

Community Networks Boosting Broadband Access

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About Ulf Grindgärds

- Project manager of IT-Ostrobothnia project/
Regional Council of Ostrobothnia,
<http://www.it.pohjanmaa.fi>
 - planning project for community owned
advanced regional network connecting 18
municipalities
- Chairman of Finnish Regional Networks
Association, <http://www.seutuverkot.net>
 - Forum for exchange of experience,
communityowned networks or networkprojects

Agenda

- Broadband definition
- Why communitybased networks?
- The principle of open access
- Casestudies
 - Case Närpes
 - Case Kuusiokunnat
 - Case Ostrobothnia

Broadband definition

- Isn't broadband already available?
 - Yes if you mean Internet-connection through ADSL, but that is "little broadband".
- Broadband in this presentation is a network where guaranteed realtime, symmetric video is possible, "true broadband".
 - A true broadband network can deliver multiple services over the same infrastructure
 - ADSL, WIMAX etc. are "little broadband" internet connections.

Why community based networks?

- Increasing dependence on advanced communications technology in the society is common.
- Access to true broadband infrastructure has become a critical necessity for today's communities.
- Broadband access for every household and business has come to represent a crucial component of any local development strategy

Why community based networks?

- Experts even suggest that the widespread deployment of broadband could drive an economic recovery and, in fact, will play an integral role in stimulating sustained economic growth.
- Telecommunications providers in the last decade have spent billions deploying high-capacity telecommunications infrastructure from coast to coast, along mainroads...to the telephony cabinets.
 - they stopped short of extending that infrastructure to the consumer's home, creating a communications gap that has since become known as the "last mile."

Why community based networks?

- Municipalities have long provided essential services to their communities.
 - Building and maintaining roads
 - Supplying water and electricity
- Now the Information Age gives birth to new essential services – “digital roads”.
- Around the world a lot of municipalities building networks.

Why community based networks?

- The municipality builds and operates networks for its own needs but also...
- For the needs of their private and commercial residents.
- True broadband access must be seen as a universal service – like telephone – that’s why the communities/municipalities on local and regional level must take action.
 - We cannot wait for private companies with a logically profit-based focus. Municipalities have the best interest of their residents regardless of their population density or size.

The principle of open access

- A publicly owned network must be open
 - to enable competition with...
 - the municipality as network owner and private entities as service providers
 - to enable a truly competitive marketplace for advanced telecommunications services.

The principle of open access

- Municipalities as network owners – that's the role!
 - Several characteristics unique to municipalities qualify them as the ideal entities to own and operate advanced telecommunications infrastructure, including:
 - Recent downtrends in the telecommunications industry
 - Municipalities, unlike private entities, do not need aggressive ROIs to satisfy their shareholders.
 - Municipalities can accept a 15- to 20-year cost recovery
 - Focus remains on providing value to their constituents. No other entity has that mission.

The principle of open access

- Private entities as Service Providers
 - The participation of private entities as retail service providers represents a fundamental feature of the open access model
 - Private providers possess vital expertise that most municipalities simply do not have
 - By eliminating the need for them to deploy their own infrastructures, the open access model presents private service providers with the opportunity to focus on core competencies, enabling them to innovate and develop new and compelling service offerings. **They can invest their money in developing services – NOT in digging fiber!**

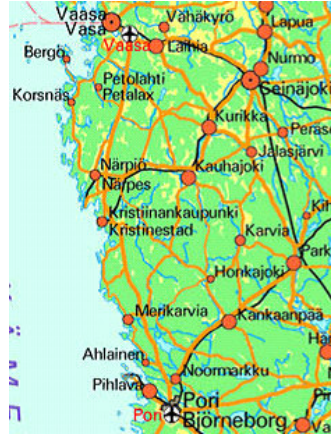
Case DynamoNet-Närpes- Ostrobothnia



www.dynamonet.fi

About Närpes

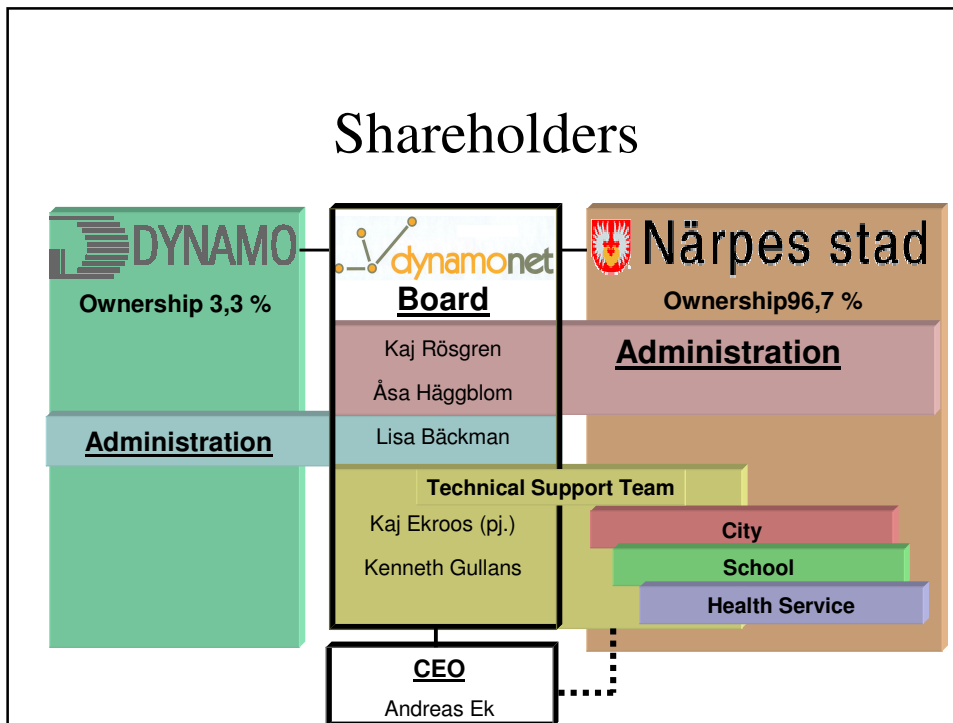
- Population: 9 575
 - 92% Swedish speaking
 - 6 % Finnish speaking
- Workplaces: 4 210
- Area: 970 km²
- Distances to bigger centres:
 - Vaasa 80 km
 - Pori 120 km
 - Seinäjoki 105 km



Background

- Municipal council, 6.5.2002
 - Founded Ab Närpes Dynamo Net Närpiö Oy
 - Mission: Establish good data- and telecommunication possibilities in Närpes
- Background material, 9.4.2002
 - New ways of communicating between the city and it's citizens.
 - Increase the competition between operators.
 - More cost effective phone systems

Shareholders



Goals

- Reduce the distances by building a good infrastructure that covers the whole city.
- Act according to "Open Access Network" policy. Get as many services and service providers as possible into the net.
- Satisfy the demands of today and the future.

Strategy and timetable

1. Building a backbone reaching all municipality premises. (schools, city hall, health service centre, libraries...)
 - Started August 2003
 - Ready before December 2004
 - Based on fibre optic
2. Accomplish access networks
 - Ready before December 2004
 - Primarily wireless networks (3,5 GHz)
 - Fibre to the home in special cases

Financing

- Share capital 150 000 euro (Development)
 - Investment 996 000 euro (Network)
 - Financing 30 % from EU and state
 - ERUF 130 395 euro (13,1 %)
 - Government 168 405 euro (16,9 %)
 - Municipality 40 000 euro (4,0 %)
 - Loan 657 200 euro (66,0 %)
- 996 000 euro (100 %)
- Open Network → Public financing is justified.

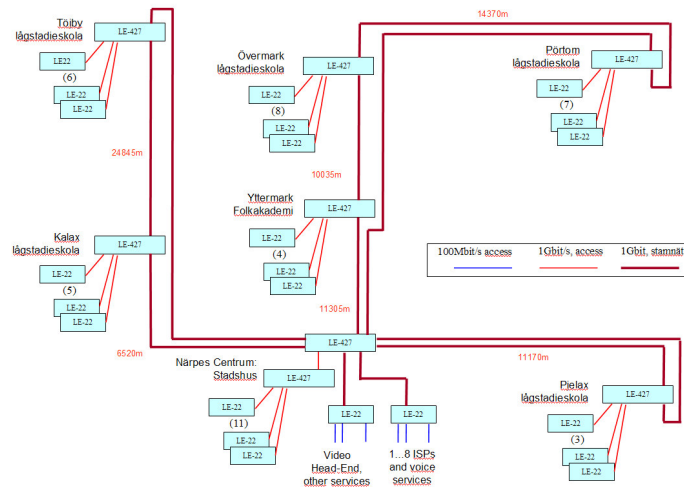
Investment

	Budget	Situation
• Optic fibre cables	150 000 euro	0 %
• Duct products	100 000 euro	+ 10 %
• Access network	200 000 euro	+ 10 %
• Active components	150 000 euro	- 20 %
• <u>Entrepreneur (civil work)</u>	396 000 euro	+ 5 %
	996 000 euro	+ 2 %

- Procurement of all components and other products were done according to EU-rules.

Backbone

Dynamo Nets stamnät - 1Gbit



Present situation

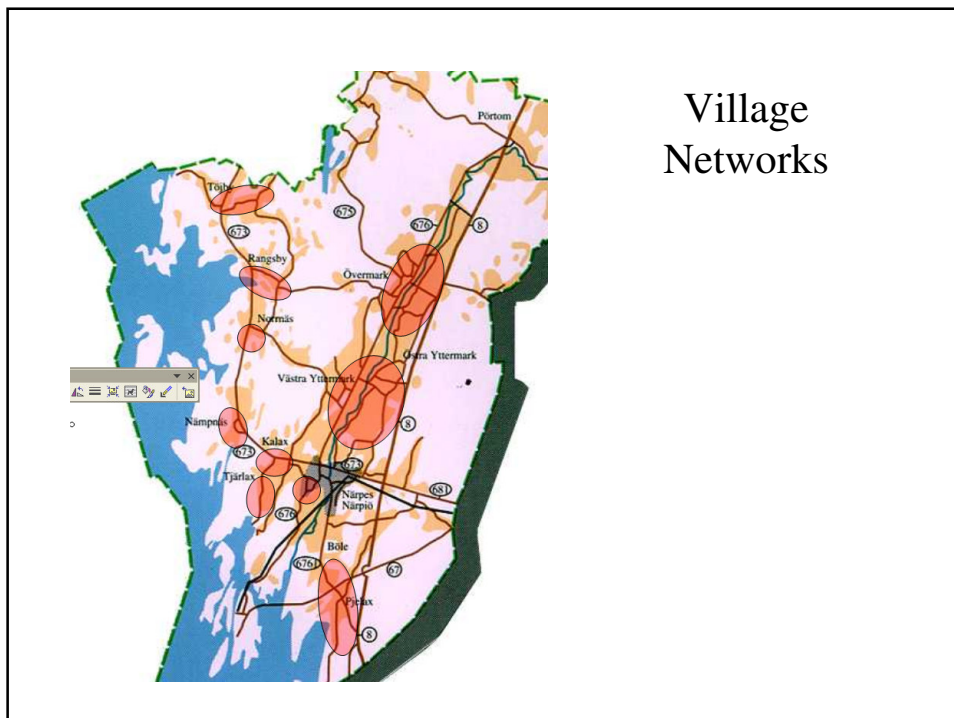
- Wireless Access Network running
 - More than 100 customers
 - 256 kbit/s – 2 Mbit/s
- First parts of the backbone are running
 - More than hundred FTTH built
 - First IP-phones connected
 - Capacity up to 1000 Mbit/s
- Dynamo Net temporarily works as ISP
 - More services and providers available soon
 - Dynamo Net will only work as net owner
- Connection fee: 395 euro
- Monthly fee from 37 euro (includes 256 kbit/s internet connection)
- Investigating possibilities to connect to similar networks

Partners

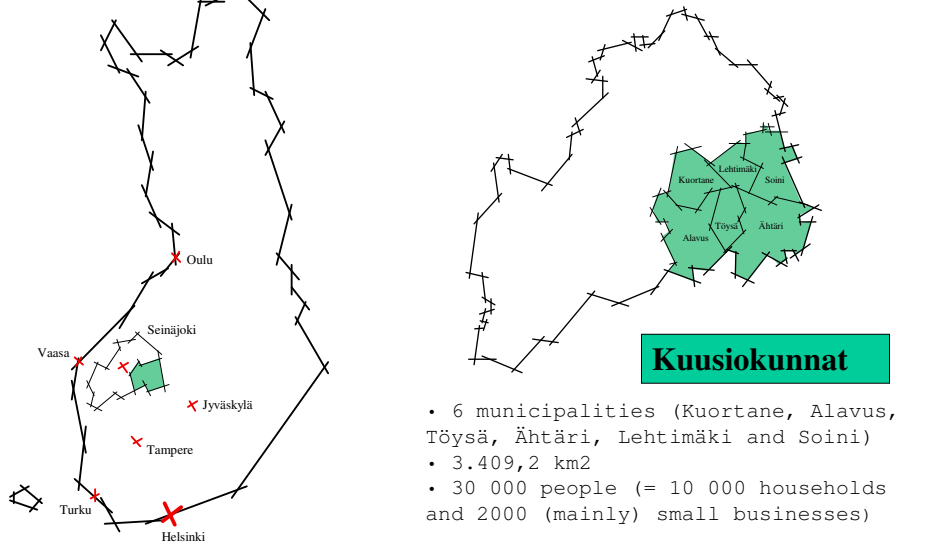
- Important Partners:
 - Ab Bröderna Hemming Veljekset Hemming Oy
 - Entrepreneur
 - Fibre Optic services
 - Mapping
 - Draka NK Cables Oy
 - Fibre Optic Cables
 - Helkama Bica
 - Duct Products
 - Neterum Oy, World Wide Packets
 - Switches
 - Nordic LAN&WAN Communication Oy
 - Wireless Access Network (3,5 GHz)
 - Pohjanmaan Tietorakennus Oy
 - Planning

Village Networks - FTTH

- Wish to get FTTH → on own initiative
- Villages invest in their own network
 - 11 villages are planning or building at this time
 - They form a new cooperative or use the existing cooperative for distribution of CATV on villagelevel
- In these villages live more than half of Närpes' citizens



Case Kuusiokunnat



Backbone- 6net

- Owned by 6 municipalities
- Connects all the six municipalities
- Fibernetwork about 280 km. 2 x 1 Gbps.
- Multiservice, open access network.
- Built to enhance competition.

Backbone- investment

- Budget: 1 681 000 euro.
- That's 6 euro/meter including everything also active components.
- Financed by the municipalities 55% and EU+state 45%.
- 280 km of fiber
- Up and running 6/2004, started 1/2002

Access in Kuusiokunnat

“fiber to the people, by the people”

- Network Co-operative Kuuskaista (Verkko-osuuskunta Kuuskaista) is a Co-operative
- • Founded on 17.11.2002
- • 1320 members
- • Why Co-operative?
 - - An old way of doing things together
 - - Real needs and ideas at the grass roots level
 - - Owned by the members
 - - Workers and members are also the decision makers
 - - Network built and services developed to the users
 - - Stays in the hands of the members

Why network-cooperative Kuuskaista?

- “Broadband” operators not interested in providing their services in the rural areas
- “Broadband” (512 kbps) is NOT broadband, but narrowband
- Equal (or better) services to the rural areas -> services that otherwise wouldn't be available
- During the fall 2002 Kuus-it project studied people's interest in real-broadband
 - More than 1800 households, in 51 villages
 - Doesn't make sense to start 51 separate projects
 - Together we are stronger -> 17.11.2002 Network Co-operative Kuuskaista

What is Network Co-operative Kuuskaista doing?

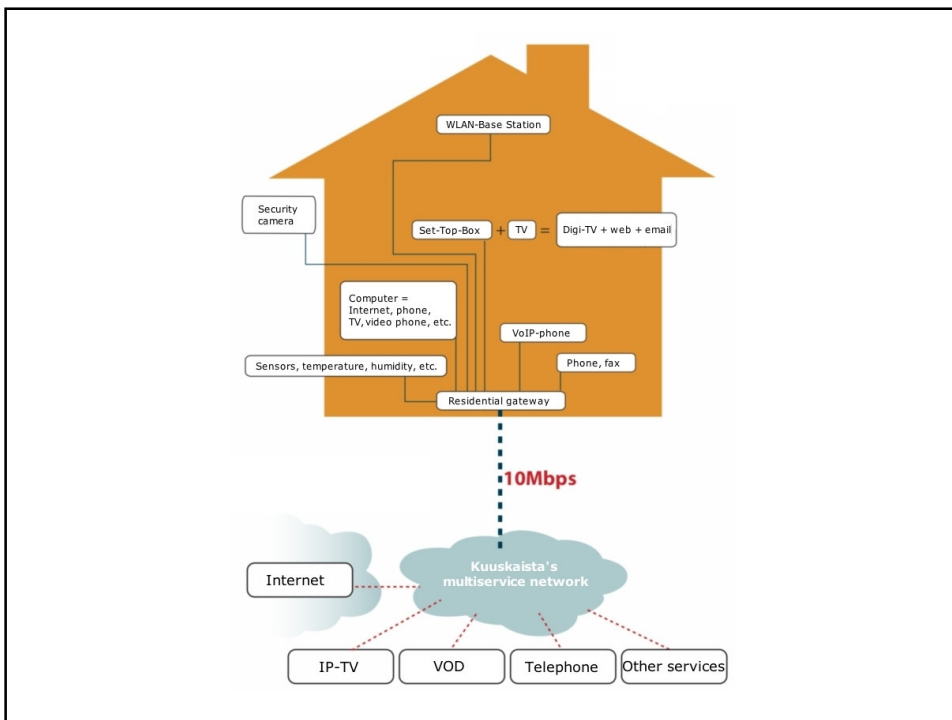
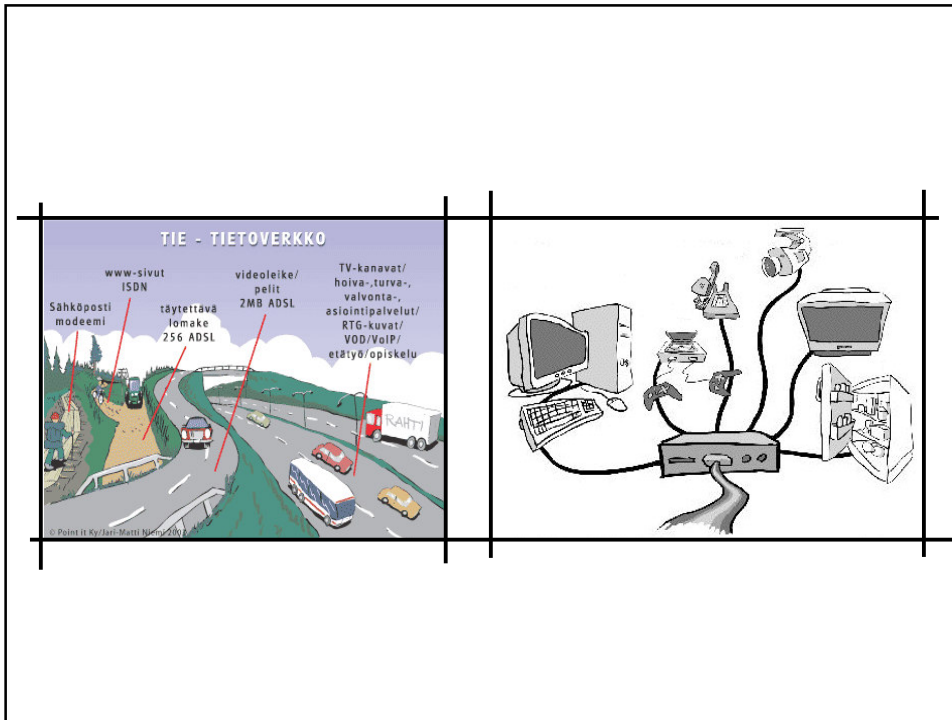
FTTH - FTTP - FTTx - Multiservice network





Services to the people

- Network Co-operative Kuuskaista is building FTTH infrastructure that can provide high quality, content rich services to EVERYBODY
- Welfare (health care, old people, etc.), Security (summer cottage, cow-shed. etc.) Entertainment (VoIP, IP-TV, VOD, video phone, etc.) Enterprise (video conferencing, etc.), Distance learning, Telework and much more!



Basic price list

- Participation share (when joining the Co-operative), 50 euro
- Fiber to the home / business, 1100 euro
- Monthly payment, 40 euro/month

Investment

I-phase 2,625 MEUR

- Average per household 4 800 € (3 000 € - 12 000 €)
- Average per km 5 000 € - 6 000 €

Financing

- I-phase (12 villages):
 - 45 % EU + TE Center / Employment dept.
 - 30 % municipalities
 - 25 % private (users/owners)
- II-phase (38 villages, incl. centers)
 - II-Phase 7-11 MEUR
 - 45 % EIB loan
 - 30 % loan from municipalities
 - 25 % private

Ostrobothnia-network

- The network will be a community owned, open access high quality network, allowing service providers to freely compete with each other.
- The quality requirements on the network are very high
- the network should be *a single network capable of transporting both telecom, data and TV/Radio services*

Ostrobothnia-network

- The network will have its Main Node in Vaasa
- Nodes in the center of all the 18 communities, and secondary nodes in the town districts and villages
- Regional level – municipality level and finally villagelevel – in the long run everthing with optic fiber.

Ostrobothnia-network

Services of the network:

- Production video (270 Mbps)
- Telecom traffic (SDH and PDH)
- Videoconference
- IP-telephony
- Private isolated high quality data channel
- TV and HDTV
- Video on demand
- Games on demand
- Radio channels
- Data traffic
- Internet



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