plans so that students use technology in ways that meet the NETS-S standards. This recommendation is not that direct instruction should be entirely abandoned, but instead, that teachers must come to see “technology” as a means for students to find and collect, process, synthesize, present, and even create information and ideas.

While St. Thomas teachers were more effective at doing this than those on St. Croix, almost half of the classrooms observed (four of nine) exhibited three or fewer NETS-S standards, so this emphasis on 21<sup>st</sup> century skills in classrooms is not yet widespread. Few of the principals explicitly mentioned the NETS-S standards in interviews, despite the fact that they were asked, “Do your teachers currently use a set of technology literacy standards to guide their teaching here at this school?” While many principals mentioned that they wanted to see teachers make their classrooms more student-centered, they did not advocate for the NETS-S or another set of standards as a roadmap to guide that way. Although the NETS are used in ISTE professional development programs in the islands, few principals cited them or any other specific frameworks supporting educational technology. Having an explicit framework for technology use would make it easier to implement the VIDE technology plan by building awareness and utilization of standards in shaping everyday teaching practice.

# Classroom observations

The evaluator visited a total of 16 schools across the three islands (St. Thomas, St. John, St. Croix) and two districts. Observations were conducted with the ISTE Classroom Observation Tool, or ICOT. The ICOT is a macro-enabled Excel file. Observers check boxes to record the presence or absence (in real time) of various teacher roles, student groupings, learning activities, and technology use by teachers and students. ICOT converts these records into proportions of class time. Need for technology is recorded on a four-point scale (technology inhibited the lesson; technology option was equal to others; technology improved the lesson; or technology was essential to the lesson). Indicators for the NETS for Students (NETS-S) standards are recorded on a three-point scale (absent, addressed, met). Criteria used in coding each of the ICOT variables appears as Appendix 1.

Figure 1: ICOT data entry screens

The screenshot displays the ICOTv3.1.1.xlsm Microsoft Excel spreadsheet. The interface includes a ribbon with tabs: Home, Insert, Page Layout, Formulas, Data, Review, and View. The main content area is divided into several sections:

- Settings:** Includes fields for Date (12/05/12), Grade (6), Project (cq), School (madison), Observer (talbot), Teacher (SchroederMark), and Start/End Observation Period (Waiting Data).
- Teacher Roles:** Includes checkboxes for Lecturing, Interactive Direction, Facilitated Coaching, Modeling, Moderate Discussion, and Other role.
- Learning Activities:** Includes checkboxes for Receive Presentation, Give Presentation, Create Presentation, Run Simulations, Research, Info. Analysis, Writing, Take Tests, Drill/Practice, Hands-on Skills, Student Discussion, and Other activity.
- Ratings:** Includes Need for Technology (1-4), Students Unengaged, and Engaged %.
- Technologies Used:** Includes checkboxes for Digital Camera, Digital Sensors/GPS, Interactive White Board, Presentation System, Response System, Handheld/Smartphone, Interactive Videoconferencing, Other HW1, Other HW2, Other SW, and a list of NETS for Students indicators.

The bottom of the spreadsheet shows tabs for OBSERVATION, DATA STORAGE, and DEFINITIONS.

The evaluator requested schools to suggest a teacher for observations who was very comfortable with technology, and to see a class that utilized technology in a way that is common for that teacher. In looking at the best teachers and their usual use of technology, recommendations based on observations should be feasible for most teachers, but also provide some areas for growth even for those teachers most fluent with common classroom technologies.

Table 1 shows the breakdown of schools by district and level. Classrooms from grades one through 10 were observed, with fourth grade being most common. The evaluator visited no 11<sup>th</sup> or 12<sup>th</sup> grade

classrooms: observations were conducted at two high schools (Charlotte Amalie HS and Eudora Kean HS). Although a third high school (Central HS, St. Croix) was visited, most students were taking Advanced Placement tests that day, so there was no formal observation – instead, an interview with the teacher was conducted.

**Table 1: Number of school site visits, by level**

Level	St. Croix	St. Thomas	Total
<b>Elementary</b>	5	6	11
%	71%	66%	68%
<b>Middle</b>	2	1	3
%	28%	11%	18%
<b>High school</b>	0	2	2
%	0%	22%	12%
<b>Total</b>	7	9	16

Because of the national curricular focus on language arts and mathematics, the evaluator requested to target observations on these subjects. Table 2 shows that 50% of the observations took place in Language Arts rooms, and one quarter in mathematics rooms, with other subjects also represented.

**Table 2: Number of school site visits, by level**

Subject	St. Croix	St. Thomas	Total
<b>Language Arts</b>	3	5	8
%	42%	55%	50%
<b>Mathematics</b>	3	1	4
%	42%	11%	25%
<b>Science</b>	0	2	2
%	0%	22%	13%
<b>Music</b>	1	0	1
%	14%	0%	6%
<b>Business</b>	0	1	1
%	0%	11%	6%
<b>Total</b>	7	9	16

Table 3 shows that, on average, class sizes averaged 17-18 students at schools in both districts. Observations in St. Croix schools averaged 28 minutes, and were slightly longer in St. Thomas schools because the observation schedule on St. Croix was tighter, with four observations on both days. For every observation, the evaluator remained in the classroom long enough to see technology-based activities mature, including time enough for teachers to model and students to use technology if the lesson provided such opportunities. The shortest observation was 21.5 minutes, and the longest was 44 minutes, with the overall average (mean) being 32.5 minutes.

**Table 3: Class size and duration of observations (mean and standard deviations)**

District	Mean (students)	SD	Mean (duration)	SD
<b>St. Croix</b>	17.29	6.68	28.05	3.20
<b>St. Thomas</b>	17.89	6.11	35.96	7.38

## Technology use and integration

In general, classrooms observed on St. Croix were characterized more by teacher technology use, while the converse was true at schools in the St. Thomas/St. John district. Table 4 presents these results, showing the mean percentage of class time when technology was used by teachers and students. Tests of difference (t-tests) show that there are significant differences in teacher technology use and student technology use across the two districts, with St. Thomas/St. John schools more likely to put technology into students' hands. Teacher and student technology was significantly and negatively correlated as well (Pearson's  $\rho = -0.60$ ,  $p < 0.015$ ), suggesting that the more teachers used technology, the less likely it was that students would have the chance to use technology.

**Table 4: Technology use, by district**

Variable	Mean (St. Thomas)	SD	Mean (St. Croix)	SD	Mean (Combined)	SD
Teacher use	0.44	0.35	0.94	0.06	0.66	0.36
Student use	0.66	0.34	0.35	0.37	0.53	0.38

Table 5 presents student to computing device ratios, or technology "density." Lower numbers represent more devices per student, with a density of one equal to a one-to-one environment, where each student uses a computing device. Table 5 shows that for St. Thomas schools, this ratio was almost half what it was in St. Croix schools, so that St. Thomas students were more likely to get to use devices themselves, rather than sharing them in large groups.

**Table 5: Technology density, by district**

District	Students per device	SD
St. Croix	7.21	6.62
St. Thomas	4.07	6.39
Combined	5.46	6.47

Table 6 shows the percentage of classrooms in which different technologies were used. Computers (including desktop and laptop stations) were the most commonly used technology tools, with interactive white boards also used frequently, especially on St. Croix. Many of the classrooms on St. Croix showcased teacher use of the Promethean board, whereas on St. Thomas, teacher use of the interactive white board was always accompanied by student use, where teachers invited students up to use the board.

**Table 6: Percentage of classrooms using technology tools**

Technology tool	Combined (16)		St. Thomas (9)		St. Croix (7)	
	Teacher	Student	Teacher	Student	Teacher	Student
Hardware						
Computer	75%	38%	78%	44%	71%	29%
Interactive white board	63%	38%	44%	44%	86%	29%
Presentation system	56%	6%	67%	0%	43%	14%
Handheld	31%	31%	22%	56%	43%	0%
Calculator	0%	13%	0%	22%	0%	0%
Response system	0%	6%	0%	0%	0%	14%
Digital camera	0%	0%	0%	0%	0%	0%
Digital sensor	0%	0%	0%	0%	0%	0%
Interactive video conference	0%	0%	0%	0%	0%	0%
Other hardware 1	0%	0%	0%	0%	0%	0%
Other hardware 2	0%	0%	0%	0%	0%	0%

<b>Software</b>						
Web browser	31%	44%	22%	56%	43%	29%
Learning management system	13%	0%	11%	0%	14%	0%
Text editor	6%	19%	0%	33%	14%	0%
Simulation/visualization	6%	6%	11%	11%	0%	0%
Drill/test	0%	13%	0%	11%	0%	14%
Graphics	0%	6%	0%	11%	0%	0%
Outline/concept map	0%	6%	0%	11%	0%	0%
Data analysis	0%	0%	0%	0%	0%	0%
Email/chat	0%	0%	0%	0%	0%	0%
Multimedia editor	0%	0%	0%	0%	0%	0%
Other software	0%	0%	0%	0%	0%	0%

Note: Percent values in cells represent percent of schools using given technology tools and applications.

In conducting classroom observations, ISTE R&E rates the usefulness of technology on an ordinal scale where technology could be “less useful than alternatives,” “as useful as alternatives,” “more useful than alternatives,” or “essential” to the lesson. Examples of “as useful” technology use include looking at a reading selection online, using an interactive white board as a basic presentation system, or accessing a digital picture. “Useful” applications of technology in classrooms pose distinct advantages for learners to understand material in deeper ways, create original products, and build information fluency and problem solving skills – examples might include offering students the ability to examine multiple sources easily or digitally manipulate images or find videos to create an interactive presentation. Table 7 shows that teachers and students in all classrooms used technology in ways that were at least as useful as alternatives. Teachers on St. Thomas were more likely to take advantage of the unique capabilities of technology in order to improve instruction.

**Table 7: Need for technology ratings, by district**

<b>Need for technology</b>	<b>St. Croix</b>	<b>St. Thomas</b>	<b>Total</b>
<b>Somewhat useful</b>	4	3	7
<b>%</b>	57%	33%	43%
<b>Useful</b>	3	6	9
<b>%</b>	42%	66%	56%
<b>Total</b>	7	9	16

ISTE R&E measures **student engagement** by noting students that are off-task for more than three minutes during a class. Students that are disruptive but addressing course material are not considered disengaged, while students doing unrelated things (such as reading a book from home or with a head down on a desk) are. In St. Thomas/St. John schools, an average of 93% of students were engaged during the duration of the observation, compared to 85% in St. Croix schools. A t-test showed that this difference is significant. Further, because the St. Thomas observations were longer (on average), those students had more chances to become unengaged, but still maintained attention to the classroom activities more so than did their St. Croix peers.

Table 8 presents correlations between student engagement and four technology variables: the need for technology, student-device ratio, student technology use time, and teacher technology use time. **The most important finding in the table is that when technology is useful and truly enhances the educational experience (rather than just being a substitute for a traditional method), students are more engaged.** The high correlation value (i.e. Pearson’s rho) and significance level shows this. Although not significant, student technology use was also positively related to engagement, while teacher technology use was negatively related. There was no relationship between the ratio of technology devices to students to student engagement. *Regression analysis confirmed that technology that takes advantage*

of unique properties of digital tools, more so than any other variable, predicted student engagement in classroom.

**Table 8: Correlation values between student engagement and technology variables**

Variable	Pearson's rho	Significance
Need for technology	0.81	0.00
Student-device density	-0.19	0.47
Student technology use	0.4	0.07
Teacher technology use	-0.37	0.15

## Classroom activities and teacher roles

Along with differences in technology use, teachers in schools across the two districts created different learning experiences for their students by taking on different roles, working with students in different groupings, and facilitating different classroom activities. Table 9 shows that St. Thomas teachers mostly spent their time in a facilitative or coaching role, supporting students in more independent learning activities. St. Croix teachers spent 78% of their class time either lecturing or in interactive direction, whereby teachers led students through questions to assimilate content. Generally, St. Croix classrooms were very teacher-centered, where the teacher was the keeper of knowledge that needed to be transmitted to students, whereas St. Thomas schools were more student-centered, where teachers supported students in their inquiry.

**Table 9: Percentage of class time for various teacher roles**

Teacher role	St. Thomas (9)	SD	St. Croix (7)	SD	Combined (16)	SD
Facilitate or coaching	0.59	0.34	0.12	0.23	0.38	0.38
Interactive direction	0.19	0.22	0.54	0.41	0.34	0.35
Lecturing	0.17	0.17	0.24	0.31	0.20	0.23
Moderate discussion	0.02	0.06	0.00	0.00	0.01	0.05
Modeling by teacher	0.00	0.00	0.00	0.00	0.00	0.00
Other role - teacher	0.01	0.02	0.00	0.00	0.00	0.01

Note: For some class time, no teacher role is recorded, such as the beginning of class and announcements are occurring. As such, not all (mean) columns may sum to 1.0. These categories are not mutually exclusive, since a teacher may break the class up into small groups and work in different roles with the different groups almost simultaneously.

Lecturing and interactive direction frequently occur with students arranged as a whole class, while facilitation often involves students working in small groups or individually. Table 10 shows the predominance of whole class instruction for St. Croix teachers, and the more varied groupings observed in St. Thomas/St. John schools.

**Table 10: Percentage of class time in various groupings**

Groupings	St. Thomas (9)	SD	St. Croix (7)	SD	Combined (16)	SD
Whole class	0.44	0.33	0.75	0.34	0.58	0.36
Small groups or pairs	0.29	0.36	0.11	0.25	0.21	0.32
Individual	0.26	0.35	0.13	0.24	0.2	0.3

Note: For some class time, no teacher role is recorded, such as the beginning of class and announcements are occurring. As such, not all (mean) columns may sum to 1.0. These categories are mutually exclusive.

The whole class and lecturing/interactive direction environment of St. Croix classrooms was accompanied by students receiving presentations and drill and practice activities characteristic of teacher-centered

classrooms. Although those activities were also observed 50% of the time in St. Thomas/St. John classrooms, these schools also featured many other activities, including opportunities for students to conduct research (the most common activity), create presentations, write, discuss, and practice hands-on technology skills, such as learning new technologies (Table 11).

**Table 11: Percentage of class time for various activities**

Activity	St. Thomas (9)	SD	St. Croix (7)	SD	Combined (16)	SD
Receive presentation	0.31	0.22	0.61	0.32	0.44	0.3
Drill and practice	0.21	0.35	0.43	0.34	0.31	0.36
Conduct research	0.34	0.43	0	0	0.19	0.36
Create presentation	0.28	0.4	0	0	0.16	0.33
Hands-on skills	0.13	0.23	0.08	0.14	0.11	0.19
Write	0.14	0.31	0.01	0.03	0.09	0.24
Student discussion	0.08	0.17	0	0	0.04	0.13
Other activity	0	0	0.08	0.21	0.03	0.14
Give presentation	0.03	0.1	0	0	0.02	0.08
Run simulations	0.00	0	0	0	0	0
Information analysis	0.00	0	0	0	0	0
Take test	0	0	0	0	0	0

Note: Classroom activities are not mutually exclusive since some may occur simultaneous with other in a small group or individual student environment. Thus, columns may add to more than 1.0.

Table 12 presents correlations between classroom activities and teacher roles. Significant correlations ( $p < 0.05$ ) are marked with an asterisk. Teacher facilitation was strongly correlated with students conducting research and creating presentations. Often, this took the form of a teacher assisting small groups who were conducting Internet-based research to make a digital presentation. Facilitation was negatively correlated with students receiving presentations, which was (non-significantly but positively) correlated with teachers lecturing and using interactive direction. Teacher moderation was correlated with student discussion. Such patterns are similar to those seen in other classrooms ISTE R&E has visited.

**Table 12: Correlations (Pearson's rho) between activities and teacher roles**

Classroom activities	Lecturing	Interactive direction	Facilitation & coaching	Modeling	Moderate discussion	Other role
Receive presentation	0.325	0.429	-0.788*	.	0.043	0.185
Give presentation	-0.037	-0.015	0.074	.	-0.067	-0.067
Create presentation	-0.243	-0.301	0.684*	.	-0.129	-0.129
Run simulations	.	.	.	.	.	.
Conduct research	-0.339	-0.365	0.835*	.	-0.143	-0.143
Information analysis	.	.	.	.	.	.
Write	-0.225	-0.001	0.441	.	-0.094	0.006
Take test	.	.	.	.	.	.
Drill and practice	0.007	0.142	0.023	.	-0.232	-0.232
Hands-on skills	0.120	-0.240	0.005	.	0.210	-0.152
Student discussion	-0.234	0.153	-0.063	.	0.928*	-0.088
Other activity	-0.231	0.493	-0.272	.	-0.067	-0.067

Note: Cells with no values represent activities and roles that were not observed.

Table 13 examines the correlations between classroom activities and student groupings. Again, the patterns presented here are not unusual. Whole class groupings were commonly used when teachers were presenting information. Students conducting research and creating presentations worked in small groups or, less commonly, alone. Writing was usually an individual activity.

**Table 13: Correlations (Pearson's rho) between activities and student groupings**

Classroom activities	Individual	Small groups	Whole class
Receive presentation	-0.402	-0.548*	0.864*
Give presentation	-0.179	-0.031	0.172
Create presentation	0.329	0.439	-0.662*
Run simulations	.	.	.
Conduct research	0.346	0.502*	-0.726*
Information analysis	.	.	.
Write	0.715*	-0.184	-0.435
Take test	.	.	.
Drill and practice	0.265	-0.295	0.023
Hands-on skills	-0.047	-0.013	0.041
Student discussion	-0.237	0.139	0.116
Other activity	0.411	-0.170	-0.189

Note: Cells with no values represent activities and roles that were not observed.

## Technology standards

VIDE currently uses ISTE's student standards (the NETS-S standards) as their criteria for technology literacy. On average, St. Thomas classrooms exhibited 5.67 NETS-S indicators (SD=1.13), and St. Croix classrooms 2.57 (SD=0.65). This difference was statistically significant, confirming differences in instructional planning and strategies between teachers from the two districts.

03/8-----The ~2.5 NETS-S indicators seen in St. Croix schools are approximately what ISTE R&E would expect to see in classrooms that have experienced no PD in technology integration and the NETS – in other words, what one would expect in a classroom that “uses technology” but has not had much training in instructional integration. The St. Thomas average resembles what ISTE R&E typically sees near the end of one year of integration-focused PD.

Table 14 presents percentages of classrooms observed in which each NETS-S indicator was exhibited. Standards 6a and 5b are often the most common, as successful use of technology qualifies students as addressing those standards. Other standards are more difficult to achieve as they require 21<sup>st</sup> century skills (such as creativity, communication & collaboration, and critical thinking) to be infused into the lesson.

In St. Croix, students often used technology to collaboratively work in drill and practice environments, such as games where students had to answer questions using mobile devices. In St. Thomas, classroom activities were more diverse, although many classrooms required students to obtain information from web resources and use it to create some kind of published work. In four classrooms on St. Thomas, students helped troubleshoot technology problems for the class, suggesting a high level of trust for these teachers in their students' abilities to fix technology problems in ways that are in line with department and district policies.

**Table 14: Percentage of classrooms exhibiting given NETS-S indicators**

NETS-S indicator	St. T. (9)	St. C. (7)	Combined (16)
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<b>6a. Understand and use technology systems.</b>	100%	57%	81%
<b>5b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.</b>	89%	57%	75%
<b>2a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.</b>	44%	57%	50%
<b>3b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.</b>	56%	14%	38%
<b>1b. Create original works as a means of personal or group expression.</b>	33%	14%	25%
<b>6c. Troubleshoot systems and applications.</b>	44%	0%	25%
<b>1c. Use models and simulations to explore complex systems and issues.</b>	11%	29%	19%
<b>2b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats.</b>	33%	0%	19%
<b>2d. Contribute to project teams to produce original works or solve problems.</b>	33%	0%	19%
<b>3c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.</b>	33%	0%	19%
<b>6d. Transfer current knowledge to learning of new technologies.</b>	33%	0%	19%
<b>5a. Advocate and practice safe, legal, and responsible use of information and technology.</b>	22%	0%	13%
<b>1d. Identify trends and forecast possibilities.</b>	0%	14%	6%
<b>2c. Develop cultural understanding and global awareness by engaging with learners of other cultures.</b>	0%	14%	6%
<b>4c. Collect and analyze data to identify solutions and/or make informed decisions.</b>	11%	0%	6%
<b>5d. Exhibit leadership for digital citizenship.</b>	11%	0%	6%
<b>1a. Apply existing knowledge to generate new ideas, products, or processes.</b>	0%	0%	0%
<b>3a. Plan strategies to guide inquiry.</b>	0%	0%	0%
<b>3d. Process data and report results.</b>	0%	0%	0%
<b>4a. Identify and define authentic problems and significant questions for investigation.</b>	0%	0%	0%
<b>4b. Plan and manage activities to develop a solution or complete a project.</b>	0%	0%	0%
<b>4d. Use multiple processes and diverse perspectives to explore alternative solutions.</b>	0%	0%	0%
<b>5c. Demonstrate personal responsibility for lifelong learning.</b>	0%	0%	0%
<b>6b. Select and use applications effectively and productively.</b>	0%	0%	0%

Regression analyses confirmed that student technology use positively and significantly predicts greater numbers of NETS-S indicators, and teacher technology use negatively (and significantly) predicting NETS-S indicators. Need for technology also predicts NETS-S indicators, but only in the absence of an estimate of student technology use. Because the NETS-S indicators focus on student competencies and technology use, it is not surprising that this pattern is confirmed in the VIDE observational data. These same patterns have been found in other ICOT-based classroom observations (Bielefeldt, 2012).

## Principal interviews

During the week of May 6<sup>th</sup>, the evaluator completed site visits at 16 schools, including classroom observations and interviews with principals. A total of 17 schools were visited, but at one, an interview with the principal was not possible, while at a different one, a classroom observation was not possible because students were taking an AP test.

Interviews lasted about 10 to 15 minutes, although some took as long as 30. The semi-structured interviews focused on the four areas identified in the current VIDE technology plan: technology access, technology integration, professional development, and technology literacy. The primary questions for each of these areas are as follows:

### *Technology access*

- How is technology currently used by teachers here? Describe the use of hardware and software.
- What are the most pressing needs around hardware, software, and Internet access?

### *Technology integration*

- What is your vision for technology integration? Assuming you could get your technology needs met, how would the use of technology change learning at this school?
- To what extent is that being accomplished here at this school? And what would your teachers need in order to get there?

### *Professional development*

- What kinds of technology-related professional development have recently been provided to your teachers? What was effective about it, and what was not effective?
- Regarding professional development, what do your teachers need to gain fluency with the technology available, and make their classrooms more 21st century ready?

### *Technology literacy*

- Does your school use any particular set of standards to guide technology literacy? How do such standards affect content instruction?

When pertinent, district comparisons are made. However, differences between districts were much less apparent in principal interviews compared to classroom instruction. Instead, principals differentiated themselves largely by their vision around technology integration and literacy. Principals varied in the extent to which they articulated use of technology standards, emphasized the need for teachers to create more learner-centered environments.

## Technology access

The most commonly discussed issue around technology access was in regards to *old desktop (and laptop) computers* in schools. Nine principals mentioned this explicitly. In many schools, these computers were five to 10 years old; some could not access the Internet or run current applications due to hardware and operating system inadequacies. One principal expressed concern that her school's computers would not run applications for the new PARCC OR SMARTER BALANCED assessments that roll out during the 2013-14 school year along with the Common Core.

Principals reported district limits on their ability to purchase technology each year, as well as the expected overall limits on funds available to the schools, complicating their ability to resolve such problems. Those schools that had computer labs often had them booked with Special Education services (three principals), although one reported keeping the computer lab open after the school day (until 6pm) in order to encourage students to stay on campus, or even for parents to come in to the lab.

The primary request around this issues was to see more up-to-date computers in classrooms, as having computers in classrooms would make integration of technology into academic lessons easier – by forcing students to travel to a computer lab to “use technology,” lesson planning and integration became more

difficult for teachers. For schools interested in replacing classroom desktop stations, a thin client solution may be economically efficient – three principals mentioned this option. Only a few (3) principals mentioned iPad use. While iPads were desired by some schools, principals were more concerned with the need to facilitate experiences where students can research and create on computers, and most principals felt that laptops and desktops were best for this.

As one principal mentioned, if the school cannot go to a 1-to-1 environment, at least they could receive one or two laptop carts. Only one principal reported having unused equipment, emphasizing the need for training on new technologies (Polycom system and Promethean Active Table). One school reported being practically paper-free, utilizing technology for almost all administrative and educational activities.

*Promethean boards* were commonly used – 10 principals mentioned these, and their presence was noted in all classrooms observed. Observations showed that while most teachers used these interactive white boards solely as a presentation system (an alternative as effective as a projector and regular white board), a handful of others used the board as an area for student participatory learning, such as inviting a small group of students to work in a board station for some time on a problem or set of problems publicly.

One teacher mentioned this shortcoming. While only one technical problem with the boards was reported in the St. Thomas district, St. Croix principals and teachers experienced more frustration, particularly with failing equipment rusted out by salty air. One principal suggested that any new hardware be pilot tested for a year or more to ensure its functionality on the island. One other principal mentioned the need for Promethean updates.

Principals reported a gamut of different *software applications* in use, including Achieve 3000, Plato (three schools), PD 360 (for teacher professional development), BrainPOP (two schools), Alex Math, and Reading A to Z. Being the district-approved management system, Powerschool was commonly mentioned too. Other than Powerschool, little consistency with software was reported. Instead, principals reported that teachers had what they wanted when they wanted it, and that there was little consistency. One exception was a school that began mandating PD 360 for technology-related professional development. But by and large, use of software and application is on a teacher-by-teacher basis.

Commonly, principals believed that a sizable minority of their teachers were *afraid of technology* (six mentioned this explicitly and without a specific prompt). Although teachers were becoming more competent with technology-enabled presentations, many are unwilling or reticent to explore Internet resources due to a lack of familiarity or fear of failure.

Principals of two schools (two of the most progressive schools with strong, pro-technology leaders) reported the opposite – that almost all teachers at their school were fairly comfortable with technology.

Reports about *support offered from the school district and VIDE* focused on current needs and satisfaction. Four principals mentioned how Internet access is still inconsistent, with crashes about twice per week, although three other schools mentioned that access substantially improved for 2012-13 school year.

Three principals mentioned that consistent Internet is essential for technology integration, since crashes can be very disruptive to teachers' plans. One school reported inadequate power supply for running all Promethean boards simultaneously. In general, administrators reported that access to Internet resources and permissions were too restrictive: one principal complained she could not download files onto her local machine. Only one school reported students being able to access inappropriate material.

Another argued that acceptable use was more important than web filters for helping students and teachers to use technology to improve instructions. One principal argued that if VIDE continues to pose such extensive restrictions on accessing web content, that the website review/permission process (managed by VIDE) needs to have a quick turnaround – much faster than the several days he had to wait. In general, St. Croix district administrators reported lower satisfaction with district support, especially technology troubleshooting. While principals reported satisfaction with the current help ticket system, response time was too slow, especially on St. Croix.

## Technology integration

In general, principals described one of two visions or cultures around technology integration. While both visions articulated that technology integration was necessary for student engagement, they differed in important ways. In the first, principals emphasized that technology includes tools that students should use in order to become prepared for the worlds of post-secondary education and adult work, including STEM areas. In this vision, it is the school's responsibility to prepare students for the future.

The second vision was more aggressive about the role technology should play, arguing not that schools must prepare students, but that instead, *schools must keep pace with the technology skills students are bringing to campus*, and the need to channel and develop those skills in appropriate, academic ways.

These principals discussed the challenges of helping teachers turn classrooms into student-centered learning environments where students use technology to explore information sources, collaborate with each other, and create and deliver their solutions to authentic problems that focus on core content areas. Two of these principals commented on how even though their teachers were using technology, student use was much rarer, the vision is still fairly teacher-centered, and that movement away from that model is slow. Another principal acknowledged that, for teachers to get to a place where they feel comfortable letting students drive the class, they need to become more comfortable with technology, but that it is difficult to find that time.

To that end, one school advocated offering stipends for after-school virtual professional development. Two other schools have included technology use as part of the teacher evaluation system – a third suggested doing it. One principal also discussed the role that technology should be playing to connect learners, including the students at her school, as well as their parents, and students across the world.

Given the geographic and cultural isolation (and generally low educational achievement of parents of VIDE students), the role that technology can play to extend the school day and students' world of inquiry is especially important. As one principal said: "We need these kids to realize – you're not competing even just against the mainland, you're competing against the world. It would be good for them to interact with kids in Russia, or China. They need to see that this is a tiny little island."

Three upper level schools also stressed the need for supporting *strong acceptable use policies*, and fostering communication that supports those – one principal maintained that such a culture should be in place prior to any allowable use of student personal devices (e.g. mobile phones) on school grounds. No principals reported allowing personal mobile devices on campus.

Both visions come with *needs for support* in technology integration. Five principals specifically expressed a desire for a technology coach or integration specialist that would offer teachers in-class support around infusing technology into core curriculum, finding and using web resources, and how to facilitate a class where student explore with greater autonomy. Even a computer teacher (with time devoted to in-class support) or tech-savvy librarian could accomplish this. But at least three principals reported having a similar position cut in recent times, with no other way to offer the personalized support many teachers need to bring their technology skills up to 21<sup>st</sup> century standards. While centralized training can be helpful, there will still be a strong need for on-site assistance.

## Professional development

Principals reported a *range of PD experiences* for themselves and their teachers. Two principals from St. Thomas schools reported that the district facilitated some on-site trainings for Promethean boards and iPads. Otherwise, no specific district trainings were mentioned. One St. Croix principal mentioned that his school conducted some in-house trainings on basic functionality like email and Powerschool. No schools reported systematic use of online PD, such as PD 360, although principals generally agreed that online PD would be useful because of the geographic isolation of some schools, and the convenience of being able to complete PD from one's classroom or home.

Principals expressed frustration at the lack of consistent PD for their staff. They believed that teachers must receive PD on technology – including both small group training sessions, on-site classroom integration assistance, and virtual follow up and mentoring – if they are going to be expected to use technology tools.

To expect teachers to use technology without on-site PD was considered unrealistic, and three teachers explicitly stated that, by extension, trainings should be mandatory. Job-embedded training in the classroom was considered very important (three principals) but currently lacking (especially without dedicated school technology coaches), and one principal suggested that reflective practice, including peer observation and debrief, would also help teachers with classroom integration, going above and beyond basic fluency with tools. Frustrated by the lack of teachers' progress, one principal mandated completion of online PD modules for her teachers, but reported satisfaction with both the increased fluency and collective team spirit in support of technology her teachers exhibited after just one year.

Despite the strong need for PD, finding time for training is difficult. Only two schools visited scheduled weekly PD time. Otherwise, principals reported that on-site PD could occur during prep periods – that is allowable under the teachers' collective bargaining agreement. One problem with that is that prep periods are only 45 minutes long, limiting the amount of instruction and practice that could be accomplished in that window. Fortunately, schools generally have common prep periods for teachers in common content areas, making small group trainings for domain teams (e.g. language arts, science, etc.) easy to schedule.

One way of working with this arrangement would be to utilize a lesson study model of PD (Chokshi & Fernandez, 2004; Rock & Wilson, 2005). One trainer could meet with rotating teams of teachers during a week, focusing on skill building initially (such as using a Promethean board for class discussion rather than teacher presentation), then later, lesson planning, classroom practice, and collective debrief around the experience.

This format could give teachers the hands-on skills, lesson planning skills and plans, and opportunities to build local communities of practice around technology integration. This model could also be accomplished with a centralized (e.g. district) staff person who visits sites, one week at a time, throughout the year. Although PD on basic functionality (like email and Powerschool) may still be needed, teachers need PD on lesson planning and classroom integration if classrooms are to become more student-centered and in-line with the NETS.

Three principals explicitly mentioned the benefits of online PD, including both the ability to self-pace, as well as the flexibility of being able to complete PD from anywhere with an Internet connection. Two teachers observed stood out as exceptional in terms of technology integration, one's students exhibiting nine NETS-S indicators, and the other exhibiting 11. In ISTE's experience, 11 NETS-S indicators is the upper limit of what we typically see in any classroom during a class period. In this case, small groups of students were using desktop stations to access information about animals to make presentations; students help each other with the software (rather than asking the teacher); students help each other with spelling and citing information sources; and one student was even learning to use new software. When asked how she came up with this activity for her fourth grade students, the teacher said that ISTE's NETS Leadership Academy helped her learn how students can "run the class" rather her having to show students how to do things. The flexibility of this (or similar) virtual, self-paced PD may be another option for schools. Whatever districts decide, principals unanimously agreed that PD must be systematic for all teachers, no ad hoc and sporadic.

## **Technology literacy**

Awareness and use of technology literacy standards was, in general, very low for principals. Although VIDE has officially adopted ISTE's NETS standards for students, teachers, and administrators, only five principals mentioned them when asked specifically about technology literacy standards. In only one of these schools were the NETS central to curriculum planning and/or teacher observation and coaching. Even fairly progressive principals were unaware of "consistent" standards used in the schools, suggesting a lack of communication by VIDE and school districts to help align technology practice in schools with the

adopted standards. Although generally unaware of the NETS, principals did mention that technology standards should include administrators, teachers, and students (one principal), and that they must be prominent in curriculum planning and PD for teachers (one principal), as well as school visions (one principal).

When asked about features for technology standards, three principals explicitly mentioned the need for awareness around global digital citizenship, or the ability of students on the islands to be able to connect with learners around the world, and that such experiences will help students develop global awareness and prepare them to compete internationally, which is very important since to work in a professional job, many VIDE graduates must leave the islands. As one principal put it, VIDE technology literacy standards must be “on par with the global economy” so that students are not shortchanged, but are pushed to be every bit as competent as their peers around the world. To facilitate such development (i.e. making technology standards more prominent), one principal recommended opening up Internet access for teachers, and also even students. Another stressed that basic computing and keyboarding are still foundational skills.

## District and Department interviews

The evaluator conducted four interviews with district and Department staff to assess current status of and needs regarding technology access, technology integration, professional development, and technology literacy standards. Group interviews with VIDE IT staff and also the St. Thomas/St. John district IT staff occurred during the week of site visits, and interviews with the St. Croix district and VIDE C&I were completed a week later over the phone. While these different stakeholder groups did not explicitly disagree on any matters, they did emphasize different needs, largely based on the areas of support each offered to schools. These semi-structured interviews lasted about one hour each. The questions differed depending on the stakeholder group, although all revolved around the four main areas of the technology plan.

### Technology access

Districts agreed that aging equipment – especially desktop computers – are a problem, and that a thin client solution would be efficient both economically, and in terms of support. Replacing desktop stations will be increasingly important as VIDE rolls in the Common Core and the PARCC OR SMARTER BALANCED assessments, which are entirely computer-delivered, as older machines and labs may not be able to run the assessment application.

A thin client solution would be less expensive per student station, and would enable streamlined operating system maintenance by a technology staff person at the server station, rather than requiring individual station service. Particularly since principals reported less tech integration staff and funding in recent years, centralized operating system maintenance could provide better and more consistent functionality to schools using thin client stations. Thin client would also discourage school staff (including teachers) from activating donated computers that may not be certified by the district and Department, as such machines can cause configuration errors and support problems.

Technical support to schools comes from either VIDE or the school district, depending on the problem. While VIDE is responsible for support associated with network availability and services (such as email and electronic management systems), districts are responsible for machine functionality. In other words, VIDE deals with the Ethernet jack and what is outside of the walls, and districts are responsible for everything from the jack inside the school, including software, hardware, applications, and updates. VIDE is also responsible for the Help Desk ticketing system, sending tech support requests on to a district when appropriate. Many principals reported long wait times for tech support, and that problems were never resolved.

Such complaints were more common on St. Croix than on St. Thomas, although VIDE reported that St. Croix used the Help Desk system more effectively, and that they were still struggling to get St. Thomas on board. Because IT support is housed at both VIDE and the districts, communication around tech support requests has been choppy, leading to confusion and lack of clear accountability. Because most of the support requests are district-related (such as tech support for classroom machines), VIDE is not aware of the status of a bulk of the requests. Districts need to improve response time in fixing tickets, and consistent use of the Help Desk system (e.g. closing fixed tickets and only using this system for support requests).

Communication around technology integration and trainings also needs improvement. The Department reported difficulties associated with understanding outcomes of trainings (such as extent of integration), including follow up with administrators and teachers. There were also complaints about a lack of clarity around responsibility for support requests, and which agency should fix certain problems. With the separation between district and Department IT services, better communication is imperative to improve service. Another solution would be consolidating IT services under a centralized agency that would provide all support, including both network availability and tools as well as classroom hardware and software support, to all schools.

To help reduce tech support requests and confusion around protocol, VIDE and districts could mandate use of official VIDE email addresses for all school communications, and to make the VIDE website the default web page for all machines. VIDE reported that many problems, including the common password reset issue, could be solved if teachers and administrators used VIDE systems regularly. Current filters (such as blocking Youtube for students) was seen as useful, although improving teacher permissions and access was recommended by one stakeholder group. Additionally, the St. Croix district mentioned the availability of resources such as curriculum pacing guides and electronic lesson planning systems. However, use of the resources has been minimal due to ineffective training and implementation.

## **Technology integration**

The mission around technology integration was consistent for district and Department staff: to help teachers and students use technology to learn in student-centered, 21<sup>st</sup> century classrooms. All agencies interviewed agreed that it was not the technology that was central to this vision, but instead, the need for project-based, student-centered instruction that required students to build both academic competencies as well as 21<sup>st</sup> century skills. In essence, technology integration must fundamentally change instruction.

One district explicitly mentioned the need for technology standards (the NETS, in VIDE's case) to guide the direction for technology integration and related PD. One group lamented that many teachers still believe that tech integration means using an interactive white board and a computer. Instead, teachers need to be able to use the Internet to find instructional resources, put technology into students' hands, and even let students "run the class." Agencies also agreed that, since technology integration and instructional goals were primarily district responsibilities, progressive superintendents and principals were critical to making integration a reality.

Agencies agreed that on-site coaching assistance is an important piece of effective technology integration, but also that funding those positions is difficult, especially at the school level. One district mentioned the need to integrate technology into subject areas through district curriculum coordinators, thus emphasizing the need for inter-departmental collaboration that trickles down to affect school staff. But getting school staff to adopt new applications is not easy – one technology support staff discussed difficulties getting teachers to use the password reset and help desk ticketing system. Districts have done some piloting with new technologies, but report that improvements in integration have stagnated, and that there is no consistent way to evaluate classroom integration. Thus, districts might consider including technology integration as one piece of teacher evaluation systems.

## **Professional development**

District and Department leaders agreed that adequate training is necessary for any new technologies, and that school leaders must support efforts for integration to succeed. Principals must understand what integration is by being competent (themselves) with new technologies, and by using technology standards with their teachers that describes a path beyond simple technology use, but to instructional change. One district suggested including technology standards in teacher evaluation. Another agency argued that if PD is not mandatory, teachers will not do it.

To be effective leaders, principals need to adopt a more progressive view on technology integration. Despite this push, both the Department and districts lamented about the limited time allotted to PD in the districts. While PD can be delivered during school-based PLC hours, many schools do not have PLCs set up, and those periods are often less than an hour long. Given such limitations, one suggestion to this effect mirrors that from the principal interviews: for districts to work with schools over one week during teachers' (common) prep periods to work on technology integration. Such training could include hands-on components, as well as lesson planning and delivery, and reflection.

In general, Department training efforts have not been well attended, and without reliable attendance, there have been "pockets of improvement," but no systematic gains. St. Croix delivered a major training late last August, but a lack of follow up and job-embedded training limited its effectiveness for motivating



integration. Additionally, train-the-trainer models have been ineffective due to the same problems: minimal attendance (only a select few teachers) and lack of follow-up and classroom support. Some integration efforts (including potential future ones) are grant-driven and do not include all teachers. Without mandatory, district-wide trainings that include hands-on skill building, job embedded lesson integration, and follow-up support, systematic improvement is unlikely. One leader also remarked that seeing a “model 21<sup>st</sup> century classroom or school” would help teachers and principals understand what real integration entails.

Both the Department and a district explicitly agreed that such multi-method training would be more successful than prior ones. But, evidence does not suggest this shift is occurring.

Instead, future planned PD does not target all teachers, and some is voluntary and uses a train-the-trainer model, even though the trainers are not compensated to be school technology coaches. Although there are many district resources about technology integration available to teachers, teachers are generally unaware of the resources and would need support learning how to find, access, and use them. Mandatory use of VIDE email and other services (such as a default VIDE home page) could also better support a culture where educators understand the services available to them, and how those services can support improved instruction.

## **Technology literacy standards**

Although both the Department and districts explained that while the NETS frame technology integration from their perspective, there was little buy-in among educators, including principals. The lack of dialogue between principals, district, and VIDE leaders in training situations inhibits utilization of technology standards. Without systematic use of such standards, a lack of classroom integration is unsurprising, as is the belief (held among many teachers) that technology integration involves using available technology, rather than a fundamental change in instructional practice. To this point, one district emphasized the need for principal buy-in, further supporting the idea that without systematic PD that uses technology literacy standards as a pillar, district-wide change in instruction is unlikely.

## Conclusions and recommendations

Technology access was similar in classrooms across the two districts: all classrooms were equipped with interactive Promethean boards, and most featured three or four desktop workstations capable of seating a small group of students. Some schools had iPads (docked on carts) available to them as well. Most schools reported that Internet connections had improved during the past year, and that it was relatively stable, although worst cases were that the Internet was down up to twice per week. Schools on St. Croix also reported problems with rust from the ocean breeze which carried salt up into the schools and, thus, their technology tools.

Although help tickets had been filed, many teachers in need of replacement components for the Promethean boards were still waiting after several months. St. Thomas did not report functionality problems with boards. Almost all schools reported that classroom desktops were aging and, at times, incapable of running current applications due to inadequate components (such as RAM) or antiquated versions of Windows.

Although technology access was fairly similar across districts (with the exception of the Promethean componentry issue), technology integration looked quite different across schools. In general, schools in St. Thomas utilized technology in ways that was more essential, featured more NETS-S standards, and was more engaging for students.

While St. Croix students predominately received presentations (from the teacher's Promethean board) and participated in drill and practice exercises (oftentimes with a mobile computer), the environment was still primarily teacher-centered, focused on the transmission of knowledge from teacher to student. In contrast, students in St. Thomas district schools were more likely to conduct research and create artifacts (oftentimes presentations) using computers to access information.

In many ways, the conclusions and recommendations for VIDE mirror those encountered with other school districts engaged in enrichment of lessons through the use of technology. Specific findings and recommendations for VIDE based on classroom observations include:

- *Teacher technology use was negatively correlated with student technology use.* When teachers used technology more, it was less likely students would get to use technology. This does not imply that, to help students use technology more, teachers should stop using it. Instead, it suggests that in using technology themselves, teachers are not adequately changing the classroom experience for their students, and that in addition to building their own technology skills, teachers need to design lesson plans that offer students the chance to use technology, ideally in ways that align with the NETS-S standards.
- *Student engagement is related most closely to technology uses that take unique advantage of digital tools.* Student technology use is positively related to engagement, teacher use is negatively related, and student-device density (ratio) is unrelated to student engagement. These results suggest that more technology will not necessarily increase student engagement, and more technology use by the teacher alone will decrease student engagement. VIDE needs to make sure that PD helps teachers put technology into students' hands, and most importantly, design lessons where technology enhances the learning experience to a new level of inquiry and exploration, rather than simply providing digital substitutes for traditional direct instruction and drill and practice exercises. Teachers should not replace old activities with technology-based equivalents, but instead, change the way they plan and teach lessons to offer students the chance to use technology to explore, think, and create in ways that are not possible without it.
- St. Croix classrooms were characterized almost exclusively by students receiving presentations and doing drill and practice content review activities, with teachers lecturing or leading the whole class in interactive direction. In contrast, St. Thomas classrooms exhibited more diverse learning activities with a focus on student research and creation of presentations, and teachers primarily working in a facilitation/coaching role, supporting small group or individual student learning. *Thinking about classroom groupings and teacher roles*

*may help teachers redesign their lessons to be more student-centered: specifically, re-orienting their own role to one of facilitation of independent learning, rather than content dissemination.*

- With higher student technology use and instructional environments that facilitated student exploration and creation, St. Thomas classrooms exhibited a significantly greater number of NETS-S standards (mean=5.67) than those in St. Croix (mean=2.57). Student technology use positively predicted exhibition of NETS-S standards, while teacher technology use was negatively related.
- Student technology is significantly related to more NETS-S in the classroom, while teacher technology significantly predicts fewer NETS-S.
- To align more closely with the vision articulated by VIDE, future instructional PD should focus on helping teachers put technology into students' hands. Lessons should use activities for which technology plays an important or essential role – i.e. for which technology greatly enhances the educational value of the lesson. *Teachers must come to understand that they cannot only add technology into lessons, but instead, re-write lessons so that students must meet NETS-S standards in core content areas, thus turning classrooms into student-centered environments, rather than content assimilation zones.* The NETS-S standards provide a good framework for the re-thinking of curriculum that this requires, while interactive white boards can encourage teachers to maintain teacher-centered environments.

Interviews with principals provided information on both school needs and vision around technology integration. Generally, principals fell into one of two camps. Some believed that it was the school's job to prepare students for the world of post-secondary education and (especially) work by making sure teachers were using technology in their teaching. This often took the form of teachers using Promethean boards, and students completing assignments using computers. In contrast, other principals argued that students come to school with technology skills and the ability to learn quickly, and that schools must keep up with them.

These administrators emphasized a transformation away from teacher-centered instructional environments to those where students had more autonomy in a process of discovery and creation, and that technology provided a set of tools that make such student-centered classrooms possible. Technology literacy standards associated with 21<sup>st</sup> century skills played a more prominent role for principals in this latter category, helping to frame what their schools should look like today. These findings suggest recommendations that focus on both the schools and principals:

- VIDE needs to work with school districts to emphasize a set of technology literacy standards. Few principals said that their school uses such standards to guide technology literacy or integration. Such standards should go beyond simple technology fluency, such as knowing how to use an interactive white board or a grade management system. Instead, they should help teachers understand how to change their classrooms from teacher-centered environments, to places where students use technology to explore, collect and process information, solve problems and answer authentic questions, and share their ideas and solutions. Such standards would help principals have a consistent vision for schools across the districts, and offer concrete ideas for teachers around technology integration. Digital citizenship was also discussed as important for VIDE students, especially due to the geographic and cultural isolation of the islands, and the relatively low educational background of many students. In this sense, using technology to access the world is both economically efficient, and pedagogically essential.
- Desktop stations in both districts are very old. With online PARCC OR SMARTER BALANCED assessments coming next year along with the Common Core standards, many schools will be forced to re-evaluate the sufficiency of their computer labs to handle testing. Thin client solutions may be efficient for both computer lab and classroom stations: they cost less than individual desktop computers, and can be centrally updated. Configuring individual machines is difficult in the schools in large part due to the relatively low operating system knowledge of many teachers.

- Promethean boards on St. Croix are experiencing many problems, probably due to ocean breezes with high salt contents. Before purchasing replacements, schools should pilot test new equipment to assess environmental resiliency. In the meantime, replacement parts for the boards can be obtained from the company at no cost.
- Wait time for technology help tickets is high on St. Croix: one teacher reported that his Promethean board had been inoperable for over a full year. Less problems were reported on St. Thomas. VIDE might work with the districts to streamline the support system to ensure better service, especially on St. Croix.
- Internet access has improved substantially, especially on St. Thomas, in the past year. However, some schools still report disabled service up to two or three times per week. Principals emphasized that, for technology integration to happen regularly in classrooms, Internet access must be highly reliable, as teachers must be able to depend on regular access.
- For PD to be effective, principals argued that it has to be mandatory, consistent, and include centralized hands-on training, follow-up support (such as virtual help desk or mentoring), and on-site components that emphasize integration. Few schools reported having a technology teacher, and even fewer a technology coach or equivalent staff person who could assist teachers in the classroom. Given the need for multi-method PD and budget limitations, one option would be for districts to send technology coaches to sites for a full week, utilizing prep times (which are shared by teachers in the same content domain) to deliver hands-on skill building, then work with teachers to plan lessons and facilitate reflective practice about their experience. This method is similar to the Japanese lesson study model which emphasizes planning, implementation, and reflective practice, areas in which VIDE teachers have not generally been successful with technology. Virtual/online offerings are another good option, since prep periods are often the only time available in schools for PD. To be effective at changing instruction, such offerings should target technology integration and standards-based lesson planning, and not just how to use technology devices. Finally, the district should also consider offering systemic PD on basic operating system maintenance, including how to respond to requests to update computers and other basic troubleshooting.

Interviews with IT and C&I staff from both school districts and VIDE explored the four evaluation areas from leadership perspectives. In general, these leaders articulated a common vision for educational technology integration – the notion that students and teachers must use technology to transform classrooms into student-centered, project-based learning environments where students can “run” the classrooms while teachers support their inquiry. But implementing this vision has been difficult.

- Lack of communication around support requests and efforts make it difficult to accurately assess technology access and integration in schools, especially for the Department. Greater clarity around which support requests are handled by which agency is needed, as is greater accountability for districts in resolving support requests in a timely manner. Use of the Help Desk system (including closing tickets that are solved) is necessary for communication and coordination to be successful.
- Desktop stations are old in many schools, and with the roll-in of online PARCC OR SMARTER BALANCED assessments, affordable replacement solutions are more important than ever. Given the limits around both budget and technical support and troubleshooting, a thin client solution would be an efficient strategy for schools looking to update desktop stations in computer labs and classrooms.
- For school personnel, clear policy around mandatory use of VIDE email addresses for work correspondence (and possibly use of <http://www.vide.vi/> as the default browser home page) could reduce support requests, such as help with password resets. By habitually using sanctioned VIDE resources (e.g. VIDE email address rather than a personal one), teachers will practice basic technology integration and better understand the resources available to them through the Department and their district. Use of approved technologies, including software and applications, needs to become regular habit for school personnel.

- PD has generally been sporadic and voluntary, and utilizes a train-the-trainer model with little to no follow-up support. These features make it such that uptake and classroom implementation have been minimal in schools. For systematic classroom integration to occur, PD should be mandatory, and include hands-on skills building, job-embedded training, and follow up support including mentoring by a technology coach and additional online PD. PD should include teachers and support staff, as well as principals, whom are seen as key to the on-the-ground work of implementation at local schools. Teacher evaluation may also include elements associated with technology integration to further highlight its importance.
- Due to school schedules and stipulations in employment contracts, the only time teachers have for mandatory PD is a prep period during the school day. Fortunately, VIDE teachers share prep periods with others in their content area. Thus, on-site training opportunities could utilize those prep periods to deliver hands-on skills training, lesson planning, and reflection with a group of teachers from the same content group. Given the funding limitations most schools face but also the need for on-site, job-embedded PD, districts should consider employing technology integration specialists that could spend consecutive days at a site working with teachers around different components (e.g. lesson planning). Use of a virtual community (such as a Ning) could also facilitate follow up support, including sharing lesson plans, resources, and troubleshooting tips.
- Technology literacy standards need to be a pillar of technology integration PD. Although the Department and districts recognize this and the idea that integration means a fundamental change in instruction (and not just teachers using technology), the notion that the Department has adopted a set of standards that describe this vision is not widely recognized. These leaders lamented that, in general, principals and teachers either did not reference such standards in technology integration planning, or that they were unaware of them. A focus on such standards in PD could help educators better understand the vision of the Department, as well as what integration means for the classroom.

Future PD needs to include both teachers and administrators. Instructional PD should focus on helping teachers create and re-write lesson plans so that students use technology in ways that meet the NETS standards. This recommendation is not that direct instruction should be entirely abandoned, but instead, that teachers must come to see “technology” as a means for students to find and collect, process, synthesize, present, and even create information and ideas. While St. Thomas teachers were more effective at doing this than those on St. Croix, almost half of the classrooms observed (four of nine) exhibited three or fewer NETS-S standards, so this emphasis on 21<sup>st</sup> century skills in classrooms is not yet widespread.

Few of the principals explicitly mentioned the NETS-S standards in interviews, despite the fact that they were asked, “Do your teachers currently use a set of technology literacy standards to guide their teaching here at this school?” While many principals mentioned that they wanted to see teachers make their classrooms more student-centered, they did not advocate for the NETS-S or another set of standards as a roadmap to guide that way. As such, the NETS (including those for administrators and teachers) may be very useful frameworks that could support instructional improvement in the classroom, as well as the need for a common administrative sense of visionary leadership to guide schools on the journey to be 21<sup>st</sup> century ready.

### 3. Goals and Strategic Direction

#### Goals

In overall support of the VIDE's mission and vision for technology and in order to address the priority needs of VI schools, as identified in the previous chapter, the VIDE has established the following goals and strategic direction:

**Goal #1:**        **Instructional Technology Goal #1: Critical Thinking And Technology Integration**  
Improve student critical thinking in all content areas through the use of technology.

The guiding document for defining our work in Goal #1 is the ISTE NETS-S, T, and A standards (see Appendix). Particularly in the case of NETS-S, the thrust of the standards is to emphasize the student acquisition of 21<sup>st</sup> Century learning skills within a student-centered curriculum.

**Strategic Direction:** For teachers and administrators to integrate technology into instruction in a student-centered manner toward the achievement of the NETS-S Standards, 3, 4 and 6 — Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

**Goal #2:**        **Instructional Technology Goal #2: Teacher as Models of Digital Age Work and Learning**

For teachers to exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.

The guiding document for defining our work in Goal #2 is the ISTE NETS-S, Standard 3.

**Strategic Direction:** For teachers to serve as models of technology use for collaborating, communicating, and using digital tools effectively.

**Goal #3:**        **Instructional Technology Goal #3: Administrators as Leaders of Excellence in Professional Practice**

For administrators to promote an environment of professional learning and innovation that empowers teachers to enhance student learning through the use of technologies and digital resources.

The guiding document for defining our work in Goal #3 is the ISTE NETS-A, Standard 3.

**Strategic Direction:** For administrators to provide leadership in the technology integration.

**Goal #4:**        **Professional Development for supporting a shift towards 21<sup>st</sup> Century project-based student-centered learning**

Provide school personnel (administrators, teachers etc) with sustained professional development in the use of technology to facilitate 21<sup>st</sup> century project-based student-centered learning.

**Strategic Direction:** VI teachers must be provided with professional development related to reconceptualizing their pedagogical approaches and rethinking the role of 21st century learning skills within the curriculum. Technology integration could be promoted and improved through using consultants, coaches, territory and district and other school personnel onsite, online and in person on a regular basis as support personnel for classroom teachers to better understand how to transition to a role of providing meaningful technology experiences into the core/mainstream/classroom curriculum.

**Goal #5: Infrastructure & Technical Services to Support Student Centered 21<sup>st</sup> Century Digital Age Learning**

For IT professionals to provide reliable centralized network infrastructure and support services that empowers administrators and teachers to use technologies and digital resources that facilitate project-based student-centered 21<sup>st</sup> century learning.

**Strategic Direction:** Establishing, communicating and enforcing standards, policies and procedures for procuring and using technology equipment connected to the shared VIDE state, district and school network and researching, recommending and implementing solutions that increase security, reliability, user-friendliness and access to digital resources from increasing influx of mobile devices, 1-to-1, online assessment and BYOD initiatives.

Centralizing, organizing and leveraging limited technology equipment and human resources and services under one IT Division must be seriously explored as a means of providing seamless efficient services in order to reduce confusion and increase clarity, customer service and user-friendly about how to request and receive timely technical support services to solve technology related problems that impact successful implementation of student centered 21<sup>st</sup> century learning.

# Instructional Technology Action Plans

## Instructional Technology Goal #1: Critical Thinking And Technology Integration

The guiding document for defining our work in Goal #1 is the ISTE NETS-S, T, and A standards (see Appendix). Particularly in the case of NETS-S, the thrust of the standards is to emphasize the student acquisition of 21<sup>st</sup> Century learning skills within a student-centered curriculum.

GOAL: Improve student critical thinking in all content areas through the use of technology.
STRATEGIC DIRECTION: For teachers and administrators to integrate technology into instruction in a student-centered manner toward the achievement of the NETS-S Standards, 3, 4 and 6 — Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Objectives	Indicators	2013-2014 Territory Actions	2014-2015 Territory Actions
<p>Increase student opportunities to collect and analyze data to identify solutions and/or make informed decisions (NETS-S 4c) from 6 % to 35%.</p> <p>Increase student opportunities to identify and define authentic problems and significant questions for investigation (NETS-S 4a) from 0% to 20%</p> <p>Increase student ability to plan and manage activities to develop a solution or completed a project (NETS-S 4b) from 0% to 20%.</p> <p>Increase student use of multiple processes and</p>	<p>Classroom observations</p> <p>Interviews</p> <p>Surveys</p> <p>Scores on 8<sup>th</sup> grade technology literacy assessment</p>	<p>1. VIDE IT and Curriculum and Instruction will enable the VIDE web portal (<a href="http://www.vidе.vi">www.vidе.vi</a>) as the default home page for all schools. The VIDE web portal will provide access to technology as well as curriculum and instruction information, tools, and resources (standards, policies, guides for learning, eHelpdesk, case studies and best practices etc) that facilitate awareness, PD, and essential conditions for teachers and administrators to successfully implement student centered 21<sup>st</sup> century learning.</p> <p>2. VIDE OIT and C&amp;I will provide technical assistance and PD via NETS Leadership Academy online courses that cover 18 weeks and sixty plus hours of online PD to districts to increase student performance on NET-S standard 4.</p> <p>3. VIDE Curriculum and Instruction will collaborate with territory and district staff, outside consultants and local teachers to provide online and face to face job embedded PD that support their use of technology in the delivery of 21<sup>st</sup> century curricula through a variety of instructional methods via a three year territory and freely associated states grant.</p> <p>4. C&amp;I &amp; OIT will facilitate collaboration with UVI and other stakeholders as needed to communicate and include VIDE technology integration standards in teacher preparation programs.</p> <p>5. VIDE C&amp;I, PRE and OIT will work to facilitate annual implementation of 8<sup>th</sup> grade technology literacy assessment (21<sup>st</sup> century competencies) and incorporate the data into one centralized VIDE system.</p> <p>6. Licenses will be provided for all districts and junior and</p>	<p>1. VIDE OIT and Curriculum and Instruction will continue to provide technical support to assist the districts in improving instruction to lead to meeting Standard 4</p> <p>2. OIT will provide technical support needed to assist the districts in leveraging open educational resources (web 2.0 tools, wikis, wireless, devices etc.) to help meet NET-S Standard 4.</p> <p>3. VIDE IT will provide the infrastructure and technology services needed to support educator access to online resources.</p> <p>4. C&amp;I &amp; OIT will facilitate collaboration with UVI and other stakeholders as needed to communicate and include VIDE technology integration standards in teacher preparation programs.</p> <p>5. VIDE C&amp;I, PRE and OIT will work to facilitate annual implementation of 8<sup>th</sup> grade technology literacy assessment and incorporate the data into one centralized VIDE system.</p> <p>6. Licenses will be provided for districts and schools to implement the 8<sup>th</sup> grade technology literacy assessment.</p>



Objectives	Indicators	2013-2014 Territory Actions	2014-2015 Territory Actions
perspectives to explore alternative solutions (NETS-S 4d from 0%-20%.		middle schools to implement the 8 <sup>th</sup> grade 21 <sup>st</sup> century technology literacy assessment.	

### ***Instructional Technology Goal #2: Teacher as Models of Digital Age Work and Learning***

The guiding document for defining our work in Goal #2 is the ISTE NETS-S, Standard 3.

GOAL: For teachers to exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.
STRATEGIC DIRECTION: For teachers to serve as models of technology use for collaborating, communicating, and using digital tools effectively.

Objectives	Indicators	2013-2014 Territory Actions	2014-2015 Territory Actions
For teachers to demonstrate fluency in technology systems and transfer that knowledge to new technologies and situations (NETS-T 3a).	Classroom observations Surveys Interviews (Baseline data needed in 2013-2014 to set measureable goal)	1. VIDE IT and Curriculum and Instruction (C&I) will enable the VIDE web portal ( <a href="http://www.vide.vi">www.vide.vi</a> ) as the default home page for all schools. The VIDE web portal will provide access to technology as well as curriculum and instruction information, tools, and resources and essential conceptions for teachers and administrators successfully implementing student centered 21 <sup>st</sup> century learning.  2. VIDE C & I and OIT will provide technology integration support to the St. Thomas and St. John district and their teachers via a 3-year Territorial and Freely Associated State Education Grant that provides PD through instructional coaches and consultants that provide online, face to face, and onsite support to teachers  3. VIDE C & I will provide technology integration support to the St. Croix District and their teachers on how to use existing Promethean active boards to facilitate student centered technology integration. Recommend and facilitate change in VIDE policy and practice that require all state and district technical staff to use one common VIDE official eHelpdesk software to manage, track, resolve, close and communicate status of Promethean board and all other technology and building infrastructure support requests as needed to support technology integration.  4. Recommend and facilitate change in VIDE policy and practice that Including technology integration in teacher evaluation is needed to further support technology integration.	1. Facilitate regular meetings that support communication and collaboration between C&I, OIT and the Districts to provide technical support to districts in planning professional development for teachers in technology integration with attention to equity as well as individual district needs. Work out dissemination details and essential conditions for success such as mandatory training with follow up support and community (including parents), district and school administrator buy in, support and involvement.
For teachers to collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation (NETS-T 3b)			
For teachers to communicate relevant information and ideas effectively			

Objectives	Indicators	2013-2014 Territory Actions	2014-2015 Territory Actions
<p>to students, parents, and peers using a variety of digital-age media and formats (NETS-T 3c)</p> <p>For teachers to model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning (NETS-T 3d)</p>			

**Instructional Technology Goal #3: Administrators as Leaders of Excellence in Professional Practice**

The guiding document for defining our work in Goal #3 is the ISTE NETS-A, Standard 3.

GOAL: For administrators to promote an environment of professional learning and innovation that empowers teachers to enhance student learning through the use of technologies and digital resources.

STRATEGIC DIRECTION: For administrators to provide leadership in the technology integration.

Objectives	Indicators	2013-2014 Territory Actions	2014-2015 Territory Actions
<p>For administrators to allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration (NETS-A 3a)</p> <p>For administrators to facilitate and participate in learning communities that stimulate, nurture, and support administrators, faculty, and staff in the study and use of technology (NETS-A 3b)</p> <p>For administrators to promote and model effective communication and collaboration among stakeholders using digital-age tools (NETS-A 3c)</p>	<p>Surveys</p> <p>Interviews</p> <p>(Baseline data needed in 2013-2014 to set measureable goal)</p>	<p>1. VIDE IT and C&amp;I will provide resources, technical support and PD services (NETS Leadership Academy, school home page default set to the VIDE web portal with access to publish and disseminate content to administrators etc.) needed to facilitate school administrators understanding that a transition to a student-centered project-based learning environment is needed.</p> <p>2. VIDE C &amp; I and OIT will provide technology integration support to the St. Thomas and St. John district school administrators and teachers via a 3-year Territorial and Freely Associated State Education and the NETS Leadership Academy to provide opportunities for administrators to work on building their own technology skills, and with teachers around building lessons that support the NETS-S and –T standards.</p> <p>3. Recommend and facilitate change in VIDE policy and practice that including technology integration in administrator evaluation is needed to further support technology integration.</p>	<p>1. Continue to provide technical support to districts and professional development for school administrators to understand their role in facilitating essential conditions needed to support student-centered project-based technology integration within their schools and classrooms.</p>

Objectives	Indicators	2013-2014 Territory Actions	2014-2015 Territory Actions
<p>For administrators to stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning (NETS-A 3d)</p>			

**Goal #4: Professional Development for supporting a shift towards 21<sup>st</sup> Century project-based student-centered learning**

GOAL: Provide school personnel (administrators, teachers etc) with sustained professional development in the use of technology to enhance teaching and learning in a measurable and cost-effective way.

STRATEGIC DIRECTION: VI teachers must be provided with professional development related to reconceptualizing their pedagogical approaches and rethinking the role of 21<sup>st</sup> century learning skills within the curriculum. Technology integration could be promoted and improved through using consultants, coaches, territory and district and other school personnel onsite, online and in person on a regular basis as support personnel for classroom teachers to better understand how to transition to a role of providing meaningful technology experiences into the core/mainstream/classroom curriculum.

Objectives	Indicators	2013-2014 Territory Actions	2014-2015 Territory Actions
<p>Engage teachers and administrators in professional development aligned with the NETS (Teacher, Administrator and Student) standards that supports a digital age learning environment and empowers them to enhance student-centered learning with technology.</p> <p>Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources and school administrators</p>	<p>Surveys Classroom observations Interviews (Baseline data needed in 2013-2014 to set measureable goal)</p>	<p>1. VIDE State Curriculum and Instruction will provide technology integration support and professional development to the St. Thomas and St. John district and their teachers via a 3-year Territorial and Freely Associated State Education Grant</p> <p>2. VIDE State Curriculum and Instruction will provide technology integration support to the St. Croix District and their teachers on how to use existing Promethean active boards to facilitate technology integration.</p> <p>3. Work with VIDE leadership and others to advocate for and facilitate systemic broad based change by recommending, providing and supporting trainings that are mandatory, include hands-on skills building, job-embedded coaching, and follow-up activities that support technology integration and access.</p> <p>4. Recommend and facilitate change in VIDE policy and practice that including technology integration in teacher evaluation is needed to further support technology integration.</p> <p>5. Recommend, implement and provide examples to get instructional leaders to understand that PD should support greater understanding around technology literacy for both teachers and administrators and facilitate disseminating information that use Instructional PD to focus on helping teachers create and re-write lesson plans so that students use technology in ways that meet the CCSS and NETS-S standards. PD must be used to show teachers “technology” can be used as a means for students to find, collect, process, synthesize, present, and create information and</p>	<p>1. As described in the National Educational Technology Plan, continue to provide professional development that is collaborative, coherent, and continuous and that blends more effective in-person courses and workshops with the expanded opportunities, immediacy, and convenience enabled by online environments full of resources and opportunities for collaboration.</p> <p>2. Provide access to PD that include both teachers and administrators and that focus on helping teachers create and re-write lesson plans so that students use technology in ways that meet the NETS standards. Provide PD that help teachers see “technology” as a means for students to find and collect, process, synthesize, present, and create information and ideas.</p> <p>3. Work with districts to provide technical assistance needed to facilitate mandatory on-site training opportunities that utilize common prep periods to deliver hands-on skills training, lesson planning, and reflection with a group of teachers from the same content group.</p> <p>4. Work with districts to recommend and provide technical assistance needed to facilitate on-site, job-embedded PD where districts consider employing technology integration specialists that could spend consecutive days at a site working with teachers around different components (e.g. lesson planning). Use of a virtual community (such as a Ning) will be recommended to facilitate follow up support, including sharing lesson plans, resources, and troubleshooting tips.</p>

Objectives	Indicators	2013-2014 Territory Actions	2014-2015 Territory Actions
<p>understand their roles and provide the required leadership, vision and support.</p> <p>Building level administrators promote an environment of professional learning among all staff, which educates and supports teachers in the use of technology to enhance student learning, as described in NETS-T and NETS-S</p>		<p>ideas. This will be accomplished via a number of approaches including school administrator and teacher participation in the NETS Leadership Academy courses.</p> <p>6. Develop and/or provide access to Professional development for educators and administrators to develop vision for the comprehensive integration of technology as a tool for transforming teaching and learning.</p> <p>7. Provide PD opportunities like the ISTE NETS Leadership Academy for administrators to be mentored to successfully transform their traditional learning environments into 21 Century learning centers.</p> <p>8. Collaborate with VIDE leadership to implement recommendations from the 2013 VIDE school technology evaluation such as making mandatory PD a prep period during the school day</p>	<p>5. Provide appropriate training in distance learning and online applications.</p> <p>6. Train staff in supporting and using wireless access, Edline, First-Class, VoIP, Password Self Reset, eHelpdesk, Homework Hotline, VIDE email, My Big Campus and other digital resources to support 21 century learning and access to information</p> <p>7. Recommend that appropriate administrators add technology use to teacher evaluation and that all teachers have a professional development objective related to technology integration</p> <p>8. Provide professional development and mentoring on demand that meet staff needs and are sensitive to their skill level, time and respect for their level of comfort and confidence with technology and supervisory role.</p>

**Goal #5: Infrastructure & Technical Services to Support Student Centered 21<sup>st</sup> Century Digital Age Learning**

GOAL: For IT professionals to provide reliable centralized network infrastructure and support services that empowers administrators and teachers to use technologies and digital resources that facilitate project-based student-centered 21<sup>st</sup> century learning.

STRATEGIC DIRECTION: Establishing, communicating and enforcing standards, policies and procedures for procuring and using technology equipment connected to the shared VIDE state, district and school network and researching, recommending and implementing solutions that increase security, reliability, userfriendliness and access to digital resources from increasing influx of mobile devices, 1-to-1, online assessment and BYOD initiatives. Centralizing, organizing and leveraging limited technology equipment and human resources and services under one IT Division must be seriously explored as a means of providing seamless efficient services in order to reduce confusion and increase clarity, customer service and user-friendly about how to request and receive timely technical support services to solve technology related problems that impact successful implementation of student centered 21<sup>st</sup> century learning.

Objectives	Indicators	Territory Actions - 2013-2014	Territory Actions - 2014-2015
<p>Decrease in school personnel requests for technical support services</p> <p>Increase in school personnel satisfaction with technology equipment, support and services</p> <p>Provide clear, streamlined, centralized organizational structure and system for requesting and receiving all IT technical support services</p> <p>Clarify technology roles, responsibilities, and positions at the territory and district levels.</p> <p>Recommend and facilitate technology agreements, infrastructure standards, policies, and</p>	<p>Classroom observations</p> <p>Interviews</p> <p>Surveys</p> <p>Helpdesk and network tickets and reports</p> <p>Website analytics and content</p> <p>Policy and standards documents</p> <p>Contracts and agreements</p> <p>IT reorganization/centralization plan</p> <p>(Baseline data needed in 2013-2014 to set measureable goal)</p>	<p>1. Facilitate and disseminate (hard and soft copies, VIDE website, email etc) VIDE technology standards, policies, procedures and master contract (Microsoft licenses, computers etc) for procuring and connecting all technology equipment to VIDE network for all territory, district programs, offices and schools.</p> <p>2. Recommend and facilitate VIDE policy and practice that require all technology purchases to be selected from VIDE master contract. Noncompliance will result in devices not supported or allowed to be connected to VIDE network.</p> <p>3. Recommend and facilitate flexibility to deviate only rarely and within VIDE procurement process with strong approved justification showing solution or equipment meets minimum specs and communicating intended use, goal to be accomplished tied to program, district or school improvement plan and target audience/user.</p> <p>4. Recommend, advocate and facilitate districts and schools moving towards a thin/zero client solution that minimizes technical support requests and teacher frustration.</p> <p>5. Provide all VIDE employees and school personnel with ability to complete online customer satisfaction survey for every eHelpdesk ticket closed, send monthly reports to VIDE and district leadership and have weekly meetings to ensure tickets are closed in timely manner.</p> <p>6. Recommend and facilitate VIDE policy and practice that require all state divisions to publish program information and resources in one central location (VIDE web portal <a href="http://www.vide.vi">www.vide.vi</a>). Make VIDE</p>	<p>1. Provide technical support, PD (My Big Campus etc.) needed for teacher and student to access appropriate digital content (YouTube etc.) while complying with E-rate Child Internet Protection(CIPA)</p> <p>2. Provide technology certification and customer service PD to state, district and school technicians as needed to reduce technical support requests and increase customer satisfaction</p> <p>3. Recommend and facilitate VIDE policy and practice that require all educators and staff to only use VIDE issued account for VIDE communications, collaboration and access.</p> <p>4. Provide technical support and PD needed for every school to have a professional updated website that facilitate stakeholder communication, collaboration and access to information for supporting 21<sup>st</sup> century student learning</p> <p>5. Continue E-rate funding requests and compliance with program requirements needed to expand and upgrade internet and WAN bandwidth and wireless coverage and capacity and telecommunications services and internal connections and maintenance services to all classrooms and schools as required to support 21st century learning.</p> <p>6. Recommend and facilitate change in VIDE policy and practice by working with VIDE leadership to reduce confusion about who is responsible for providing technology services and more efficiently and effectively using human resources by developing and implementing a central IT Division and network operations and data center for</p>

Objectives	Indicators	Territory Actions - 2013-2014	Territory Actions - 2014-2015
solutions for supporting increased student-centered learning.		<p>web portal the default homepage for all schools.</p> <p>7. Implement Mobile Device Management (MDM) solution (AirWatch) to manage mobile applications and devices (iPad, smart phones etc) needed to implement 1-to-1, Bring Your Own Device (BYOD), online assessments and 21<sup>st</sup> century project-based student-centered learning.</p> <p>8. Implement Network Access Control (NAC) solution to enforce network policies and standards to only allow compliant computers and other network equipment to access VIDE network as needed to increase security, reliability and to successfully support initiatives such as online assessments, and 21<sup>st</sup> century project-based student-centered learning</p> <p>9. Facilitate VIDE student accounts (email etc) for communication, collaboration, sharing and storing files and implementing student-centered learning and enabling and inspiring more effective teaching for all learners (National Education Technology Plan -NETP)</p> <p>10. Conduct technology audit, planning, and reporting to include implementing Microsoft Premier Services and one VIDE central agreement for Microsoft, HP, Mitel etc. licenses and products and well as full time 8:00 am to 5:00 pm staffing of helpdesk and regular meetings, PD and support for state, district and school technical support staff and their supervisors to improve customer service and delivery of support services.</p>	<p>managing, supervising and hosting all IT equipment, staff, services and operations. This includes providing effective helpdesk technician(s) during business hours.</p> <p>7. Recommend and facilitate VIDE policy and practice that require all VIDE network users comply with all standards, policies and procedures including enrolling in and using the VIDE password self reset solution. This can reduce technical support requests and increase customer satisfaction with technology access.</p> <p>8. Provide opportunities for state, district and school technicians and their supervisors to meet, discuss common problems, share solutions and work as a team to improve support and services as well as provide PD to districts on desktop support, basic operating system maintenance, including how to respond to requests to update computers and other basic troubleshooting and recommend implementing, expanding and improving programs such as spare inventory system for Promethean boards and implementing Tech Yes programs where student assist teachers onsite at schools with basic technical problems.</p>



## 4. Evaluation and Assessment for Technology

### Evaluation Design

VIDE is committed to continuing conducting systemic, rigorous, and highly formative evaluation processes that aims to measure the impact that this Strategic Technology Plan is having in schools and classrooms across the Virgin Islands. This evaluation goes well beyond accounting for technology infrastructure and reporting quantitative data on students, teachers, and administrators achieving basic technology literacy benchmarks. In addition to such basic data, the Territory's technology plan evaluation effort will report on the qualitative impact of technology on teaching and learning. Through such data, and the formative reflection on progress that this will support, VIDE OIT will be in a position to monitor the impact of Territorial and district technology infrastructure, technology policy, and technology professional development initiatives. This will allow for responsive and frequent fine-tuning of efforts; and ultimately a much greater degree of accountability for the use of resources to support instructional technology.

Through this evaluation plan, VIDE OIT will apply a uniform data collection process across the Territory, using a standardized set of evaluation tools that have been specifically mapped to the plan's goals and objectives. These tools include teacher, student, and parent online survey instruments, classroom observation protocol, and interview/focus group questions for teachers and administrators. VIDE OIT will initiate a data collection effort – managed by outside, independent, evaluators – in school year 2014-2015 that collects data at the classroom level in schools in the Territory. Aggregated annually at the Territorial level, information collected in this manner will create a uniform dataset to be used to determine the Territory's progress toward meeting the indicators in the technology plan. A report of this progress at the Territorial level will be submitted to the U.S. Department of Education as part of Federal reports.

At the district level, the 2015 collected evaluation data will be disaggregated to school level data and will support the district in assessing its unique progress toward meeting the planning goals. Further, school level data can be used by schools as a driver for instructional technology goals in their annual School Improvement Plans.

## Evaluation and Technology Plan Updates: 2013 – 2015

The following table describes the main activities associated with technology plan evaluation and technology plan updating (district and Territory) between 2013 and 2015 (the terminal date of this current plan).

Date		Activity	Responsibility	Product/Outcome
2013	August/September	Review data collection instruments	Outside Evaluator VIDE OIT AND OTHER DIVISIONS	Data collection instruments properly mapped to technology plan indicators and other VIDE OIT initiatives as necessary
2013	June/July	Data Review (2013 spring data)	OIT and STATE TEAM	Updated technology-related goals/actions for State Improvement and Technology Plan
	May-June September-October	Data Collection – Observations	Outside Evaluator	
	October-December	Data Collection – Surveys, Focus Groups, Observations Data Analysis and Reporting	Outside Evaluator VIDE OIT District Staff	Data reports and data review meeting with VIDE OIT STATE and District Staff
	May/June/December	Technology Plan Update	VIDE OIT, STATE TEAM District Staff	Updated Territory Plan and Updated District Technology Plans
2014	January/February	Data Review (2013 data) with district/schools	District Staff	Updated technology-related goals/actions for 2014 State, District, School Improvement Plans
	Spring/Fall	Technology Plan Update	VIDE OIT District Staff	Updated Territory Plan and Updated State, District, School Technology Plans
2015	January	Data Review (2013 data) with schools	District Technology Committee	Updated technology-related goals/actions for 2014 State, District, School Improvement Plans
	April/May	Data Collection – Surveys, Focus Groups, Observations	Outside Evaluator	
2015	June/August	Data Analysis and Reporting	Outside Evaluator VIDE OIT District Staff	Data reports and data review meeting with VIDE OIT State and District Staff
	May/June /November /December	Technology Plan Revision	VIDE OIT District Staff	Revised Territory Plan (2015 – 2017) and inform and recommend Updated State, District School Plans

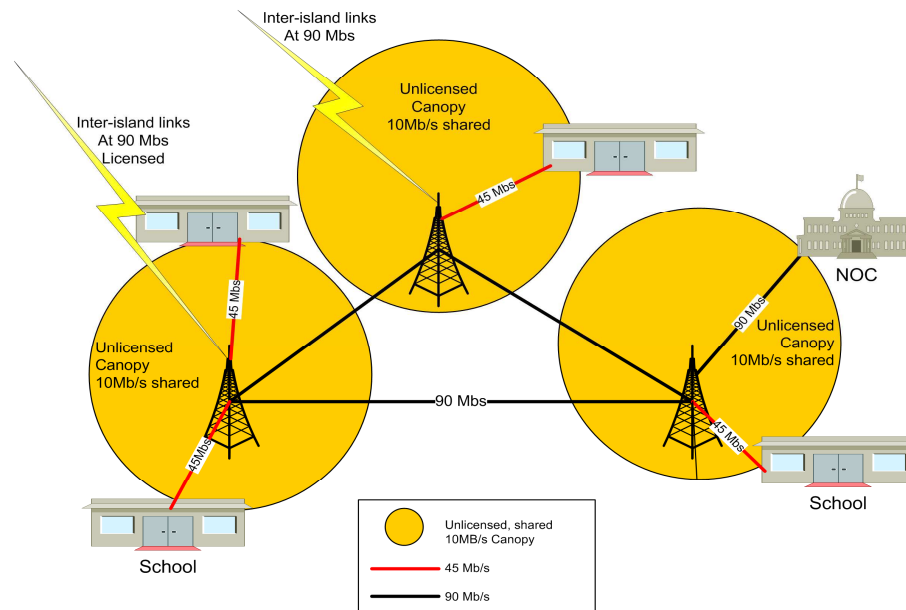
## 5. Technology Services and Procurement Plan

### Infrastructure

#### *The VIDE Network: Education Territory Area Network (ETAN)*

The Educational Territorial Area Network (ETAN) is one of the largest point-to-point wireless networks in the world. ETAN provides Internet and network connectivity to 23 schools and administrative buildings on the islands of St Thomas and St John, and 18 schools and administrative buildings on St Croix. On average, the Territory's public schools and administrative offices are connected by a 45 megabit wireless connection, which is much faster than the typical T1 lines used by many school districts. For comparison purposes, a T1 line supports data transfers at the rate of 1.5 million bits per second. A 45 megabit connection, however, supports data transfers at the rate of 45 million bits per second. As a result, our network has been designed to support high speed voice, data and video transmissions, including multiple concurrent mission critical instructional program services such as student data transfers, Internet access, email, video conferencing/distance learning, Voice over IP, and educational streaming video resources.

Redundant Links with Tower Diversity



To meet the growing technology needs of our school districts, the government has entered into contracts that will provide a number of new and upgraded telecommunications which will be implemented before school opens in August 2013.

Ensuring that our network is available, secure and reliable is critical to the use and integration of technology in schools. OIT is in the process of coordinating the installation by contractors of improvements and upgrades to the network that will improve connectivity and availability, as well as supporting the transmission of voice, video and data across the ETAN. When complete, the upgraded ETAN will be comprised of a design and services that reduce failures and eliminate major network service disruptions.

The following describes the services and/or equipment that will be provided, upgraded and/or maintained by service providers and/or others starting July 2012:

## **VI Department of Education E-Rate Years 15, 16 and 17**

### **E-Rate Year 15 (2012-2013)**

- Telecommunications– Instructional Video Conferencing (Maintenance)
- Telecommunications– Wide Area Support and Service
- Internal Connections– School Cabling (Maintenance)
- Internal Connections– Network Electronics (Maintenance)
- Internal Connections– Servers (Maintenance)

### **E-Rate Year 16 (2013-2014)**

- Telecommunications– Instructional Video Conferencing (Maintenance)
- Telecommunications– Wide Area Support and Service
- Internal Connections– School Cabling (Maintenance)
- Internal Connections– Network Electronics (Maintenance)
- Internal Connections– Servers (Maintenance)

### **E-Rate Year 17 (2014-2015)**

- Telecommunications – Instructional Video Conferencing (Installation/Maintenance)

- Telecommunications – Wide Area Support and Service (Installation/Maintenance)
- Internal Connections – School Cabling (Installation/Maintenance)
- Internal Connections – Wireless Access Points (Installation/Maintenance)
- Internal Connections – Network Electronics (Installation/Maintenance)
- Internal Connections – Servers (Installation/Maintenance)
- Internal Connections – Firewall Maintenance
- Internal Connections – PBX Voice Services
- Internet Access – Internet Access
- Internet Access – Web Hosting

## **Instructional Video Conferencing (Maintenance)**

### **Procurement Summary**

The VIDE will be procuring new instructional video conferencing equipment for 2013-2015 for a minimum of eight (8) instructional sites. The VIDE is also requesting 2 year (2013-2015) maintenance support for existing equipment at locations listed below.

### **Current Environment**

The following equipment is supported by the service provider:

- 8 Video conferencing units at VIDE locations to be specified prior to the start of this contract
- Two (2) MCG+50 units

The maintenance and technical support services performed are as follows:

- On-site Break/Fix
- Firmware updates as available
- RMA defective/failed equipment if warranties are still available
- Warranty tracking and updates

All support is triggered through the initiation of a Help Desk ticket. This support covers units permanently set-up in assigned rooms as well as portable units that are used in small, medium, and large conference rooms.

In accordance to E-rate regulations, training is only allowed for technical personnel on newly installed equipment. The VIDE's service provider is only maintaining the equipment. They will not be providing training on existing equipment.

## Wide Area Network Support and Maintenance

### Procurement Summary

The VIDE will be procuring new WAN services to cover the 2013-2015 plan. The existing agreement will expire on June 30, 2014. The following chart details the bandwidth at each location currently connected to the WAN: In general VIDE is requesting bids for WAN bandwidth from 10 MBPS wireless up to 1 GBPS with the ability and customization needed for VIDE infrastructure to remain centralized and in compliance with E-rate and other federal requirements.

The service levels for WAN maintenance services will remain as described in the Current Environment section below.

### Current Environment

ST THOMAS SCHOOLS	ENTITY NO.	Yr 15 BANDWIDTH (Mb/s)	St Croix Schools	ENTITY NO.	Yr 15 BANDWIDTH (Mb/s)
Addelita Cancryn Jr High School	224835	45	Alexander Henderson Elementary	191126	45
Bertha Boschulte Jr High School	197228	45	Alfredo Andrews Elementary	191121	45
Charlotte Amalie High School	191103	45	Arthur Richards Jr High School	224869	45
E. Benjamin Oliver Elementary	191104	45	Central High School	191122	Fiber
Edith L. Williams Alternative Education	191105	45	Charles H Emanuel Elementary	224861	45
Evelyn Marcelli Elementary	191106	45	Claude O Markoe Elementary	224865	45
Evelyn Marcelli Annex	224842	45	Elena L Christian Jr High	224866	45
Ivanna Eudora Kean High School	191107	45	Eulalie Rivera Elementary	224863	45
Jane E. Tuitt Elementary	191109	45	Evelyn Williams Elementary	224862	45
Joseph E. Gomez Elementary	191110	Fiber	John H. Woodson Jr High	191134	45

Joseph Sibilly Elementary	191111	45	Juanita Gardine Elementary	191125	45
Joseph Sibilly Annex (DSL is part of Government Phone Bill)	224845	0	Lew Muckle Elementary	191129	45
Leonard Dober Elementary	191112	45	Pearl B Larsen Elementary	224855	45
Lockhart Elementary	191113	Fiber	Positive Connections Alternative Ed.	224857	45
Gladys Abraham Elementary	191114	45	Ricardo Richards Elementary	191131	45
Yvonne Bowsky Elementary	191115	45	St Croix Adult Education Center	16024457	Presently 45/ Fiber planned
St Thomas Adult Education Center	16024455	45	St. Croix Educational Complex	191135	45
Ulla Muller Elementary	191116	45	<b>STX - Youth Rehabilitation Center*</b>		45
Wheatley Skill Center	191120	Fiber			
<b>St John Schools</b>	<b>ENTITY NO.</b>	<b>Yr 15 BANDWIDTH (Mb/s)</b>			
Guy Benjamin Elementary	191117	45			
Julius E. Sprauve Elementary	191118	45			
Julius E. Sprauve Annex	16024456	Fiber			

<b>Non-Instructional Facilities</b>	<b>E-RATE Entity No.</b>	<b>Proposed Yr 15 BANDWIDTH (Mb/s)</b>
VIDE STT Headquarters	16030773	90
STTJ Headquarters / Curriculum Center (NOC)	16030839	45
STTJ School Lunch	16030841	10
STTJ Special Education	16030515	45
Antonio Jarvis Annex	224838	45

VIDOE STX Headquarters	16030805	45
STX Curriculum Center (NOC)	16030828	90
STX Special Education	16030842	45
STX Procurement Warehouse	16048495	10
STX State Special Education Office*	16052170	10
STX Human Resources	16048478	10

The Wide Area Network is critical to the VIDE. With the installation of the new WAN interruptions in service, quality of services and support of break/fix requests have dramatically improved since July of 2008.

In July of 2008, the existing WAN infrastructure was replaced with the Motorola 600 series wireless Ethernet bridges in a point-to-point configuration running on the 5.4 Ghz frequency with radio redundancy using Canopy multipoint technology.

In addition, the Motorola 600 point-to-point wireless Ethernet bridges offer more capacity at up to 150MB/s and higher signal quality over greater range – even over water. They also provide greater spectral efficiency, which allows high performance in areas with congested radio communications.

These unique and powerful technologies combine to overcome the signal attenuation, fading, dispersion and polarization that degrade all radio signals:

- **Multiple-Input Multiple-Output (MIMO)** – minimizes signal fading due to path obstructions or atmospheric disturbances.
- **Intelligent Orthogonal Frequency Division Multiplexing (i-OFDM)** – transmits data on multiple frequencies, resulting in higher channel bandwidth and greater resistance to interference and signal fading.
- **Advanced Spectrum Management with i-DFS (Intelligent Dynamic Frequency Selection)** – self-selects the frequency over which it can sustain the highest data rate at the highest availability.
- **Adaptive Modulation** – continually optimizes modulation to transmit the maximum amount of data across the path while maintaining the highest levels of link quality.
- **Spatial Diversity** – combats ducting and multipath fading via space-diverse antennas at one or both ends of a link.
- **Best-in-Class Radios** – incorporate powerful transmitters and super-sensitive receivers that deliver a system gain as much as 25 times better than the nearest competitor.



### ***Current Statistics***

The current WAN has been utilized by VIDE since July of 2008. The WAN covers all three islands (St. Thomas, St. John and St. Croix). The WAN is made up of a series of radios and antennas installed on a number of tower sites across the islands. All WAN equipment is owned by the VIDE service provider and leased to VIDE in accordance with E-rate guidelines.

- **Tower Sites**

The Service provider utilizes the following tower sites:

- St. Thomas
  - Flag Hill
  - Mountain Top
  - Benner Hill
  - IDC
- St. Croix
  - Recovery Hill
  - Blue Mountain
  - St. Georges
- St. John
  - Bordeaux Mountain

Each tower site supports different VIDE location. The equipment at each site is dependent on the number of VIDE locations that are directed to a site, the type of equipment used, and the connectivity speeds required by VIDE.

- VIDE Locations supported

## Procurement Request

<b>St. Thomas St. John Schools</b>	<b>ENTITY NO.</b>	<b>**Yr 15 (Mbps)</b>	<b>**Yr 16 (Mbps)</b>	<b>**Yr 17 (Mbps)</b>	<b>St. Croix Schools</b>	<b>ENTITY NO.</b>	<b>**Yr 15 (Mbps)</b>	<b>**Yr 16 (Mbps)</b>	<b>**Yr 17 (Mbps)</b>
Addelita Cancryn Jr High School	224835	45	45	45	Alexander Henderson Elementary	191126	45	45	45
Bertha Boschulte Jr High School	197228	45	45	45	Alfredo Andrews Elementary	191121	45	45	45
Charlotte Amalie High School	191103	45	45	45	Arthur Richards Jr High School	224869	45	45	45
E. Benjamin Oliver Elementary	191104	45	45	45	Central High School	191122	Fiber	Fiber	Fiber
Edith L. Williams Alternative Education	191105	45	45	45	Charles H Emanuel Elementary	224861	45	45	45
Evelyn Marcelli Elementary	191106	45	45	45	Claude O Markoe Elementary	224865	45	45	45
Evelyn Marcelli Annex	224842	closed	closed	closed	Elena L Christian Jr High	224866	45	45	45
Ivanna Eudora Kean High School	191107	45	45	45	Eulalie Rivera Elementary	224863	45	45	45
Jane E. Tuitt Elementary	191109	45	45	45	Evelyn Williams Elementary	224862	45	45	45
Joseph E. Gomez Elementary	191110	Fiber	Fiber	Fiber	John H. Woodson Jr High	191134	45	45	45

Joseph Sibilly Elementary	191111	45	45	45	Juanita Gardine Elementary	191125	45	45	45
Joseph Sibilly Annex (DSL is part of Government Phone Bill)	224845	0	0	0	Lew Muckle Elementary	191129	45	45	45
Leonard Dober Elementary	191112	45	45	45	Pearl B Larsen Elementary	224855	45	45	45
Lockhart Elementary	191113	Fiber	Fiber	Fiber	Positive Connections Alternative Ed.	224857	45	45	45
Gladys Abraham Elementary	191114	45	45	45	Ricardo Richards Elementary	191131	45	45	45
Yvonne Bowsky Elementary	191115	45	45	45	St Croix Adult Education Center	16024457	45	45	45
St Thomas Adult Education Center	16024455	45	45	45	St. Croix Educational Complex	191135	45	45	45
Ulla Muller Elementary	191116	45	45	45	STX - Youth Rehabilitation Center*		45	45	45
Wheatley Skill Center	191120	Fiber	Fiber	Fiber					
<b>St John Schools</b>	<b>ENTITY NO.</b>	<b>**Yr 15 (Mbps)</b>	<b>**Yr 16 (Mbps)</b>	<b>**Yr. 17 (Mbps)</b>					
Guy Benjamin Elementary	191117	45	45	45					

Julius E. Sprauve Elementary	191118	45	45	45
Julius E. Sprauve Annex	16024456	Fiber	Fiber	Fiber

Non-Instructional Facilities	E-RATE Entity No.	** Yr 15 (Mb/s)	**Yr 16 (Mb/s)	** Yr. 17 (Mb/s)
VIDE STT Headquarters	16030773	90	90	150/200 +
STTJ Curriculum Center	16030839	45	45	45
STTJ School Lunch	16030841	10	10	10
STTJ Special Education	16030515	45	45	45
Antonio Jarvis Annex	224838	45	45	45
VIDE STX Headquarters	16030805	45	45	45
STX Curriculum Center (NOC)	16030828	90	90	150/200 +
STX Special Education	16030842	45	45	45
STX Procurement Warehouse	16048495	10	10	10
STX State Special Education Office*	16052170	45	45	45
STX Human Resources	16048478	10	10	10

\* These facilities are not currently on the network.

\*\* Bandwidth Request

Inter-island Link is at 300 MBPS and quotes are requested in 100 GBPS up to 1 GBPS

WAN Backbone is 100 MBPS and quotes are requested in increments of 100 MBPS up to 1 GBPS

Each main VIDE site with the exception of those which have a service speed of 10 Mbps maximum, has a secondary radio attached that provides backup to the primary radio in the event there is a loss of service from that radio. This was done to ensure that there is minimal service disruption of WAN services in the event of an equipment failure.

There are locations that are connected via fiber that are attached to the WAN. These sites include:

- Central High School – connected via STX Curriculum Center
- Joseph Gomez – connected via STT Curriculum Center
- Sprauve Annex – connected via Sprauve Elementary
- Wheatley – connected via Lockhart
- Lockhart – connected via Charlotte Amalie
- School Lunch – via STX Department of Education

Sibley Annex is currently connected over DSL through an existing contract between the VIDE and a local carrier.

There is a primary and secondary Inter-island link between St. Thomas and St. Croix to support the connection needs between the two (2) NOC locations. The bandwidth is 300 Mbps for these connections. Quotes will be requested for maintaining the 300 Mbps with options to upgrade in increments of 100 Mbps up to 1 Gbps.

## ***School Cabling Installation/Maintenance***

### **Procurement Summary**

The VIDE will be procuring new school cabling installation and maintenance services for the period of 2013-2015. The VIDE is also requesting ongoing school cabling maintenance support services for (2013-2015) for cabling installed within the Department.

### **Current Environment**

#### **Description**

The typical school infrastructure is as follows:

Type	IDF		Classrooms	Common Areas	Admin Offices	Labs	Average Port Count	Average CAT5e Run	Average Fiber Run
High School	6	1	70	10	100	3	500	150 linear ft	65 linear ft
Middle School	3	1	40	10	50	2	350	150 linear ft	45 linear ft
Elementary School	2	1	20	10	40	1	175	100 linear ft	25 linear ft
Pre K-8 School	3	1	40	10	60	2	350	150 linear ft	45 linear ft

The VIDE'S service provider delivered basic maintenance support of VIDE's low voltage data-cabling infrastructure as of July 1, 2010. Currently, this number stands at 13,000. Additionally, maintenance cable installation of 4,000 began January 1, 2011. The 1,500 cable drops as part of the year 11 installation was maintained starting January 1, 2011 or. This maintenance/support included repair, retermination, and replacement of damaged/faulty CAT5e, CAT6, Jacks, faceplates, molding, and cable. The VIDE'S service provider also maintained and repair the indoor fiber optic cabling owned by the VIDE. The VIDE service provider responds to trouble calls and reports of CAT5e/CAT6 jacks and fiber connections that are not functioning or damaged.

The VIDE service provider assumes that at a minimum all fiber optic wiring is completely installed and functioning. The VIDE service provider replaced any damaged drops in accordance to the wiring structure already in place to maintain the current cabling standard within reason and not due to catastrophic damage (i.e. Rodent damage, hurricane, building structural failure, damage caused by 3<sup>rd</sup> party or VIDE representatives, etc.). In this event, the VIDE service provider updated VIDE as to the problem and worked with VIDE to determine a solution. Once the solution was determined, a project change request was prepared along with a Statement of Work for the cost of the repair.

The VIDE service provider processes any warranties in place with the current cabling material manufacturer but recommends replacement of any damaged equipment based on current standards, E-rate regulations and VIDE service provider recommendations. . Once the solution is determined, a project change request is prepared along with a Statement of Work for the cost of the repair.

The VIDE service provider performs the following tasks to support VIDE cabling system:

- Wall box replacement
- Jack repair or warranty replacement
- CAT5e/CAT6/Fiber optic termination/repair
- Patch panel repair or warranty replacement
- Wire molding replacement
- Jack testing/certification after repair
- Scheduled site visits to evaluate condition of jacks, wall boxes, and fiber panels

Upon receiving a trouble call, the VIDE service provider produces a “trouble ticket” and dispatch a cabling Engineer to the site to investigate the drop/s.

- 1) Upon arriving at the site, the Cabling Engineer phones in his/her arrival to the VIDE service provider Technical Support Manager and check in with the site's designated point person (if available)
- 2) After resolving the issue onsite the Cabling Engineer phones in the correctives, which are updated in the ticket previously created
- 3) If the issue cannot be resolved immediately due to environment conditions or other out of scope causes, VIDE is notified and the ticket will be closed.
- 4) Throughout the day if calls are received from VIDE with reports of trouble issues, the VIDE service provider responds according to the approved SLA with remote or onsite support based upon the nature of the incident

Some repairs requires the VIDE service provider to work on the patch panel side of the termination, a VIDE site person is informed since it could temporarily impact other users.

During monthly visits of each site, the VIDE service provider performs cable management and organization as time will allow. The VIDE service provider makes sure patch cables installed by the VIDE service provider are managed neatly and organized throughout the MDF and IDF locations of each school.

The VIDE service provider maintains the current labeling standard in-place on VIDE cabling infrastructure. All CAT5e, CAT6 and Fiber Optic cabling repaired will be labeled appropriately to comply with the current standard.

In the event that CAT5e, CAT6 or Fiber Optic cabling is damaged due to outside sources such as construction or vandalism, the VIDE service provider prepares a Scope of Work and submit it to VIDE for approval. Upon approval the VIDE service provider creates a work order and dispatch cabling engineers to complete the repair/replacement project.

- is available for review (i.e. service history, warranty, open maintenance requests, etc.) and is made available to the VIDE service provider
- New equipment being installed is properly asset tagged in accordance with the VIDE current asset tagging method
- Access to all VIDE sites is made available upon reasonable, advance notice
- Any services outside of the scope of the contract requires separate funding
- The VIDE service provider returns removed equipment to a central warehouse specified by VIDE.

## **Network Electronics**

### **Procurement Summary**

The VIDE will be not be procuring new network electronics equipment and associated installation services for the period of 2013-2015 due to the recent completion of an upgrade of all network electronics within

the Department. The VIDE is requesting ongoing network electronics maintenance support services for the period (2013-2015) for network electronics within the Department.

### Current Environment

#### Completed Installation

VIDE requested equipment upgrades from 5300 to 5400 series and 2500 to 2600 series with all ports supporting POE. VIDE also required additional ports to support 4000 new drops as identified in the "Internal Connections – School Wiring" section of the RFP.

These new series of switches support the following new advanced features:

- BPDU Guard - blocks disruption from foreign switches
- DHCP control – prevents denial of service problems from incorrect DHCP server
- Broadcast Storm control – Auto-shutdown of port connecting virus infected or malfunctioning PC

The VIDE through its service provider enabled these advanced features during the installation. The VIDE through its service provider also recommended additional network segmentation through additional VLANs for increased manageability and to limit the exposure of certain network disruptions. The VIDE service provider implemented additional VLANs in collaboration with VIDE and the approval of the recommended architecture.

ELIGIBLE PRODUCTS SUPPORTED				
OLD HARDWARE	MANUF.	PART NO.	QTY	NO. OF PORTS
ProCurve 5300 8 Slot	HP	J4848A	49	
ProCurve 5300 4 Slot	HP	J4849A	35	
2524 Switch	HP	J4813A	495	11,880
MDF Copper module	HP	J4820A	150	3,600
MDF 4 Port Fiber Module	HP	J4878A	61	
MDF SX-LC Mini-GBIC	HP	J4858A	190	
IDF SX-SC XCVRFOR 2500	HP	J4131B	164	
IDF STACK KIT FOR 2500	HP	J4116A	262	
MDF 4 PORT GBIC CU MOD	HP	J4821A	1	
<b>Total Ports</b>				<b>15,480</b>

UPGRADES NETWORK ELECTRONICS				
NEW HARDWARE	MANUF.	PART NO.	QTY	NO. OF PORTS
5412zl 12 slot	HP	J8698A	49	
5406zl 6 slot	HP	J8697A	35	
2610-24-PWR	HP	J9087A	527	12,648
24 port POE+	HP	J9307a	233	5,592
20 port POE+ 4 SFP	HP	J9308A	61	1,220
Mini GBIC SX-LC	HP	J4858C	190	
Mini GBIC SX-LC	HP	J4858C	164	
CAT5e patch cable			294	
24 port 10/100/1000	HP	J9307A	1	20



POE+				
<b>Total Ports (includes 4000 additional ports)</b>				<b>19,480</b>

- The 5400 series switches can support 10 Gigabit/second ports. None were specified here as the IDF switch cannot support 10 GB/s.
- VIDE requested 600 TP-Link TL-WN951N 300 mbs PCI wireless adapters. These adapters are consumer oriented products that may not be appropriate for the Educational environment. The 300 mbs settings is not compatible with the currently installed Cisco Access Points.
- A more appropriate and economical PCI adapter is the TRENDnet TEW 423PI and was part of the quote in the pricing section.

### ***Device Configuration***

Each device on the VIDE network has a unique configuration, which is preserved for archiving and replacement purposes. The VIDE service provider proposed the use of HP Procurve Manager for device management and configuration archiving. Procurve Manager, capable of managing an unlimited number of devices, provides a central repository for the VIDE service provider to review current configurations and easily track changes and modifications made. Procurve Manager also keeps record of device logs and activity. This assisted the VIDE service provider in quickly identifying abnormal activity and capacity planning.

In addition to Procurve Manager, the VIDE through its service provider utilized the basic industry standard method of configuration archiving with text files. In the assessment phase, the VIDE service provider collected configurations from all attached Network devices and store them in a data archive. This was useful in the event that Procurve Manager is offline or if a VIDE service provider engineer is in the field and does not have access to Procurve Manager.

The VIDE service provider performed the following as part of the installation scope:

- IP address configuration
- Management configuration, telnet, ssh, Web based GUI
- VLAN configuration
- Device naming and labeling (electronic and physical)
- Module installation for connection to existing switches
- Patch cable installation connecting to patch panel
- Password configuration
- Configuration archiving
- Documentation of installation date and engineer who completed
- Testing of switch device (direct access and remote management access)
- Rack/ cabinet mounting each switch device

Source of Power	Watts Available	# of Ports Powered and Average watts/port	Redundant # of Ports Powered and Average watts/port
Four (4) internal PoE Power Supply (J8713A)	3600 (without redundancy)	233 @ average 15.4 W each 288 @ average 7.5 W each 288 @ average 4.0 W each	116 @ average 15.4 W each 240 @ average 7.5 W each 288 @ average 4.0 W each

- In a fully populated 5406zl, the number of POE ports available are:

Source of Power	Watts Available	# of Ports Powered and Average watts/port	Redundant # of Ports Powered and Average watts/port
Two (2) internal PoE Power Supply (J8713A)	1800 (without redundancy)	116 @ average 15.4 W each 144 @ average 7.5 W each 144 @ average 4.0 W each	58 @ average 15.4 W each 116 @ average 7.5 W each 144 @ average 4.0 W each

- The VIDE service provider was not be asked to perform any services for which another service provider has been paid
- The VIDE service provider was not responsible for any damage caused by anyone other than the VIDE service provider members or our agents
- No VIDE personnel performed any Break/Fix or maintenance without prior notification to the VIDE service provider
- All equipment currently installed is properly tagged and inventoried and this information was made available to the VIDE service provider
- All equipment information is available for review (i.e. service history, warranty, open maintenance requests, etc.) and is made available to the VIDE service provider
- New equipment being installed is properly asset tagged in accordance with the VIDE current asset tagging method
- Access to all VIDE sites is made available upon reasonable, advance notice
- Any services outside of the scope of this contract requires separate funding
- VIDE service provider delivered replaced network electronics to a central warehouse designated by VIDE
- VIDE is responsible for the disposition of all or equipment (i.e. Servers, network electronics, wireless access points, wiring, etc.)

- VIDE provides the VIDE service provider with all access information for the equipment including IP addresses, security codes, passwords, keys or lock combinations, etc.
- The VIDE service provider utilized the help ticketing software for incident tracking and resolution. Response will be based on the SLA approved by VIDE
- The VIDE service provider provides a monthly summary of all incidents opened, resolved, and pending, and time to closure. This report provides VIDE with access to historical data of activities in the network
- Installation work did not begin until funding was made available through either the E-rate program or directly from VIDE
- VIDE processes all paperwork which requires signatures in a reasonable time frame mutually agreed to by VIDE and the VIDE service provider
- VIDE makes available to all contractors a list of standards and requirements for each service in RFP 0004 – 2010

## Servers

### Procurement Summary

The VIDE will be procuring new servers for the period 2013-2015. The VIDE is requesting 2yr maintenance support for the period (2013-2015) for the existing equipment listed below.

### **Current Environment**

#### ***Installed – School Side Servers***

VIDE is requesting replacement of all servers at all St. Thomas, St. Croix and St. John eligible instructional sites (schools and eligible non-instructional locations):

The current configuration of the installed servers includes:

<b>In-School ETAN Servers – School Active Directory, DHCP/Communication</b>	
<b>Part Number</b>	<b>Description</b>
188549-001	HP G8 minimum, P3 1113 Mhz minimum
263719-B21	2GB SDRAM/133 (2x512) Memory
188122-B22	18.2 GB HD, Hot Plug, 15K rpm
216886-B21	AIT 35 GB tape drive
VG150B	ViewSonic 15" flat screen

The replacement configuration as follows was changed at each location:

<b>In-School Network Servers for all schools and other eligible sites</b>		
<b>Description</b>	<b>Part No.</b>	<b>Qty.</b>
HP G8 minimum Server - rack-mountable - 1U - 2-way - 1 x Xeon E5506 / 2.13 GHz - RAM 2 GB minimum	470065-152	36
Hard drive - 146GB, hot swap, 10K RPM (for OS)	418367-B21	72
Power supply - hot-plug ( plug-in module ) - 460 Watt	503296-B21	36
HP StorageWorks Rack-Mount Kit DAT 160 drive. Tape drive - DAT ( 80 GB / 160 GB ) x 1 - DAT-160 - max drives: 2 - Hi-Speed USB - rack-mountable - 1U	AG703A	72
DAT-160 - 80 GB / 160 GB - red - storage media	C8011A	72

The VIDE service provider replaced the existing server and transfer configuration files that support School Active Directory, DHCP and Communications. The VIDE service provider reused the flat screen monitors.

Replacements for the following Servers at the NOC's have been accomplished. The current configuration of the installed servers as described in the RFP includes:

<b>STTJ Email Server For St. Thomas/St. John MS Exchange Server</b>	
<b>Part Number</b>	<b>Description</b>
155618-003	ProLiant DL589R01 X900-2 MB, 1024 MB, 2 Processors
189081-B21	1024 MB PC 100 Reg. ECC SDRAM Memory Kit (4 X 256 MB)
189082-B21	2048 MB PC 100 Reg. ECC SDRAM Memory Kit
188122-B22	18.2 GB HD, Hot Plug, 15K rpm

124992-B21	Smart Array 5302/64 Controller
190209-001	StorageWorks Enclosure Model 4314R - Rack
232916-B22	36.4 GB Wide Ultra SCSI 15,000 rpm Drive (1 <sup>2</sup> ) – Exchange Storage 3 – RAID 5, 1 on-line spare
119826-B21	StorageWorks Enclosure 4200 Redundant Power Supply
175196-B21	AIT Tape Library, back up device
129803-B21	SCSI Controller
341176-B21	VHDC to SCSI cable for connecting AIT tape library

<b>New STT/STJ E-mail</b>	<b>Part No.</b>	<b>Qty</b>
HP ProLiant DL380 G6 Performance Server - rack-mountable - 2U - 2-way - 2 x Xeon X5550 / 2.66 GHz - RAM 12 GB	491316-001	1
Hard drive - 146GB, hot swap, 10K RPM (for OS)	418367-B21	2
Hard drive - 146GB, hot swap, 10K RPM (438GB usable for data)	418367-B21	4
Storage Controller (RAID5)	416096-B21	1
Power supply - hot-plug ( plug-in module ) - 460 Watt	503296-B21	2
HP StorageWorks 1/8 G2 Tape Autoloader Ultrium 920 400/800 GB	AH558A	1
LTO Tapes 400/800 GB	C7973A	20

<b>New STX E-mail Server</b>	<b>Part No.</b>	<b>Qty</b>
HP ProLiant DL380 G6 Performance Server - rack-mountable - 2U - 2-way - 2 x Xeon X5550 / 2.66 GHz - RAM 12 GB	491316-001	1
Hard drive - 146GB, hot swap, 10K RPM (for OS)	418367-B21	2
Hard drive - 146GB, hot swap, 10K RPM (438GB usable for data)	418367-B21	4
Storage Controller (RAID5)	416096-B21	1
Power supply - hot-plug ( plug-in module ) - 460 Watt	503296-B21	2
HP StorageWorks 1/8 G2 Tape Autoloader Ultrium 920 400/800 GB	AH558A	1
LTO Tapes 400/800 GB	C7973A	20
Symantec Backup Exec for Windows Servers Agent for Windows Systems (AWS) v12.5	14353956	3
Hard drive - 146GB, hot swap, 10K RPM (for OS)	418367-B21	3
Power supply - hot-plug ( plug-in module ) - 460 Watt	503296-B21	6
Symantec Backup Exec for Windows Servers Agent for Windows Systems (AWS) v12.5	14353956	3

VIDE through its service provider replaced the existing servers and transferred configuration files that support Email, Web, Proxy, and Domain Controller functions.

#### ***New Head-end Server Features***

- At least 4 times the CPU power of the previous server
- 4 times the memory
- More than 4 times the storage
- Robust 400/800 Gigabyte tape drive with auto loaded

- Extra tapes for daily, weekly, monthly and off-site rotation

***Device Configuration***

The VIDE service provider provided and used migration tools to ensure a successful migration of the Exchange data. DNS/DHCP will be exported from the old server and imported to the new server. The Domain Controller migration requires a tape restoral.

The servers specified here can hold up to 12 internal drives so there is capacity for future growth.

***Certification and Testing***

The VIDE service provider tested the new servers functions using a mutually agreed upon criteria and document successful testing.

***Documentation***

The VIDE service provider documented the new servers per E-rate guidelines including:

- Hardware inventory
- Serial number
- Device configuration
- FRN and location

## Wireless Access Points/Network Equipment Maintenance

### Procurement Summary

The VIDE will be procuring new wireless access points/network equipment maintenance services for the period 2013-2015 and expanding services to increase coverage in schools to support 21<sup>st</sup> century teaching/learning. The VIDE is requesting 2yr maintenance support for (2013-2015) for the existing and any new wireless equipment.

### **Current Environment**

The VIDE service provider proposed to provide basic maintenance support of VIDE's Wireless Access Points as identified in the RFP. Currently, this number stands at 871 per the RFP. Additionally, maintenance of planned 36 access points for coverage of three (3) sites (Edith Williams Academy, Positive Connections, Adult Education) began January 1, 2011 or within three (3) months of completion of the installation for Year 13. The 400 access points as part of the year 11 installation was maintained starting January 1, 2011 or within three (3) months of the completion of the installation.

Eligible Products to Be Supported	Part No.	Manufacturer	Quantity	Period
1000 Series 802.11a/b/g AP w/ Int Antennas, FCC config.	AIR-AP1010-A-K9	Cisco	871	12 Months

Non-Instructional Facilities to be supported	Entity Number	District Site
VIDOE STT Headquarters	16030773	St. Thomas
STTJ Headquarters/Curriculum Center	16030839	St. Thomas
STX Curriculum Center	16030828	St. Croix

The VIDE service provider installed the following equipment at identified VIDE sites during May/June of 2009. The equipment was installed based on approved Year 8 funding. Item substitutions were made and approved by the SLD and are as followed:

DESCRIPTION	PART NO.	QTY
Cisco Wireless LAN Controller 6 Port	AIR-WLC2106-K9	2
Cisco Wireless LAN Controller 12 Port	AIR-WLC4402-12-K9	17
Cisco Wireless LAN Controller 25 Port	AIR-WLC4402-25-K9	6
7' CAT5e Patch cables	CAT5-07-XX	25
HP 1000Base-T SFP	J8177C	25
Cisco Transceiver SFP 1000Base T	GLC-T	25
HP Switch 2600-8 PWR 10/100 POE	J8761A	7

The VIDE service provider provided maintenance and preventative maintenance support for the VIDE Wireless Access Points system as follows:

Upon receiving a trouble call, the VIDE service provider produces a "trouble ticket" and dispatch a cabling Engineer to the site to investigate the drop/s.

1. Upon arriving at the site, the Wireless Equipment Engineer phones in his/her arrival to VIDE service provider Technical Support Manager and check in with the site's designated point person (if available)

2. After resolving the issue onsite the Wireless Equipment Engineer phones in the action taken, which are updated in the ticket previously created
3. If the issue cannot be resolved immediately due to environment conditions or if the causes are out of scope, VIDE is informed and the ticket will be closed
4. Throughout the day if calls are received from VIDE with reports of trouble issues, the VIDE service provider responds according to the approved SLA with remote or onsite support based upon the nature of the incident

During monthly visits of each site, the VIDE service provider will perform Wireless Access Point management including ensuring that the access points are properly working to support the needs of the particular location.



## **Basic Maintenance Network Electronics**

### **Procurement Summary**

The VIDE will be procuring new basic maintenance network electronics services for the period 2013-2015. The VIDE is requesting 2yr maintenance support during 2013-2015 for the existing equipment.

### **Current Environment**

The VIDE service provider provided basic maintenance support of VIDE's Network Electronics as identified in the RFP. The VIDE service provider provided maintenance support for Network Electronics at each school and administrative site. For sites not covered by E-rate, this work will be done as ineligible services.

### ***Defective Equipment***

The VIDE service provider coordinates and maintain the RMA (Return Merchandise Agreement) of defective network electronic equipment. The VIDE service provider will keep track of current and expiring warranties for all items supported under the agreement. To expedite resolution, the VIDE service provider will stock an adequate quantity of spares for the immediate replacement of defective devices. This will allow VIDE users to be back "up and running" the same day rather than waiting for RMA device delivery. When the RMA device arrives, the VIDE service provider will add it to the spare pool for future deployment.

### ***Preventive Maintenance***

In order to reduce the amount of break/fix necessary, preventive maintenance tasks need to be performed on a routine basis. The VIDE service provider performed preventative maintenance is performed for the HP network equipment that is the heart of the ETAN network.

The following is a list of Preventative Maintenance tasks and the frequency in which each will be performed:

- Firmware updates
- Fault Light evaluation
- Network Cabinet organization and dusting Switch configuration changes
- Equipment Auditing for unauthorized changes
- Switch log evaluation
- Any deficiencies in the MDF or IDF environments will be reported such as HVAC, access or moisture

## **Assumptions**

- Adequate electrical outlets and environmental controls are in place and are in good working order to support the network electronics equipment
- Upon removal of failed or defective equipment no longer under manufacturer warranty, the VIDE service provider will deliver the equipment to the VIDE designated location for disposal.

- Failures due to environmental causes such as water damage, HVAC failure, power surges, etc. void the manufacturer's warranty and cannot be repaired or replaced under this contract.

## **Service Level Agreement**

The VIDE service provider responds to Server tickets within four (4) hours with resolution targeted for the next business day. Intermittent problems may take longer than a day for resolution.

## **Server Maintenance**

### **Procurement Summary**

The VIDE will be procuring new servers and maintenance services for the period 2013-2015. The VIDE is requesting 2 years of maintenance support for (2013-2015) for the existing equipment.

### **Current Environment**

The selected VIDE service provider will provide basic maintenance support of VIDE's Network and Exchange servers. There are four (4) servers at the Department of Education Headquarters on St. Thomas and four (4) servers at the Curriculum Center on St. Croix. These servers are used as email, web, proxy, and domain controller services.

The maintenance and technical support services to be performed by the VIDE service provider are as follows:

- Operating system updates as necessary
- Fault Light evaluation
- Network Cabinet organization and dusting
- RMA defective/failed equipment
- Documentation update upon MAC (moves add changes)
- Warranty tracking and updates

## **Assumptions**

The VIDE service provider Proposal is based on the following assumptions:

- Based on the RFP, the VIDE service provider does not expect to provide new servers for failed equipment during this contract unless other funding is available
- Eight (8) server units will be covered by this contract. Any additional equipment requested by the VIDE to be supported will require separate pricing
- All equipment is properly tagged and inventoried
- All equipment information is available for review (i.e. service history, warranty, open maintenance requests, etc.)
- VIDE has been accurate with the description of the listed servers and that these are currently installed at each NOC
- VIDE head end servers are solely used for web, proxy, and domain control
- Email servers listed are used for the purpose of email and using Microsoft Exchange server
- The current configuration is a working, stable configuration with no need for re-building or re-formatting
- The VIDE service provider will not be responsible for support or execution of backup solutions and processes for any VIDE server. The VIDE service provider will maintain the backup hardware to ensure it is working properly.
- VIDE is responsible to provide all related back-up media and tools that will support the size required for planned backup

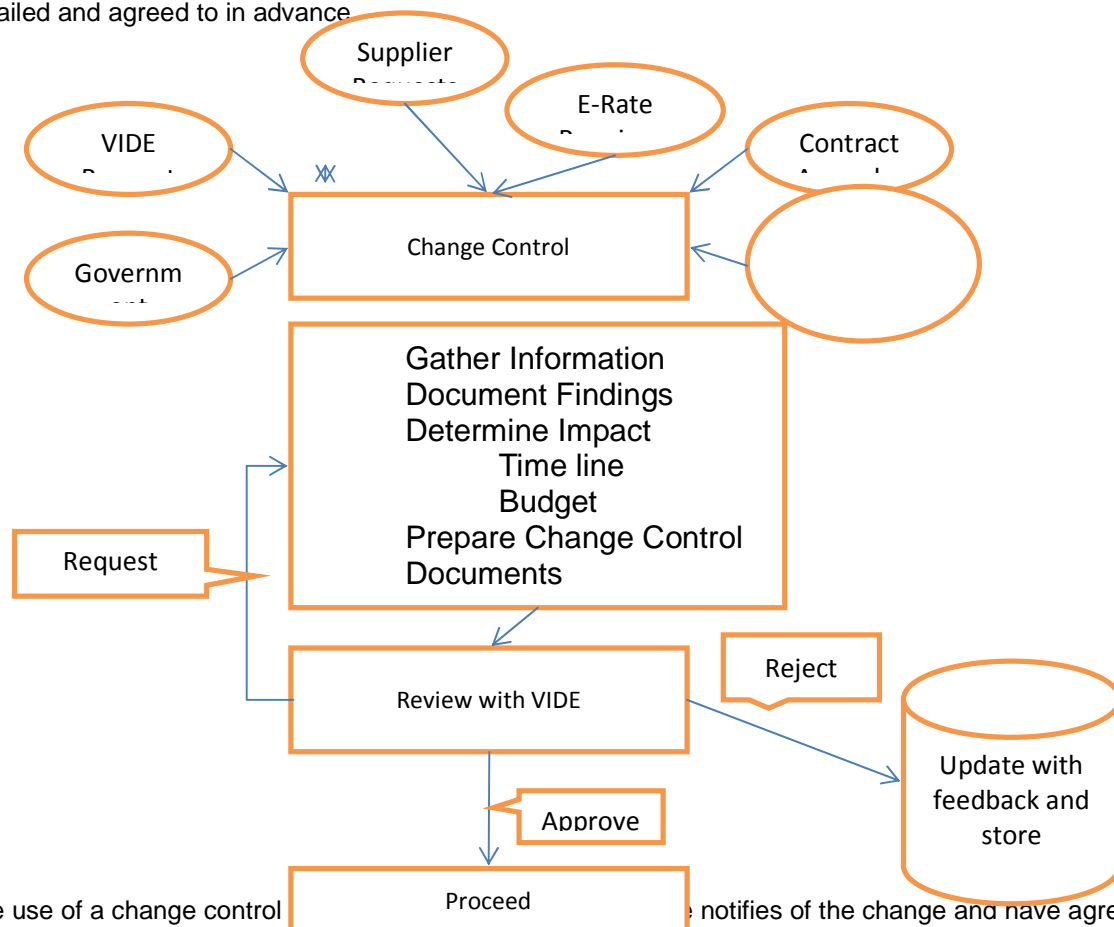
- The current backup equipment is working nor properly sized to support VIDE's backup and recovery plan
- The VIDE service provider will assist the VIDE with backup restoral in the event of a complete server failure. The VIDE service provider will not be responsible for the recovery of user deleted data, archived data or other data management functions.
- The VIDE service provider will not be responsible for user account management
- Tape drives and tapes are required to archive data

## Service Level Agreement

The VIDE service provider will respond to Server tickets within four (4) hours with resolution targeted for the next business day. Intermittent problems may take longer than a day for resolution. Data restoral may take longer than the next business day due to data transfer rates.

## Change Control

The VIDE service provider will deploy a change control process for this project. There will be times when a request or service which is out of scope is necessary or, through assessment and evaluation; a change needs to be made to the project scope and deliverables. In order to ensure that this is properly documented and managed, the VIDE service provider will industry recognized Change Control processes. All work outside of scope will be addressed through a change order with specific charges detailed and agreed to in advance



The use of a change control process ensures that all parties are notified of the change and have agreed as to what will be done. The information provided for the agreement includes what will be done, when it is

planned, impact to VIDE, budget changes and additional charges. No work will be performed until both VIDE and the S VIDE service provider agree.

### ***Overview of Change Control Process***

Changes can occur for a number of reasons including:

- Equipment Upgrades
- Changes in design
- Out of scope support requests
- Large scale factory defects
- Damage to equipment due to natural disasters or accidents
- Moves/add/changes that are out of scope

The VIDE service provider will work with VIDE throughout the change control process. The following procedures will be observed for all Change Orders:

- Either party may request a Change Order but all Change Orders must be in writing.
- Change Order requests will be processed by VIDE as soon as reasonably possible. Both Parties will approve or reject the Change Order within five (5) business days of receipt from the other Party.
- Change Orders will, at a minimum include the following:
  - A description of the change to or any additional work to be performed and/or any changes to the performance required of either party,
  - A statement of the impact of the work or changes as part of the work,
  - The documentation to be modified or supplied as part of the work, and
  - If applicable, the estimated cost associated with the Change Order. A Change Order may or may not result in a change in compensation to VIDE service provider I.

The change control procedure will provide a method to monitor and control variances to the original design and resource specification and to define the impact of that change in time, dollars and project objectives.

### **Identification**

The first step in the change control process is to identify and categorize the change. For this project, the VIDE service provider anticipates there will be two (2) types of change orders: Project Scope and Technical Change.

Changes in project scope can come from different sources. These sources include but are not limited to:

- A request from VIDE
- A request that requires a change in an item defined in the contract
  - General
  - Scope of Services
  - SLA
- From a vendor/supplier
  - Change in costs
  - Change in original plan/schedule
- From E-rate
  - Change in funding

Technical changes can come from different sources. These sources include but are not limited to:

- A request from VIDE

- Change in an installed object supported through contract/contract amendment
  - Hardware
  - Configuration
  - Network
  - Etc.
- From E-rate
  - Change in funding
  - Change in sites or equipment support
- From Manufacturers/suppliers
  - Equipment at end of life
  - Major upgrades/recalls

### **Documentation**

Documentation is a key part of the change control process. Information will be gathered and document using the approved change order form. For Project Scope changes, the Project Scope Change Form will be used. The information contained on this form includes:

- Nature of the requested change
- Impact of the requested change on the project
- Impact of the requested change on costs and budget
- Impact of the requested change on project timeline
- Impact of the requested change on other projects
- E-rate implications

The form contains the following information:

For Technical Changes, the Technical Change Form will be used. The information contained on this form includes:

- Nature of the requested change
- Impact of the requested change on the project
- Impact of the requested change on costs and budget
- Impact of the requested change on project timeline
- Impact of the requested change on other projects
- E-rate implications

### **Review**

All change orders will be reviewed with assigned VIDOE resources in order to do the following:

- Verify understanding
- Review budget, costs, and timelines (if applicable)
- VIDOE or the SDI team may request changes to the Project Scope Change document
- VIDOE or the SDI team may decide not to proceed

### **Approve/Reject**

The VIDE service provider or VIDE can choose to accept or reject change orders. If a change order is accepted, all necessary project documentation will be updated and work will proceed. If a change order is rejected, the rejection will be documented and the change order will be archived. It is not uncommon for a change order to be reworked if it is rejected and processed again.

All change orders will need to have a signature from both VIDE service provider I and VIDE. In some cases where time is critical in order to complete an approved change order, an email from both VIDE service provider I and VIDE indicating approval will be accepted and a copy of the email will be archived with the change order.

### **Exceptions**

In some cases, there may be exceptions to the above process. This happens with a change is required to fix a reported problem that is impacting critical services. Normally, these types of changes do not require down-time for other equipment or networks while the work is being performed and have limited impact on other services.

In all cases, all downtime will be communicated by the VIDE service provider to VIDE via email and communication with school resource. In addition, a help ticket will be used in place of a formal Technical Change Control form. Finally, changes are assumed to be approved for all help ticket requests.

### **Change Order Log**

All change orders will be log into the Change Order log. This document will contain basic information about each change order and will be submitted for weekly review as part of the status meeting.

## **Firewall**

### **Procurement Summary**

The VIDE will be procuring/upgrading firewall equipment/software and maintenance services for the period 2013-2015. The VIDE is requesting 2 years of maintenance support for (2013-2015) for the existing equipment.

### **Current Environment**

The selected VIDE service provider will provide basic maintenance support of VIDE's Fortinet firewall. There is 1 firewall at the Department of Education Headquarters on St. Thomas and 1 firewall at the Curriculum Center on St. Croix.

## **Compensation**

### **ERATE YEAR 15 COMPENSATION DETAILS**

E-rate Year 15 contract is contingent upon E-Rate funding and Contractor agrees to invoice the SLD directly for the portion funded by the federal E-Rate program. Notwithstanding the foregoing, Contractor shall submit copies of the proposed E-Rate invoices to the State Director of Instructional Technology for approval before submitting them to the SLD for payment. The total compensation payable

to the Contractor for E-rate Year 15 shall not exceed **Four Million, Seven Hundred Twenty-Seven Thousand, One Hundred Eighty-Four Dollars and Zero Cents (\$4,727,184.00)**. The Government shall only be responsible for paying 10% in addition to all ineligible amounts of the total of E-rate Year 15 compensation in the amount not to exceed **Four Hundred Seventy-Nine Thousand, Four Hundred Sixty-Six Dollars and Forty-Three Cents (\$479,466.03)**. All of the terms and conditions of Contract Years 1 and 2 (including invoicing procedures) shall apply to E-rate Year 15.

The payments are identified as follows:

SERVICES	TOTAL	E-RATE		VIDE		
	COSTS	ELIGIBLE	REQUEST	10% MATCH	INELIGIBLE	TOTAL
Video Conferencing (P2)	\$25,632.00	\$18,134.64	\$16,321.18	\$1813.47	\$7497.36	\$9310.83
Wide Area Network (P1)	\$2,682,036.00	\$2,682,036.00	\$2,413,832.40	\$268,203.60	\$0.00	\$268,203.60
Network Electronics(P2)	\$609,408.00	\$609,408.00	\$548,467.20	\$60,940.80	\$0.00	\$60,940.80
Cabling (P2)	\$1,233,708.00	\$1,233,708.00	\$1,110,337.20	\$123,370.80	\$0.00	\$123,370.80
Servers(P2)	\$176,400.00	\$176,400.00	\$158,760.00	\$17,640.00	\$0.00	\$17,640.00
<b>ERATE YR15 TOTALS</b>	<b>\$4,727,184.00</b>	<b>\$4,717,759.97</b>	<b>\$4,247,717.98</b>	<b>\$471,968.67</b>	<b>\$7,497.36</b>	<b>\$479,466.03</b>

P1= Priority 1 WAN Support and Maintenance

P2= Priority 2 Basic Maintenance Service

The Government agreed to: (i) encumber sufficient funds to pay its portion of the compensation payable to Contractor under this Contract; (ii) remit payment to Contractor within sixty (60) days of receipt of Contractor's invoice for services performed under this Contract; and (iii) assist Contractor in securing payment from the SLD for services performed under this Contract, as such assistance may be requested from time to time by Contractor.

#### **ERATE YEAR 16 COMPENSATION DETAILS**

E-rate Year 16 of this Contract is contingent upon E-Rate funding and Contractor agrees to invoice the SLD directly for the portion funded by the federal E-Rate program. Notwithstanding the foregoing, Contractor shall submit copies of the proposed E-Rate invoices to the State Director of Instructional Technology for approval before submitting them to the SLD for payment. The total compensation payable to the Contractor for E-rate Year 16 shall not exceed **Four Million, Seven Hundred Twenty-Seven Thousand, One Hundred Eighty-Four Dollars and Zero Cents (\$4,727,184.00)**. The Government shall only be responsible for paying 10% in addition to all ineligible amounts of the total of E-rate Year 16 compensation in the amount not to exceed **Four Hundred Seventy-Nine Thousand, Four Hundred Sixty-Six Dollars and Forty-Three Cents (\$479,466.03)**. All of the terms and conditions of Contract Years 1 and 2 (including invoicing procedures) shall apply to E-rate Year 16.



The payments are identified as follows:

SERVICES	TOTAL	E-RATE		VIDE		
	COSTS	ELIGIBLE	REQUEST	10% MATCH	INELIGIBLE	TOTAL
Video Conferencing (P2)	\$25,632.00	\$18,134.64	\$16,321.18	\$1813.47	\$7497.36	\$9310.83
Wide Area Network (P1)	\$2,682,036.00	\$2,682,036.00	\$2,413,832.40	\$268,203.60	\$0.00	\$268,203.60
Network Electronics(P2)	\$609,408.00	\$609,408.00	\$548,467.20	\$60,940.80	\$0.00	\$60,940.80
Cabling (P2)	\$1,233,708.00	\$1,233,708.00	\$1,110,337.20	\$123,370.80	\$0.00	\$123,370.80
Servers(P2)	\$176,400.00	\$176,400.00	\$158,760.00	\$17,640.00	\$0.00	\$17,640.00
<b>ERATE YR 16 TOTALS</b>	<b>\$4,727,184.00</b>	<b>\$4,717,759.97</b>	<b>\$4,247,717.98</b>	<b>\$471,968.67</b>	<b>\$7,497.36</b>	<b>\$479,466.03</b>

P1= Priority 1 WAN Support and Maintenance

P2= Priority 2 Basic Maintenance Service

The Government agreed to: (i) encumber sufficient funds to pay its portion of the compensation payable to Contractor under this Contract; (ii) remit payment to Contractor within sixty (60) days of receipt of Contractor's invoice for services performed under this Contract; and (iii) assist Contractor in securing payment from the SLD for services performed under this Contract, as such assistance may be requested from time to time by Contractor.

## Web Hosting

### Procurement Summary

The VIDE will be procuring webhosting services for the period 2013-2015 for all public schools.

### **Current Environment**

VIDE through its service provider provides a web hosting solution that is integrated and all inclusive with respect to services, support, training and features.

Some of the requirements and/or services VIDE through its service provider provides include, but are not limited to:

- Easy and flexible interface so users can easily update, post, and create web pages.
- Support of Web 2.0 and/or greater.
- Solution must integrate with SASI and Powerschool so student data may be easily uploaded to the web hosting solution and accessed by parents, and other stakeholders.
- Secure environment from spammers, hackers, viruses, robots, etc.
- Support of the most popular document formats for uploading web design and content.

- Provide a web site for all schools (38 total) and with ability for pages for up to 3,000 educators, with no increase in fees for adding new user web pages within the year because of growth.
- Provide each teacher with a web page.
- Provide each school site with a web page.
- Provide a calendar feature that is interactive, attractive, easy to use, and meet the needs of a K-12 school district.
- Templates should keep the same look-and-feel throughout all web pages for the entire organization.
- The website services should be of sufficient capacity to ensure that loading, refreshing, and updating of pages, and uploading and downloading of files occur in a timely manner consistent with those of most other commercial websites.

## **Internet Access Services**

### **Procurement Summary**

The VIDE will be procuring internet services for the period 2013-2015 to increase the current bandwidth to meet the needs of the VIDE.

### **Current Environment**

VIDE through its service provider provides internet access services to the Government for all eligible schools and/or instructional sites.

VIDE's service providers provides network service features as follows:

- a) Redundant loops; on St. Thomas, St. John and St. Croix
- b) 24 hour a day, 7 day week coverage.
- c) St. Thomas/St. John and St. Croix districts will each receive 65Mbps of dedicated Internet bandwidth.
- d) Dual bandwidth sources; Global Crossing (NY and Miami STMs) on St. Croix and Puerto Rico to St. Thomas via Culebra (Miami STM1 on a different undersea fiber than Global) with BGP providing auto-failover via our ARIN registered IP addresses
- e) Security; encrypted, licensed backhaul radios (Dragonwave and Alcatel)
- f) Licensed radios for VI DOE links with at least 100Mbps capacity specs of radio equipment
- g) Spare radios/dishes, certified tower climbers, in-house technicians
- h) Track record of building out over climbers, in-house technicians
- i) Battery, generator and solar power backup systems
- j) Cisco edge routers at Global Crossing and St. Thomas Puerto Rico bandwidth sources

**Internet Service Level Agreement**

VIDE's service provider monitors their network with monitoring tools which sends e-mail to their cell phones to let them know of a problem. The Service Provider's response time is measured in minutes, and depending on the outage severity, they shall have manpower available to fix a problem within minutes. The Service Provider works with VIDE to define how priority levels will be assigned to service requests.

The Service provider's SLA will commit to 99.99% reliability. Any downtime over 0.01% per month (4 minutes per month, 52 minutes a year) will result in reimbursement to the VIDE from the service provider, excluding acts of God, riot, war, hurricane, and earthquake.

The internet Service provider's bandwidth on St. Croix will be provided by Global Crossing from their St. Croix cable station. The service provider's Cisco routers connect via fiber to their two STM-1 155Mbps circuits (with more STM-1's available when needed). Connectivity is provided by undersea cable running from St. Croix to New York, Florida, Brazil and Panama, with auto failover if one or more of the cables are disabled.

The service provider's bandwidth on St. Thomas/St. John will be provided by a 300Mbps microwave shot to Culebra where it connects to the Puerto Rico undersea fiber to Miami. The St. Croix and St. Thomas networks are inter-connected to provide "best" routing and automatic failover via a licensed Alcatel microwave link.

The service provider will provide a minimum of 100Mbps of bandwidth for STTJ district, and STX districts via licensed radios connecting to our redundantly backhauled tower sites on St. Thomas and St. Croix. Quotes will be requested for up to 1GB bandwidth.

**COMPENSATION**

Funding of this Contract is subject to approval by the E-Rate Program as a basis of ninety percent (90%) of compensation for qualified services and products to be provided under the Contractor.

Compensation of the services for each year of the Contract is contingent upon E-Rate funding. The total compensation payable to the Contractor for each year of the Contract shall not exceed Five Hundred Thirty Two Thousand Eight Hundred and No Cents (\$532,800.00).

1. Ten percent (10%) of eligible costs in an amount not to exceed Fifty Three Thousand Two Hundred Eighty Dollars and No Cents.
2. The Service Provider internet service charge is \$44,000 per month for each year starting July 1, 2012 ending June 30, 2014. No upfront costs, no additional costs. Below is the table of costs:

**YEAR ONE (1) 2012-2013 COMPENSATION:**

Equipment/Service							
SERVICE AND/OR EQUIPMENT	UNIT COST (Monthly)	QTY	EXTENDED ( )	E-RATE ELIGIBLE AMOUNT : 90%	VIDOE E-RATE MATCH: 10%	VIDOE INELIGIBLE AMOUNT-	TOTAL COST
200Mbps	\$44,000.00	1	\$532,800.00	\$479,520.00	\$53,280.00	-	\$532,800.00
<b>TOTALS</b>	\$44,000.00	1	\$532,800.00	\$479,520.00	\$53,280.00	-	\$532,800.00

**YEAR TWO (2) 2013-2014 COMPENSATION :**

Equipment/Service							
SERVICE AND/OR EQUIPMENT	UNIT COST (Monthly)	QTY	EXTENDED (YEAR 2)	E-RATE ELIGIBLE AMOUNT YR 2: 90%	VIDOE E-RATE MATCH: 10%	VIDOE INELIGIBLE AMOUNT- YR 2	TOTAL COST (YEAR 2)
200Mbps	\$44,000.00	1	\$532,800.00	\$479,520.00	\$53,280.00	-	\$532,800.00
<b>TOTALS</b>	\$44,000.00	1	\$532,800.00	\$479,520.00	\$53,280.00	-	\$532,800.00

SERVICE AND/OR EQUIPMENT	UNIT COST (Monthly)	QTY	EXTENDED ( )	E-RATE ELIGIBLE AMOUNT : 90%	VIDOE E-RATE MATCH: 10%	VIDOE INELIGIBLE AMOUNT-	TOTAL COST
200Mbps	\$ 44,000.00	1.00	\$ 532,800.00	\$ 479,520.00	\$ 53,280.00	-	\$ 532,800.00
<b>TOTALS</b>	\$ 44,000.00	1.00	\$ 532,800.00	\$ 479,520.00	\$ 53,280.00	-	\$ 532,800.00

**YEAR TWO (2) 2013-2014 COMPENSATION :**

Equipment/Service							
SERVICE AND/OR EQUIPMENT	UNIT COST (Monthly)	QTY	EXTENDED (YEAR 2)	E-RATE ELIGIBLE AMOUNT YR 2: 90%	VIDOE E-RATE MATCH: 10%	VIDOE INELIGIBLE AMOUNT-YR 2	TOTAL COST (YEAR 2)
200Mbps	\$ 44,000.00	1.00	\$ 532,800.00	\$ 479,520.00	\$ 53,280.00	-	\$ 532,800.00
<b>TOTALS</b>	\$ 44,000.00	1.00	\$ 532,800.00	\$ 479,520.00	\$ 53,280.00	-	\$ 532,800.00

## **VOIP PBX SERVICES**

### **Procurement Summary**

The VIDE will be procuring new VoIP services and equipment from 2013-2015 to provide and expand services and capabilities to VIDE stakeholders as required to accomplish its mission, goals and state priorities.

### **Current Environment**

#### **1. Hardware and Software**

The following VoIP equipment has installed in the US Virgin Islands and maintained by the OIT Technicians:

<b>HARDWARE</b>	<b>MANUFACTURER</b>	<b>PART NO.</b>	<b>QTY</b>
3300 Universal ASU	Mitel	50001266	8
3340 Global Branch Office Solution	Mitel	52001748	28
7100 Management Access Point E/M/S/U NA	Mitel	51005423	28
Messaging Server 206 Base Server (6510)	Mitel	50004650	1
5201 IP Phone	Mitel	50002815	440
5215 IP Phone	Mitel	50003790	279
5220 IP Phone	Mitel	50003791	66
<b>HARDWARE</b>	<b>MANUFACTURER</b>	<b>PART NO.</b>	<b>QTY</b>
3300- IP Phone License	Mitel	52001151	
7100 IP Phone License	Mitel	52001151	745
UM User License (100 Users)	Mitel	5400760	100 users

#### **2. Maintenance Services**

OIT Technicians performs the following voice system maintenance services:

- a. OIT Technicians performs routine preventive network electronics maintenance in accordance with the schedule outlined in the immediately succeeding section. OIT staff records all maintenance performed on all equipment.
- b. "Trouble Tickets" are created to track problems from detection to resolution. In addition to daily email and phone updates on critical problems, monthly incident reports detailing the previous problems and resolution. The report contains information on the following:
  - Nature of Problem
  - Resolution
  - Resolution Time
  - Trending Information
- c. OIT Technicians maintains an adequate supply of IP phones and voice system components to effect repairs and replacements with minimal service interruptions.

- d. OIT applies updates and firmware as required.
- e. Utilizing the 7100 MAP and the Mitel Enterprise Manager, OIT technicians implemented an alarm-notification application so that remote problem investigation can be performed.

### 3. Maintenance Schedule

MAINTENANCE SERVICE	FREQUENCY
PBX/Switch Room	2 Times a Year
Visual Check of PBX room meets environmental requirements	
Cabling/MDF is neat and properly dressed and labeled	
Voicemail System	
Read Statistics and Log File	
Test Ports	
Checked Fans and Filters	
Verify Current Time & Date is correct	
Check Cable Connection	
Verify reboot schedule - Not Set To Memory	
Maintenance Log	
Data Back up Complete	
Power System	
Battery connections & readings	
Corrosion check	
Low voltage disconnect	
Rectifier connections readings	
Float	
Equalize	
LED Visual Check	
Remote Access Check	
Call Mitel Kanata CCC to Verify Remote Access information is correct in Database	
Ensure Cry I/Modem is connected to PBX	
Verify Telco Circuit Numbers and Provider Information is correct and contained in the PBX forms.	

# BUDGET

## General Fund — Local Instructional Technology Budget



Financials, Revenue & Citizen Services and Human Capital Management



06/10/2013  
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Gov't of the U.S. Virgin Islands  
FLEXIBLE PERIOD REPORT 2013  
GENERAL FUND

PAGE 1  
glflxprt

FROM 2013 01 TO 2013 13

	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	ACTUALS	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
0100 GENERAL FUND							
400 DEPARTMENT OF EDUCATION							
1 PERSONNEL SERVICES							
511000 CLASSIFIED EMPLOYEE SALARIES							
00426001 511000 CLASSIFIED EMPLOYEE SALARI 37,109		0	37,109	17,470.14	.00	19,638.86	47.1%
511010 UNCLASSIFIED EMPLOYEE SALARIES							
00426001 511010 UNCLASSIFIED EMPLOYEE SALA 207,184		0	207,184	155,162.65	.00	52,021.35	74.9%
514030 LUMP SUM PAYMENTS							
00426001 514030 LUMP SUM PAYMENTS	0	0	0	9,274.80	.00	-9,274.80	.0%
514040 FEES & COMPENSATION NOC							
00426001 514040 FEES & COMPENSATION NOC 0		0	0	870.50	.00	-870.50	.0%
515000 HOLIDAY PAY							
00426001 515000 HOLIDAY PAY	0	0	0	4,260.46	.00	-4,260.46	.0%
515010 SICK PAY							
00426001 515010 SICK PAY	0	0	0	4,937.99	.00	-4,937.99	.0%



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FLEXIBLE PERIOD REPORT 2013  
GENERAL FUNDPAGE 2  
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FROM 2013 01 TO 2013 13							
	ORIGINAL APPROP	TRANSFRS/ ADJUSTMTS	REVISED BUDGET	ACTUALS	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
515020 ACCRUED LEAVE PAY							
00426001 515020 ACCRUED LEAVE PAY	0	0	0	7,163.66	.00	-7,163.66	.0%
TOTAL PERSONNEL SERVICES	244,293	0	244,293	199,140.20	.00	45,152.80	81.5%
2 FRINGE BENEFITS							
520010 EMPLOYER CONTRIBUTION RETIRE							
00426002 520010 EMPLOYER CONTRIBUTION RETI	42,751	0	42,751	33,003.08	.00	9,747.92	77.2%
521000 SOCIAL SECURITY							
00426002 521000 F.I.C.A.	15,146	0	15,146	12,346.44	.00	2,799.56	81.5%
521100 MEDICARE							
00426002 521100 MEDICARE	3,542	0	3,542	2,887.57	.00	654.43	81.5%
522000 HEALTH INSURANCE PREMIUM							
00426002 522000 HEALTH INSURANCE PREMIUM	27,632	0	27,632	23,085.28	.00	4,546.72	83.5%
522200 WORKERS COMP PREMIUMS							
00426002 522200 WORKERS COMP PREMIUMS	556	0	556	556.00	.00	.00	100.0%
TOTAL FRINGE BENEFITS	89,627	0	89,627	71,878.37	.00	17,748.63	80.2%

06/10/2013  
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FLEXIBLE PERIOD REPORT 2013  
GENERAL FUNDPAGE 3  
glflxprt

FROM 2013 01 TO 2013 13

	ORIGINAL APPROP	TRANSFERS/ ADJUSTMENTS	REVISED BUDGET	ACTUALS	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
3 SUPPLIES							
540000 SUPPLIES							
00426003 540000 SUPPLIES	0	0	0	23,930.90	-1,015.00	-22,915.90	.0%
541100 OPERATING SUPPLIES							
00426003 541100 OPERATING SUPPLIES	77,500	-12,000	65,500	28,994.94	-4,635.68	41,140.74	37.2%
TOTAL SUPPLIES	77,500	-12,000	65,500	52,925.84	-5,650.68	18,224.84	72.2%
4 OTHER SERVICES							
532000 REPAIRS & MAINTENANCE							
00426004 532000 REPAIRS & MAINTENANCE	5,000	0	5,000	2,490.17	-2,230.03	4,739.86	5.2%
534000 PROFESSIONAL SERVICES							
00426004 534000 PROFESSIONAL SERVICES	600,000	0	600,000	503,470.12	39,442.20	57,087.68	90.5%
534110 TRAINING							
00426004 534110 TRAINING	0	0	0	841.75	-841.75	.00	.0%
536000 TRANSPORTATION - NOT TRAVEL							
00426004 536000 TRANSPORTATION - NOT TRAVEL	1,250	0	1,250	1,600.00	-350.00	.00	100.0%

06/10/2013  
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FLEXIBLE PERIOD REPORT 2013  
GENERAL FUNDPAGE 4  
glflxrpt

FROM 2013 01 TO 2013 13

	ORIGINAL APPROP	TRANFRS/ ADJUSTMTS	REVISED BUDGET	ACTUALS	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
560000 TRAVEL							
00426004 560000 TRAVEL	2,500	0	2,500	2,500.00	.00	.00	100.0%
564100 OTHER SERVICES NOC							
00426004 564100 OTHER SERVICES NOC	0	0	0	11,985.00	-11,985.00	.00	.0%
TOTAL OTHER SERVICES	608,750	0	608,750	522,887.04	24,035.42	61,827.54	89.8%
TOTAL DEPARTMENT OF EDUCATION	1,020,170	-12,000	1,008,170	846,831.45	18,384.74	142,953.81	85.8%
TOTAL GENERAL FUND	1,020,170	-12,000	1,008,170	846,831.45	18,384.74	142,953.81	85.8%
TOTAL EXPENSES	1,020,170	-12,000	1,008,170	846,831.45	18,384.74	142,953.81	
GRAND TOTAL	1,020,170	-12,000	1,008,170	846,831.45	18,384.74	142,953.81	85.8%

## E-Rate Trust Fund Budget

Program Title: Instructional Technology E-Rate Reimbursement Trust Fund Budget	
Budget Summary	Totals
Salary	\$ -
Fringe Benefits	\$ -
Capital Outlay	\$ 165,000.00
Supplies	\$ 30,000.00
Other Services (Travel)	\$ 30,000.00
Other Services (Purchased Services)	\$ 971,618.81
Sub total	\$ 1,196,618.81
Indirect Cost (9.6%)	\$ -
Grand Total	\$ 1,196,618.81

## Appendix - Professional Development Principles

The following represent some of the techniques OIT has adopted for the delivery of professional development to promote more effective training:

- Professional development support must be available any time the teacher is ready for it.
- Teachers working together to support each other's implementation of methods is more successful.
- Everyone always learns more when they are teaching. Invite as many teachers who are comfortable with it to be professional developers and mentors within their school among their colleagues.
- Professional development events should be an example of how teachers can apply the methods in their teaching.
- Allow technology and information literacy tools and processes to be incorporated naturally into what a teacher is already comfortable doing in order to build her or his capacity by leveraging what she or he can already do.

## Appendix – Research Basis for This Plan

### Best Practice in Technology Integration

Studies have shown that, when integrated meaningfully into curriculum and instruction, technology can positively impact student learning and achievement. Decades of research has shown drill and practice programs to be effective in reinforcing basic skills and boosting student performance in specific areas. (Boster, Meyer, Roberto, & Inge 2002) Likewise, students using simulations and video footage can gain deeper and more flexible knowledge of mathematical and scientific concepts. More recently, research has shown that, when integrated into curriculum-based student-centered classroom activities, tools such as word processors, spreadsheets, databases, modeling and presentation software can promote the development of such 21st century skills as communication, collaboration, and analytical thinking.

Key to the success of any intervention is the matching of the appropriate tool to the task at hand. If, as mentioned above, a teacher's objective is raise test scores in a discrete area such as math facts, an appropriate tool would be one that offers opportunities to memorize and be drilled on those facts until secure. If instead the curriculum calls for conceptual understanding and the ability to apply principles of physics related to force and movement, an entirely different type of tool would best meet that need. Further, the impact of being able to place that tool in the hands of the student to manipulate, explore, and discover, will contrast sharply with the impact of that same tool used by a teacher to "present" information to a whole class of students.

"Meaningful integration" of technology, then, refers to the process of matching the most effective tool with the most effective pedagogy to achieve the learning goals of a particular lesson. Each tool brings different opportunities to the learning environment and involves a different set of skills on the part of teachers and students. Each can play a unique role in the learning process when used at the appropriate time, under the most appropriate learning conditions. It is simply the degree to which a particular technology's capabilities are matched to the expected learning outcomes and supported by appropriate pedagogy that will determine the impact that technology has on learning and achievement.

When considering the range of available technologies and their potential impacts on learning, an important distinction can be made between two categories of technology tools, "Type I" and "Type II". (Maddux, Johnson and Willis, 2001) With Type I applications, students essentially learn "from" the technology. The computer acts as a tutor and serves to increase students' basic skills and knowledge, as is the case in the drill and practice reference above. Type I technologies use can be effective in helping teachers present and students acquire basic factual knowledge. They can be easily incorporated or "added on " to traditional instruction, in a whole-class setting or through individual student computer use.

Alternatively, students can learn "with" computers—where technology provides a flexible tool that can be applied to a variety of goals in the learning process and can promote the development higher order thinking, creativity and research skills (Reeves, 1999; Ringstaff & Kelley, 2002). Type II technologies are those that engage students in communication, hypothesis testing, and interactive information sharing, as is the case with many so-called "Web 2.0" applications. More common tools such as word processors, database and spreadsheet applications can be categorized as Type II tools also, when used in ways that involve personal engagement with authentic tasks.

## Best Practice in Technology Access

The technology infrastructure in a district or school provides the foundation upon which all educational and administrative technology efforts must rely. By virtue of its design and functionality, a school's infrastructure largely dictates what is and is not possible for teachers, students, administrators and parents to do with the equipment they have. Likewise, the number, type, location, and flexibility of technology tools in a school building will either enable or prevent the kinds of integral uses of technology that are described in the research on 21st century learning skills.

As discussed earlier in the section on technology integration, the selection of technology tools for a particular learning task must be driven by the goals of the curriculum and an understanding of effective pedagogy. A similar statement can be made about decisions related to technology infrastructure and access. If, for example, the science curriculum's lab activities call for outdoor/off-site data collection and real-time data analysis, then adequate numbers of laptops or handheld devices are what need to be planned for. Alternatively, if students need only to be able to type as a final stage of their writing, then a lab of desktop machines may suffice. If a large high school facility needs to be able to simultaneously stream video and allow students to access distance learning courses, then its network must support high bandwidth activities.

It is increasingly common to find reports and policy papers that espouse the use of particular technology tools and enumerate the resources that "should" be available in "21st Century Classrooms" (e.g., SETDA, 2009). Generally, the lists include high bandwidth connectivity, low ratios of students to computers, various multimedia tools, and a wide array of peripherals tools. Nevertheless, the evaluators contend that it is essential that all equipment and infrastructure decisions be driven by the specific learning goals of the school, district, and overall Territory rather than by a list put together outside of the district.

Also sometimes referred to as "disruptive technologies" (Christiansen 1997) Type II applications, have proven to be powerful agents of change in the classroom when teachers learn to adapt their instructional practice to the design and capabilities of these "cognitive tools" (Jonasson & Reeve 1996). Matching the tool with the most effective pedagogy means shifting teachers' role from being providers of information to being providers of opportunities. Teachers must facilitate student exploration of ideas and questions in ways that engage them actively and centrally in their own learning. Type II technology-supported classrooms have the potential to become more learner-centered, and to promote engagement with subject matter in a way that is authentic and powerful.

One instructional model that has been shown to make particularly effective use of technology to facilitate technology-supported 21st century skill development is Project Based Learning. (Boss, S. & Krauss, J., 2007) Broadly defined as a systematic teaching method that engages students in developing knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks, project based instruction presents significant challenges to most teachers and requires extensive professional development to be successful. (Wiske, Sick, and Wirsig, 2001). Implications for professional development will be discussed in greater detail in later sections of this report

## Best Practice in Technology Professional Development

As discussed in the Technology Integration section above, integrating technology in meaningful ways involves matching instructional tools with curricular goals, desired student outcomes and instructional practice. Choosing the “right” tool for a learning task requires not only familiarity with the kinds of tools available, but also depends upon an understanding of how those tools can support the development of desired knowledge and skills. As with any tool selected for any purpose, the choice of what technology to use and how to use it must be guided by a set of beliefs---a vision-- for how learning is best supported.

Over the years, many studies have documented the pivotal role of technology professional development in enabling schools to realize the value of investments in technology. (Office of Technology Assessment, 1995; Coley, Cradler, & Engel, 1997; Silverstein et al., 2000; Sandholtz, 2001) Teachers who participate in regular, hands-on training that addresses important issues of curriculum and pedagogy in addition to the typical technical “how-tos” are those most likely to use technology in ways that promote higher order thinking in the classroom. (National Center for Education Statistics 1999). Likewise, schools whose professional development program regularly exposes teachers to new ideas and ways of teaching--with or without technology-- are those whose classrooms exhibit evidence of research-based best practice.

Introducing Type I technologies--those that replicate the role of the teacher or serve to support the existing instructional paradigm --can be achieved with relatively straightforward “how to” training in many cases. As add-ons to the traditional teaching process, these tools don’t “disrupt” or require changes in pedagogy for their use. Type II tools, on the other hand, bring challenges and exciting opportunities for moving classrooms toward becoming more learner-centered. As such, the need for professional development around the integration of these Type II tools is tremendous.

A necessary first step for a professional development program aimed at integrating Type II technology is to provide teachers with a vision for the kinds of learning environments they are being encouraged to create. They must be provided opportunities to see reformed pedagogy “in action” and to develop their own understanding of the value that these new (often challenging and threatening) teaching methods can bring. (Linn, Slotta, & Baumgartner, 2000) Student-centered lessons and curriculum units must be provided as samples, and the teaching of those units modeled for teachers. To be successful, technology professional development must equip teachers with the knowledge and skills to be able to:

- Address curricular objectives in a student-centered manner
- Develop essential questions for inquiry
- Assign develop projects that fit instructional objectives, whether or not there is any technology involved.
- Facilitate team learning, provide effective feedback to students, address unexpected questions, adjust timelines in the midst of projects
- Relate students’ own ideas and perspectives to curricular content

Needless to say, changing teacher pedagogy and beliefs about learning requires a sustained commitment on the part of administrators as well as from the teachers themselves. In many cases, traditional didactic forms of instruction have remained the norm in schools even after extensive professional development, primarily because of the many and varied demands on staff. (Means and Olson 1995) Recognizing the scope of the challenge associated with transforming classrooms is essential to this endeavor if technology is truly to be integrated into curriculum in ways that meaningfully impact student learning and achievement.



## Best Practice in Technology Literacy and Standards

Meeting curricular goals through authentic, student centered learning activities presents many challenges to traditional instruction. Teaching students proper and effective use of technology tools in that context can be even more difficult. Current studies suggest, however, that it is in combining the elements of reformed pedagogy and the appropriate integration of technology that students can gain valuable 21st century learning skills. (Partnership for 21<sup>st</sup> Century Schools, 2009)

Essential to the development of “technology literacy” is the ability of teachers to embed technology use into students’ regular classroom work. “Computer class”, where students learn to type or learn their way around the basic components of a computer is, in fact, antithetical to the way that research suggests developing students’ 21st century skills. No longer must technology be a course unto itself, or be “taught” by someone other than the classroom teacher. Instead, technology use must be driven by the goals of the curriculum (be they content, concept, or skills) and must be employed by students in ways that allow for exploration, discovery and the development of understanding. As students use technology to analyze information, collaborate with peers, communicate their knowledge, and create projects, they are developing technology proficiency as part of their overall education. Integration of technology skills and content area learning are at the heart of the latest revision of the ISTE-NETS standards for students.

In recent years, in response to the creation of technology literacy standards and the NCLB mandate that all students be technology literate by the end of grade 8 (in 2012), a wide array of “solutions” have been put forth by the education technology industry. In some cases, the individualized learning system (ILS) approach has been applied to the task of teaching students the “how-to” of computer use. In other cases, entire curricula have sprung up that purport to “teach technology literacy” through achievement of framework based content. Here, the evaluators advise caution with respect to purchasing such a “solution” designed to be implemented in a lab by a computer teacher. This model truly contradicts the recommendation that teachers learn to create student-centered classroom environments that engage students actively in the development of learning, thinking, and real-world technology skills that will serve them as 21st century citizens.

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## Appendix - Standards

### NETS-S (Students)

1. Creativity and Innovation -- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:

- a. apply existing knowledge to generate new ideas, products, or processes.
- b. create original works as a means of personal or group expression.
- c. use models and simulations to explore complex systems and issues.
- d. identify trends and forecast possibilities.

2. Communication and Collaboration -- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:

- a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
- b. communicate information and ideas effectively to multiple audiences using a variety of media and formats.
- c. develop cultural understanding and global awareness by engaging with learners of other cultures.
- d. contribute to project teams to produce original works or solve problems.

3. Research and Information Fluency -- Students apply digital tools to gather, evaluate, and use information. Students:

- a. plan strategies to guide inquiry.
- b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
- c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- d. process data and report results.

4. Critical Thinking, Problem Solving, and Decision Making -- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:

- a. identify and define authentic problems and significant questions for investigation.
- b. plan and manage activities to develop a solution or complete a project.
- c. collect and analyze data to identify solutions and/or make informed decisions.
- d. use multiple processes and diverse perspectives to explore alternative solutions.

5. Digital Citizenship -- Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:

- a. advocate and practice safe, legal, and responsible use of information and technology.
- b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- c. demonstrate personal responsibility for lifelong learning.
- d. exhibit leadership for digital citizenship.

6. Technology Operations and Concepts -- Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:

- a. understand and use technology systems.
- b. select and use applications effectively and productively.
- c. troubleshoot systems and applications.
- d. transfer current knowledge to learning of new technologies.

## NETS-T (Teachers)

1. Facilitate and Inspire Student Learning and Creativity -- Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers:

- a. promote, support, and model creative and innovative thinking and inventiveness
- b. engage students in exploring real-world issues and solving authentic problems using digital tools and resources
- c. promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes
- d. model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments

2. Design and Develop Digital-Age Learning Experiences and Assessments -- Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S. Teachers:

- a. design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity
- b. develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress
- c. customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources
- d. provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching

3. Model Digital-Age Work and Learning -- Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers:

- a. demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations
- b. collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation
- c. communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats
- d. model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning

4. Promote and Model Digital Citizenship and Responsibility -- Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers:

- a. advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources
- b. address the diverse needs of all learners by using learner-centered strategies and providing equitable access to appropriate digital tools and resources
- c. promote and model digital etiquette and responsible social interactions related to the use of technology and information
- d. develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital-age communication and collaboration tools

5. Engage in Professional Growth and Leadership -- Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers:

- a. participate in local and global learning communities to explore creative applications of technology to improve student learning

- b. exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others
- c. evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning
- d. contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community

## **NETS-A (Administrators)**

1. Visionary Leadership. Educational Administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization. Educational Administrators:

- a. inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders
- b. engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision
- c. advocate on local, state, and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan

2. Digital-Age Learning Culture. Educational Administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students. Educational Administrators:

- a. ensure instructional innovation focused on continuous improvement of digital-age learning
- b. model and promote the frequent and effective use of technology for learning
- c. provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners
- d. ensure effective practice in the study of technology and its infusion across the curriculum
- e. promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital-age collaboration

3. Excellence in Professional Practice. Educational Administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources. Educational Administrators:

- a. allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration
- b. facilitate and participate in learning communities that stimulate, nurture, and support administrators, faculty, and staff in the study and use of technology
- c. promote and model effective communication and collaboration among stakeholders using digital-age tools
- d. stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning

4. Systemic Improvement. Educational Administrators provide digital-age leadership and management to continuously improve the organization through the effective use of information and technology resources. Educational Administrators:

- a. lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources
- b. collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning
- c. recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals
- d. establish and leverage strategic partnerships to support systemic improvement
- e. establish and maintain a robust infrastructure for technology including integrated,

interoperable technology systems to support management, operations, teaching, and learning

5. Digital Citizenship. Educational Administrators model and facilitate understanding of social, ethical, and legal issues and responsibilities related to an evolving digital culture. Educational Administrators:

- a. ensure equitable access to appropriate digital tools and resources to meet the needs of all learners
- b. promote, model, and establish policies for safe, legal, and ethical use of digital information and technology
- c. promote and model responsible social interactions related to the use of technology and information
- d. model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools

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