The seal of the State of Wyoming is a circular emblem. It features a central figure of a Native American holding a bow and arrow, with a plow behind him. To the right is a pioneer with a rifle. The words "WYOMING" and "GREAT SEAL OF THE STATE OF WYOMING" are inscribed around the perimeter. The words "EQUAL RIGHTS" are written across the top of the inner circle.

Wyoming Department of Education

Annual Report to the Legislature on the Status of the Statewide Educational Technology Plan

January 10, 2013

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Superintendent of Public Instruction

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Overview:

Educational technologies experienced a mixture of changes over the past year. Staff development and curriculum integration lead the efforts through the infusion of the Common Core Standards in Math and English Language Arts (ELA) adoptions. Network connectivity's management changed hands from the Wyoming Department of Education (WDE) to the Division of Enterprise Technology Services (DETS). In addition, with the advent of the unified network initiative within Wyoming, DETS also absorbed the Wyoming Equality Network (WEN), including its videoconferencing component the WEN Video. And finally, the Title II Part D Enhancing Education Through Technology (EETT) program, a part of the No Child Left Behind (NCLB) Act, has closed its books after years of federal support.

Adoption of the Common Core¹ standards helped integrate educational technologies into the classroom. Technology is employed in multiple ways; however, utilizing technology as an assistive device², such as a speech-reader, should not be confused with utilizing technology to *enable [students] to visualize the results of varying assumptions, explore consequences, and compare predictions with data*³. The Wyoming Department of Education devotes time and resources to professional development for Wyoming educators⁴. Tori Leshner, Education Consultant in the Standards, Learning and Accountability Division states, "In order to better differentiate instruction for workshop participants, the WDE began utilizing an online registration system to gather significant information about participants' background knowledge. Various online platforms were considered and MyHaiku Class was implemented. This platform allows for electronic conversations between participants and facilitators. The platform also allows participants easy access to WDE-produced videos of exemplary teachers, as well as links to online tools."

The WDE has been informed by the Department of Enterprise Technology Services (DETS), that it issued a Unified Network request for proposal (RFP) on July 9, 2012. The following information was provided by Warren Anderson, Administrator – IT, DETS Team:

The purpose of the RFP was to contract for a Statewide Unified Network, which would allow for a TOTAL SOLUTION with a single vendor, that would combine the current State Agency Network and the existing Wyoming Equality Network (WEN). The intent was to leverage existing infrastructure, connectivity and circuits, thereby negotiating better pricing with higher speeds for education and state agencies. The proposal sought to ask Service Providers to propose

¹ The link to the common core is at <http://www.corestandards.org>

² Assistive Technology WDE website is at http://edu.wyoming.gov/Programs/special_education/assistive_technology.aspx

³ From the CCSS Math Standards page 7

⁴ The Wyoming Department of Education Workshops and Training website is located at: <http://edu.wyoming.gov/default/workshops-and-registration>

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innovative, dynamic, flexible and appropriate solutions while also providing high-bandwidth, high reliability and stable IP service for the benefit of all citizens of the State of Wyoming. Providers were also encouraged to submit proposals that exceed the baseline technical specifications of the RFP.

A nine member evaluation committee representing DETS, School Districts and Community Colleges assembled to review the submitted proposals and attend oral presentations from five vendors. On November 21, 2012, after the evaluation committee's careful review of the Unified Network proposals, DETS decided to **reject** all five submitted proposals. The department felt that the proposals submitted did not address the entire scope of the project, or the requirements of the RFP, thereby not fulfilling the State's need of implementing a statewide Unified Network.

Currently a business case is being drafted to identify and justify the challenges that DETS will be faced with in building, engineering, maintaining, monitoring and funding a statewide Unified Network. The approach of the business case will consider how to best solve the Unified Network, utilizing any/all statewide vendors, creating a better network design with redundant rings, multiple internet point of presence (POP's), negotiating better contracts and minimizing associated risks.

DETS further reports to the WDE: When it comes to their needs, unique issues, strategic solutions or bandwidth requirements no two school districts or state agencies are exactly alike. The Unified Network will have leading infrastructure, uniquely designed to serve education and state agencies, and handle comprehensive data, voice and video services. It will provide schools and agencies access to high-speed broadband and enable equitable access to the same high quality opportunities statewide. It will provide the foundation upon which broadband expansion can occur in communities and every Wyoming citizen can benefit from the growth of local service providers.

The Title II Part D EETT program ended December 31, 2012. Although the program experienced dramatic reductions from federal funding during the past few years, and received no funds this past year, the concept of the program laid the foundation for educational technologies through the insistence of professional development, technology literacy and student academic achievement through the use of technology.

Other elements of this report include the Wyoming Switchboard Network's (WSN) online program, WEN Video usage (TMS) report and district educational technology's best practices.

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Discussion:

The report is summarized into three categories: **Staff Development, Curriculum Integration** and **Network Connectivity**.

Staff Development (Professional Development):

An amalgamation of tools is at hand concerning professional/staff development. Yet the objective remains singular – to provide as much information and practicum possible that benefits teachers, staff and administrators; thus, improving student academic achievement.

The Title II Part D Enhancing Education Through Technology (EETT) is concluding; but not as the viable concept that has changed the way students, parents, teachers, administrators and legislators foresee education today and into the future. State educational agency (SEA) and local educational agency (LEA) embraced educational technology driven programs, projects and initiatives utilizing allocated and awarded funding. The educational technology funds directly contributed to professional development, annual benchmarking technology literacy by the eighth grade, and academic achievement through integrating technology into instruction permeated the classroom.

Wyoming's educational technology tactics over the years involved equipment purchases, professional development and the culminated in curriculum integration. Although all three elements were common threads throughout the program's life-cycle, emphasis placed on the different elements effectively developed into today's technology integration. While a disparity concerning which technology does more and what application is more productive may consume an administrator's conversation, the educational cohesion amid classroom technologies today is equivalent to the introduction of the chalkboard two centuries ago: adoption + adaption = indispensable. Here are some general observations⁵:

- School and district level data collections demonstrated an increase in technology tools and infrastructure deployment.
- Technology driven programs, projects and initiatives filter through from district level concepts to classroom employment.
- Professional development specifically aimed toward technology integration at the classroom level supporting the curriculum.

⁵ Excerpts from the draft Title II Part D EETT Final Report to the US Department of Education

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- Identifying technology literacy⁶ by the eighth grade marked the beginning of equitable technology development for our students.
- Unknowingly testing the development of reform, classrooms utilizing technology as a tool within the daily curriculum engaged and challenged students seamlessly toward academic achievement within content areas.

The primary goal of the Wyoming Switchboard Network (WSN) is to enhance the delivery of distance education coursework. As part of this goal, the WDE staff provides technical assistance, current research, and best practices to districts.

The Distance Education Grant (DEG) provides funding to Wyoming districts and community colleges for the development and maintenance of distance education programs. One of the top priorities of the DEG is to assist in the professional development opportunities for DE instructors. Subsequently in 2011-2012, \$88,427.97 was awarded for this purpose.

The WDE Summer Camp 2012⁷ was held at Casper College. The program covered Federal Program issues, Digital Learning, Literacy & Numeracy and Instructional Support. Approximately 300 people attended the five day event. Technology topics included Education & Digital Learning, Literacy – Balanced Literacy, Parental Role, Math Standards, Instructional Support, Assessment, Accountability and Standards.

Teachers, parents, businesses participated in technology breakout sessions included Assistive Technology for Students with Disabilities, Hardwiring the Small Digital Native, Digital Educators, iLearning, Implementing Functional 21st Century Skills, Creating Wyoming's 21st Century Workforce, Technology Boot Camp: Center that Engages Students, Poddy Training: iPADs and iPODs in Early Childhood Education and many more. A roundtable discussion around the topic of digital learning – how it relates to teachers, students, parents, businesses and communities going forward was a part of the day's program. The discussion leveled questions such as: *How can businesses help educators at all levels? What do educators need to do to help the developing workforce? How do businesses and communities gain better visibility into what capabilities and programs schools offer now? How do schools and school districts communicate more effectively with those in their community around the topic of digital learning? How do all stakeholders learn more about how students see their needs developing-what do they think they need? What role do the stakeholders think the state government has in supporting efforts to leverage technology to assist learning and career readiness⁸?* As a result, a couple of takeaways

⁶ Technology literacy is defined by the state as *the ability of our students to responsibly use appropriate technology to communicate, solve problems, access, manage, integrate, evaluate and create information to improve their learning in all subject areas while acquiring lifelong knowledge and skills in the 21st century.* (Per the WDE 584 District Technology Survey)

⁷ The link to the 2012 Summer Camp is at: http://edu.wyoming.gov/Programs/2012_Summer_Camp.aspx

⁸ Roundtable discussion information provided by Jerry Zellars, WDE's Public Information Officer

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include: businesses must be a part of the equation, businesses are willing to help, the business community must be invited into the process, students must be properly prepared for the future, and then businesses will take them to the next job-specific level. Information concerning Summer Camp 2013 is located at: <http://edu.wyoming.gov/Programs/summer-camp-2013> .

Curriculum Integration:

Ongoing programs designed to impact teachers at the school level include those from Sheridan County School Districts #1 and #3. In an effort to create a professional learning community surrounding technology integration K-12, the LEAs were interested in developing Digital Educator Leadership Teams to improve teacher skills in accordance with ISTE's NETS-T⁹. A minimum of ten Digital Educators would be selected from all interested teachers in the two districts. Interested teachers would apply to an administrative panel by completing a questionnaire focused on past and current leadership exhibited in the districts and willingness to attempt and evaluate innovative strategies with technology integration over the next three years. Summer Tech Academy 2011 was designed to increase student engagement and academic achievement with professional development for teachers around the effective use of 21st Century digital tools and resources for teaching and learning.

Findings from the WEN v3¹⁰ Task Force concerning curriculum integration include: *The WDE recognizes and understands the importance of pedagogical changes influenced by the advent of technology into the daily curriculum; therefore, in partnership with the districts, community college commission, community colleges and UW's College of Education, WDE plans to institute a statewide professional development program conducive to the advancements deployed through technology and connectivity.* (pg 5) A press release¹¹ outlining the Task Force's work was distributed on December 1, 2011.

The Wyoming Department of Education supports the integration of web-enhanced classrooms and the use of collaborative technologies such as webinar platforms, WEN Video, synchronous chat rooms, threaded discussions and blended classrooms. Instructional methods that utilize blended learning, both distance education and traditional face-to-face elements, are more effective than practices utilizing just one or the other. Nationally, *district blended and online programs—those created by a school district, entirely or primarily for that district's students—are the largest and fastest-growing segment of blended and online learning*¹².

In accordance with the U.S. Department of Education's (USDoE) annual request, the WDE surveys districts regarding technology integration and its impact on student achievement. The

⁹ NETS – T: National Educational Technology Standards for Teachers

¹⁰ The third consecutive WEN contract – version 3 (v3)

¹¹ The link to the press release located on the WDE website: http://edu.wyoming.gov/communications/11-12-01/Report_on_Technological_Requirements_for_Wyoming_Students.aspx

¹² 2012 *Keeping Pace with K-12 Online Learning* report, page 20. The website is at: <http://kpk12.com>

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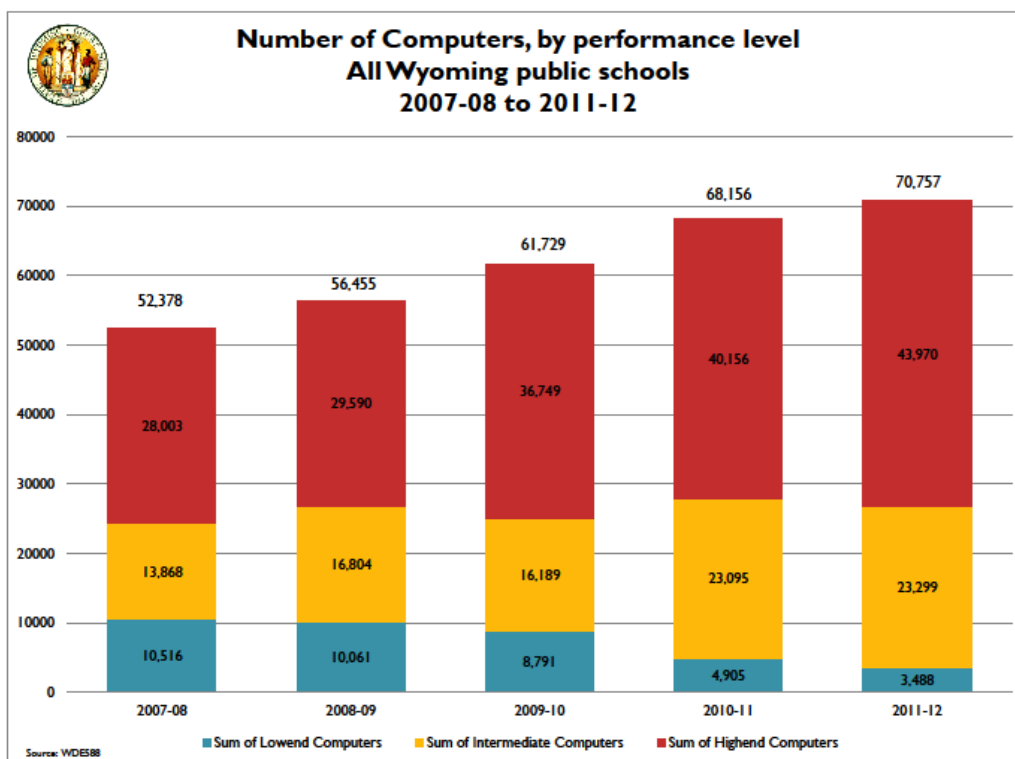
task is completed each spring using the WDE Form 588, School Technology Survey. However, measuring the impact technology has on the overall student achievement is difficult. This is largely due to the fact that technology is an embedded tool used within the daily curriculum and not a stand-alone content area. Below is a chart depicting the influx and quality of computers in Wyoming's schools¹³.

Per the WDE 588¹⁴ collection: *Instructional computers/devices are defined as those used at least 50% of the time for instructional use by teachers and students. With the introduction of the INTEL based system, which runs in both MACs and PCs, the following specifications will be used to determine low, intermediate, and high end computers.*

High End Computers: RAM of at least 2 Gigabytes and CPU speed of at least 2 GHz.

Intermediate Computers: RAM of at least 1 Gigabyte but less than 2 Gigabytes and a CPU speed of at least 1GHz but less than 2 GHz.

Low End Computers: RAM of less than 1 Gigabyte and a CPU speed of less than 1GHz



¹³ Information was compiled from the annual WDE 588 School Technology Survey collection

¹⁴ The link to the WDE Data Collection Suite is at:

<http://edu.wyoming.gov/DataInformationAndReporting/DataCollectionSuite.aspx>

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The Wyoming Switchboard Network (WSN)¹⁵ was created in 2008 to facilitate and oversee Distance Education programs. It acts as the central collection of distance education online resources and as the catalogue of current course offerings available to Wyoming K-12 students, parents, instructors, school districts and Distance Education program providers. The WSN was created in accordance with Wyoming Statutes 21-2-202(a) (xxx), 21-13-330 and the 2008 House Enrolled Act 45 (Senate File 0070).

The WSN supports student achievement by offering an array of K-12 online courses. The WSN affords students in rural communities the opportunity to enroll in courses that otherwise would not have been offered within the traditional setting. In addition, through the local district and with the assistance of the Distance Education Grant (DEG) initiative, teachers are provided the opportunity to offer instruction across the state. Priority WSN courses include core courses, Hathaway Success Curriculum, dual enrollment, and Advanced Placement (AP) courses. The WSN is designed to operate in both the supplemental and full-time distance learning environments. Students may take a single online course or a full curriculum. A cornerstone toward monitoring the K-12 online program is Milestones¹⁶. Milestones are identified on the student's Distance Learning Plan (DLP). The completion record is reported on the Distance Education Milestones Report (WDE591).

During the 2011-2012 school year, 1,907 Wyoming students participated in 12,315 distance education (online) courses; 30% of the distance education courses delivered were Hathaway Success Curriculum. The flexible delivery system of these course offerings allowed for a wider student population to be reached and more academic credit to be achieved.

The Common Core State Standards have now been adopted as the new math and language arts standards for Wyoming¹⁷. In July 2012, the governor signed the revised Chapter 31 Rules which included revisions to the following three content areas: math, language arts, and health. The standards do not dictate curriculum; instead, the standards describe what students should know and be able to do at each grade level.

Currently, the Chapter 31 Rules are again out for public comment and include revisions to the content areas of foreign language and fine & performing arts. It is anticipated that these regulatory revisions will be approved law in the spring of 2013. Finally, education committees in Wyoming are reviewing standards for P.E., social studies, science, and career/technical education. Those revisions will be presented to the State Board of Education¹⁸ in fall 2013.

¹⁵ The link to the WSN website is at: <http://wyomingswitchboard.net/Home.aspx>

¹⁶ Milestones and the DLP are defined in the WSN Resident District Handbook at the following link: <http://wyomingswitchboard.net/Docs/WSNRDHB.pdf>

¹⁷ Wyoming Content and Performance Standards link is at: <http://edu.wyoming.gov/Programs/standards.aspx>

¹⁸ State Board of Education's website: <http://edu.wyoming.gov/StateBoardOfEducation.aspx>

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Network Connectivity:

In 2012 the responsibility/management for the Wyoming Equality Network (WEN) and its subsidiary, the WEN Video, moved to the newly established Department of Enterprise Technology Services (DETS).

- WEN is a data network that supports voice and video. Currently, it is an independent network from the State.
 - There are plans underway a unified network to roll the two together to increase connectivity and decrease costs.
- Please review the business case being prepared by DETS for additional input.

The following chart depicts the WEN Video¹⁹ usage over the past year. Information was obtained from the Tandberg Management Suite (TMS) report files. An ‘event’ is a connection between two or more videoconferencing sites. The events include meetings, professional/staff development and course work. Meetings include both scheduled and ad-hoc, or unscheduled, events; professional/staff development such as the athletics coaches’ clinics; and, course work includes dual enrollment and post-secondary events.

2011-2012 Calendar Year Events through November 2012	Description
8,975 Total Events	Connecting people via videoconferencing saves time, money and provides opportunities.
7,594 Scheduled Events	85% of the connections were scheduled through the WEN Video Scheduler
1,381 Ad Hoc Event	
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10,427 Hours of Use	Average bandwidth connection was 410 kbps
9,838 Hours Scheduled	
589 Hours Ad Hoc	
1 hour and 10 minutes average length per connection	93.7% of the schedule events connected at 384 kbps

Wyoming is a small town with long streets. Videoconferencing and webinars are inexpensive tools compared to the resources needed to hold an hour-long meeting involving participants from the four corners of the state. As this technology continues to evolve, we will see more desktop conferencing such as Lync, Skype for Business or Google Hangout allowing for computer-based conferencing.

¹⁹ WEN Video website is at: <http://wenvideo.net/Homepage.aspx>

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Trends and the Future:

Staff Development (Professional Development):

Recognizing the impact staff/professional development has on integrating technology into the classroom, the next step is to employ the tool(s) available in the most effective manner. The Title II Part D EETT program required no less than 25% of the funding be used for professional development. All districts accepting the funding met this requirement, or produced a waiver describing how the districts met or exceeded the obligation through another venue. However, the EETT program is coming to an end. Funding was not allocated for the next school year and the direction of educational technology is in question. For the moment, states are left without a federally mandated educational technology program. The future may rest with the re-authorization of the NCLB Act, in particular, the proposed Achievement Through Technology and Innovation (ATTAIN) Act of 2011²⁰. Nevertheless, the WDE's future role is to continue to support district administrators' endeavors to implement or improve staff/professional development concerning educational technology.

Curriculum Integration:

Currently in the 2012-2013 school year, the Wyoming Switchboard Network hosts information on 701 distance education courses. All subject areas within the common core of knowledge are available at a distance with 37% of the current courses identified as Hathaway Success Curriculum.

With the addition of several single-district providers, there are now a total of 17 approved providers on the WSN with the capacity to serve students of all grade levels. School districts are demonstrating increased interest in growing and offering blended learning²¹ programs to meet the needs of their own students. Current enrollment information indicates a continuous and steady growth in distance education programs.

Technology tools and applications are intricate parts within curriculum integration. According to *Digital Learning Now's* Nation's Digital Learning Report Card, *Wyoming has the opportunity to lead the nation in transforming education for the digital age. Wyoming offers multiple opportunities for digital learning throughout the state via the Wyoming Switchboard Network*²². Online learning, for example, is a prevalent modality delivering education beyond the traditional face-to-face learning environment.

²⁰ S.1178 – Achievement Through Technology and Innovation Reauthorization Act of 2011 is located at: <http://thomas.loc.gov/cgi-bin/query/z?c112:S.1178>: (copy and paste into the URL line)

²¹ Within a course, blended learning refers to the combination of learning at a distance with the traditional face-to-face learning.

²² *Digital Learning Now* 2011 report is at: <http://digitallearningnow.com/nations-report-card/#WY>

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Network Connectivity:

The WDE continues to see technology integrated into the core curricular areas; however, the extent of integration continues to vary from district to district. The WDE will continue to support districts and school efforts to expand the full integration of technology into curriculum areas, by encouraging the sharing of resources and best practices²³.

The Department of Enterprise Technology Services (DETS) effort to build a unified network includes a new topic: Unified Communications. From DETS for future consideration²⁴:

- Video
 - New direction in video, unified communications and collaboration
 - Customer Experience: Access to a fast and reliable communications that support any device, at any time and at any location.
 - DETS is aggressively seeking to upgrade the video solutions.
 - DETS is focused on implementing technologies that support next generation users who expect mobile business and educational applications to work on any device.
- Online Collaboration
- Combine video solutions
 - How you brought them together
 - Online collaboration combined by
 - Education initiatives
- Video initiative - Unified Communications initiatives
- WEN Video and VCE are video transports that move across the WEN and the future Unified Network

²³ Excerpts from the draft Title II Part D EETT Final Report to the US Department of Education

²⁴ The following information was provided by Warren Anderson, Administrator – IT, DETS Team

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Conclusion:

Technology's morphing characteristics require thoughtful administrator, teacher and student consumers to defer to innovative, adaptive and future-thinking skills; thus, ebbing our insatiable rush into absorbing newer vs. practical tools at every micro-evolutionary enhancement. This is a trait savvy educational technology consumers employ in today's spending market. Staff/professional development concerning the integration of technology into the daily curriculum within each classroom is undoubtedly a key element for success, as demonstrated by Mr. London Jenks of Hot Springs County School District #1.

When Jenks was teaching²⁵, his approach for integrating today's technology within his high school class is an excellent example highlighted by *PC Magazine*²⁶:

While other teachers are entrenched in a never-ending battle to get students to put away their Smartphones and tablets, Jenks is putting them to use in his lesson plans. Upon entering Jenks's classroom, each student is handed an [Apple iPad](#) (made possible by grants from the Wyoming Department of Education and the Hot Springs School District). Students can personalize their iPads and, basically, have open access to the Web. With the devices, they complete assignments, collaborate with other students (even those in other classes), use science-based apps, and go on research scavenger hunts by scanning QR codes with clues to the next location. Jenks's physics, earth science, astronomy, and chemistry classrooms are largely paperless. They store assignments and other class documents in [Google Docs](#)²⁷.

Educational technology applications continue to grow in use and variety. In accordance with the mandate W.S. 21-2-202(a)(xx), to *develop and implement a statewide education technology plan which shall address staff training, curriculum integration and network connectivity in and between schools, communities and between the state and the world, and which shall have as its goal the provision of equal access to educational instruction and information.* The WDE, districts, schools and classrooms rely exclusively on DETS to provide significant delivery employing equal access to all students across the state. The WDE's hope concerning the new broadband initiative includes more than the current delivery and employs equitable access to all students.

The WDE's Instructional Leader for Accountability, John Masters, reflected, "As technology within the classroom grows, internet access becomes a valuable but limited resource required to support instruction, facilitate assessment and accountability, serve data storage and retrieval

²⁵ Mr. Jenks is now the district Computer/Technology Coordinator

²⁶ The article is located on PCMAG.com at: <http://www.pcmag.com/article2/0,2817,2397253,00.asp>

²⁷ Excerpts from the draft Title II Part D EETT Final Report to the US Department of Education

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needs of parents, students, teachers, and administrators, and supporting basic communication requirements ranging from e-mail to videoconferencing. Bandwidth is rapidly becoming a choke-point within many of Wyoming's schools. Until each school and all students are supported by adequate bandwidth, the school system can expect problems for each activity or service depending on bandwidth.”

The WDE is fortunate to work for a state that embraces technology not out of necessity, although the impressive sparseness between our communities is ample reason needing a technology rich environment, but based on a desire to provide the best opportunities for its citizenry young or old, new or established, common core-based application or innovative approaches like Mr. Jenks. Technology's power rests within the user's mind's imagination, their critical thinking skills and their engaged need to learn and do more. The tool technology permeates our daily lives, sparks our imagination and feeds our need to commune.