ADVA™
Optical Networking

Your Partner
for Professional Services

Build

- Installation services
- Staging services

Care

- Maintenance services
- NOC services
- Resident engineer
- Network optimization
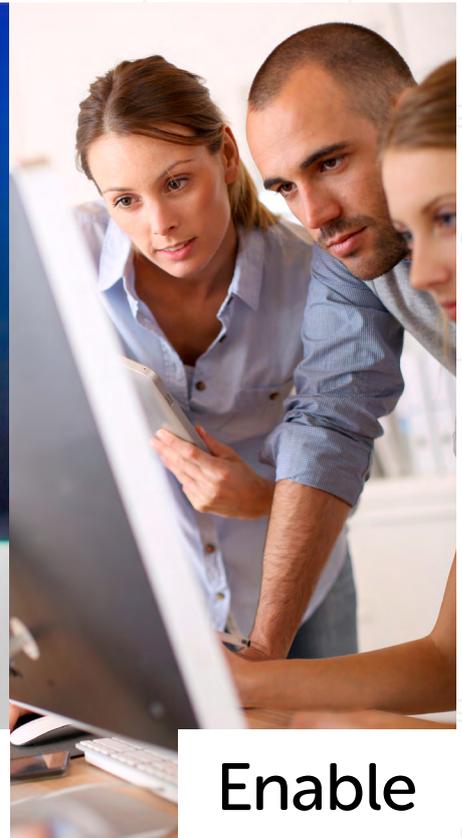- Fiber assurance as a service

Enable

- Training services

Other professional services

Build   **Care**   **Enable**

Installation services

Your partner for professional services

Building or extending your network can be a technical and logistical challenge. Let ADVA support you. Or even better, let us do it for you. Our teams are experts at the end-to-end process of scheduling, installing, commissioning and testing.

Is your team highly skilled but lacking experience with orchestrating a complex rollout? Do you have a tight schedule with little time between receipt of goods and the network going live? Those are concerns we hear a lot. On average, it takes customers two to five times longer to build their own networks than the time we require. Let us support you and accelerate your network going live.

Your complete solution

✅ On-site deployment

Our engineers take charge of all elements of the deployment process from installation to testing. We then hand over a tested network which is ready to use. All we require from you is that you ensure site access, racks, power and fiber are available. We do the rest.

Our engineers will bring ADVA tools and test equipment. Whatever schedule you require, we will provide a team with the appropriate personnel, skills and experience, limiting the involvement of your staff to an absolute minimum.

On completion, we will hand over system documentation with performance data, test results and a complete inventory.

✅ On-site deployment support

Our engineers will go on-site to coach your team, so that your workforce benefits from our experience as we move smoothly through your own deployment plan.

✅ Remote deployment support

Your team can access our support online or on the phone. We will schedule our engineers to work with you through the entire deployment process.

What you get

On-site deployment	• Field installation including unpacking, inspecting and conducting equipment inventory • Our engineers will mount, commission, assemble and secure all equipment • Testing and verification, providing a post-deployment documentation package
On-site deployment support	• Support and assistance with equipment installation and network configuration • Guided troubleshooting assistance with fault diagnoses and correction • On-site support for testing and verification
Remote deployment support	• Interactive guidance to your field technicians through best-practice methodologies • For customers that have completed initial phases of equipment deployment • Customers are recommended to receive training and pass ACE certification

Case study: hospital saved money and went live faster

Customer

• Health care industry. Ring network with 10 nodes.
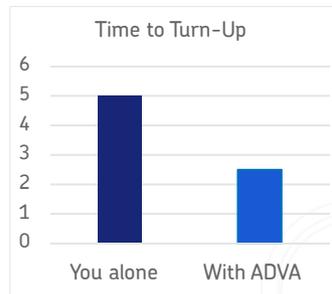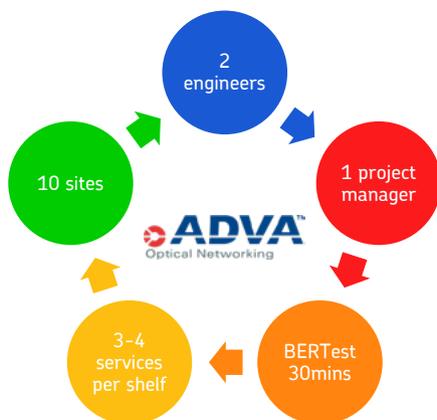
We are much faster and more cost-effective!

Why it makes sense

• We ensure meticulous planning and organization of resources, personnel and scheduling
• We have time standards for all activities and have a proven record of staying on schedule
• If problems arise, we take care of them quickly and effectively
• We build networks two to five times faster and more cost-efficiently than those less experienced
• Your resources remain free, enabling you to focus on your business and realize the return on your investment

ADVA™
Optical Networking

Staging services

Your partner for professional services

Building your network is hard enough without also worrying about populating shelves and building nodes. Why not let us take care of it for you while you keep your team focused on business? Our experts can handle all assembling, configuring and testing of network equipment before shipment, so all you need to do is unpack and go.

Are you working to a go-live deadline that cannot be met if you have to slot every card in the field yourself? Are you tired of finding "dead on arrival" product that stops your team in its tracks? We can help! Our system staging service resolves this – we find any failures and address them prior to shipment.

Your complete solution

Level 1 staging: assembled

Our engineers plan shelf configuration and module slotting according to the network design. Based on that plan, they ensure that all cards are inserted into the predefined slots and secured. We also provide complete in-shelf fiber cleaning and installation.

Level 2 staging: preconfigured

Besides the activities in level 1 staging, in level 2 staging our engineers also take care of the preconfiguration of the cards requiring input. Our engineers then carry out functional tests. Each shelf and its contents are thoroughly tested as a stand-alone unit. A deployment kit of attenuators is also provided in the shipment.

Level 3 staging: configured and tested

In addition to the services included in level 1 and level 2 staging, complete site topology documentation is provided, with diagrams detailing every shelf, node, and all connections of the network. Our engineers also perform a lab simulation of your network and field fiber. Then they carry out comprehensive testing and proof of sustained error-free function, including a complete 30-minute network BER test (BERT).
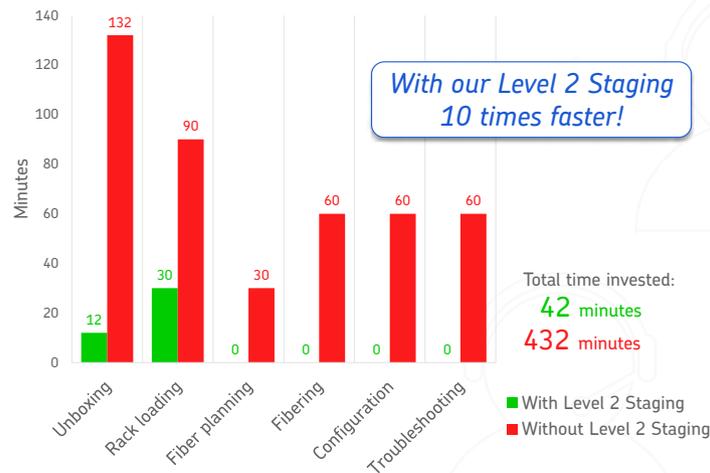
What you get

Level 1 staging: assembled	• Includes shelf configuration planning, installation of all modules and intra-shelf jumpers per your configuration • Benefit: relieves build time, enables direct shipment to network sites and minimizes on-site waste
Level 2 staging: preconfigured	• Includes level 1, plus configuration of card parameters and a functional test; deployment kit also included • Benefit: reduces skilled personnel time, ensures consistent configuration and allows immediate access to the network element by the NOC
Level 3 staging: configured and tested	• Includes level 1 and 2, plus site topology documentation, complete system set-up and end-to-end 30 minutes of clean BER test (BERT) • Benefit: this is true "rack and roll"; simply apply power and external fibers and move to the next network element

Case study: ADVA staging saves money in the end

Customer

• A small regional ISP with minimal staff and limited optical experience
• 6-shelf system, 10 cards per shelf

With our Level 2 Staging 10 times faster!

Total time invested:
42 minutes
432 minutes

■ With Level 2 Staging
■ Without Level 2 Staging

Why it makes sense

• We have it down to a science! This is what we do all day, every day
• Not only do we save you time and worry, our service costs no more (and often much less) than the amount you would end up spending otherwise
• We deal with any issues before shipment, leaving you free to plug and go
• We send less equipment for you to track and far fewer boxes to dispose of, leaving you with a much easier cleanup operation
• With staging done for you, you can do the simple job of racking and stacking; instead of building your network, you can quickly move on to using it

ADVA ™
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Maintenance services

Cost-effective and smooth operations

Effective network maintenance is essential, but it can be overwhelming and time-consuming beyond your willingness to invest. It requires access to expert help, repair or replacement services, spare parts, experienced personnel to install them, and periodic software updates. Why not let us take care of it for you, while you focus on your business?
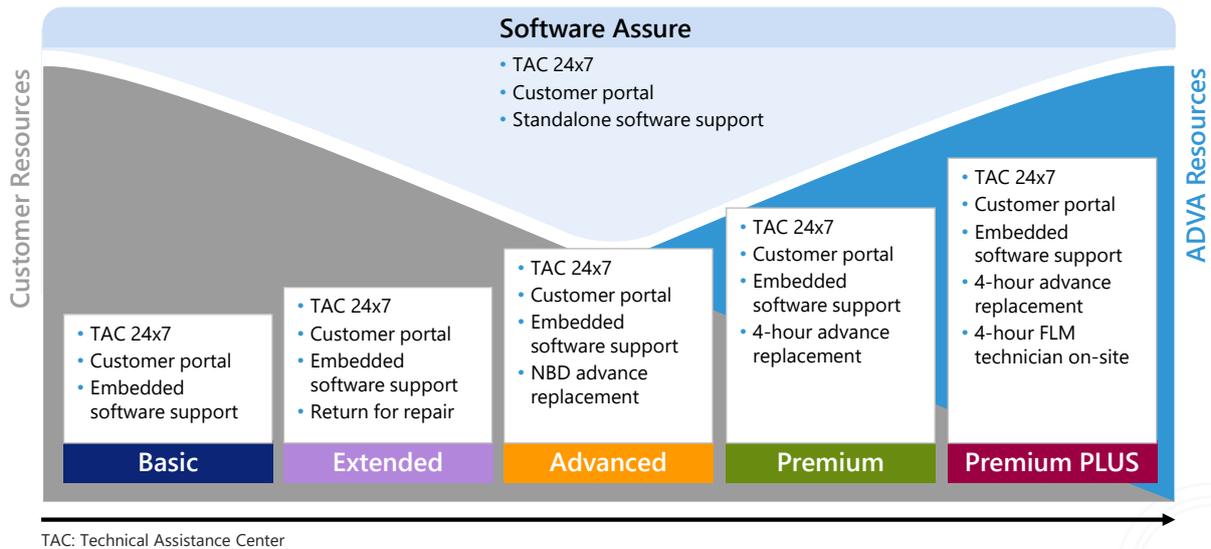
Do you have limited budget or a lack of in-house expertise? Does your network span regions where sourcing spare parts is a financial and logistical challenge? Do you want time to concentrate on your core competencies and stop wasting time, effort, and money? We have solutions at hand to ensure your network runs smoothly, so your business can too.

Your complete solution

Technical assistance center (TAC)
The foundation for success, providing TAC break/fix support for all your network elements comprising the ADVA solution – 24 hours a day, seven days a week, 365 days a year.

Software
Stay current with bug fixes and software releases so your network remains current.

Hardware repair service
If you do own spares, a time-definite repair makes managing your assets predictable.

Advance replacement service
Options for managed spares include next business day or delivery within 4 hours.

First line maintenance
Rely on an experienced technician to deliver the spare part, install and commission, as well as returning the replaced items to ADVA.

Customer portal
Providing web portal access to create and track technical cases, RMAs and advanced replacement requests, as well as access to documentation and software available for download.
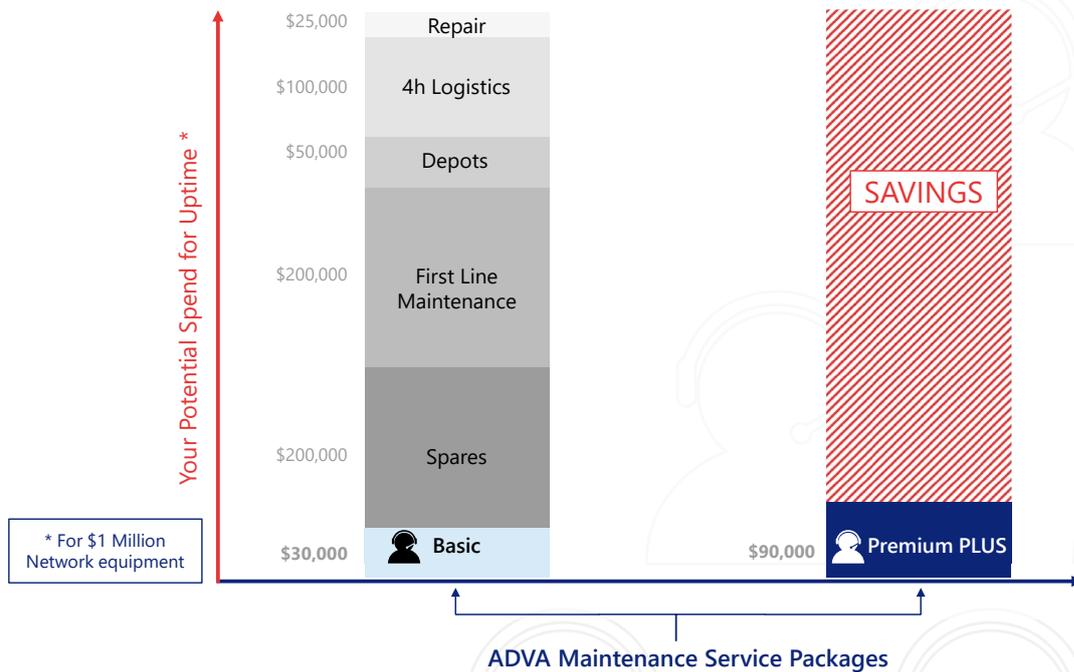
What you get

Software Assure
- TAC 24x7
- Customer portal
- Standalone software support

Customer Resources

ADVA Resources

Basic
- TAC 24x7
- Customer portal
- Embedded software support

Extended
- TAC 24x7
- Customer portal
- Embedded software support
- Return for repair

Advanced
- TAC 24x7
- Customer portal
- Embedded software support
- NBD advance replacement

Premium
- TAC 24x7
- Customer portal
- Embedded software support
- 4-hour advance replacement

Premium PLUS
- TAC 24x7
- Customer portal
- Embedded software support
- 4-hour advance replacement
- 4-hour FLM technician on-site

TAC: Technical Assistance Center

Case study: ADVA premium maintenance saves you money

Customer

- Private enterprise with networks on five continents, multiple regions per continent

Your Potential Spend for Uptime *

$25,000	Repair
$100,000	4h Logistics
$50,000	Depots
$200,000	First Line Maintenance
$200,000	Spares
$30,000	Basic

SAVINGS

$90,000 Premium PLUS

* For $1 Million Network equipment

ADVA Maintenance Service Packages

Why it makes sense

- You don't have to think about which spares to buy – we offer everything at unlimited quantities
- You don't have to worry about spares obsolescence
- You benefit from our network of depots, logistics providers, and field technicians instead of piecing together your own solution
- Never think about repairs again

ADVA™

NOC services

Your partner for professional services

Monitoring your network is not a differentiator for your business, but it's something you need to do. Rely on our global network operation center (NOC) to look after your network anytime, anywhere. We can offer you scale and automation that you may not be able to achieve on your own, ultimately saving you money.

Do you have limited resources or are most of your staff working in one shift/time zone? Do you have a network built with multiple vendor platforms? Take advantage of our network operation center (NOC) engineers to monitor, fix and grow your network. We are on the job 24 hours a day, every day of the year.
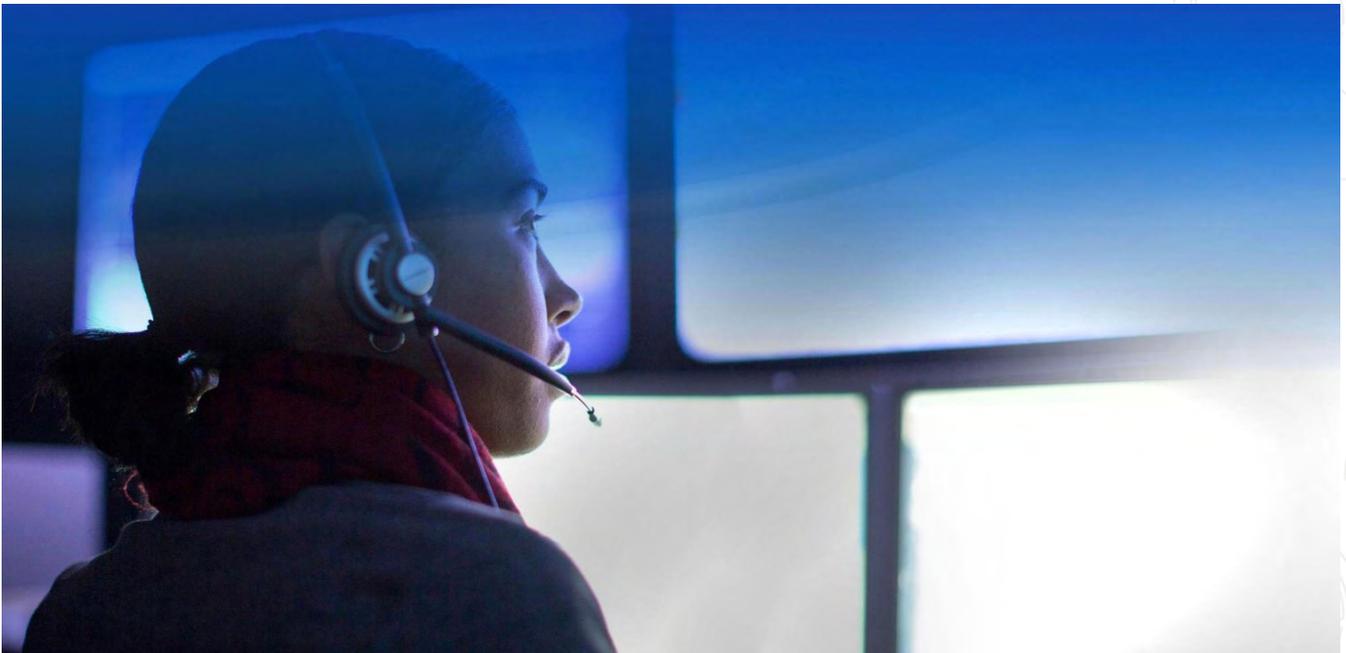
Your complete solution

✅ Around the clock

Designed to suit your business requirements, our NOC service is ready to support the growth of your network 24 hours a day, every day of the year.

✅ Multi-vendor NOC

Our NOC provides highly technical support across multi-vendor storage platforms as well as the expertise of a large original equipment manufacturer (OEM).

✅ White label NOC services

We support your customers directly and will represent you when we respond to them.

✅ NOC runbooks

Our highly comprehensive training program and well developed on-boarding processes guarantee the highest level of NOC support.

✅ Trouble resolution

Your network problems will be solved immediately with the support of our local technical assistance center (TAC), OEM TAC, spares providers, field engineers, and infrastructure providers.
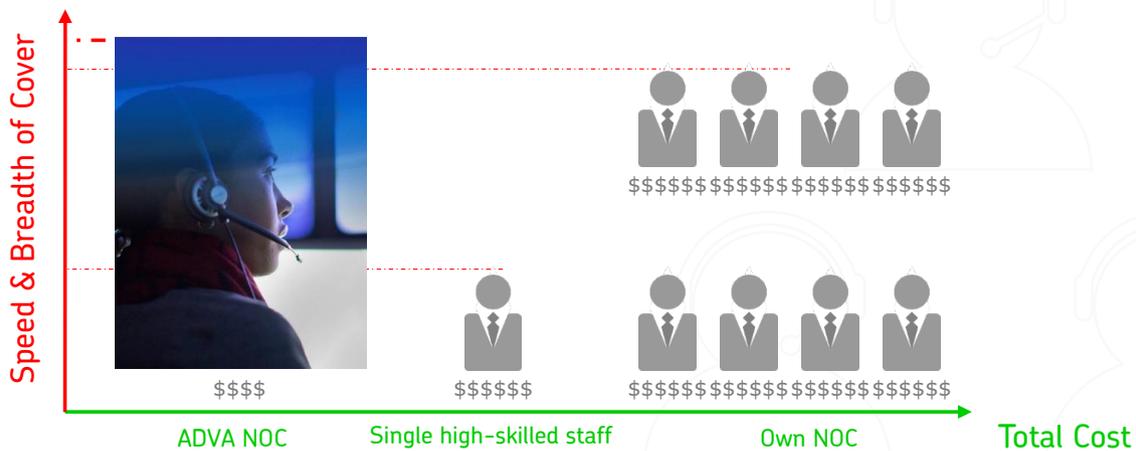
What you get

People	**>150** people in support operations
Process	• ITIL – standardize global IT service management framework • Mature on-boarding processes, NOC runbooks • Strong hiring, training and retention programs • Quality control and assurance
Technology	• Structured NOC platform (single pane of glass), closely integrated with 24/7 support • Scalable and secure • Carrier and enterprise class with disaster recovery / business continuity

Case study: ADVA global NOC = more coverage, less OPEX

Customer

• Research and education, statewide network, connecting five major universities, point-to-point and ring network topology, metro and long haul

Speed & Breadth of Cover

$$$$ — ADVA NOC
$$$$$$ — Single high-skilled staff
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$ — Own NOC

Total Cost

Why it makes sense

• Our NOC personnel are experienced in supporting a variety of networks from carriers to enterprises to data centers
• Our NOC team will support you 24 hours a day, every day of the year, with our vast expertise in complex NOC solutions
• We give you complete visibility of your network performance with dashboards and key performance indicators (KPI), accessible from our reporting portal
• Our NOC solution is much more cost-effective than creating your own staff and automation tools

ADVA™
Optical Networking

![ADVA Optical Networking logo]

Resident engineer

Your partner for professional services

Today's networking equipment is so specialized that maintaining it can exceed the capabilities of your staff. Let us take care of it. We have experts who can live on-site with you, overseeing daily network health and helping to build your future.

Is your staff talented on Layer 2/3 but not experienced with Layer 1 connectivity? Have you been investing in training but realize it's a long journey to build proficiency? We hear it a lot and can help! Your team can't be experts at everything. Bring an ADVA resident engineer on-site and let us be your local go-to resource.

Your complete solution

● On-site expertise

Your resident engineer will be proficient in the use and deployment of our gear. They can help your staff with basic understanding or in-depth feature knowledge.

● Network knowledge base

Your resident engineer will know and document your network and external connections.

● Direct connection to us

Your resident engineer will have a direct path to our escalation support staff to help you resolve more complex problems or stay current with new features.

● Troubleshooting accelerator

Your resident engineer will troubleshoot faster and accelerate restoration times.

● Solution enabler

Your resident engineer will teach you how to get more life or more revenue out of your gear. And when it's time to grow or change, they'll help you design your new network.

● Go-to resource

Your resident engineer will focus solely on resolving your networking issues and driving improvements.
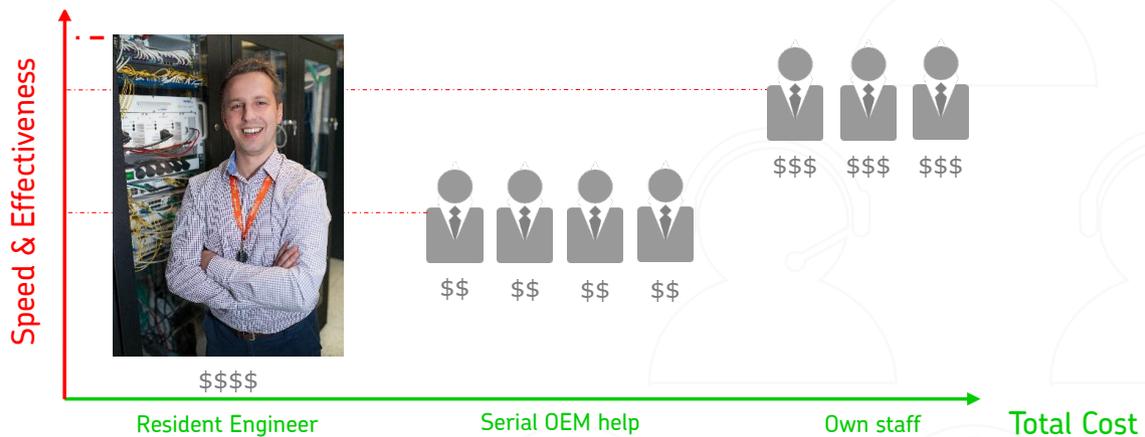
What you get

🎓 On-site expertise
- Network management
- Control plane
- Optical layer
- Transmission
- Amplification

💡 Knowledge base
- Detailed documentation of network, equipment and interfaces
- On-site staff guidance
- Best practices

☁ Direct connection
- Lab and interoperability testing support
- Feature introduction
- Feature integration
- TAC escalation

⚙ Accelerator
- Faster troubleshooting
- Help for ops staff
- Quicker restorations
- Updates on our latest developments

🚀 Enabler
- Guidance for new revenue streams and improvements
- Network life extension
- Guidance for continuing improvement

💬 Go-to resource
- Efficient problem solver
- Single point of contact
- Reliable
- Solution enabler

Case study: banking enterprise realized the value

Customer
- Financial industry, HQ in New York, three major network markets, providing services in 30 different countries
- Point-to-point and ring network topology, metro and long-haul

Comparison

Speed & Effectiveness

Resident Engineer — $$$$

Serial OEM help — $$ $$ $$ $$

Own staff — $$$ $$$ $$$

Total Cost

Why it makes sense
- A-la-carte OEM help is more costly and requires extra internal energy to be spent on continuity
- Customer staff is able to work in parallel while being monitored by your resident engineer
- Resident engineer offers best value, speed, and effectiveness

ADVA ™
Optical Networking

Network optimization

Your partner for professional services

Isn't it great when everything just works? But what happens when a network runs for so long that eventually you ignore a few minor alarms? Can you be sure it's operating as efficiently as possible? Let us dig in, answer your questions, and point you forward. Our engineers can work with your team periodically to make sure your network is optimized.

Has your network been stable for so long that the knowledge of your support staff has faded? You're not alone. Your team can't stay current on technology they never have to work on. Let us come in periodically to check on your network and advise you on future moves. From network design optimization to performance monitoring and troubleshooting, including vast network documentation and full inventory reports, we have all you need to ensure your network performs at the highest level.

Your complete solution

Health check

After a full inspection of your network, investigating alarms, settings, levels, end-of-life hardware assessment, and software releases, our engineers develop a deep-dive network optimization plan. They then write the detailed report with specific actions to optimize your network.

Network consulting

This includes, but is not limited to, network design, troubleshooting, confirming that your network performance meets requirements and offering options for growth or extending the life of your network.

Information management

We provide updated network documentation, containing new drawings of your network, service maps and a full inventory report. We also give you access to an online repository of that information.

Service review

We conduct a periodic review of the stability of your network via a jointly agreed set of metrics, as well as investigating any events since the last visit.
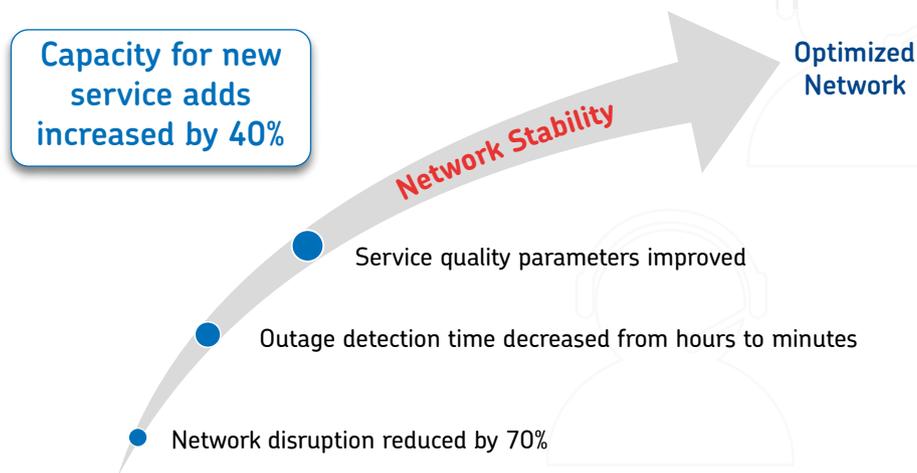
What you get
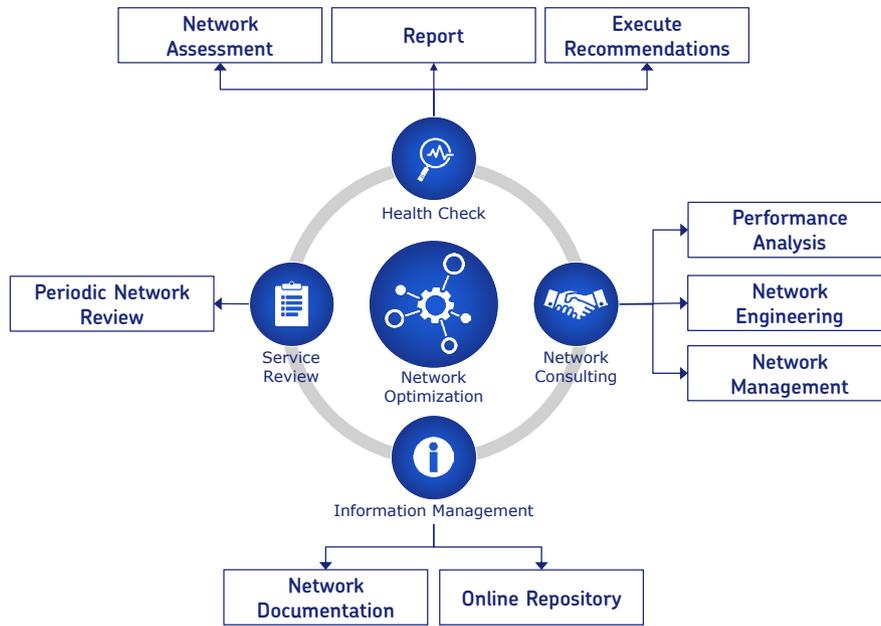
Case study: ADVA network optimization saves money

Customer

- Social media company. Point-to-multipoint network, 80 services running. Historically one network outage per month. Recently optimized by our experts

Capacity for new service adds increased by 40%

Optimized Network

Network Stability

- Service quality parameters improved

- Outage detection time decreased from hours to minutes

- Network disruption reduced by 70%

Why it makes sense

- Customer network was inspected and analysed by our engineers who identified gaps, inability to deliver SLAs and defined optimum network efficiency actions
- Network topology diagrams created by our engineers helped to reduce the time taken to locate outages
- Network optimization actions increase efficiency, leading to cost and risk reduction for the customer and highest possible return on investment

ADVA™
Optical Networking

Fiber assurance as a service

Your partner for professional services

When problems occur in your network, it can take hours or sometimes days to discover that the fault lies not with your networking equipment but in your fiber plant. Now there's a better way. By pairing our unique in-service fiber monitoring solution and our NOC, you can have real-time insight into your fiber for fast fault location and repair.

Are you spending hours with multiple teams in the field hunting for fiber faults? You're not alone. But thanks to the ADVA ALM, a new era begins now. Our unique fiber assurance solution enables your team to better use their time. The ADVA ALM provides total visibility and, when used in combination with our NOC services, it delivers even more. Our highly experienced engineers will help you to quickly identify the type of event and the root cause.
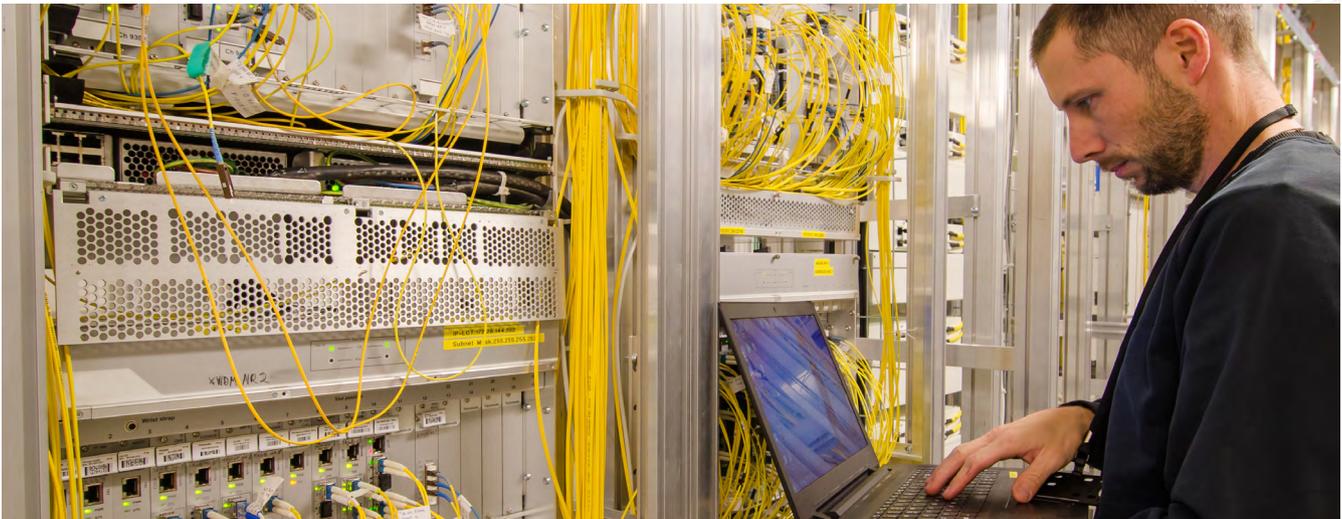
Your complete solution

☑ **Quality reference measurements**

Consulting with you, we compare the initial reference measurements to your actual fiber characteristics. Our engineers expertly interpret results, quickly detect and resolve any potential errors, and ensure you log quality reference measurements.

☑ **Continuous fiber monitoring**

Our standard monitoring service provides 24/7 monitoring and notification. With our solution, you can identify fiber breaks and degradation before your customers do.

☑ **Fast event detection**

Once an alarm is generated, we immediately provide notification and root-cause advice, so that resolution time is significantly improved.
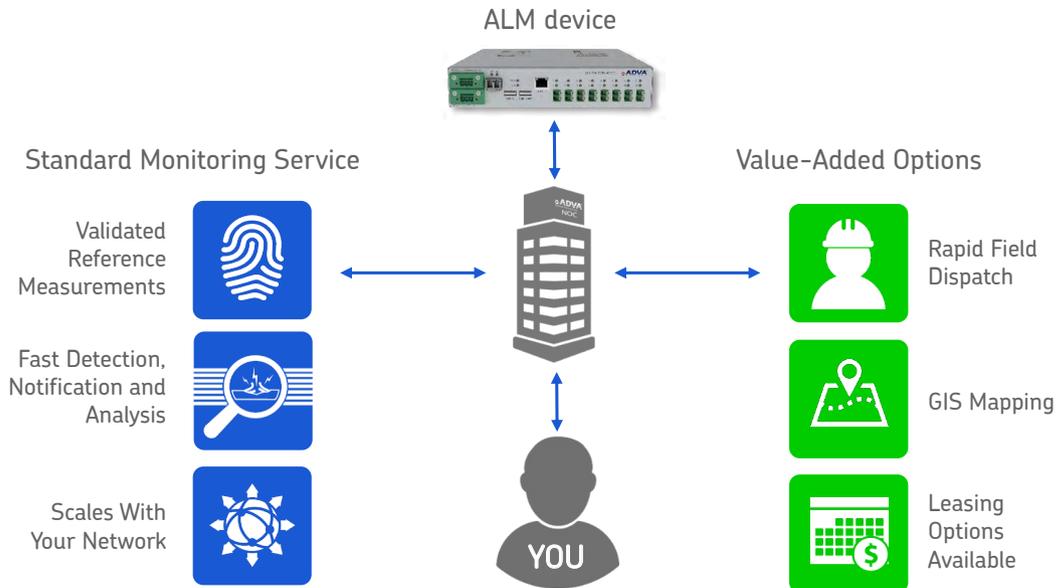
☑ **Accurate diagnosis**

Our engineers are trained to quickly determine what type of event (bad splice, broken fiber, micro-bend, etc) has been detected. This dramatically decreases the time to successful resolution.

☑ **Value-added options**

Among other things, we provide rapid field dispatch, flexible leasing to limit upfront costs, and GIS mapping services.
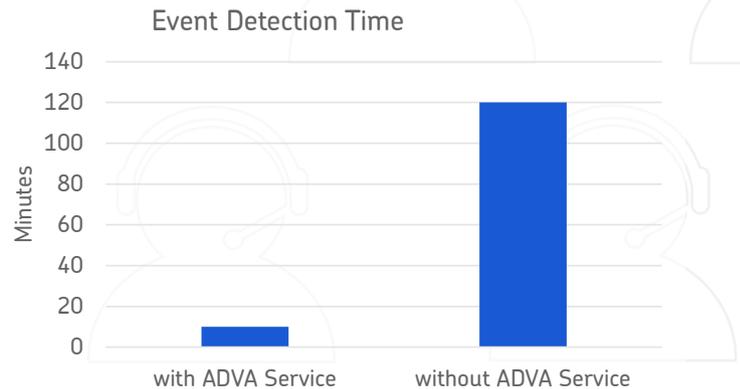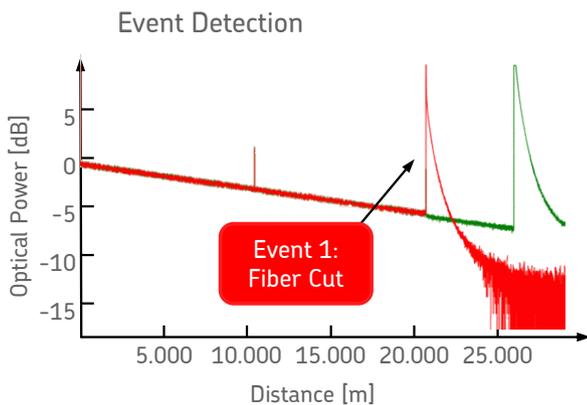
What You Get

ALM device

Standard Monitoring Service

Validated Reference Measurements

Fast Detection, Notification and Analysis

Scales With Your Network

YOU

Value-Added Options

Rapid Field Dispatch

GIS Mapping

Leasing Options Available

Case study: our fiber assurance service saves money

Customer

- Regional ISP, small staff, own fiber plant, rural state-wide ring network, lots of opportunities for fiber disturbances, Historically a few fiber cuts per year
- Strict SLAs to business clients of four-nines uptime

Comparison

Event Detection

Optical Power [dB]
5
0
-5
-10
-15

Event 1: Fiber Cut

Distance [m]
5.000   10.000   15.000   20.000   25.000

Event Detection Time

Minutes
140
120
100
80
60
40
20
0

with ADVA Service   without ADVA Service

Why it makes sense

- Customers have neither the resources nor the expertise to diagnose problems in the field quickly and effectively
- No more guesswork; problems are easily identified and eliminated
- Our fiber assurance service is cheaper in the end vs. two truck rolls per incident or paying customers for missed SLAs

ADVA ™
Optical Networking

Training services

Your partner for professional services

Helping your staff maintain their knowledge is as important as preventative maintenance itself. Let ADVA train your team and keep them current as technology advances. Our trainers will prepare you for those times when experience is critical.

Do you rely on your team as first responders on networking issues? Is speed in problem solving your most important response metric? We can help you be your best. Periodic training with ADVA will keep your team up to date as innovation progresses and new solutions are developed.

Your complete solution

✔ Balance
We deliver professional training sessions with a healthy mix of theory and hands-on practice.

✔ Flexibility
Not all students are at the same place on the learning curve. Tell us what you need most and we'll customize classes for you.

✔ Global access
ADVA Optical Networking has five training centers to serve you: Atlanta (USA), Meiningen (Germany), Singapore, York (UK) an Gdynia (Poland). Or we can come to you.

✔ Full equipment portfolio coverage
Our standard offering of classes covers our complete portfolio of products, including DWDM, Ethernet and timing. We can dive as deep as you need on any product.

✔ Turning knowledge into competence
Are you interested in becoming an ADVA-certified expert? Participate in our ADVA certified expert (ACE) program available online.
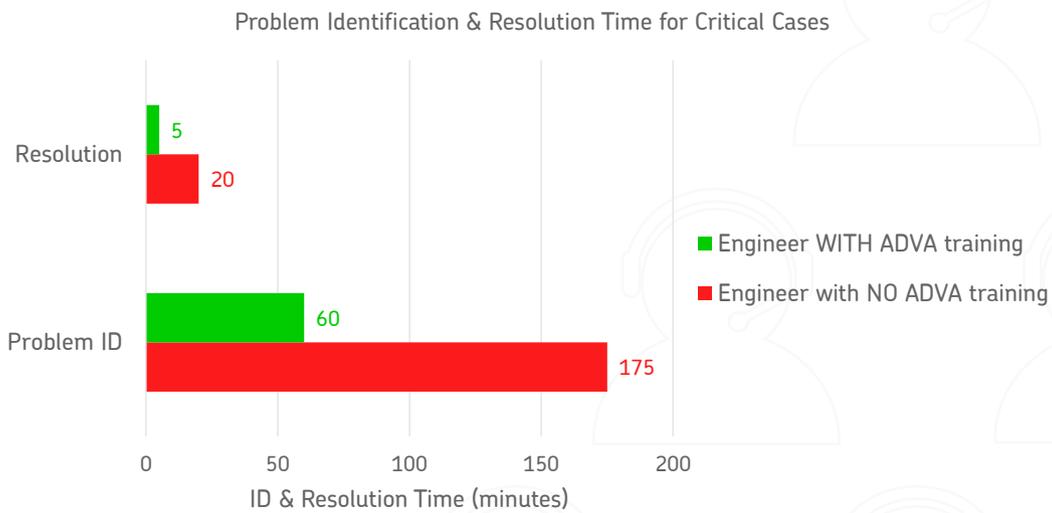
What you get

- Training conducted by professional trainers
- Small groups – 8 to 10 people – ensures high quality training
- Wide-range portfolio to meet all participants' needs
- Dedicated, customized courses tailored to suit our customers' requirements
- Tutorial and hand-on laboratory exercises – interactive training
- Mixed classes for customers preferring to send one or two participants as company representatives
- Dedicated classrooms for an ideal working environment

Case study: resolution time for critical cases reduced by 75%

Customer

- Network fault occurs between two nodes
- High attenuation is causing power level to drop to a minimum
- Operations staff begin troubleshooting

Problem Identification & Resolution Time for Critical Cases

Resolution
- 5 (Engineer WITH ADVA training)
- 20 (Engineer with NO ADVA training)

Problem ID
- 60 (Engineer WITH ADVA training)
- 175 (Engineer with NO ADVA training)

ID & Resolution Time (minutes)
0 50 100 150 200

■ Engineer WITH ADVA training
■ Engineer with NO ADVA training

Why it makes sense

- Trained staff have been taught ADVA-specific troubleshooting techniques
- No more guesswork; problems are easily identified and eliminated
- Resolution commands are tailored to symptoms

ADVA™
Optical Networking

Other professional services

Your partner for professional services

ADVA provides a comprehensive range of professional services to meet your needs. You can choose from our growing list of service offerings or we can work with you to create a customized service. Many of our professional service offerings are the result of successful collaboration with customers.

Your complete solution

- Low-level design

- DCN design

- Site survey

- Security concept

- Fiber characterization

- Homologation

- Project / program management

- Network integration

- Network management migration

- Dedicated engineer

For More Information

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About ADVA Optical Networking

At ADVA Optical Networking we're creating new opportunities for tomorrow's networks, a new vision for a connected world. Our intelligent telecommunications hardware, software and services have been deployed by several hundred service providers and thousands of enterprises. Over the past twenty years, our innovative connectivity solutions have helped to drive our customers' networks forward, helped to drive their businesses to new levels of success. We forge close working relationships with all our customers. As your trusted partner we ensure that we're always ready to exceed your networking expectations. For more information on our products and our team, please visit us at: www.advaoptical.com.

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