CUSTOMER PROFILE

Oulu Telecom – Building Broadband Finland

Cisco Real Broadband technology is enabling Oulu Telecom to offer 'triple play' bundled services, including digital TV and fast Internet connectivity

"Our business is investment-oriented and high-risk. Oulu Telecom believes Ethernet is one of the core services of the future, and we expect to see ROI in only five years."

Pekka Väisänen
Marketing Director
Oulu Telecom

Background

For a country with a relatively low population, Finland has a surprisingly competitive telecommunications marketplace. The northern city of Oulu in particular is a centre for innovations in technology – the 'Silicon Valley' of Finland. A local company, Oulu Telecom, is the largest service provider in the Finnet consortium, and is responding quickly to broadband demand in the area, developing the country's first-ever high-speed, synchronous broadband offer.

Challenge

The city's people have a reputation for demanding the best technology solutions. Too small to compete on price alone, Oulu Telecom is innovating by using its existing copper infrastructure to provide high-bandwidth connectivity and other services. The challenge is to offer higher performance and more exciting services to its local customer base, to protect the company from outside competition, and to do it affordably.

Solution

Two Cisco® solutions – Long-Reach Ethernet (LRE) and IP Multicast – are helping Oulu Telecom provide high-speed synchronous broadband and digital TV services to its customers. Crucially, Oulu Telecom is able to use its existing copper infrastructure to deliver these services, eliminating the costs associated with full-scale infrastructure rollout. The company is also developing local partnerships to embed its offer deeper into the community.

Results

Oulu Telecom is leading the large residential and small and medium-sized enterprise (SME) market in Oulu. To date, more than 90 percent of the households in the region have already joined Oulu's cable television network, and the company enjoys an 80-percent share of the Internet service provider market. It expects to see a return on investment (ROI) in only five years.

"Our strategy has constantly evolved...we are driven by our customers."

Tuomo Kolehmainen
Research and Development Manager
Oulu Telecom

Local Service Provider

There are three major incumbent operators in Finland: Sonera, Elisa, and Finnet. Finnet is a consortium of more than 30 local city-based service providers, created to help localised players interconnect each other's networks. With a €63 million turnover in 2002, 125-year-old Oulu Telecom is the largest company in this consortium.

Situated in northern Finland, Oulu city is the sixth-largest in the country. Oulu is also the fastest-growing city in Finland. It has a population of over 120,000, which has grown by more than 4000 people a year for the past four years. Oulu Telecom is the local telecommunications company, serving business and residential customers in Oulu and its outlying towns. The company's philosophy is to work closely with the local community to develop relevant and appealing services to these markets.

Residential broadband is in demand in Finland, and especially in Oulu, which could rightly be dubbed the 'Silicon Valley' of Finland. With Nokia and Ericsson both among the hi-tech companies in Oulu, residents tend to be technology-savvy and anxious for the latest solutions, whether Internet connectivity or digital TV. To be competitive, companies serving the area must meet the demands of these customers.

Evolving Strategy

"Oulu Telecom has always been at the head of Internet, data, and security services," says Oulu Telecom Research and Development Manager Tuomo Kolehmainen. "Our strategy has constantly evolved: We were the first ISP in Finland in 1991, and we were the first to develop commercial ADSL (Asymmetric Digital Subscriber Line) services in 1999. We are driven by our customers."

Recently, the demand for residential broadband has increased significantly, Kolehmainen continues – thanks to falling prices, superior applications, and a broader understanding on the part of consumers of the power of broadband.

From the late 1990s, competition from out of town drove Oulu Telecom to develop more exciting and higher-performance Internet services, as well as new digital TV offers, to protect its market share. The company needed to offer residential and commercial clients these new services at aggressive pricing but, as a local company with finite resources, had to do so without incurring the prohibitive expense of creating an entirely new infrastructure to support them.

Oulu Telecom had been providing its customers with ADSL broadband connectivity but, like other ATM-based access technologies, ADSL was expensive to maintain and possessed inherent bandwidth limitations. The company had a few options: it could build an optical fibre network to extend Ethernet cabling to its customers, or it could better utilise the copper wire backbone already in place.

Long-Reach Ethernet

As an existing customer of Cisco Systems®, Oulu Telecom knew already that the company's technology was world-class. Oulu Telecom's ADSL solution was based on Cisco technology. So when in mid-2001 Cisco introduced its LRE solution, Oulu Telecom took the opportunity to begin trials, hoping to develop a 'real broadband' service giving 5- to 15Mbit/s symmetrical connectivity over its existing Category 1/2/3 copper wire infrastructure.

"We had worked with ADSL for some time, but the limitations on scalability and the bandwidth ceiling made us look for something else – Very high bit-rate Digital Subscriber Line (VDSL)," Kolehmainen explains. "We were seeking to be able to provide 10Mbit/s symmetrical services so that we could begin to offer 'triple play' bundled services, including digital TV and fast Internet connectivity. But we had first to ensure that the two key criteria for delivering LRE over copper were met. Our copper network had to be of sufficient quality; and the distances from the local loop had to be less than 1.5 kilometres."

With help from Cisco, in the form of a strong account team backed by Cisco service engineers and Ethernet specialists, Oulu Telecom tested and developed an LRE offer which it discovered could reach 75 percent of Oulu's population and an even higher proportion of its existing residential and SME customers. By December 2002, it placed an order for both Cisco Catalyst® LRE and IP Multicast solutions.

Pekka Väisänen, Oulu Telecom's marketing director, recalls some of the key milestones of the early engagement. "We'd known and trusted Cisco solutions since 1995. Quite simply, Cisco leads the market and the company's solutions are best in class," he explains. "In 2000, our relationship grew closer with the signing of an agreement between the two companies, with Cisco committing to help Oulu across all business areas, including technology, support, marketing, and research and development. This really secured a trusting bond between us, and in particular this close relationship enabled us to take immediate advantage of the Cisco LRE offer as soon as it was launched."

Dramatically Extended Capabilities

In early 2002, Oulu deployed Cisco LRE, dramatically extending the capability of the company's copper wire backbone. The solution is comprised of Cisco 7600 Series Internet routers and Cisco Catalyst 6500 Series switches in the core network and Cisco Catalyst 4000 and Catalyst 3500 Series switches at the edge. The access solution is based on Catalyst 2950 switches for areas with Category 5 cabling and Cisco Catalyst 2950 LRE switches for areas with Category 3.

"In some ways, the Cisco LRE technology is superior to Ethernet because there are fewer distance limitations than with traditional Ethernet," Kolehmainen explains. "This has allowed us to maximise use of our existing cables in large multiunit buildings."

Oulu has also deployed Cisco IP multicast, a bandwidth-conserving technology that dramatically reduces traffic by selectively delivering a single stream of information from the closest backbone switch to end users.

"When a residential customer selects a television programme, they automatically subscribe only to that stream, with no need to stream the other channels," Kolehmainen explains. This allows Oulu Telecom and its content providers to offer a virtually unlimited number of channels without the worry of data bottlenecks.

Oulu is now able to deliver symmetrical connections of up to 15Mbit/s, enough to stream digital television to its customers' PCs and still have sufficient bandwidth remaining to run high-speed Internet applications and services simultaneously. "It's a low-cost alternative that gives us Ethernet-like performance without having to rewire buildings with Ethernet-grade cabling," Kolehmainen explains.

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Pekka Väisänen
Marketing Director
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Beating the Competition

Oulu Telecom's residential offer provides 10Mbit/s symmetrical Internet connectivity at €50 per month. This is significantly less expensive than the offerings of its nearest competitors, who are charging the same prices for a 256kbit/s asynchronous connection. The service uses Point-to-Point Protocol (PPP) authentication for access control and service permissions. Additional services available include broadband digital TV using Motion Picture Experts Group 2 (MPEG2) encoding, which offers customers a 12-channel service via a set-top box. In the near future, Oulu Telecom will offer additional IP TV channels and video on demand (VOD) using the new Cisco 7325 Content Engine. Gaming on demand is currently being piloted and will be launched later in 2003. Oulu Telecom is also working closely with Cisco to develop a residential IP telephony model.

The residential service has attracted more than 7000 customers in a very short time, primarily in multidwelling buildings where Oulu Telecom uses a fibre connection to a Cisco switch located in the cellar of these buildings. Multidwelling customers are viewed by the company as a particularly attractive market because many of the costs of delivering services to separate customers are combined, which lowers the capital and operational expenditures required to install and deliver the service.

Using VDSL, G.SHDSL (Symmetric High-bit-rate Digital Subscriber Line), and pure fibre over Ethernet, the company's SME offer delivers a wider range of services including Internet connectivity, LAN-to-LAN services, hosting, VPNs, centralised firewall, data centre services, virus scanning, and e-mail. The service is available at every bandwidth increment from a symmetrical connection of 256kbit/s through 10Mbit/s to Gigabit Ethernet. Three-thousand customers are already benefiting from the solution.

In working with Cisco to develop its LRE offer, Oulu Telecom was able to capitalise on leading Cisco expertise in the area – both from a business and technology perspective. Väisänen explains the most valuable aspects of the relationship: "Cisco is the market leader and has more experience in this area than anybody else. Cisco overcame technical challenges without fuss, helped with business modelling and marketing and shared its other customers' experiences and its global knowledge freely.

"We don't have any other vendor's equipment in our network and neither do many of our business customers – meaning that our network is getting easier, not harder, to operate and manage. Cisco has shown us a lot of support, evidenced by the close relationship we now have. There certainly wasn't any other company in Finland who could have provided what Cisco has given us," Väisänen concludes.

Factors Accelerating Take-up

In particular, there are two factors accelerating take up of Oulu Telecom's LRE offer. The first is Oulu's early focus on content, giving it immediate appeal with its residential target market and encouraging much higher average revenue per user (ARPU), simultaneously locking in these customers and boosting Oulu's revenue without increasing operational expenditure.

Oulu Telecom is working directly with its own and other local cable operators, and has issued a challenge to national content providers to invest in the area and provide content to its LRE customers. This is helping the company enhance its offer, increase the use of its services, and consequently generate higher revenues.

In addition, through careful service construction, pricing evaluation and targeted marketing, certain portions of the company's customer base are fast becoming incredibly effective new sales channels. Two of these companies are Oulu Information Technology – a company providing data and connectivity services to the city's schools and other government organisations, and Oulun Sivakka – the city's housing corporation.

Oulu Information Technology

Pekka Packalén, director of Oulu Information Technology, says: "We are a service company that provides the basic infrastructure to support the Oulu Corporation (Oulu's local government and local schools' administration). We've been around for 30 years and the corporation accounts for 96 percent of our revenue." The company provides a range of services, from data connectivity and IT support to hardware and software services and hosting.

Oulu Information Technology's relationship with Oulu Telecom goes back to the very beginning. Connections provided by Oulu Telecom were based on copper. Fifteen years ago the service provider first agreed to provide leased fibre lines to support Oulu Information Technology's customers' requirements.

Previously this required significant investment on Oulu Information Technology's part, and meant that some customers relied on slow dialup connections. But since Oulu Telecom's LRE service, Oulu Information Technology has seen a measurable increase in service performance combined with a rapid rise in customer satisfaction. "Thanks to Oulu Telecom, the fast broadband service we now offer our customers is changing the way they do business," says Packalén.

"For our part, we can now host our customers' servers anywhere in the city and give them a minimum of 10Mbit/s access to the information on that server – at least a tenfold improvement on the previous situation," he continues.

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Pekka Packalén
Director
Oulu Information Technology

"Now we are offering preinstalled fast Ethernet broadband connectivity as part of our overall offer, and we are attracting a lot of interest. We have more satisfied customers, and the number of people on waiting lists for rental properties with the broadband connection has gone up sharply."

Maritta Schavikin
Service Manager
Oulun Sivakka

"We have the freedom to investigate, develop, and implement a much wider number of applications to our customers, and are developing a range of innovative solutions that can now be offered remotely due to this improved connectivity and performance. And in one or two years' time new IP telephony services will be perfectly placed to replace the corporation's existing PBX infrastructure, generating great savings for the city of Oulu and easier management for us."

Oulun Sivakka

Oulun Sivakka, the Oulu Corporation's housing arm, owns and manages nearly 6500 rental properties in the city. Väisänen quickly recognised the synergies between its LRE offer and Oulun Sivakka's activities: "In targeting a company such as Oulun Sivakka, Oulu Telecom is opening up a whole new market and revenue stream without having to go out and target the individuals themselves," he says.

"Oulun Sivakka is a perfect partner for us in terms of how we benefit, but the best thing of all is that both it and its customers benefit enormously too. Oulun Sivakka increases its credibility and brand image through offering synchronous broadband at low cost. Its customers benefit hugely though renting high-tech apartments that are preconnected with broadband, as though it were a utility such as water or electricity."

Maritta Schavikin, service manager at Oulun Sivakka, says: "Today in Finland, loans are cheaper than ever and people are tending to buy their own properties rather than rent, which has put a strain on our business. Now we are offering preinstalled fast Ethernet broadband connectivity as part of our overall offer, and we are attracting a lot of interest. We have more satisfied customers, and the number of people on waiting lists for rental properties with the broadband connection has gone up sharply."

Oulun Sivakka is also differentiating itself from other apartment rental agencies in the city. "Customers see our company as much more innovative, modern, and forward looking, which is especially important in a city such as Oulu with a large population of young and technically-aware people.

"I would unhesitatingly recommend this service to any company developing or building management rental properties in a metropolitan area," Schavikin concludes.

The project has been such a success that Oulun Sivakka will include Oulu Telecom's broadband offer in all its new buildings, and also intends to retrofit its existing properties with LRE broadband and digital TV. Väisänen is pleased with the result. "Cisco helped us see the possibilities not just in what we could do with the technology, but how we could use the offer to develop new markets which didn't previously exist. All of Oulun Sivikka's customers are now our customers, because we were able to partner with a company that saw the future as we did."

A Growing Customer Base

Oulu Telecom's residential customers now number 7000 and growing. Its SME customers number 3000. Customers in both markets are eagerly awaiting the new applications that will become available in the next 18 months.

"Residential broadband is a big issue in Finland," Kolehmainen says in summary. "There is a lot of demand and players have to meet it. The market is also tending more to data services. Being able to offer bundled Internet, TV, and telephony all over one infrastructure is where we are heading, because this is what customers want. As we've discovered with our delivery of the Cisco LRE solution, it makes financial sense for service providers to do so. More than that, we believe it's a financial imperative."

One of the only technical challenges for Oulu Telecom has been maintaining enough capacity on its network to cope with the extra demand. It is currently engaged in a continual rollout of new infrastructure to bring its innovative service to more and more Oulu residents.

"Cisco has cooperated very closely with Oulu in continuing the rollout, providing the right expertise and the right people. Since implementing the Cisco solution, network management has been so straightforward compared to before that we've seen our operating costs fall by somewhere approaching 50 percent," says Kolehmainen.

Real Broadband

Oulu Telecom uses the term 'real broadband' to describe its service offering, which reflects the ability to provide connectivity that is the same upstream and downstream. "This is a big plus for us and a big differentiator," Väisänen says. "None of our competitors are able to offer a symmetrical broadband service, let alone offer one as competitively priced as ours. Our 10Mbit/s synchronous residential service costs the same as a 256kbit/s asynchronous service from our closest competitor, plus we've seen a reduction in operating and network management costs.

"No other company but Cisco could have provided such a solid foundation for our success with LRE. We needed a technology partner that presented us with the least risk and as the leader in its field, Cisco was always the best choice."

Now busy developing relationships with content providers to add new services to its broadband offering, Oulu Telecom is also assessing means of more tightly integrating services offered by its own telecommunications and television subsidiaries. The company recognises that it is only through investing time and commitment to partnerships with companies like Cisco that its profits will continue to rise and its reputation grow.

Winning Over Hearts and Minds

"Oulu Telecom is succeeding because we've differentiated ourselves from the competition," Väisänen says. "We've won over the hearts and minds of our customers, and they are willing to pay more because of the performance, richness, and potential applications for the service, and this has in turn boosted our ARPU. The average revenue per user is certainly much higher than before and without question it is far higher than our competitors'.

"Because connectivity costs are still dropping, the only way to build secure future profit is to offer value-added services, and we have a much better opportunity to offer new services over the same connection – such as gaming and richer digital TV services – which help to build a loyal customer base. We chose Ethernet technology because we believe strongly that it will have a very long life cycle, and our choice is being proved absolutely right," he concludes.

"I would unhesitatingly recommend this service to any company developing or building management rental properties in a metropolitan area."

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