

General Information

Webinar Name

Building, operating and financing the world's largest open passive fibre network

Session Details

Questions Asked by Attendee

Answer

•How do you provide connection / connectivity to the service providers? One fiber per SP?

Stokab has connected apartment buildings in the City of Stockholm (buildings with 90% of the households) to our network and supply each building with two fibers (i.e. fiber pair) per apartment/household.
A property node (usually in the basement) is the interface between Stokab's network and the building network. The property owner is responsible for the building and therefore also of the building network that stretches from the property node to the individual apartments or office spaces in the building. The building network is usually installed (and financed) "up-front" by the property owner or by a contracted operator (or communication operator). With the latter approach, normally, operators get exclusivity of delivery of the services for some years.

•How many fibers per household in the building? If one per household how does the final customer switch from a SP to another?

Through the point-to-point connection between the apartment, via the property node, to the access node it is possible to switch SP individually. It enables the tenant or the landlord to easily choose different providers of services.

•What about operators willing to use PON technology?

Beside the traditional/single SP, so called "communication operators" are very common in Sweden. A communication operator connects households and offers a platform from which a household can chose from different service providers, which means that a household, could change service provider (i.e. Internet provider).
Some of our SPs have PON from the access node but it is not common.

<p>Point to point architecture ? Have you considered GPON ?</p> <p>I noticed the island of Ornö is in the perimeter : are all households there fibered ? [local contact there is Per Sundin]</p> <p>Any Q-in-Q offering... in addition to dark fiber one ?</p>	<p>In order to have a truly open network on equal terms to all operators/service providers, Stokab decided to use a point-to-point system with multiple fiber pairs. Stokab normally deploys 480 - 640 fiber cables and has recently started to use 1000 fiber cables</p> <p>Not by us. In the City of Stockholm we have a very comprehensive network coverage (approximately buildings with 90 % of the households are connected with fiber) and in the region we have a backbone network. The backbone network provides the other 25 cities and towns in the region with a "starting point" for their local network.</p> <p>Today, 100 percent of the citizens enjoy access to some kind of broadband (via fibere, xDSL, coax or 4G/LTE) and in many areas citizens have the possibility to choose between all four of these different technical solutions.</p> <p>No, we offer only dark fiber and co-location</p>
<p>Is any right-of-way paid to municipality or any other parties?</p>	<p>We have no system with license in Sweden. In Sweden you need an approval from the landowner in order to dig in a street or in the ground. Stokab has paid for "right-of-way" to all landowners, including the municipality, where we have deployed fiber.</p>
<p>Can we have a little more background referring to the financials - i.e. capex per household / opex in general / ARPU per household & SOHO - generated indirectly through wholesale channel..?</p> <p>What is the definition of profit here?</p>	<p>On our website (http://www.stokab.se/In-english/) you can find a comprehensive view of the of the company's finances and also our latest Annual report</p> <p>The definition of profit is twofold. The company has its financial result, but the largest "profit" is the socio-economic benefits that comes from the households and businesses in Stockholm being connected with fiber. The access to high capacity broadband enable present and future e-services, digital products and other quality-of- life enhancements that contribute immensely to our society.</p>
<p>Where there any issues regarding the Environmental assestments?</p> <p>is smart city and smart grid the same concept?</p>	<p>No, not really. We comply with all necessary environmental rules/regulations/considerations.</p> <p>In our opinion, a comprehensive network coverage with high capacity is necessary in a Smart City and a requisite for the Smart Grid.</p>
<p>I guess stokhab had a lot of issues with the incumbent operator. How did they manage the relationship/negotiation to make it happen</p>	<p>No, we have not had any problems in the relationship with the incumbent. The incumbent is used to infrastructure competition as approximately two thirds of the municipalities in Sweden has publicly owned city networks.</p>

why do you not provide isp services yourself?	<p>The governing principle from our owner (The City of Stockholm) is that Stokab shall provide infrastructure which promotes competition higher up in the value chain, i.e. ISP services</p> <p>Our view is that dark fiber as an infrastructure, comparable to other public infrastructures such as roads, water- and sewers.</p>
who regulates your wholesale prices and what impact did / does this have on your business plan	Stokab is not regulated. The incumbent is however regulated on wholesale price, which affects us like, everyone else, in the market indirectly. We also consider that price regulation has a strong restraining impact on long-term investments.
how long it takes as average time to provision a service to an end customer? it is completely a manual process to patch the fibres to provision the service or you have authomatized devices (like fiber cross connects)?	Provision to service is net 10 days for point to point connection in our existing network. We patch manually, since we deliver dark fiber, but are following the development for automated cross connect robots with great interests. Our wholesale customers are in turn responsible for the provision of services and related lead times in connection their household customers.
Is the fibre ducting in streets shared with any other services such as electricity?	<p>Yes. In Stockholm all digging and civil works are co-ordinated by the traffic administration and requires permission before the start of any digging activity. Beside our own ducts we rent space in tunnels for the cables.</p> <p>In newly built residential areas and offices, fiber has been rolled-out together with other types of infrastructure. In older areas, joint deployment is not possible due to the fact that the houses are already connected with electricity, water etc.</p>
Any coordination in works with other public utilities ?	See above.
Any "uncoordination" with other SPs ?	No.
I understand Telia in some cases overlaps Stokab infra	Yes.
Could you share your duct & fibre topology. Simple schematic drawing?	Yes it means 2 fibers per MDU. We have point to point SM fiber. (Slide in the presentation)
2 fibers per household. Does it mean 2fibres even for MDUs? What architecture is your network, PON?	
<p>Dear Anders, inside the bluiding, is the owner responsible for installing the fiber network? is the owner who pays for the infrastructure?</p> <p>Anders, regarding my previous question, inside the aptment, who is responsible for installing this network?</p>	No, the property owner is responsible for the installations within the building, which is also the case for other types of infrastructure such as water, electricity and IT infrastructure.
stokab use 640 fibers in one cable or 640 fibers in one tube and how any tubes in this cable?	Stokab uses ribbon fiber (8 fiber) in slotted core cables. We have now started to use 1000 fiber cables. For further information, see slides in the presentation;we use 3-12 110 mm tubes inroads,and each 110mm tube has 4 smaller sub tubes (32 and 40mm).

Is ViaEuropa a provider of services on the Stokab network?	We do not comment regarding who our costumers are.
how many fibers do you diliver to each costumer	Normally we deliver a two fibers (i.e. fiber pairs)
what is the average connection cost foe each houshold ?	We do not work directly with the households but with the operator, i.e. a “business to business” approach.
How is access to emergency service in case of power failure supported over fibre infrastructure?	We offer dark fibre but we also offer back-up systems in our nodes. The operators also often have, in addition to their own equipment, their own back-up systems
<p>technical question, how many fiber's 'handled' in 1 technical area? Meaning how centralised is the operator equipment?</p> <p>Can you go a little bit into detail how you uphold so much operators and ISP's into your network. How is that technically incorporated? Do all operators and ISP's offer their services in all area's?</p>	We can handle 2400 SC connectors in one rack, the number of racks depends on the size of the room. We supply dark fiber to the address our customer requests. We offer our product to all on equal terms, which means that all operators can use our network.
Does diffrent operators share active equipment at O/A nodes? If no, how many different equipment is typically located at those site?	The operators do not share active equipment today, which means that each operator has its own switches.
Do you use microducts and air blown cables? Or you use conventional cables and pull them into the ducts?	We use conventional cables. Depending on the distance we use water or air to install the cable.
How does Stokab manage to keep in "secret" the different's SP marketing plans for deploying services in a specific region? Isn't it a concern for your Clients operators?	This business is built on trust and this kind of information is of course commercially confidential.
I understood that 2 fibers are available per household for any service. And 1 fiber available per your customer. How does it work if more than two service providers want to connect to one household. For instances Telia sonera and a hospital.	We supply two fibers per houshold/appartment/customer.
what is the average size of service that residential customers take from service providers?	We only offer dark fiber, not services
How many Operators have their own phisical infrastructure in Stockholm? Are they your competitors?	<p>Stokab and the incumbent are the two main operators with fiber infrastructure in Stockholm</p> <p>There are however a few other operators who do have some infrastructure of their own.</p>

Does the fibre roll-out also support PON structures. In that case service providers have to be able to install passive splitters in the street cabinet.	Yes, service providers can and have installed passive splitters in our access nodes.
who are the vendors of COE and CPE equipment for such network? what is your experience with them in terms of communication, support, schedule, pricing etc.? thank you	Stokab operates a dark fiber network. We procure all our materials in full competition on the market and we strive to have a minimum (i.e. redundancy) of two suppliers on all key material such as patch cords, cables, ODF etc.
you have built an "overlay" fibre network on top of existing copper network. Have you done any analysis to see how the BC would change if you consider removal of copper infrastructure?	Stokab's network is pure fiber. Only the incumbent has copper in its network.
<p>If TeliaSonera has its own fiber in the same area and is also a Stokab customer then you are competing with your customer, is that correct?</p> <p>Does Telia (or some other Telco) have its own fiber in the ground in same places as Stokab?</p>	<p>Stokab offer dark fiber to all operators on equal terms. If Telia is our customer, we offer dark fiber at the same conditions as other customers. We only compete with TeliaSonera on the dark fiber level.</p> <p>Yes. Stokab and TeliaSonera have parallel infrastructure coverage in parts of Stockholm</p>