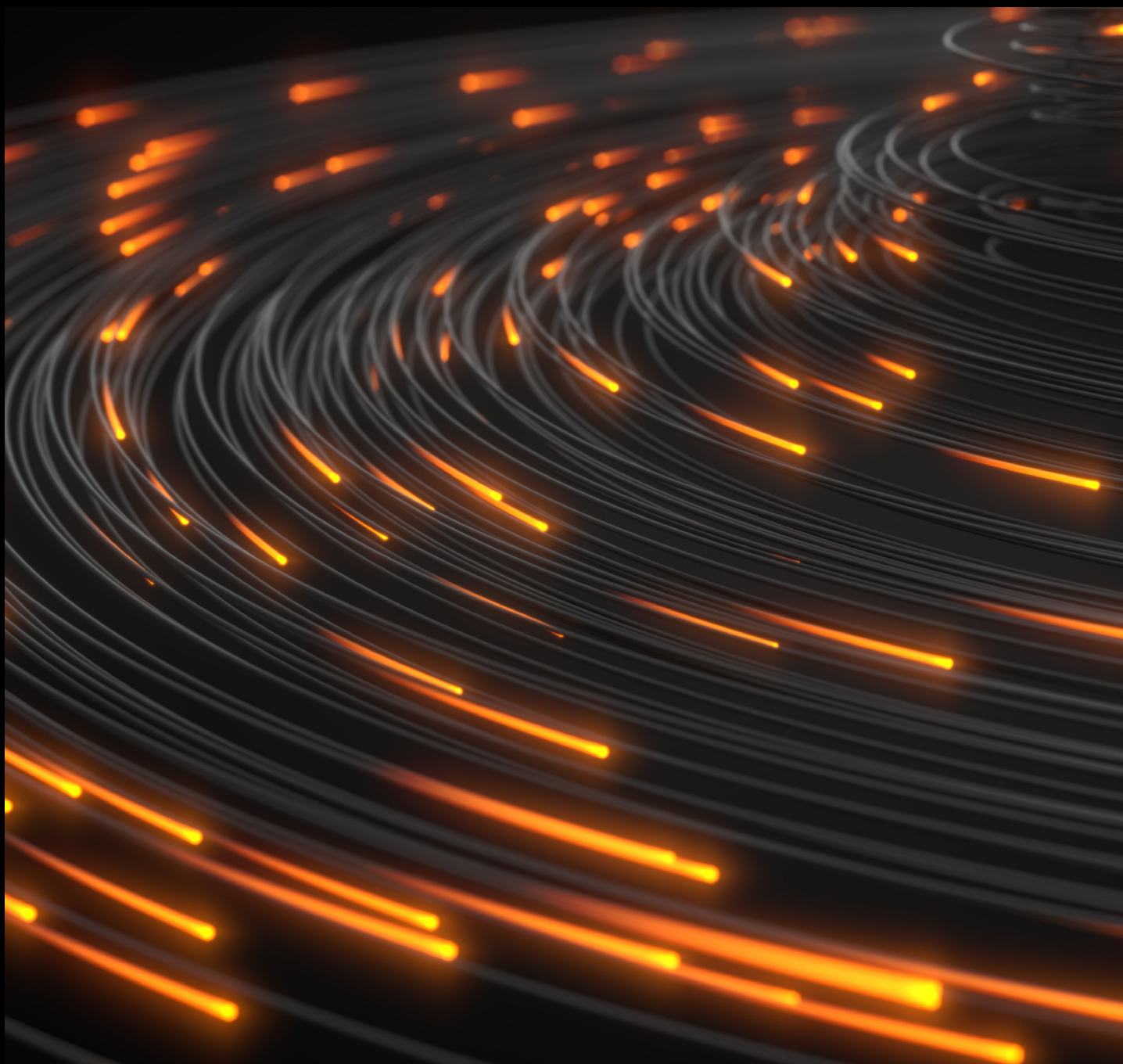# How to grow your FTTH services

WHY INVEST IN FIBER TECHNOLOGIES?

There is no denying that fiber technologies are becoming increasingly more popular among service providers and users, as they promise the fastest and most reliable speeds available commercially. According to the "FTTH/B Market Panorama in Europe" study, published by the FTTH Council Europe, the number of fiber subscribers on the old continent alone has grown from 16 to almost 82 million in the eight years between 2012–2020 and this by no means saturates the market.

As service providers scramble to deploy FTTH (fiber-to-the-home) to more users, they tend to focus on the challenges with the hardware installation. Admittedly, this requires considerable effort and groundwork (both literally and metaphorically), as it requires an entirely new infrastructure. What is often overlooked at these early stages, though, is the fact that down the line device and network management may turn out to be equally challenging if not handled properly, and just like the old hardware is not fit for fiber, legacy software may not be enough either.

To keep our clients ahead of the game, AVSystem provides a comprehensive set of software solutions that allow service providers – regardless of the size and the complexity of their network – to effectively manage their fiber networks during and past the deployment stage and adopt fiber in heterogeneous network environments.

SERVICE ACTIVATION

Once the cable is down, service providers are looking for ways to easily activate customer premises equipment (CPE). That's understandable – fast and easy device activation is one of the first pain points for the customer and the provider. However, because fiber technology is so novel and complex, involving extensive integrations between different systems, such as your CRM, AAA, and DHCP server. When NMSes from different vendors are involved, the issue becomes even more complicated and requires vendor-specific expertise if you want to automate your processes. We often find that ad hoc solutions providers choose at this stage eventually create a patchwork that becomes hard to manage and impedes operations more than it expedites them. This is why it's so important to look for solutions that can integrate your operations early on before you scale.
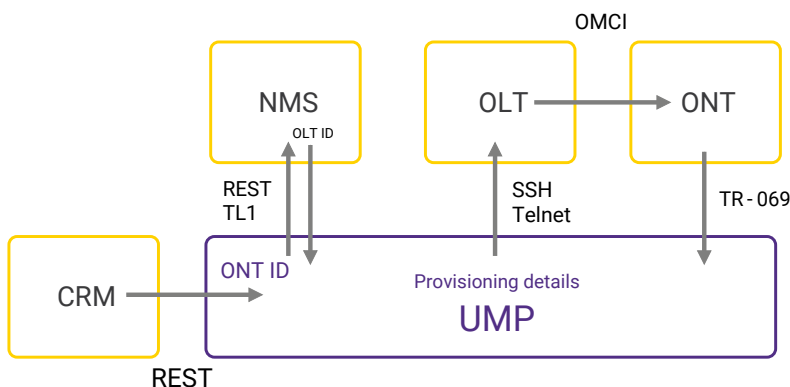
OLT configuration

With technologies such as DSL, zero-touch and one-touch provisioning – i.e. device activation with no or minimal participation of technical specialists – is relatively uncomplicated. But when it comes to fiber, things get a bit messier. A big part of the problem is OLT configuration which, for a lot of service providers, hinges on the NMS.

AVSystem's Unified Management Platform (UMP) offers three possible ways of OLT configuration, depending on the needs of a particular service provider:

- **using NMS as a proxy**, where UMP executes provisioning commands through the existing NMS. This is the most common solution for providers who rely on one vendor only;

OMCI

NMS → OLT → ONT

REST
TL1   TR-069

CRM → | Provisioning details   **UMP** |

REST
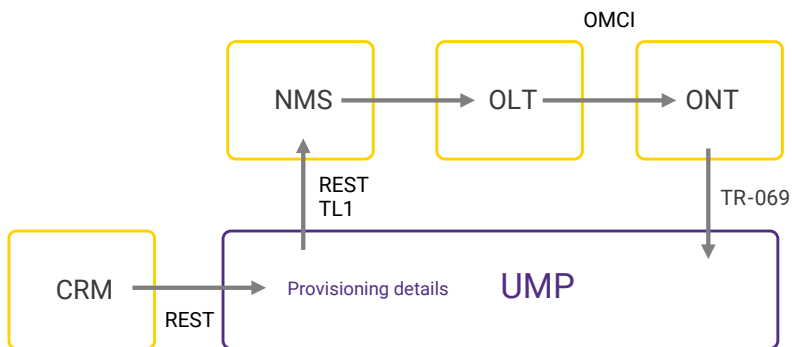
- **using NMS only for discovery**, where the NMS is used to find out to which OLT the ONT has been plugged in and then UMP changes configuration on the OLT directly. This is the best solution for multi-vendor infrastructures when the service providers want to make their work easier by having a single workflow for all vendor devices;

OMCI

NMS   OLT → ONT

OLT ID

REST
TL1   SSH
Telnet   TR-069

CRM →   ONT ID   Provisioning details
                          UMP

REST

- **bypassing NMS entirely**, where UMP auto-discovers newly connected ONTs across all OLTs. This becomes a must at scale, where the NMS may turn out to be insufficient for handling large numbers of devices, either due to performance issues or missing API integrations that prevent automation.

OMCI

NMS   OLT → ONT

SSH
Telnet   TR-069

CRM →   Provisioning details
         REST   **UMP**
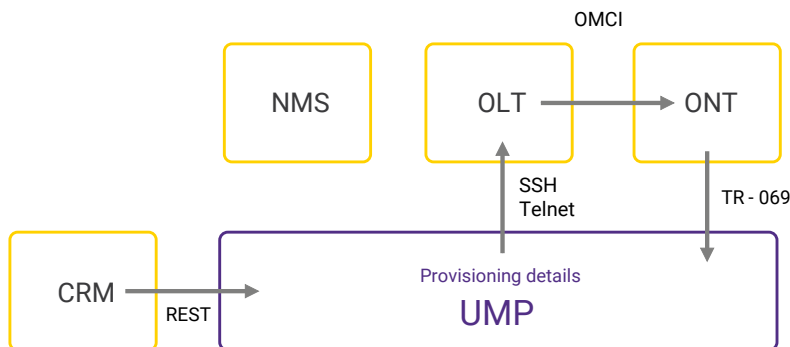
Seamless integrations

As was said, fiber is a complex technology that requires very specific expertise that many providers lack when they first venture into this business opportunity. With AVSystem you can rely on our experience of successfully provisioning FTTH for large- and small-scale providers. We can integrate various systems, such as AAA, DHCP servers, NMSes, and OLTs from different vendors, under the umbrella of your CRM. This provides you with one-touch configuration that seamlessly propagates across all systems – regardless of how complex your use-case is.

Mobile Provisioning application

To facilitate the business procedures related to the activation process, AVSystem has a Mobile Provisioning application that can be used by field engineers when they need to set up services at the customers'. This provides your business with material benefits.

Self-reliance: our application allows you to expand your own field engineering department, so that you don't have to rely on external partners in that respect. This both gives you more control over the activation process and saves you expenses.
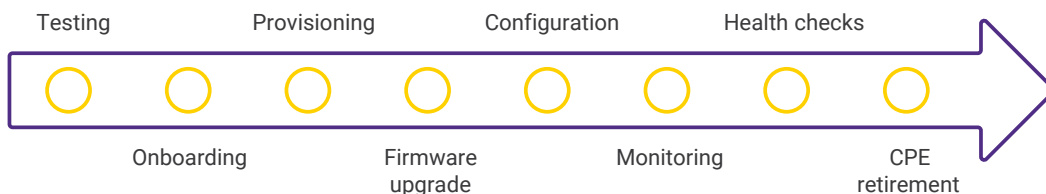
Quality of service: thanks to a one-touch installation flow, speed tests, and installation reports that the application provides, you get an error-free activation process and transparent means of tracking it.

Time-saving: thanks to constant improvements we make to the application based on user feedback, it is optimized to save the field technicians' time, for example by automatically assigning CPE's serial number and IP address to the customer in your CRM or by pointing your technician to the nearest installation. This increases the efficiency of your field technicians and consequently also your ROI.

SERVICE MANAGEMENT

Service activation is one of the first hurdles that the service providers need to jump over on their road towards successful fiber deployments. Many make the mistake of believing it's also the last one and they can simply deal with it on their own. But fiber management is a much more complicated process and patching over one issue after another without having the bigger picture will inevitably lead to data silos, convoluted procedures, and needless manual workload – all well-documented sources of money drain. This is why proper service management is so important and why AVSystem prepared a number of fiber-specific solutions for both OLT and ONT management.

Testing		Provisioning		Configuration		Health checks	
○	○	○	○	○	○	○	○
	Onboarding		Firmware upgrade		Monitoring		CPE retirement

Single pane of glass management

We know that, because of the complexity of telco operations, it can be a challenge to provide your customer care specialists with all the tools they need for their work in one place. This is why we took care that our FTTH solution can be integrated with other systems, so that you have a single pane of glass for everything that relates to device management and monitoring, collecting data from the device data model, device IP, as well as data from the OLT and AAA. This includes a graphical user interface for CRM activities, activation history views, FTTH monitoring parameters, and typical CPE lifecycle management tasks, such as triggering FTTH service change operations.

Rich reporting

Access to device management is not everything. For you to constantly improve and optimize your operations, your teams need to have access to proper reporting that combines data from different sources. This includes information such as activation time and success-to-failure rate grouped by various categories (CPE model/vendor, OLT, location, etc.), as well as error classification.

With this kind of automated reporting your business procedures will be much easier to implement and execute and you'll have a more global view that combines the technical with the business aspects. Some instances where the reporting can improve your operations include:

customer issue troubleshooting, when a customer care engineer needs to review the full customer operations history to fix their problem;

financial team reporting, where the team can receive daily reports on customer activations.

Bulk operations

Rich data and device management is everything that you need for advanced bulk management that will make your operations even smoother. With AVSystem's UMP you can perform a variety of tasks that our clients find particularly useful for their business.

Service suspension: you can collect a list of customers who are late on their payments and suspend their services at the end of the month. Similarly, you can terminate or reactivate services for groups of customers as well.

Promos for selected groups of customers: you can find customers based on a selected characteristic (e.g. customers who should have a higher data plan) to offer them a promotional deal and increase their engagement.

Reconfiguration and retrying: if an operation failed (for example because of missing OLT connectivity or issues with NMS) you can easily change the parameters and try again, regardless of the number of the devices.

Static IP device management

Managing static IP addresses is particularly important if you provide services to small and medium enterprises, where these are necessary for business purposes. At the same time, it is much more complicated than managing dynamic IP addresses and, because of missing integrations, service providers often end up doing it manually. This may be a working (though certainly not effective) solution when the device pool is small, but it quickly becomes impossible at scale. You can automate this task, but you need to make sure the operations requested from the CRM – such as retaining an IP address of the equipment that is being replaced – are synchronized with the DHCP server configuration. Thanks to the integration with AVSystem's DHCP Server, UMP allows you to provision all devices for all users, even if they need static IP addresses.

SERVICE ASSURANCE

As your network keeps growing, it's important that you're able to manage it properly and ensure uninterrupted services. With fiber, this need becomes even more crucial. After all, the key selling point for end customers is that FTTH ensures better speeds and connection quality than other technologies. AVSystem's Broadband Service Assurance Platform allows you to keep a finger on your network's pulse.
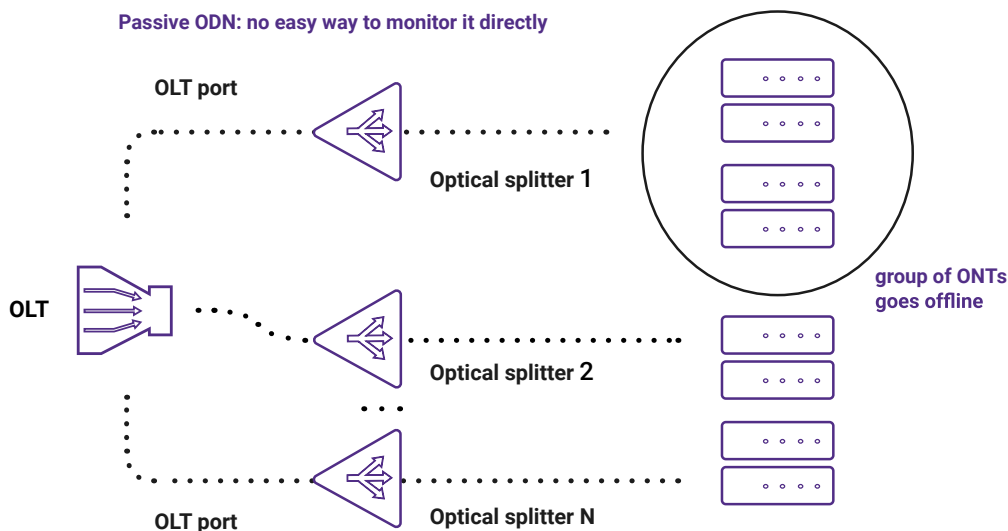
Faster issue response

With the Broadband Service Assurance Platform, you can go beyond just monitoring CPEs. When it comes to fiber, OLTs are equally, if not more important than ONTs, especially with regards to identifying and fixing issues. This is because OLTs are entirely under the provider's control, which makes them much easier to manage. And since they are aggregators of sorts, it's also more efficient for the provider to focus on their performance, rather than the ONTs. After all, a single failed OLT translates into hundreds of dissatisfied customers. This is why when a customer calls about their fiber connection, you should be able to check where the issue lies across the network and not rely just on CPE monitoring. BSAP ensures that you can visualize all the data you need for network management in one place to react immediately and find the root cause of your issues faster.

Group monitoring

Apart from devices, the network consists of other, passive elements that are not as easy to monitor, such as fiber-optic splitters. These are crucial to the performance of the network, yet impossible to communicate with directly without investing in expensive specialized hardware. However, there is a much easier solution to this problem.

Thanks to powerful grouping mechanisms BSAP can identify issues with passive network elements as well. For example, by grouping ONTs based

on the splitter they are connected to, we can reliably deduce when it's down because the whole group (and only that group) will be affected. When this happens, BSAP will be the first to alert you.

Passive ODN: no easy way to monitor it directly

OLT port

Optical splitter 1

group of ONTs goes offline

OLT

Optical splitter 2

OLT port

Optical splitter N

Predictive maintenance

By monitoring devices at regular intervals and periodically gathering data, we can not only identify existing issues but also proactively predict them based on the device parameters. It is a known problem that performance issues are hard to measure using preset values, because these values are highly idiosyncratic and keep fluctuating depending on a variety of factors. This is why the Broadband Service Assurance Platform uses AI-driven algorithms to perform trend analysis of crucial ONT and OLT parameters, such as TXPower, RXPower, SNR, BiasCurrent, etc., identify patterns and anomalies, and alert you to potential issues before they happen. This gives you time to take reparative measures and avoid downtime or quality loss before it actually affects the customer.

Clear vision

BSAP can be integrated with any NMS, OSS, BSS, and – obviously – your ACS, providing you with a single place to visualize all the data you need for network management. This gives you more than the ability to identify and fix issues – it allows you to manage your deployment in a smart way and decide when it's time to take steps to grow. By combining technical and business data, you can monitor OLT usage to identify locations that need further investments in infrastructure, or customers that you can upsell your services to.
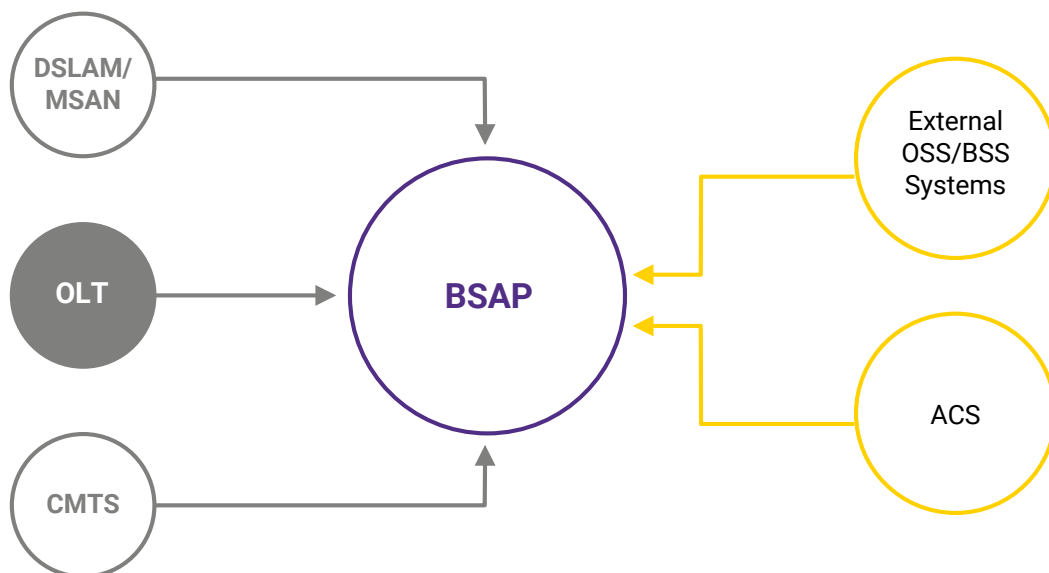
HARNESS YOUR DEPLOYMENT

Regardless of the stage at which your fiber deployment is and the complexity of your network, AVSystem has a suite of products that together create a tailored solution for your FTTH deployment. They can be easily integrated with any and all other technical and business systems you need for your operations and used alongside other access technologies, such as DOCSIS, DSL, or LTE to provide you with a seamless network management experience. Learn more about Unified Management Platform, Broadband Service Assurance Platform, and AVSystem's DHCP Server or contact us at sales@avsystem.com to discuss your case.

Unified Management Platform

UMP is the device management platform that you need to simplify your customer care operations, improve services, and drive customer satisfaction. FTTH service activation and management are just some of the many features that make our auto configuration server (ACS) stand head and shoulders above its competition, providing you with even better control over your customer premises equipment.

Broadband Service Assurance Platform

Broadband Service Assurance Platform is a system for monitoring network-related telecommunication services that allows NOCs to perform proactive service maintenance and rapidly resolve network issues.
BSAP can help you save money, reduce downtime, and improve the quality of your FTTH services.

DHCP Server

AVSystem's DHCP Server is your solution to effectively assign and manage IP addresses in any network. From enterprise to telecom, it ensures efficient and mess-free network management that saves you time and trouble.