

N.D. Information Technology Committee

Elementary & Secondary Education Information Technology Initiatives

Dan Pullen

Director, ND Educational Technology Council

Chairman Robinson and members of the Information Technology Committee, my name is Dan Pullen, I serve as the director of the North Dakota Educational Technology Council. I am here today to provide a follow-up report on my March 24 presentation to this committee related to the potential of high definition video in K-12 classrooms in our state.

Learning to Change Changing to Learn

- Keith Krueger, CEO CoSN (Consortia for School Networking)
- Greg Whitby, Director of Schools Catholic Education Office, Australia
- Greg Black, CEO Education.au limited, Australia
- Julie Evans, CEO Project Tomorrow
- Stephen Heppell, CEO Heppill.Net Ltd, UK
- Yong Zhao, Distinguished Professor Michigan State University
- Barbara S. Nielson, Former South Carolina State Supt.
- Cheryl Lemke, CEO Metiri Group
- Susan Patrick, CEO iNACOL (North Amer. Coun. for Online Learning)
- Chris Dede, Professor Harvard Graduate School of Education
- Karen Greenwood Henke, Writer/Consultant CoSN Board/Nimble Press
- Deborah Baker, Superintendent Leroy CSD, NY
- Daniel Pink, Author "A Whole New Mind: Why Right-Brainers Will Rule the Future"
- Ken Kay, President Partnership for 21st Century Skills, e-Luminate Group



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I'd like to begin however, by showing a 5 minute video that contains comments by a number of education and technology leaders – both national and international - about the future of schools and how technology will impact that future. I show this video to help put our discussion of "video" distance education into a larger context than just hardware and software and classrooms.

June 29, 2010 Report

- Summary of March 24 report: potential of high definition video in K-12 classrooms.
- Demonstration of standard definition video classroom – Jamestown.
- Demonstration of high definition video classroom – Belfield.
- Future of K-12 distance education in ND: Expanding options for schools.
- Budget implications of HD upgrade plan.

3

As we consider the interactive video technology that North Dakota schools use to share teachers and courses over distance, I think it is important that we keep this larger context in mind – that many factors - including technology - are forcing us to change how we teach and how we learn. These changes really can help our teachers better prepare our students for their future.

Today I will summarize the report I gave to this committee in March about the potential of high definition video in our K-12 schools. Then we will visit with a Spanish teacher in Jamestown and a health careers teacher in Belfield. After that I will discuss some of the other distance education options - available now and in the future. And finally I will end with a discussion of the budget implications of the high definition upgrade plan.

Current K-12 Video Classrooms: a 25-year mix

Adams HS	Maddock HS
Alexander HS	Midkota HS
Dakota Prairie HS	Minnewauken HS
Devils Lake HS	Munich HS
Edmore HS	North Star HS
Four Winds HS	Oakes HS
Lake Area Career Technical Center	Rock Lake HS
Lake Region Special Education Unit	Rolette HS
Lakota HS	Starkweather HS
Langdon HS	Towner HS
Leeds HS	Warwick HS
	Wolford

4

As I reported in March, the video technology that the consortiums are using to share high school teachers and courses varies widely across the state. Some of the video equipment is relatively new, but more than half of the endpoint video transmission units are no longer able to be covered by service contracts.

The decisions about when and how to upgrade that equipment are left up to ITV consortium member schools. For the last few bienniums, some grant funds have been made available through the ND ETC by the ND Legislature. Those grants were awarded to schools on a competitive basis to cover some of the costs of various video upgrades.

Schools and ITV consortiums have been very good stewards of their local and state funds. Most of them use their older equipment as long as they can, even buying spare backup units at discounted prices, so they can keep their equipment running as long as possible.

Whether the video equipment is out-of-date or state-of-the art, the video classrooms in North Dakota schools continue to serve our students very well. This is due in large part to the diligence of the ITV consortium directors, the local technology coordinators and the professional staff at ITD.

Current K-12 Video Classrooms: a 25-year mix

- K-12 video classrooms vary widely.
- More than half are beyond service contracts.
- Upgrade decisions vary by consortium and are based on availability of funds.
- K-12 schools are good stewards of video resources.
- Video classrooms continue to serve N.D. students well.

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The report I presented in March outlined the potential for upgrading most of the K-12 video classrooms to high definition (HD) equipment. Before we revisit the budget details of that plan, I'd like to take a few minutes to have two North Dakota teachers who teach every day by video, show us around their classrooms.

Christie Anderson

CDTC

Spanish Teacher

**Standard Definition Classroom
Jamestown Middle School**

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First we'll hear from Christie Anderson who teaches Spanish in a standard definition video classroom in Jamestown. Christie's classroom has standard definition equipment.

Tracie O'Donnell

Roughrider Area CTC

Health Careers Teacher

High Definition Classroom
Belfield High School

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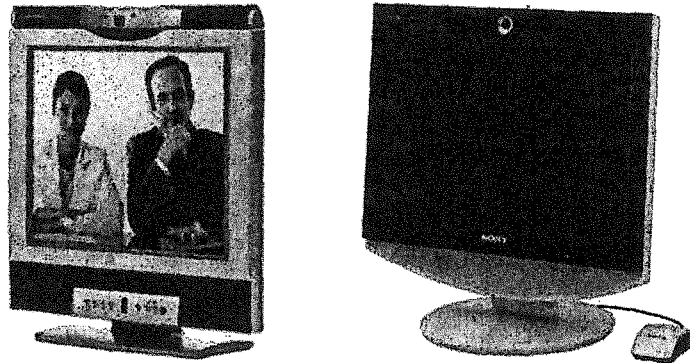
Then we'll hear from Tracie O'Donnell who teaches Health Careers in a high definition video classroom in Belfield.

On behalf of the Information Technology Committee, I'd like to thank Christie and Tracie for sharing some of their video teaching experience with us today.

In addition to Christie Anderson and Tracie O'Donnell, I'd like to thank a few other people who helped bring these video demos together: Dave Skogen who works for EduTech, Kathy McCracken, the coordinator of the Central Dakota and North Central ITV consortiums, Kevin Nelson, the former director of the Roughrider Area Career and Technology Center, and Duane Hatze and Barry Stein at ITD. Thank-you to those people for their help.

Other Types of Video for Distance Education

- Desktop Video Units



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As we look to the future of distance education in our K-12 schools we need to keep in mind that not all teaching and learning that takes place by video uses fully equipped classrooms like the ones we have just seen. Smaller set-ups are also used in our schools. For instance desktop video conference devices are used in several of our schools for smaller groups of students.

Other Types of Video for Distance Education

- Desktop Video Units
- Desktop Video Software Applications

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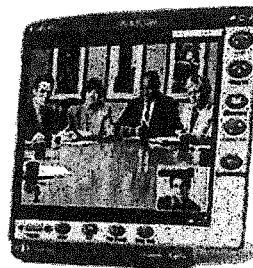
Another type of videoconferencing that is available does not depend on self-contained hardware. Software applications make it possible to communicate by full audio and video from any desktop or laptop computer that has a camera and microphone.

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The Polycom® PVX™ business-class video conferencing software application delivers high-quality audio, video, and content sharing to your PC and USB camera. Polycom® PVX™ software is an excellent visual communications solution for small teams who do not have dedicated IT support or a need to centrally manage user access or capabilities. Download the Polycom PVX FREE trial.

Need a highly scalable and manageable desktop solution? Let us introduce you to the Polycom Converged Management Application™ (Polycom CMA™) Desktop solution. The Polycom CMA Desktop solution is powered by the Polycom CMA 4000/5000 management suite and is a full-featured video client capable of receiving HD video, audio, and content. The Polycom CMA Desktop solution, in conjunction with the Polycom CMA server, can be freely deployed to thousands of users and is perfect for medium to large organizations looking to provide visual communication to their users in a simple and easy to use client. Check out the Polycom CMA and Polycom CMA Desktop solutions.



View more images: 2/2

For example, Polycom sells PVX videoconference software that is now fully supported by ITD on STAGEnet. This type of videoconference is similar to the self-contained desktop units, but is much less expensive since you only buy the software and use it on an existing computer.

Other Types of Video for Distance Education

- Desktop Video Units
- Desktop Video Software Applications
- Small-Group Video Collaboration Services

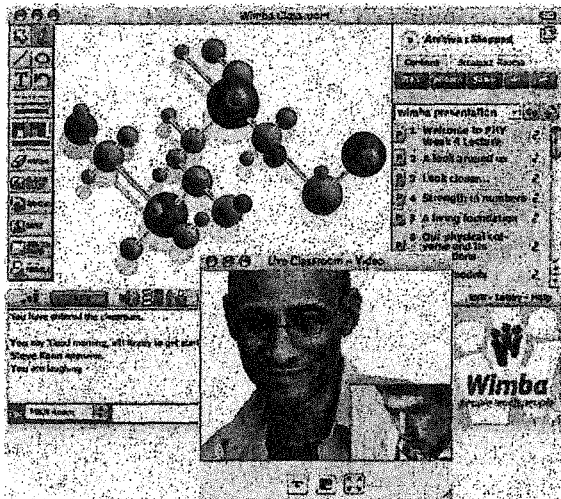
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11

Another type of video conferencing capability that is becoming more prevalent is video collaboration services that are available on the Internet from your desktop or laptop computer. These services provide a number of collaboration tools for teachers and students to use – in addition to communicating in real-time by audio and video.

Other Types of Video for Distance Education



The screenshot displays the Wimba 1.0.0.0 application window. The main area features a 3D molecular model. On the right, a 'Topics' list includes: 'Welcome to P111', 'Week 1 & Lecture', 'A look around us', 'Look closer...', 'Strength is numbers', 'A living foundation', 'Our physical existence and its', and 'History'. Below the list is a 'Live Classroom - Video' window showing a man speaking. The bottom left contains a chat area with the text: 'You have entered the chatroom.', 'You say Good morning, all ready to get started?', 'Steve: Great response.', 'You are laughing.', and 'Nikhil: Hello'. The bottom right shows the 'Wimba' logo and the tagline 'people teach people'.

The use of this type of collaboration suite has a lot of potential in North Dakota K-12 schools – particularly as we have fewer high school students in our rural schools. The biggest barrier to moving toward using these types of tools is the amount of time and training it takes for teachers to make the shift from teaching “in front of” live video classrooms like they do now, to teaching their re-designed courses with a tool like Wimba.

Other Types of Video for Distance Education

- Desktop Video Units
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- Web-based Video Conferencing Services
 - Skype
 - Zoho
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There are also many other video collaboration tools available on the web that are less expensive than subscribing to a full-featured service such as Wimba. Some of these low-cost or no-cost services are Skype, Zoho, Dimdim and many others with equally interesting names. These tools definitely have a place in our K-12 future – probably for enrichment and ad hoc meetings, but probably not as the main delivery mode for full high-school courses.

Video for Curriculum Enrichment in K-12 Schools

- **EduTech Supported Video Events: 09-10**
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Just two weeks ago EduTech facilitated an international professional development videoconference for teachers in our state. 270 teachers participated at all sites, including 15 North Dakota teachers. The topics of the session were what is known as Web 2.0 tools for student collaborative learning. Those tools included Skype, Flickr, Google Docs, Moodle, Facebook, Glogster, Wikis and Blogs.

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- Other Video Content Providers
 - National Park Service
 - ND Forest Service
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There are a growing number of providers of video content for enriching the curriculum, including the National Park Service, ND Forest Service, State Historical Society, ND Department of Agriculture, and ND State University System. You will be hearing more about some of them during the higher education session this morning.

Future of Distance Education in North Dakota K-12 Schools

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As we think about the future of distance education in North Dakota K-12 schools we need to broaden our scope of vision to see what is going on around the country and around the world that will impact how we provide education to the children in our state. On March 31 of this year there was a joint committee meeting involving the two Education Committees and the Workforce Committee. Some of you were there, but I think it's important to keep in mind a few key points from that day. Several people addressed the joint committee meeting that day.

Dr. David Wiley from Brigham Young University discussed how the open source movement and the exploding availability of digital curriculum content is driving an expanding market for online content and online courses at **ever-decreasing** costs to students, parents, teachers and schools.

Susan Patrick is the president and CEO of the International Association for Online K-12 Learning (iNACOL). She discussed a number of trends in K-12 online learning including the increase in "blended learning" - the convergence of online and face-to-face instruction - and the importance of online learning for at-risk students who may need credit-recovery courses in order to graduate from high school.

Finally, Curtis Johnson addressed the joint meeting in March regarding the inevitability of technology driven education systems like online learning and other student-centric approaches, overtaking the traditional high school model. The prediction is that by 2014 online learning will have 25% of the market share in high schools. That means 25% of all high school courses will be taken online – not in a traditional classroom.

Online Curriculum Content and Online Courses

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Let's take a look at a few examples of how these trends are playing out. The Jason Project, a division of National Geographic, offers curriculum content for teachers to use in their classrooms. The Jason Project subject areas include geology, energy, ecology, weather, Mars exploration, oceanography, rain forests, volcanoes, and others.

Odysseyware is a product becoming very popular in North Dakota schools. They offer curriculum content in the core areas: math, social studies and history, science, and language arts, as well as a variety of electives.

The North Dakota Career and Technology Education Department supports a number of courses in our schools that use blended delivery. For example the IT Essentials classes used traditional classroom instruction and Bb learning management system for delivery to over 300 students last year. Cisco Networking courses used primarily online teaching and testing resources to deliver four levels of coursework to over 160 students last year.

Finally, the North Dakota Center for Distance Education – right up here on 12th Ave North in Fargo – delivers fully-accredited online courses for high school students all over the world, including 1,650 North Dakota students this school year. ND CDE offers all the courses needed for a high school diploma as well as credit recovery for at-risk students and advanced placement courses for students for whom AP courses are not available locally.

Proposed Statewide Upgrade of K-12 Video Classrooms

- 290 K-12 video classrooms statewide
 - 36 are HD and state-of-the-art.
- Proposed upgrade to HD: 212 classrooms
- Average cost per site: \$24,000
- State Network upgrades also needed:
 - Expanded scheduling & recording capability
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 - Expanded core resources on STAGEnet

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With all of that as the backdrop, let's look at the proposed statewide upgrade of K-12 Video Classrooms that was outlined at your March meeting. There are almost 300 K-12 video units across the state. Of those we have 36 high definition classrooms. The proposal is to upgrade another 212 classrooms. Each classroom upgrade will cost about \$24,000.

There are also a number of core network and ITD video upgrades that need to be done in order to support the expanded use of video in our high schools. Those state-level upgrades include expanded scheduling and recording capabilities, more HD bridging capacity and some expansion of STAGEnet resources.

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We know that all those 212 video units will have to be upgraded at some point when their support contracts run out and they can no longer be repaired. Today's cost to do that is about \$5 million.

The state-level video upgrades need by ITD are listed here and total \$2.4 million.

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After the March meeting I met with most of the state's K-12 ITV coordinators to discuss options. The option they want put forward is a 75% - 25% cost split - with the state picking up 75% of the endpoint costs. So that would translate into \$3.8 million in general funds made available to schools – possibly by the ETC grant programs we have in place. The local schools would cover the remaining \$1.3 million

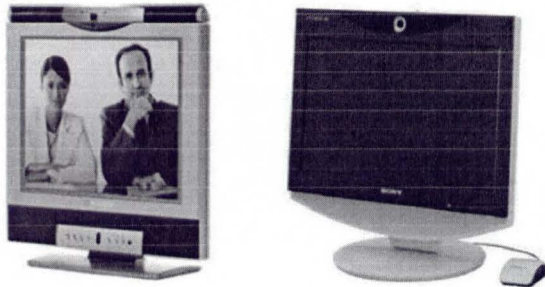
The state-level upgrades (for \$2.4 million) added to the general funds to be granted to schools for 75% of their upgrade costs, means a \$6.2 million increase in ITD/ETC general fund appropriations. With that kind of price-tag, this upgrade project should probably be proposed for funding over two bienniums. That would allow for the oldest gear to be replaced first and then the rest upgraded as it reaches end of service contract life.

In any case we will have to get the governor to approve such a plan and this type of increase in general funds for this purpose. And then, of course we will have to get the ND Legislature to agree with this plan and with this level of funding.

That is where we currently are with this proposal. I will respond to questions that you have and accept any guidance you have on how to proceed.

Chairman Robinson and members of the Information Technology Committee, thank you for this opportunity to address these issues related to the future of distance education in North Dakota.

Other Types of Video for Distance Education



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These desktop units are self-contained with built-in cameras, microphones and speakers. They are good when there are less than four people at each site. The three major manufacturers we use in our state – Polycom, Sony and Tandberg – all make these kinds of desktop units. The Greater Southeast video consortium has about 20 Sony desktop units in their schools – in addition to their full-scale video classrooms.

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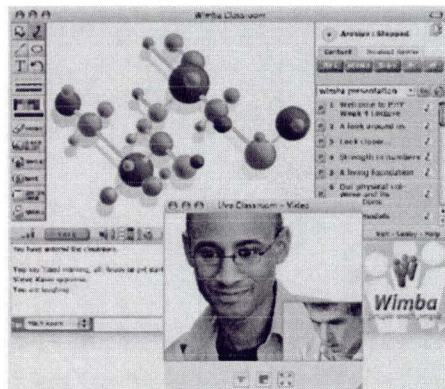
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Wimba is one of these full-service collaboration suites. The North Dakota State University System now licenses Wimba for all of its campuses. Each year more North Dakota college and university courses are taught either entirely on Wimba or in a blended delivery model using Wimba, Blackboard, and possibly some face-to-face or traditional interactive video sessions.

The use of this type of collaboration suite has a lot of potential in North Dakota K-12 schools – particularly as we have fewer high school students in our rural schools. The biggest barrier to moving toward using these types of tools is the amount of time and training it takes for teachers to make the shift from teaching “in front of” live video classrooms like they do now, to teaching their re-designed courses with a tool like Wimba.

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These three trends: high quality, open source digital curriculum content, the need for online and blended learning for at-risk high school students, and the expanding market-share that online learning will certainly capture, need to be part of our thinking as we look to the future of distance education in North Dakota K-12 schools.

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That is where we currently are with this proposal. I will respond to questions that you have and accept any guidance you have on how to proceed.



N.D. Information Technology Committee

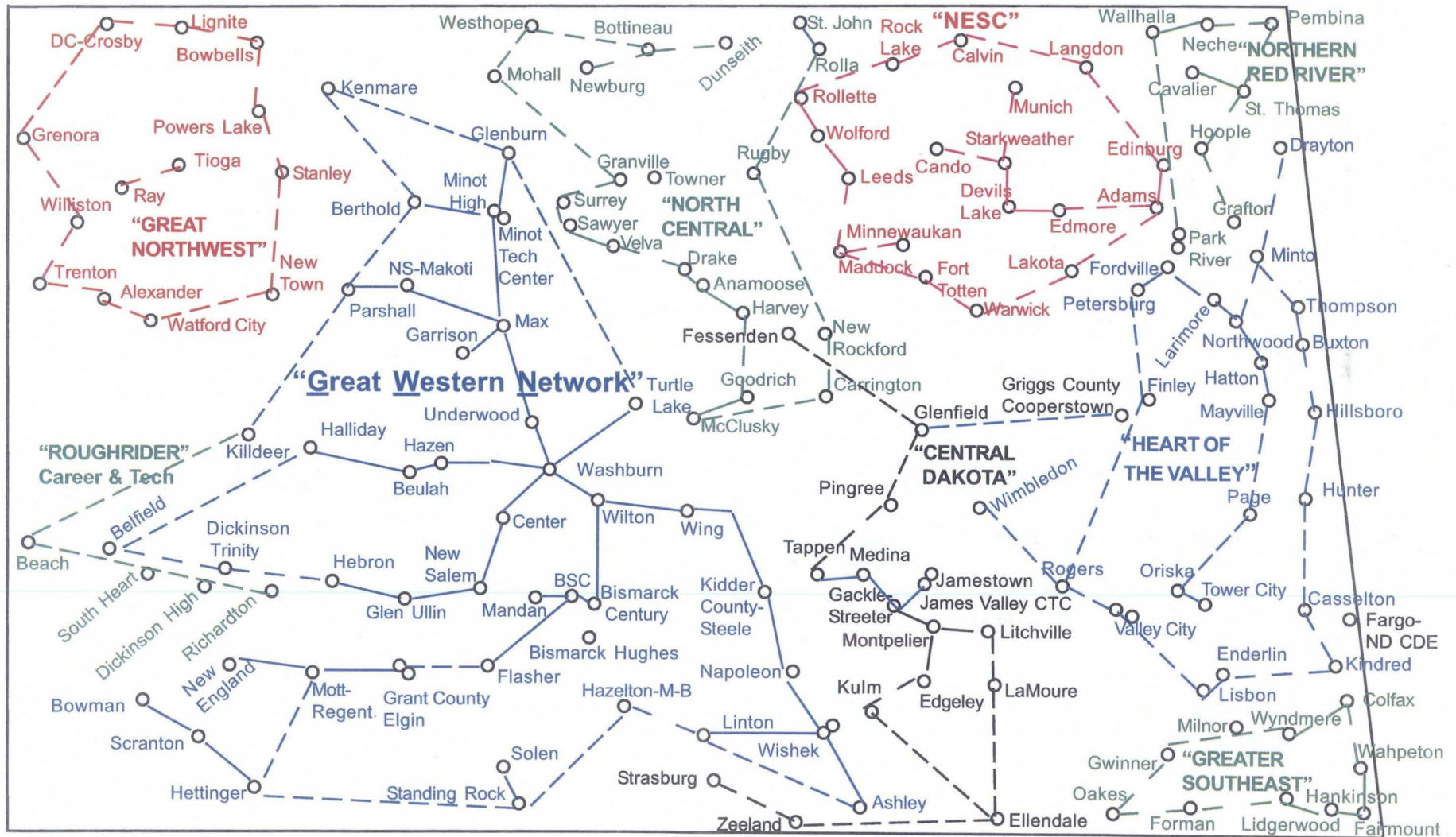
**Elementary & Secondary Education
Information Technology Initiatives**



**Dan Pullen
Director, ND Educational Technology Council**

Chairman Robinson and members of the Information Technology Committee, thank you for this opportunity to address these issues related to the future of distance education in North Dakota.

K-12 Video Distance Learning in North Dakota - July, 2010



Map produced by Bill Strasser, GWN