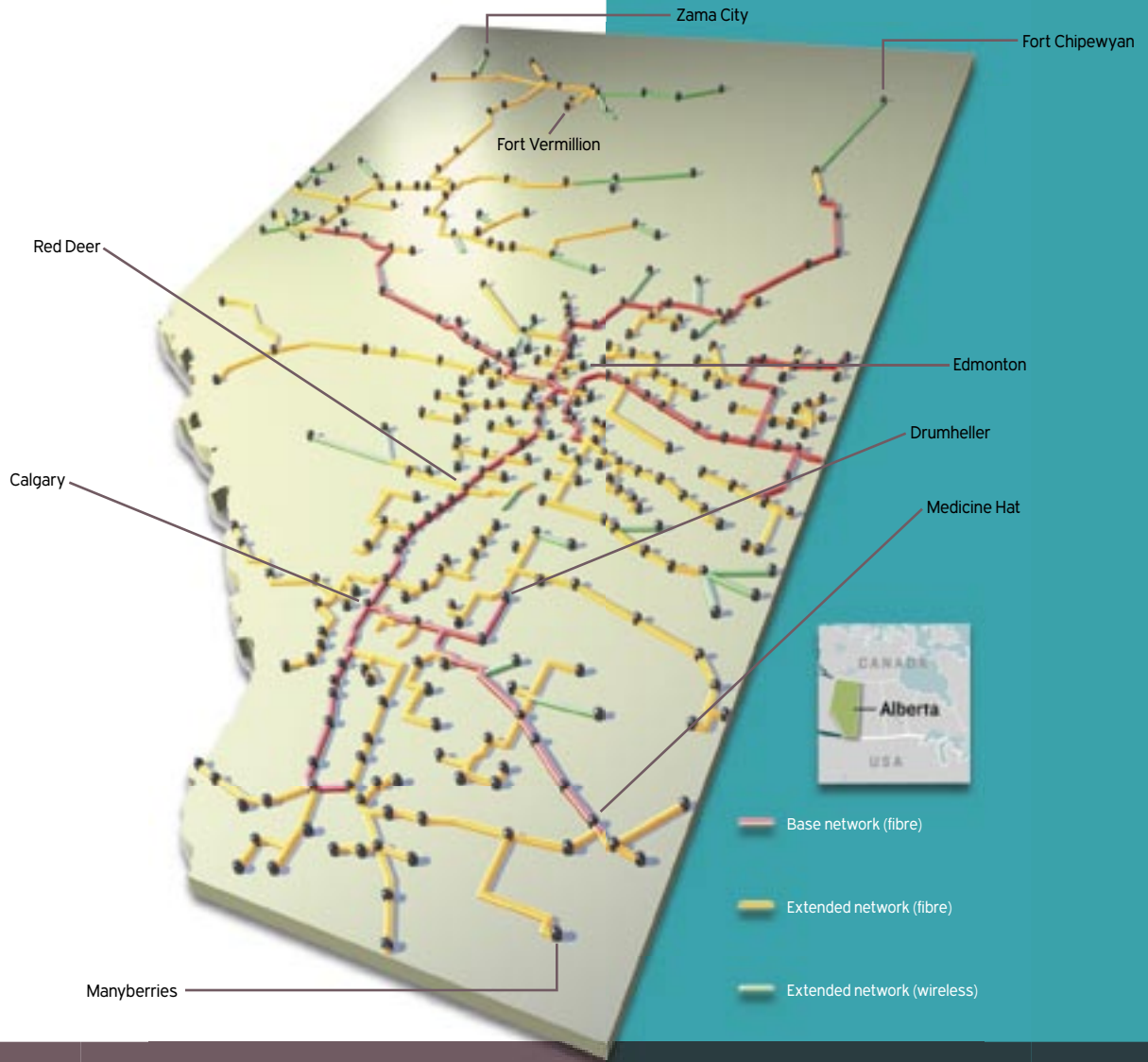


It's a broadband superhighway, conceived and built by the Government of Alberta, Bell Canada and Axia NetMedia. It links 4,200 government, health, library and learning facilities in 429 communities and brings affordable high-speed network access options to nearly the entire province. The Alberta SuperNet is opening the door to new economic opportunities, expanding the borders of learning and health care, and capturing the imagination of Albertans everywhere. Here's a look at just a few of the ways people are harnessing Alberta's SuperNet Advantage.

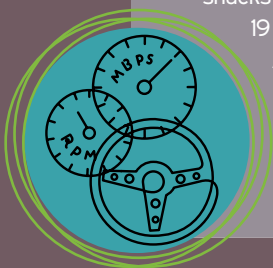
Harnessing the SuperNet Advantage





Hungry for Speed

Jump into a car at Zama City in the northwest corner of Alberta and set out for Manyberries in the southeast corner. But don't forget to pack snacks because the journey takes 19 hours. Data travels the Alberta SuperNet from Zama to Manyberries in less than 10 one-thousandths of a second. You won't get hungry waiting.



- 3 Introduction
- 4 Government
- 6 Business
- 8 Health Care
- 10 Community & Last Mile
- 12 Education
- 15 Looking Ahead
- 16 Partners

ILLUSTRATED ICONS BY OTTO STEININGER

Alberta SuperNet Packs Power

You won't see it, but it's underfoot all across Alberta. You won't hear it, but you might use it to see and hear someone else hundreds of kilometres away via videoconference. You can't travel on it, but because it's here, maybe you won't have to travel quite as much. It's the Alberta SuperNet, a broadband superhighway that stretches across the province to schools, libraries, health facilities and government offices.

The SuperNet comprises 13,000 kilometres of wireless and fibre optic cable laid across Alberta. It's a major piece of physical infrastructure that uses Internet Protocol (IP) technology, allowing multiple streams of video, audio and other data – including the Internet as just one of its components – to be delivered on a single powerful network. All of the province's learning facilities, health centres, libraries and government locations are hard-wired in.

"The Alberta Government's vision of connecting Albertans to high-speed services to enhance health care, education and government services is coming true," says Luke Ouellette, Minister of Alberta Restructuring and Government Efficiency. "Alberta SuperNet is working for Albertans across the province, especially in rural areas, and I fully believe we're just getting started."

In a groundbreaking public-private partnership, the Government of Alberta and its Alberta SuperNet partners, Axia NetMedia and Bell Canada, have made global connectivity available to all Albertans, from Acadia Valley to Zama City.

The provincial government developed the vision and oversaw the project, Bell was responsible for construction and Axia designed, helped to build and operates the network. "The Alberta SuperNet has a huge capacity and a huge potential," says Karl Thiel, Senior Director – SuperNet, at Bell Canada. "It uses a state-of-the-art IP network that connects 429 communities and provides direct, high-speed connectivity to more than 4,200 government, learning, health, library and municipal facilities."

The Alberta SuperNet uses an open access model (see sidebar below) to create a competitive environment for independent service providers to deliver ultra-high-speed services, including Internet access, to their retail and business customers. This is especially welcome in rural areas of the province.

"Business opportunities that rely on powerful networks should not just be limited to major urban centres," says Axia Chairman and CEO Art Price. "SuperNet allows all organizations, companies and also individuals to benefit from high-quality, high-capacity, cost-effective connectivity wherever they live or work in Alberta."

Before the Alberta SuperNet was built, there were only a few high-speed service providers operating outside of Calgary and Edmonton. Now Internet service providers have connected to more than 180 communities across the province, and more than 75 service providers have contracts with Axia to use the Alberta SuperNet to provide retail high-speed access. Before SuperNet arrived, rural Alberta's hope of IP connectivity was either cost prohibitive or technically out of reach. Now those barriers are gone.

In these pages, Albertans at work in education, government, health-care and communities tell how they've been using the new broadband superhighway. And maybe their successes will stir the creative ideas of others. The Alberta SuperNet has removed most of the technological barriers. Now, imagination is the only limit. "Tell us your visions and dreams," says Karl Thiel, "and we'll work to make them happen."

Levelling the Playing Field

Telecommunications providers traditionally focused on delivering network services to cities where they had a large, concentrated customer base and more manageable construction costs, says Axia Chairman and CEO Art Price. That left rural Albertans lagging behind larger centres in terms of Internet speed and data connectivity. It also limited small-town Alberta's business potential and hampered rural and remote citizens' access to some educational, commercial and social service resources.

As the Alberta SuperNet's "operator of operators," Axia NetMedia manages the

network and provides guaranteed connectivity to all of its customers, including service providers. "SuperNet levels the playing field for Alberta's urban and rural customers by giving all providers equal access to broadband connectivity," Price says.

The Alberta SuperNet's open-access network model delivers network services to large geographic areas and creates major opportunities for business and economic growth.



"Axia acts as an impartial, expert buyer or manager of network services on behalf of its customers," he says. The resulting market competition makes for the best services at the lowest cost for the end user.

"Much like how railways and roads were critical infrastructure in the previous century," Price says, "broadband is widely recognized as the foundation for the new economies of this century."

The Way Things Run

Government offices at all levels now have direct connectivity to the Alberta SuperNet. Holding meetings with colleagues scattered across the province is getting easier. And in rural centres, Internet-based tasks are routine instead of frustrating. The courts are wired, too, and interpretive centres can get access to the experts they need.

By Order of the Court

It's a spring day and the sun is shining outside the Fort McMurray Courthouse. Inside, a robed judge is hearing the routine daily dockets. He's looking at a monitor on the desk in front of him. The sparse crowd in the gallery is looking at a large plasma screen mounted on the wall behind him. On it, they can see the sharply detailed interior of a small, plain room with a door at the back. The room is located in the Edmonton Remand Centre, 450 kilometres to the south.

The Fort McMurray court clerk, who also has a monitor on her desk, calls out a man's name and announces that he is appearing on charges of break and enter. The crowd in Fort McMurray watches on the plasma screen as the door opens and the accused walks in. He faces a camera and his own monitor, on which he can see the judge, lawyers and gallery on a split-screen display.

In the courthouse, the lawyer for the accused takes the podium and requests a trial date. The clerk fixes a date, and the crowd in Fort McMurray watches as the accused exits the videoconference room in the remand centre. His routine appearance has taken less than three minutes and involved no travel time.

A pilot project in 2004 introduced the ability to make these appearances by videoconference, with eight courthouses involved. The Alberta SuperNet has allowed Alberta Justice to build on that success and as of July, 53 court locations were added in such communities as Chateh, Fahler and Taber. Next year, other circuit locations will follow.

Using the Alberta SuperNet for these hearings to save costs seems obvious. But there are other benefits, says Kari Larson, public affairs officer with Alberta Justice. "Sixty per cent of injuries or incidents involving young offenders happen at points of transit," Larson says. "They are safer in their regular routine and many of them attend classes that would be interrupted by travel."

The new videoconference room also benefits witnesses and victims. Witnesses might be unable to travel to give testimony at trial. Now they can take less time away from their jobs and families and testify via videoconference from home. Perhaps the most important function of the system is that it easily facilitates testimony from vulnerable victims of crime, such as children. Child-friendly court services allow kids to testify in the privacy of a comfortable room without having to face the strangeness of a courtroom – or the accused. "The Provincial Court has been supportive from the start," says Larson, "and has set out guidelines for the use of videoconferencing. There are clear benefits to everyone involved."

Better in Birch Hills

At the Birch Hills County Office, administrative assistant Denise Joudrey's life got a little easier when she said goodbye to dial-up. The office now uses the Alberta SuperNet for its Internet and other business applications.

Q: What does your office use its new SuperNet broadband connection for?

A: For our transportation work, we have an inspector look at roads and take pictures before and after big rigs move through to assess if there's been damage done. Then he submits reports with the pictures to us electronically.

Q: Was the switch from dial-up necessary?

A: Yes. Inspectors would send us big documents. We'd never receive the pictures. Our system would be trying to download them and tying up the line. And then it would time out. People would have to mail pictures to us. Or our transportation guy would sometimes end up going to the site himself, which is what we'd hired the inspector to do.

Q: It sounds frustrating.

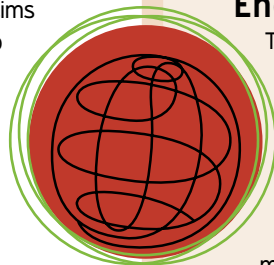
A: Yeah, we'd start to download something, go for a coffee break, and by the time you'd get back it still wouldn't be done. Anything to deal with pictures – which for transportation meant images of bridges, or roads, or culverts and things like that – took forever.

Q: What else has it meant for you at work?

A: Mostly everyday communication with the outside world; we are quite rural here. I used to spend a lot of time trying to get something done and in the end be no further ahead. And now the service providers are coming to some of the smaller hamlets, like Eaglesham, where I live. Now I have high-speed in my home, too. I'm shopping for a car and I can look around online. We're catching up.

End to End

The Alberta SuperNet's cables are made of plastic or glass fibre optic strands no thicker than a hair. Information travels the network as light impulses. Fibre optic carries more information than older copper wire and it's faster and clearer, too. If you stretched all the SuperNet's cable strands end-to-end, the resulting belt would wrap around the earth more than three times. Add the distance covered by wireless and you could circle the planet four times.





World Heritage Site Goes Global

Jim Martin, Education and Special Exhibits expert at Head-Smashed-In-Buffalo-Jump, was on hand when the World Heritage Site's interpretive centre started using the Alberta SuperNet for its Internet, videoconferencing and other business applications. Here's what he had to say about it:

When I arrived at Head-Smashed-In-Buffalo-Jump Interpretive Centre two years ago, computers shared dial-up lines and staff had to yell to each other when they wanted to go online. Our financial officer was spending three hours trying to do a financial report that should have taken her 15 minutes. People were taking hours doing an expense claim. So there was a real motivation to switch to the SuperNet – it was costing huge amounts of time to stay on dial-up.

Head-Smashed-In was one of the first sites in the south to use a wireless link to the SuperNet. Now we can properly use e-mail to communicate and it has opened up the potential for online education here. From this fall on, we're experimenting and expanding online educational interactive opportunities.

We've been using SuperNet to videoconferencing, too. We've participated as observers in a

couple of events put on by Parks Canada, one involved in dinosaur research and another on birds, where institutions across North America participated. Hopefully this fall we'll be involved with Writing-on-Stone Provincial Park on a joint project about native culture. Managers are starting to meet using multi-point videoconferencing to save time and money. We have managers in Calgary, specialists in Edmonton and regional managers spread out. Our hookup has been flawless. Personally, I'm much more easily able to carry out my research, be it on a point of curriculum or some detail about the gestational period of a buffalo.

Recently, we did some work on the Lower Trail (at the heritage site). To resurface it, the top layer had to be skimmed off. We sent high-resolution pictures of the soil to the Archeological Survey of Alberta in Edmonton. In

BUFFALO JUMP: Jim Martin works to bring a valuable cultural resource to all of Alberta via the SuperNet

a video webcam meeting with them, we found that the soil was full of potentially valuable material that included boiling stones, arrowheads, scrapers and bone.

A next step, as funding becomes available, is to revamp our website. Up until SuperNet, there wasn't much motivation to get more complex because schools couldn't access our site. We'll be moving our website to a more visually enhanced and interactive design. Now that schools are using SuperNet there is a motivation for any educational institution to upgrade their online offerings. School field trips are preferable, but where they aren't possible, virtual field trips look good.

– Jim Martin, Education and Special Exhibits, Head-Smashed-In-Buffalo-Jump

Pleasure Doing Business

The Alberta SuperNet is changing the way people here do business. It has levelled the field so that businesses in small-town Alberta now have the same access to suppliers and potential customers as those located in urban centres. That means any business in Alberta can showcase its wares and services to the world with equal ease.



COURTESY OF SUNTERRA

Faster on the Farm

The Alberta SuperNet is allowing rural Albertans to do business at the speed of an urban centre – sometimes even faster.

“Our office in Acme and our meat packing plants in Trochu and Innisfail are now linked by high-speed,” says Ray Price, President of Sunterra Farms, a family-owned company that produces, processes and markets Alberta agriculture products. “And we built a tower so that the eight or 10 locations we have in the area all have wireless access.”

Sunterra regularly sends large production analysis documents to its farm managers. “We use a lot of graphs,” Price says, “and now we don’t have to worry about how large or how

many documents we send out – our associates can get it instantly.”

Sunterra managers and sales team members now use SuperNet to hold regular meetings. “We’re all about an hour apart by car,” Price says, referring to the Acme office and outlying plants. Invariably, something would come up in at least one location and meetings would get postponed. “When we finally would meet, it would take all day,” Price says.

Sunterra employees and management now meet by videoconference, avoiding the driving time and keeping meeting times down so they can get back to business sooner.

Sunterra also has market outlets in

Edmonton and Calgary that the company is working towards including in real-time videoconferencing.

As global networks and infrastructure catch up to the capacity that Trochu and Innisfail enjoy, plans for the future at Sunterra could also include offering their Japanese buyers the ability to take virtual tours of the Alberta facilities and to inspect cuts of meat and operations.

End-Of-The-Line Solutions

In Camrose, Optic-Lynx of Alberta has been offering network solutions, including cable TV and Internet, to its customers for years. It's a family-owned business and a small operator. And because of the SuperNet, Optic-Lynx can now offer its customers enhanced services and extend the reach of the SuperNet to rural Alberta. One of Optic-Lynx's notable

successes includes the community of Veteran and its non-profit television society. The society, in turn, reached out to the last mile of users, hooking up most of the homes and businesses in Veteran, population 300, including Woodsy Enterprises. Here's how the leaf attaches to the twig, then the branch, then the trunk of the SuperNet tree.

OPTIC-LYNX: "Veteran has a community-owned cable system. They were losing all their customers who were subscribing to cable because they were a small entity. They couldn't keep up with the cost of adding channels and Internet for their members. People were migrating off the community network to satellite services. And of course, the only option for Internet was dial-up. We came to them with an idea to save their cable system by offering Internet services via the SuperNet. Initially we placed some equipment on their premises and helped them along with their e-mail. Now they are able to provide high-speed service through their cable system and are seeing people come back onto their system. They offer the best service and are the only provider. The town has just about doubled their subscription. They have new income and that makes the whole operation more viable. With the Alberta SuperNet, we were able to offer them last mile solutions."

– Brian McNary, operations manager,
Optic-Lynx

VETERAN TV SOCIETY: "Our cable system was weeks away from closing because more and more small satellite dishes meant fewer and fewer customers for us. Optic-Lynx approached us with an idea to offer Internet connection as part of our cable package. At the time, people were totally disgusted with the dial-up service they were getting and nothing else seemed to be available. By coincidence, our equipment and the SuperNet's end point were located in the same building. We were able to set ourselves up with high-speed Internet for a rather nominal cost. We've been functioning since November 2005 with no problem. Our customers are almost all residential, but we service the few businesses in town, such as the hotel, cattle auction and a couple of oilfield supply companies. We've been able to upgrade our cable system as well. Our customer base keeps growing and it has given new life to our cable system."

– Les Hainer, manager,
Veteran Television Society

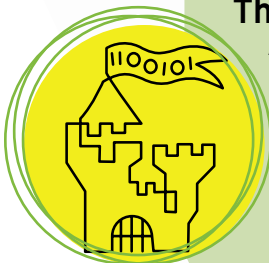
WOODSY ENTERPRISES: "I have an oilfield service construction company that I've owned for six years. Having access to a high-speed connection has meant a lot; we've been hooked up since early spring. Now we do our invoicing and invoice tracking online. We scan and send invoices and other documents to Calgary offices, and it's great for general communication. I have an office in Camrose, too. So communication just between our two offices has been great since we did this. I have nothing negative to say about our upgrade from dial-up. We were operating at – oh my goodness – 28 kps. We never lose connections or time out anymore, and we save on courier costs. Veteran is such a small community, and there are two communities kind of parallel to it: Coronation and Consort. They are probably triple the size of us, but they haven't hooked up to the SuperNet to the same extent. So some people from there actually bring their laptops to Veteran and hook up!"

– Derek Woods, owner,
Woodsy Enterprises



The Security Priority

A big priority with a network such as the Alberta SuperNet is security. Designers addressed those concerns in a number of ways. One way was to create Virtual Private Networks – VPNs. The VPNs allow for a highly secure connection between two users. Users outside a VPN cannot view, change, stop or add their own information to the data inside a VPN.



Vital Signs Improve

The Alberta SuperNet connects hospitals and other health-care facilities around the province directly and indirectly. More facilities are joining the network and more communities are connecting to SuperNet-enabled high-speed Internet services. This will allow even rural clinics and pharmacies to participate in initiatives such as Alberta Netcare. Health care in the province is improving.

Special Needs Met in St. Paul

Lise Belliveau, special needs coordinator at Ashmont Elementary School in St. Paul, speaks about the health-care benefits the Alberta SuperNet's broadband connectivity has brought to her students and where she'd like to see the technology take her programs.

The potential is huge. With videoconferencing we can increase the availability of health professionals to schools. Service delivery is important, especially for speech and language pathology. I don't think videoconferencing should replace specialists on site, but it can definitely increase the amount of actual service provision hours.

Specialists we work with here at Ashmont Elementary include psychologists, occupational therapists and speech pathologists for the hearing impaired. Right now a speech pathologist works with some of our teaching assistants via videoconferencing to improve language programming. It has real potential for the provision of therapy.

I have three psychologists from the University of Alberta who worked with kids in June but have not debriefed the parents yet. So rather than me spend money that I just don't have for all three to come out here, they are willing to consult by videoconferencing. Sometimes it costs the school the same hourly fee whether the specialist is in the car driving to St. Paul or if he's actually consulting with parents and students while he's here. Distance therapy can mean the travel time is basically gone.

A speech pathologist's session looks like this: A teaching assistant and a child go to a small, videoconference-equipped room and sit at a table. A speech pathologist from Edmonton appears on a screen to interact with the child directly. The speech pathologist controls the camera. She can zoom in on the mouth specifically. She can zoom in on the lips, and the student can see himself in a corner of the screen, too. And then if she wants to do some teaching or coaching of the teaching assistant alone, she can do that. So there's a professional development aspect, too.



SPEECH THERAPY: Lise Belliveau works to deliver health services to special needs students in St. Paul

There are other ways to use videoconferencing that we haven't even tried. For example, to increase effectiveness you could schedule several short sessions a week. The time therapists spend commuting comes out of the budget for treating kids. And I'm sure the therapists would rather spend time giving therapy than driving.

– Lise Belliveau, Special Education Coordinator,
Ashmont Elementary School, St. Paul, Alta.

Distance in the David Thompson

It's late Friday afternoon and a family doctor is taking his turn in the emergency room in Rocky Mountain House. He is studying a black and white X-ray image of a broken wrist suffered by a man who fell. He has to treat the man and decide if he needs to send the patient to Red Deer by ambulance for immediate surgery. Participating in a special Telehealth project using the SuperNet, he contacts an orthopedic surgeon in Red Deer. He initiates a live videoconference call to the surgeon and scans the patient's X-ray using a piece of Telehealth equipment called a document camera. Using the SuperNet, he sends the X-ray instantly to the surgeon for his opinion.

Still in live videoconference with the physician in Rocky Mountain House, the surgeon in Red Deer opens the X-ray and the two physicians consult about the case, despite the distance. On the 20-inch monitor in front of him, the surgeon sees his rural colleague on half the screen and the high-resolution X-ray of the patient's wrist on the other half. "I see something here," says the surgeon, pointing to his screen. Together the physicians agree that while the man will need surgery, it's not an emergency



and he can rest at home for a couple of days while he waits for a scheduled date.

Consultations such as these are still in the early phases and in fact the situation described above is a trial consultation between real physicians, using real patient X-rays. Director of David Thompson Health Region's Telehealth

Services, Deb Bexfield, says that the technology is proving this type of consultation to be very feasible. The next step in the process involves incorporating the consultations as a quick and easy step in a rural emergency room visit. SuperNet offers greater bandwidth than ever before. Physicians and administrators can explore new ways of delivering clinical service over distance to more parts of Alberta.

"So far," Bexfield says, "it's very promising." In this scenario, the patient would avoid a needless ambulance trip and additional hospital waiting time and instead wait comfortably at home for his scheduled surgery.

The family doctor in Rocky Mountain House would be building on his capacity to deal with orthopedic cases while receiving support from his colleague. The orthopedic surgeon would get a preliminary look at what cases are coming his way.

Not bad for a Friday afternoon.

Casting a Wide Net(care)

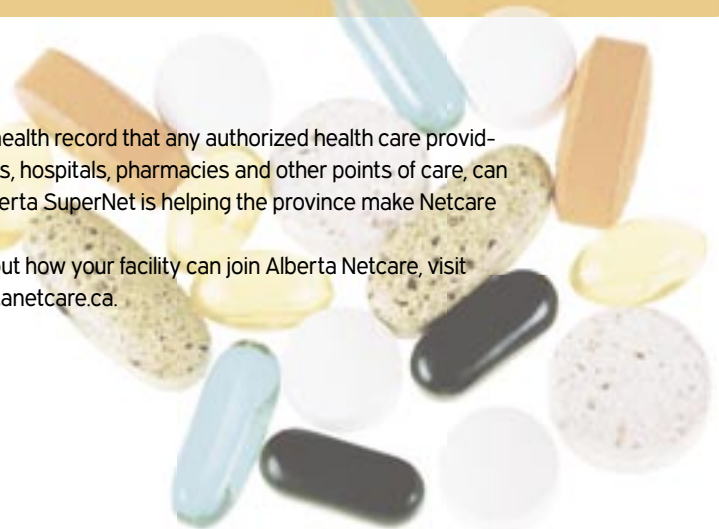
A typical Netcare story might unfold like this: An elderly woman from rural Alberta is visiting her son in Edmonton. During her stay she becomes dizzy and disoriented and her son rushes her to hospital. He knows she's on several medications for pre-existing health conditions, but frankly he can't remember the names of, or even how many, drugs she's taking. Fortunately, her small town's pharmacy is one of several hundred that recently connected to Alberta Netcare, a secure lifetime record of a person's health information, available electronically to authorized health professionals. Now, medical staff at the Edmonton facility can access her local medication and other health records and more easily treat her to avoid adverse drug reactions.

When the patient gets back home, her doctor, one of Alberta's 2,500 physicians connected to Netcare, will be able to access records from her hospital visit in Edmonton as he makes a plan for her follow-up care. Until recently, both the pharmacy and the doctor's office in the woman's hometown would have been unable to participate in Netcare because the community didn't have high-speed Internet access, and the slow dial-up connection made participation impossible.

The Alberta SuperNet plays an important role in the delivery of Alberta Netcare by allowing Internet service providers to buy bandwidth and bring high-speed access to more rural communities than ever before. Netcare aims to create an integrated

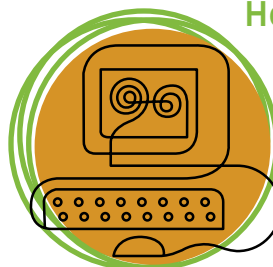
electronic health record that any authorized health care providers, in clinics, hospitals, pharmacies and other points of care, can access. Alberta SuperNet is helping the province make Netcare a success.

To find out how your facility can join Alberta Netcare, visit www.albertanetcare.ca.



How Do They Do That?

The Alberta SuperNet uses MultiProtocol Label Switching – MPLS. It's a technology that works like a traffic cop, prioritizing the information that moves through it, like cars in lanes of traffic. MPLS provides dedicated lanes that make videoconferencing or VoIP (Voice over Internet Protocol) possible and ensures they don't degrade or become choppy through network delays.



Everyone Benefits

Communities across Alberta are finding their own ways to use the SuperNet. They are putting the infrastructure to use in ways that vary as widely as the landscape Albertans inhabit. With the unlimited amount of bandwidth, even remote locations no longer need to worry about storage space and speed of connection.

The Library Connection

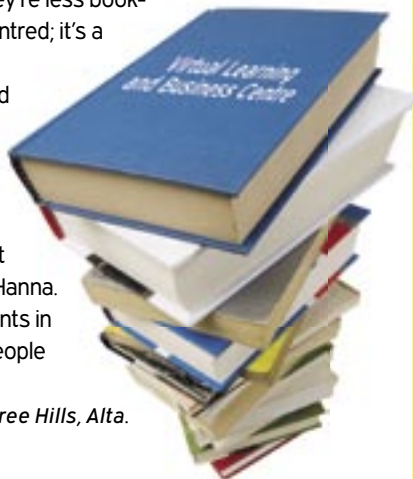
The Three Hills Library is showing the world where the future lies. Once viewed as dusty and tradition-bound, today libraries in Alberta are becoming hubs for distance learning and business training. Library director Andrew Davison speaks about the Three Hills experience.

“Our local library board decided to tackle the SuperNet head-on and created the concept of the Virtual Learning and Business Centre. The VLBC is there to bring benefits that urban centres take for granted, such as courses and business seminars, to the rural communities. We want to connect to various organizations and bring them here through videoconferencing.

“The local library is the logical choice. We’re the centre for information in town and everyone knows where we are. It seemed like a natural offshoot of what we do. The changing role of libraries is that they’re less book-centred and more service- and people-centred; it’s a learning community.

“Here at Three Hills, we are the pilot and the success story. But we want it to be replicable. It’s only going to work if we can have it in more centres. For example, I’m a computer instructor. I might only get five students in my course. But there might be five in Carbon, six in Trochu and five in Hanna. Well, through the VLBC, if there are endpoints in each of those places, suddenly I have 21 people registered in my course.”

– Andrew Davison, library director, Three Hills, Alta.



Edmonton And Fox Lake

A bag of groceries in Fox Lake is far more expensive than the same would cost in Edmonton. This is due in large part to Fox Lake’s relative isolation.

Finally there’s something that doesn’t have to cost more in remote communities! Internet service providers can buy bandwidth on the SuperNet at uniform rates throughout the province. And they can offer the same level and variety of high-speed services to businesses and residences in SuperNet communities. Axia NetMedia, as operator and manager, connects Internet service providers to the SuperNet.



Learn By Doing

Alberta 4-H clubs have been offering great programs to youth for 90 years. Projects encourage leadership and aim for young people to learn by doing. Capitalizing on connections to the Alberta SuperNet, the club recently beefed up its web presence. Vanessa Goodman, marketing and communications specialist for the Alberta 4-H Program, answered some questions about the benefits to members and staff.

Q: How do your members benefit from high-speed access to your enhanced website?

A: Now even members who don’t have high-speed at home can go to their local library and make full use of our site. In March we had an online Horse Bowl hosted on our website in conjunction with Olds College.

Q: What’s that about?

A: Our 4-H members involved in our equine project (one of 30 4-H projects) have a weekend where they go online and answer a timed series of questions based on their work. It’s anything and everything to do with horses – their care, nutrition, handling and so on. In March 2007, we’re running a similar Beef Bowl online for the first time. We give out prizes to our members for their work on these projects.

Q: What’s the 4-H website like now that most of your members have access to the Alberta SuperNet?

A: We’ve posted almost every resource, including our magazine. Members who’ve misplaced files or want online versions of record books now have them. Our manuals, application forms, bylaws – even handouts from speakers at conferences – are posted. To access these files you need the broadband that Alberta SuperNet has. We used to mail, courier or fax the information to members. It would cost thousands of dollars a year. The SuperNet has allowed residents in Alberta communities full access to the resources on our site. Our site (www.4H.ab.ca) started operation in January 2005.



Put the "Band" in Bandwidth

It's guys like **Kenneth Laboucan** who are among the happiest to see the arrival of the Alberta SuperNet in Driftpile, Alberta. Because his Internet service provider uses the SuperNet to reach the community, Laboucan, 23, can access a high-speed Internet connection in his home. Laboucan uses it to enhance his job skills and for socializing with his friends. As fitness director in Driftpile, on the shores of Lesser Slave Lake, Laboucan's broadband connection offers him the opportunity to develop in his field. "I do research on fitness and nutrition. It's good for finding out about new fitness programs." He's been connected at his family home for almost six months. "I also keep in touch with my friends by e-mail and Messenger," says Laboucan. "And I do a lot of surfing." Before his community embarked on the Lesser Slave Lake Access Project, Laboucan relied on a dial-up connection at home or faced a 45-minute drive to the nearest high-speed Internet connection.

The Lesser Slave Lake Indian Regional Council surveyed information technology use in 2002. One problem they identified was a lack of connectivity; communities had no prospect of realizing the benefits of technology. "We found that with the SuperNet, all communities were going to be connected through schools and medical centres but not necessarily band offices," says Dan Martel of Four Winds & Associates aboriginal consulting company and manager of the Lesser Slave Lake Access Project. He worked with the regional council to develop ways to bring broadband access to the five First Nations in the area.

With funding from various agencies, the council embarked on building four towers to serve the communities that dot the big lake. "We were able to hook into the POPs – Points of Presence – with the SuperNet," says Martel, "and it enabled the towers to provide high-speed service to all communities." Completing the hookups has allowed many residents their first taste of the Internet. "The window is wide open now for people to get familiar with the technology," Martel says.

Laboucan agrees. "It's new to a lot of people here," he says of the high-speed connection to the Internet. "They're starting to explore and getting to know the Net."

The presence of the towers offers new

business opportunities to residents. Some are honing skills to maintain the towers and staff the Internet service provider business, which the First Nation owns and operates. Outside companies operating in the area, such as oil and gas outfits, can buy bandwidth. Lesser Slave Lake has already developed two of its own business applications. And all the band offices and health centres are connected. Opportunities are ripe for distance education to take hold in the region.

The community is now a front-runner. Martel says the University of Calgary and Industry

Canada are putting a team together to work with aboriginal communities to let them know about the benefits of information technology. They've asked Lesser Slave Lake to be part of the discussions because of their experience.

For Kenneth Laboucan in Driftpile, the benefits offered by the Alberta SuperNet may become even more tangible. In his own future, he sees high-speed connectivity as a tool that will enable his research – he wants to write a self-help book for young people. And the world is now a little closer to the shores of Lesser Slave Lake.



HIGH-SPEED NOW: Driftpile First Nation residents (l-r) Ryan Laboucan, Renee Chalifoux, Kenneth Laboucan, Dan McGee, and Waseskuan Bellerose now benefit from Internet service, thanks to the SuperNet

School Bells Ring

Some of the earliest and – so far – most innovative uses of the broadband connectivity provided by the Alberta SuperNet have been carried out by the province's hard-working educators. Their expertise providing enriched learning opportunities to students in more than 2,000 facilities in every corner of the province serves as a challenge to Albertans in every sector to make the most of the best high-speed network in the country.

Bring the Lesson Home

"We're aiming at people far from the centres," says Bill Fricker, technology integration and innovations marketing consultant at NAIT. And it turns out his aim is true. Fricker is facilitating trades training, helping to deliver lessons to far-flung students via the Alberta SuperNet. These students typically already have nearly one year on-the-job experience in their field. Many students in smaller communities who've wanted to earn a ticket in their trade, in the past have had to spend eight to 10 weeks per year studying at institutions such as NAIT, incurring travel and living expenses, and spending time away from their jobs and families. For some, distance and cost have been a hardship; for many others they've been a downright deterrent to higher education. "We want to train those people who can't easily leave home," Fricker says.

So far, students from Cache Creek, Drayton Valley, Edson, High Level, Fairview, Grande Cache, Hinton, Jasper, Westlock and Whitecourt have taken necessary parts of their trades theory training – classroom work specific to obtaining a journeyman's ticket – without leaving home, through the NAIT DATE (Distance Apprenticeship Training and Education) program. Students take year one and sometimes year two of electrician, welder and (in a related application) steamfitter-pipefitter courses. One or two evenings a week they meet instructors and other students via videoconferencing over the Alberta SuperNet. Each student sits in a classroom complete with a monitor and camera. On the monitor, each student can see his classmates and NAIT instructor in a series of small boxes, "Brady-Bunch style," Fricker says. Classes are delivered in real-time, with none of the hiccups, stalls or glitches some people have come to think of as part of audio and video over the Internet. The instructor can also hook up to an online whiteboard in each classroom that automatically displays what he's writing. "The SuperNet enables real-time connectivity between classrooms across the province," Fricker says. "It's a robust, reliable means of education delivery." For more information, visit www.nait.ca/naitdate.



LEARN FROM HOME: Ian Tarves knows the value of a good education, brought to his community courtesy of the SuperNet

My School, My Way

I took the NAIT electrician apprentice program, first year and second year, in the evenings from Edson. It would not have been possible for me to leave my job at Yellowhead Wood Products for the eight or so weeks it would have taken to do this coursework in Edmonton. Plus I have a wife and three daughters. It would definitely have disrupted the family, too.

Completing this coursework is a personal goal for me. I'm the plant manager at work. We sometimes have a difficult time finding electricians. If I could certify as an electrician, it would obviously be very beneficial.

The courses I took were in-depth and you had to be diligent to put aside the time to do the homework. As far as the technical aspects of videoconferencing went, you caught on quicker than you thought. There were some mannerisms you had to learn. You pushed a button to take control when you wanted to talk and the teacher had the ability to override. On your screen it would say, for example, "The classroom in Jasper now has the floor," so you'd wait until he or she was finished talking and jump in after that. After the first couple of weeks you didn't even notice it. I've done schooling in class before and it was no different. It worked well; it was very smooth. I'd recommend it to anyone.

– Ian Tarves,
Edson, Alta.

COURTESY EDUCATION SERVICES CENTRE/
GRANDE YELLOWHEAD REGIONAL DIVISION



SCHOOL'S IN: Grande Yellowhead students participating in a videoconference. Above: Grande Cache Community High School connects with teachers across the area via the SuperNet

Videoconferencing Links Alberta Classrooms

The education sector has been an early adopter of the Alberta SuperNet and uses it often in videoconferencing. "Videoconferencing allows us to offer optional courses to kids in our division," says Gordon Booth, Grande Yellowhead School Division Videoconference Coordinator. "It expands opportunities for kids. Now we're heavily into second language instruction, such as Spanish, Japanese and Cree. It would not have been possible before." SuperNet extends the reach of these programs. And core courses such as science and math with few students in one location are now offered via videoconference with the instructor and classmates hundreds of kilometres away in another school.

Grande Yellowhead comprises 18 schools and off-campus learning centres over a region that stretches from Jasper National Park east to Evansburg and north to Grande Cache. With its large area and sparse population, the region is typical of rural Alberta school divisions. Some schools are nearly 300 kilometres apart and without videoconferencing, not all of them would offer the same level of educational opportunities. "We'd already been videoconferencing – our pilot was back in 1994," says Booth. In 2005, Grande Yellowhead switched to the SuperNet to expand its capacity. In 2006/2007, the division will offer 19 videoconference-based courses in Grades 4 to 12.

In southeastern Alberta, the Prairie Rose School Division has managed to reopen two regional schools. Grade 9 social studies classes

have had as many as five schools participating in one course via multi-point videoconferencing, with rotating host schools so that all students get to meet the teacher. Specialists, such as speech therapists, work in Prairie Rose via videoconference, too.

Alberta schools are using SuperNet videoconferencing to enhance existing programs as well as offer new ones. In June, hundreds of science students across Alberta participated in the Wonderville Science Challenge, sponsored in part by Bell and Axia, to see which Grade 7 team could design and build the best miniature carnival-type ride, transporting marbles (instead of passengers) through loops, tunnels, wheels and drops. Calgary's Webber Academy hosted the awards event, which students watched via SuperNet-enabled Internet access. Among the awards was Best Overall Project, won by the ride Tornado, created by the F.E.O. Eagles of Calgary's F.E. Osborne Junior High School.

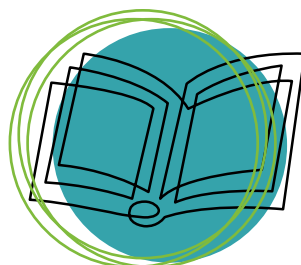
Back in Grande Yellowhead, Booth says that the SuperNet also allows the division to offer program enhancement, such as the Royal Tyrrell Museum's Up Close and Paleo, an interactive program from paleontologists at the famed dinosaur museum that complements the Grade 4 social studies curriculum. A secondary benefit for a school division with far-flung communities is the ability to hold administrative meetings via videoconference. "The road from Grande Cache to Edson in winter is 150 kilometres of ice, trucks and caribou," says Booth. "The presence of the network is fundamental – it's changed the way we communicate." So much so, that it has long-since ceased to elicit the "gee-whiz" reaction it might once have. "The network is our natural first choice for meetings now."

To find out more about how your school or organization can use videoconferencing, visit www.learnalberta.ca or www.vcalberta.ca.

Waiting for Tolstoy

SuperNet customers routinely move data on and off the network at speeds of up to 60 megabits per second – and that's nowhere near the network's capacity. On dial-up,

which was the only option for many Albertans before SuperNet, data can be uploaded and downloaded at a maximum speed of 56 kilobits per second. The upgrade is equivalent to trading in a car that goes 160 kilometers per hour for one that goes 172, 200 kilometres per hours. That means that over the SuperNet, you can download the complete text of Tolstoy's *War and Peace* in mere seconds. Of course, there's no telling how long it will take you to read it.





COURTESY ROYAL TYRRELL MUSEUM/ALBERTA COMMUNITY DEVELOPMENT/IMAGES BY JOHN DEAN PHOTOGRAPHY



ALBERTA AT THE SMITHSONIAN

An hour a day for 10 days in July, students in Washington, DC learned about the lives of students from across Alberta. It was part of the province's participation at the Smithsonian Museum's annual Folklife Festival, which showcases cultural traditions from around the world. The American kids' Alberta counterparts connected in the province via the SuperNet, developed programs and presentations and set aside time for questions. "The real gems happened at that point of interaction," says Sheila Graham, public affairs officer at Alberta Education, the coordinating body behind the schools' participation. "There was an aboriginal student from Calgary who danced for the Washington kids. After she finished, they asked her 'Can we take a closer look at your costume?' so they zoomed right in on the beadwork – this appeared on an eight-by-eight screen in Washington. It was a springboard for more questions and a totally spontaneous moment."

PHOTOGRAPH BY BLUEFISH

DINOSAURS STALK THE SUPERNET
 The Royal Tyrrell Museum in Drumheller offers two 45-minute programs for school kids, tailored to the Alberta school curriculum. Rockin' Alberta Resources focuses on geology and geography and Up Close and Paleo allows students to learn from, and interact with, some of the museum's world-class paleontologists. François Therrien, a Tyrrell paleontologist, delivers the latter program in both English and French to schools around the province via the Alberta SuperNet.
 Both programs are available for school bookings. For more information, visit www.tyrrellmuseum.com and navigate to Distance Learning, or call the Tyrrell bookings office at 310-0000, then dial 403-823-7707.

On the Horizon

The completion of construction of the physical infrastructure of the Alberta SuperNet was a milestone that helped celebrate the province's centennial year. While the broadband superhighway has already brought diverse benefits to

the province at sustainable costs, it has also opened the door to countless more uses to come. Not bad for its first year running. And the SuperNet's untapped possibilities are capturing the imagination of Albertans across the province. Here's a look at just a few projects underway.

VIDEOCONFERENCING – Right now the Government of Alberta is launching a cross-sector, province-wide videoconferencing infrastructure that will serve as the basis for improved services to Albertans, in health care, education and even business. This initiative is aimed at improving access to videoconferencing, making it easier to deliver services. Benefits include greater ease of use and further cost savings as the practice of videoconferencing becomes commonplace.

VoIP – Voice over Internet Protocol could increase efficiency for participants in all sectors.

Currently, the Government of Alberta is participating in a pilot project aimed at determining the benefits of using VoIP over the Alberta SuperNet to deliver voice, video and data information across government. Early results look promising that the pilot, involving more than 40 government users, will provide benefits such as enhanced opportunity to collaborate, better service delivery, cost savings and better network sustainability. The pilot allows for easy desktop

videoconferencing with a desktop camera or videophone. Several service providers are already offering VoIP to business and residential customers, too.

EDUCATION – As an early, enthusiastic adopter of the many uses of the SuperNet, the education sector continues to lead the pack. Learning facilities, from grade school to post secondary, across the province are planning to continue and expand their use of distance education delivery.

INTERPRETIVE CENTRES – The Royal Tyrrell Museum, already a leader in hosting interactive lessons to schools around the province, has another program in the works based on local aboriginal culture. Head-Smashed-In plans to beef up its website now that schools are SuperNet-enabled and the interpretive centre itself has gone high speed.

GIG-E – Bell Canada, the Government of Alberta and Axia NetMedia are in the midst of develop-

ing Gig-E services. Gig-E will allow SuperNet customers to connect at up to 1,000 megabits per second. It will enable higher-end applications requiring more bandwidth, including IP-enabled broadcast-quality video. Health care, for example, could capitalize on Gig-E for advances in remote diagnostic applications. Pilot projects are underway.

BUSINESS LINK – The Business Link gives small-business people across the province access to accurate, timely and relevant business resources. It's a central repository for business information, advice and education. "We are continuing our efforts to extend opportunities and improve access to information to more small-business people particularly in rural Alberta," says Rodger Cole, general manager, The Business Link. "We can do this because of improved connectivity through the SuperNet." So far, the SuperNet has assured high-speed access to 28 points in rural Alberta involved in the Entrepreneurship Learning Centres, a videoconference-based effort to serve small business and make them competitive. Visit www.cbcs.org/alberta.



Save Your Money (and Time)



Travelling to Calgary and back by car from Fort McMurray just for a half-day meeting takes more than 14 hours, 18 including the half-day meeting. So, fly instead? A return flight can cost as much as \$800, not to mention that air travel has become even more complicated recently. Either way, most travellers are likely to spend a night in Calgary, too, incurring a hotel bill. Eliminate a night away from home and several gruelling hours in a car or on a plane and meet by videoconference instead. That way, you save money and your half-day meeting takes, well, half a day.

How About You?

Is there something you imagine your company, school or facility being able to do with a little help from the best broadband, ultra-high-speed network in the country? It's underfoot, ready and waiting for you. Contact us and let us know your dreams and ideas. We can help bring them to life.

Visit www.albertasupernet.ca and navigate to "Get Involved," or for information on Internet and other service providers, contact Axia Customer Care: 1-866-773-3348



The Alberta SuperNet is a broadband network linking over 4,200 government, health, library and education facilities in 429 communities across the province at affordable and sustainable costs to the Government of Alberta. Additionally, Alberta SuperNet creates a competitive market for the delivery of broadband services by private Internet service providers throughout the province to rural retail customers.

For more information, visit www.albertasupernet.ca.



Axia NetMedia Corporation designs, builds and operates ultra-high-performance, Real Broadband open access model networks that give fragmented and under-served geographic regions access to limitless IP connectivity. Axia has a ten-year renewable contract with the Government of Alberta to provide managed Real Broadband network services to Alberta's schools, hospitals, libraries and government facilities. Axia is also the "operator of operators" and sells Real Broadband services to service providers throughout the province, allowing them to reach retail customers in rural and remote areas. For more information, visit www.axia.com.



Bell is a proud partner in Alberta's SuperNet. Alberta now has a network that is unsurpassed, expanding the reach and reliability of broadband throughout the province. It will serve Albertans as a platform for next-generation services and act as a driver in Alberta's economic development. Bell is excited to help Albertans find ways to embrace the SuperNet and create new opportunities. Bell's role as strategic partner in the SuperNet is considerable and the company plays an active role in offering a suite of services to rural businesses and residents – leveraging an integrated Internet Protocol network for all of their video, voice, data or multimedia needs.

If you would like more information on: Internet and other service providers in your area, becoming an Alberta SuperNet ISP, or if you're a municipality looking to activate your SuperNet connection, contact Axia Customer Care at **1-866-773-3348**.

Or visit http://axia.com/projects/alberta_supernet.htm for helpful information on networks and links to tips on becoming a service provider.

For more information on Alberta SuperNet, visit www.albertasupernet.ca.