



AGILE NETWORK INVENTORY:

THE KEY TO SUPPORTING FIBRE GROWTH



The massive demand for fibre is hardly news but the stellar growth it has enjoyed (13% between 2018 and 2019, according to the OECD), has received new impetus recently, thanks to several key factors. However, there are challenges ahead that may limit returns and disappoint investors. In this feature article, director of international business development at Cross NI **Peter Kern** explores the reasons for the upsurge of interest in fibre, explains key challenges the industry faces in delivering fibre efficiently – and provides case studies that highlight an optimised, agile approach.

So, what's behind the new momentum? Several key reasons. First, while fibre deployment has long been an objective for service providers, national governments and regional authorities, the importance of increased fibre access has been thrown into the spotlight by the COVID-19 pandemic. The lines between home and office have blurred, leading to a more distributed workforce that needs more high-speed connectivity. Second, fibre is integral to the deployment of 5G. 5G radio provides excellent performance, but within a relatively small area when compared to

previous generations of mobile radio technology. To maintain this performance, the radio network must be connected to the core via fibre. 5G performance in the RAN cannot be limited or held back by bottlenecks in the increasingly complicated 'x' haul domain – front, back and mid haul – which joins together the different domains of a 5G network.

Finally, operators everywhere are gearing up for a massive increase in the number of connected devices. While many of these will connect via 4G or 4G-like technologies, many more will require 5G – in turn, driving surging traffic, for which fibre is required.

EFFECTIVE ROLLOUT, MANAGEMENT AND EXTENSION

So, network and social evolution are driving increased fibre deployment – but there's a big issue to solve. How do operators manage their fibre rollouts, ensure effective operations and agile business and service delivery? The simple truth is that many operators are hampered in their efforts to do so by outdated and disconnected systems.

Operators depend on their Operational and Business Support Systems (OSS and BSS) to ensure that their businesses can function. The OSS and BSS underpins all aspects of their business – building

and extending their networks, their performance, management, service activation, customer accounting and relationships.

However, in many cases, the OSS and BSS have not kept pace with other network investments. In order to meet these challenges and maintain profitability, operators need to be able to reduce costs, enhance efficiency and to adopt a more agile footing. Accelerating the pace of fibre deployments while meeting these goals requires a supporting infrastructure to support effective operational delivery. The OSS must change.

Operators need an OSS that can support agile operations, new business processes and accelerated service delivery. Key to this is the elimination of different silos. All OSS assets generate data – reports, indicators, and so on – which means they need to be interrogated in order to determine key variables, such as connection type, devices, their location, status, capacity and more.

In telecoms networks, this data set comprises what is known as the ‘inventory’. It’s the sum of all assets both physical, logical and virtual and – that are combined to deliver services. If you want, to activate a fibre connection to a customer, you need to know which routes are available, where they are, what their current capacity is, and so on, so that you can determine how to complete the service requirement.

SUPPORTING AGILE OSS AND BSS PROCESSES

The information necessary to fulfil such a process resides in different systems in the OSS, so the data you need for a specific task must be collected from each silo in turn.

The lack of integration between silos means that processes cannot easily be completed, building friction and inefficiencies, limiting operational performance. A single inventory is required that combines all available information into a common resource. Worse, the OSS is often disconnected from the BSS. If the OSS supports key operational processes, then the BSS is responsible for enabling business activities – selling subscriptions, managing offers, billing customer and bilateral relationships, and so on. The two need to be aligned and to interact, seamlessly.

When an order (for our notional fibre connection) is made by a customer, the clear expectation is that the relevant service will be delivered in a timely manner, with the requisite (advertised) performance characteristics. This must be handled by the BSS systems in place. While the data regarding the order will be

retained and matched to an existing or new account in the CRM, once the order has been accepted, it must be fulfilled. In turn, this requires a number of related actions to take place. Thus, the task of “delivering a new fibre connection” can be defined as a simple series of steps.

The information required to answer these questions is contained in systems in both the OSS and BSS estates. Once, they would have been answered manually, but clearly that’s not possible in a world in which operators must deliver services at scale. All of these processes must be interconnected and should, in an ideal world, also be automated, so the entire lifecycle can be managed with as little human intervention as possible. This applies to building out networks, as much as onboarding new business partners – each action has consequences. If data is scattered in silos, then automation is impossible.

INVENTORY UNDERPINS SUCCESSFUL RETAIL, FWA, IOT AND WHOLESALE FIBRE OPERATORS

So, what happens if you eliminate silos, provide a consistent source of inventory data and make it accessible? Let’s consider a largely retail fibre operator: Nexera from Poland. Nexera is building out a fibre network in Poland and has deployed a state-of-the-art OSS. This includes a centralised inventory repository, CROSS, from CNI for all network data. This is interconnected with the business processes, including the order management and provisioning systems.

On the BSS side, there’s an automated service fulfilment platform built on Salesforce. This is connected to the inventory system, so when a customer order comes in, the BSS can check to see if the OSS resources required are available. If they are, the order can proceed and the service activated, according to the promised timescales. It’s a fully automated, closed-loop process, which allows Nexera to function as an agile, lightweight organisation. It can focus resources where they matter, while enabling agile service delivery and management via digital channels and integrated processes.

In many areas, it’s not currently economically feasible to deploy fibre to each and every premises. Instead, Fixed Wireless Access (FWA) offers an alternative. LTE wireless gives DSL-like performance, while 5G FWA will match direct fibre speeds. Fibre is used, not for the last mile connection, but to link all of the base stations that support the wireless connectivity.

In the Czech Republic, FWA has really taken off – and one utility company

is using FWA to deliver residential broadband services, but it’s also using the same network to manage a distributed footprint of smart meters. A customer may take both services (electricity and broadband) or just one. The network must take account of both retail subscriptions as well as growing numbers of wirelessly connected smart meters that provide real time reporting. In each case, there are different devices connected, often at the same property. Ensuring that the OSS is seamlessly connected to provide a single inventory data repository is essential, because there is a huge increase in the number and type of connected devices. A legacy OSS cannot cope with such diversity or provide the agility to cater for different subscriptions (does this customer have broadband, a smart meter, or both?), so it was essential to transform the OSS to the new, consolidated data model with a single inventory common to all services. Finally, such is the importance of building out fibre, some countries have established national wholesale fibre networks. The remit of many of these is to deploy national coverage but via wholesale models, enabling other service providers to lease assets and to target retail and business customers. Here, not only must the network be built and operated effectively by the national operator, each service provider must also be able to manage its own customer base via the shared network. This requires a common inventory platform, that includes all data related to the network, made accessible to the BSS of the national operator as well as those of the service providers. Such a venture simply cannot flourish without such common data accessible to all stakeholders.

In conclusion, it’s clear that fibre provides essential, critical infrastructure. It is crucial for 5G and the emerging IoT, it connects different legacy domains, and provides high-speed last mile connectivity. But efficient profitable fibre networks depend on an OSS that’s fit for purpose, with a core inventory platform that can provide the common data resource to support process automation, agile service delivery and tight coupling with the BSS.

Despite surging demand for fibre – across all network domains – the kind of agile performance to which operators aspire cannot be realised without OSS and inventory platforms that are optimised for complex, multi-service networks. Indeed, failure to evolve the OSS and inventory platform will compromise fibre investments and diminish the value they offer. To learn more about agile inventory management solutions, visit <https://www.cross-ni.com/> for more information and insights. ☺