COLORADO
Governor's Office of Information Technology
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Colorado Youth Corrections Computer Labs

Nomination Category	Information Communications Technology (ICT) Innovations
State	Colorado
Project Initiation Date	October 23, 2014
Project Completion Date	October 11, 2015

I. EXECUTIVE SUMMARY

In October 2015, the Governor's Office of Information Technology (OIT) took over the responsibility of the network, infrastructure, security and computing environment for the computer labs in six youth facilities with more than 50 classrooms within the Department of Human Services (CDHS) Division of Youth Corrections (DYC). Each of these six facilities is attached to its local school district and or a private contractor, and prior to this project, each was handling youth education in a different way -- with very little standardization and a host of challenges because of it.

Not only were curriculum and records in paper form, but there was zero automation of processes and tracking. If a student moved from one facility to another it was an administrative headache. The various systems were expensive, and lacking in adequate security and inefficient management. On top of that, the computers were not appreciated by the students, and sometimes being destroyed -- and without separate user accounts the state was unable to hold a student accountable for these actions. The systems were unusable for months at a time due to virus and malware, and backups were inadequate and data lost as a result.

OIT took on the project and made upgrades to not only meet state and national security requirements, but to modernize the technology -- including the design of the secure and standardized desktop delivery of education. This new model is receiving national attention for its operational efficiencies as well for its capability for youth to immediately pick up where their education left off as they move across facilities.

II. PROJECT NARRATIVE

a. Concept

The Colorado Department of Human Services (CDHS) Division of Youth Corrections (DYC) is required to provide educational services to youth housed at DYC facilities. Additionally, with increasing educational requirements and the inefficiencies mounting on the current disparate facility education systems, DYC needed to provide youth at the facilities with secure access to the internet for both internal and external training materials and services. The existing computing environment was not adequate and needed to be upgraded to current state functional and security standards to ensure that students have access to these resources, and to improve operations.

Prior to the upgrade, everything was done manually with little to no automation of processes. The educational materials (all print) were put together by one educator with very little IT experience, and he was having to burden the desktop support, firewalls, etc. -- with little support from the state. This was a massive overwork on this one educator. On top of this personnel issue, and the lack of security online, youth were getting behind in their studies while in the facilities. They were not performing well within the system, especially if they needed to leave the facility, and they were entering back into the school system at a disadvantage.

Another challenge was how to give kids in facilities access to the internet -- to take advantage of the efficiency and effectiveness of the world wide web -- in a controlled and monitored way.

To solve these business problems, DYC requested funding in 2014 to transition the existing network supported by the education unit to the Governor's Office of Information Technology (OIT). OIT took this opportunity to completely modernize and standardize the current system across all of the DYC locations, and offer a dramatically successful solution to a business problem for the State of Colorado.

The solution that OIT devised is a single, cloud-based solution powered off the use of Chromebooks and Google Apps for Education, to leverage the best resources and lowest costs. Using these tools, including applications like Google Doc and Google Classroom, the team was able to standardize the curriculum, process and tracking across the facilities in a highly flexible way. The facilities could deliver individualized content to each facility while using a standard hardware platform and framework -- for the low cost per computer of just $270. Furthermore, because the state chose Chromebooks, no Microsoft Office licensing was necessary. Google Apps for Education, Hapria and Go Gaurdian also enabled better management and monitoring of users with little to no extra cost, and no servers required. Through the use of secure WiFi, very little investment was needed for infrastructure (cables, switches, etc.), and the whitelist and blacklist functionality was granular enough to control the access.

The solution also included elevated security and virus protection to catch the system up with cybersecurity best practices. The curriculum was improved through the online wealth of resources including third party software via browser plugins only (to limit any possibility of malware or virus). The system now has more than 350 Chromebooks, more than 60 teacher workstations and hundreds of completely cloud-based websites and educational materials -- in an environment where the internet historically has not been available due to security and treatment issues.

b. Significance

The Colorado Youth Corrections project has had a transformational effect in Colorado, and is hugely significant for education in correctional facilities across the country.

The innovation behind this project is so fun to highlight: The educational heights are limitless with the use of Chromebooks and access to the internet for the teachers and students. Teachers can use Chromebooks and web education games as a reward or incentive for students, building not only more comprehensive curriculum but more engaging lesson plans. One example of a elevation in curriculum is the use of computer programs for virtual dissection classes. It would have been nearly impossible to teach live dissection in the facilities, with the high cost of materials and danger of have scalpels on hand; but with a virtual environment students have the ability to keep up with their peers outside the youth correctional facilities. They also have have the ability to monitor and interact with students from their teacher workstations in real-time. And perhaps the most transformational feature of this new system is that a student's entire account is available to him or her no matter where they are accessing it from. The students can transfer facilities with zero break in their education; and even have their curriculum and resources available to him or her after they leave the facility for good.

The project has dramatically improved the process and quality of education for a huge number of stakeholders, including:

- The Governor of Colorado
- The Colorado Department of Human Services
- The Division of Youth Corrections staff
- Educators and students located at DYC facilities
- Parents and guardians of youth within the DYC programs
- Governor's Office of Information technology
- The Colorado communities that the youth will re-enter upon release from a DYC facility

In addition, this project fits directly into Governor John W. Hickenlooper's gubernatorial priorities of efficiency, effectiveness and elegance by completely elevating the quality and process for education in Colorado's youth correctional facilities.

The project was also consequential for it's true collaborative success in Colorado. The Colorado Department of Human Services (CDHS) and OIT worked in tandem to develop a near flawless proposal for the state's Joint Technology Committee -- who loved it and immediately approved it and commended it for its alignment with the Governor's Administration. Once approved, the state's Service Desk, Network and Deskside teams came together to knock it out of the park. With such success and measurable improvement in such a short time, the State of Colorado is already looking at duplicating the success of this project with adult corrections facilities and higher education.

c. Impact

The impact of this project has been outstanding, with a complete overhaul of the youth corrections education program. Before the project:

- The curriculum planning was costly both in funds and time
- One of the biggest problems was vandalism of the computers: The computers were getting destroyed due to a lack of appreciation from students and lack of oversight ability
- Systems were not meeting state and national security requirements
- The Division of Youth facilities were using two or more Windows servers per site, with all teacher and student content residing on those servers. Students were using outdated Windows workstations, servers and workstations had a high risk of virus/malware infection and hardware failure, and there were minimal to no back-ups in place. The computers were also isolated to one or two labs, making access a challenge.
- When a student was brought into a facility, all of his or her records were on paper, as well as their curriculum. If that student was then transferred to a different facility these records had to be copied to a CD and or printed and sent over with him or her. This was a logistic and administration hassle, and often resulted in a gap in education for the student.

Now, with the implementation of the new single, cloud-based solution for all DYC facilities there is minimal to zero risk of malware/virus infection, access to the Chromebooks in every classroom, lowered cost, and huge efficiencies in continuing education. Among these substantial improvements to the education in the youth corrections facilities:

- Security: There is minimal to no risk of malware/virus infection. Access control, content and print all reside within the cloud. Additionally, there is multi-tier security: Google Management Console, firewalls, Hapara Teacher Dashboard, and single sign on.
- Individual user accounts through Google Apps for Education have completely stopped the computer vandalism. Students are trackable, and what's more, they have an appreciation for the redesigned learning system.

- Every facility classroom now has access to the Chromebooks.
- Huge cost savings and return on investment: Devices cost less than half ($270 or less) of a low-end laptop ($700 or more typically) and require approximately one-third the time to support. The device takes less than 10 minutes to deploy; compared to a minimum of 75 minutes for a traditional laptop.
- LookOut Mountain facility had 110 devices deployed in less than one day; this would have required more than three weeks to complete had the state utilized laptops.
- Maintenance is reduced dramatically as it takes less than four minutes to set a Chromebook device back to its original state, while a Windows laptop could take an hour or longer.
- There is now single sign on capability to enhance security of all websites for students
- Easy and quick access to State of Colorado web resources
- Community college classes offered through the web-based learning system
- Automated, real-time user account creation, allowing faster student and teacher account provisioning
- Implementation of the “Teacher Dashboard,” allowing teachers to monitor and interact with students from teacher workstations in real-time
- Large screen TVs with Chromeboxes deployed to schools for monitoring student Chromebooks
- More than 100 books, thousands of education videos, 45 websites, and 12 Google educational applications approved, secured and available to students
- The option to add more free or low-cost educational software/applications
- Ability to allow students granular access to approved websites (i.e., if desired, some links within approved websites may be blocked)
- High battery life for Chromebooks -- no need for students to have a power adapter during class
- Giant reduction in paper/printing cost across the state facilities; the first classroom the system was implemented in led to the avoidance of more than 40 reams of paper printed for one semester
- High quality education with nearly zero gaps for the student
- Standardized testing is completed with minimal disruption to classes (a recent test of more than 100 students was completed in one morning -- in the past it would have taken two to three days, and sometimes was not done at all)