



Capacity and Performance Enhancement Services

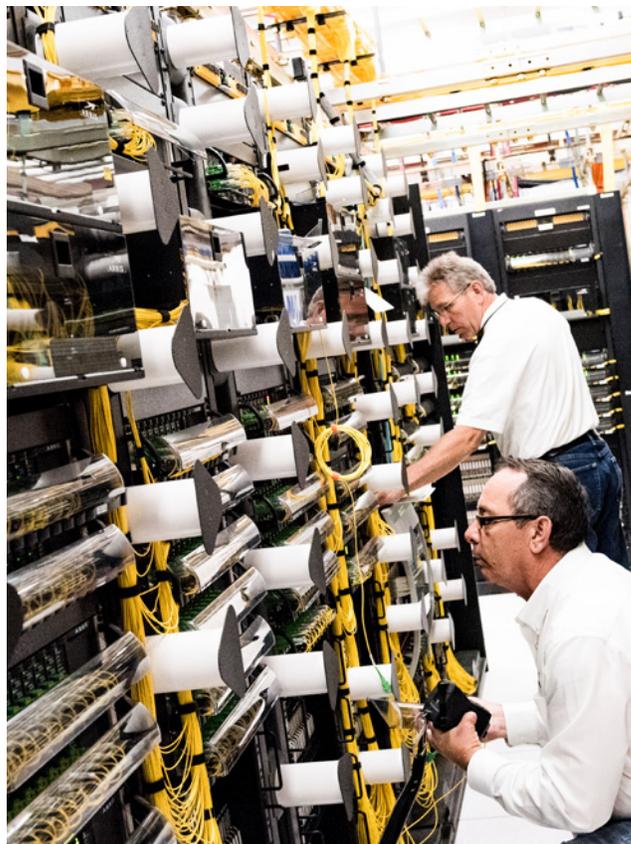
Optimizing cable networks to address growing demand

COMMSCOPE®

Capacity and Performance Enhancement Services for Cable Operators

The use of content streaming and video conference applications has exploded, pushing cable network capabilities to the limit. To meet these challenges head-on, operators need smart, targeted solutions, which is why so many are turning to CommScope.

Through our Professional Services group, CommScope delivers a wide range of network enhancements, technical services and staffing solutions. As agile as they are innovative, these services mobilize quickly to boost your network performance in days, weeks or months, depending on scope. You can't afford to wait, so we're here for you now.



See how can we help

Use these quick links to learn more about how we can help:

Results within days

- Remote video network performance improvement
- Remote data network performance improvement
- Core routing capability review
- CMTS/CER review and optimization

Results within weeks

- DAC analysis and enhancement
- Accelerated remote designs and BOMs
- Onsite deployment services
- Managed staffing services

Results within days

CommScope's remote assessment, consulting and optimization services enable you to improve your data and video capacity immediately. Working remotely, our Professional Services experts can access, evaluate and fine-tune your data and video services to create higher efficiencies and better performance within days.

Remote video network performance improvement

Our remote video network assessment services enable cable operators using CommScope DAC 6000 digital addressable controllers to improve network performance quickly.

By consolidating EIA frequency allocations within your edge QAM and video multiplexers, we identify and free-up QAM capacity for re-use in advanced DOCSIS data services like over-the-top (OTT) streaming. With remote access to your video network, we can affect immediate improvements in set-top box performance and available DOCSIS bandwidth. To poll the systems, analyze the results and recommend enhancements typically takes two to four hours per device. Edge QAM and video multiplexor consolidation can be completed in another two to four hours per device.

Remote data network performance improvement

CommScope's Professional Services team has been a leader in DOCSIS systems for over 20 years. Cable operators turn to us when they need to improve their available bandwidth and performance for subscribers. Now, when speed and agility are most important, you can rely on us to assess and optimize your data networking infrastructure—both core routing and CMTS/CER systems.

Core routing capability review

During a core routing network capability review, a CommScope engineer remotely accesses your core router network (read-only) to retrieve and review the configuration settings. The review, which can be completed in a day or two, includes:

- Configuration and status of individual ports and availability of ports
- The physical wiring layout to determine path redundancy, coupled with a logical review of route redundancy to ensure stability once fully loaded
- Analysis of peak, off-peak and general trends in bandwidth utilization compared to best practices

A report summarizing the analysis and recommendations for improvements can be delivered, usually within a week of the review. It addresses issues such as utilization and capacity, CCAP growth requirements, and the health and physical/logical design of the network. Recommendations may include TCP window sizing and error correction settings, implementing compression, data caching, traffic shaping, load balancing; in-band vs. out-of-band management review; network architecture changes (i.e., ring/tree/hub and spoke vs. full or partial mesh). Many of these recommendations can be implemented by CommScope specialists remotely, in a maintenance window, typically within a day.

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CMTS/CER review and optimization

With CMTS/CER review and optimization, you can see meaningful increases in available bandwidth and better customer experience in a few days to a week. This service can also extend the life expectancy of your current configurations.

CommScope CMTS engineers directly access the CMTS or CER, in read-only mode, to get the current configuration and other available information like logs and the management information bases (MIBs). This non-invasive procedure can typically be performed in a single maintenance window and on any DOCSIS-based system.

An immediate initial review of the current configuration and operational state highlights any hot spots. Our engineers spend a few days compiling and analyzing the findings, then present their report and specific suggestions for maintenance, upgrades and procedural enhancements.

The CMTS/CER report focuses on the problems found, system utilization and growth, and customer experience. The recommendations vary based on the findings in the report and may include:

- Optimal service offerings
- System hardware and software upgrades
- Modulation, RF noise and power characteristics, error-handling & correction
- Combining, subscriber load, node-splitting and utilization

Remote improvements such as software upgrades, configuration setting changes and virtual node-splitting can be applied quickly and efficiently—usually in an additional, single maintenance window.

Results within weeks

DAC analysis and enhancement

During a remote video network assessment, CommScope engineers evaluate and optimize your DAC video processing network. We remotely access the DAC and poll all associated network components for current device or bandwidth parameters to get a snapshot of current video network conditions. Analyzing individual device database configurations, we can recommend (and remotely configure) downstream or upstream splits to reduce network “choke points” and improve efficiencies. Polling, analyzing and enhancing DAC performance—downstream and upstream—can be completed within a week, depending on system access and coordination with site resources.

Accelerated remote designs and BOMs

For operators needing new plant—fiber, HFC or wireless—for emergency or temporary facilities, CommScope’s desktop survey and design services expedite the remote creation of bill of materials (BOMs). Our designers remotely assess the construction path, develop a design, identify permitting and necessary access rights. We then create a bill of materials to help get the new plant built as quickly as possible.

BOMs can be produced in a matter of days to a week.

CommScope Professional Services designers are fluent in all the major design tools. We use your design language and processes to ensure that our designs dovetail seamlessly with your operations. We also offer onsite surveys, walkout services and as-built documentation.

Design applications

Cable operators use CommScope’s design services for projects such as greenfield, brownfield and node segmentation and those involving commercial, residential and multi-dwelling unit construction.

CommScope Professional Services designers are fluent in all the major design tools.

Onsite deployment services

Our in-region, onsite deployment services can drive improvements in network capacity and performance in as little as a few weeks. We tailor each project to your specific needs. For inside plant work, we can deploy and build new systems in your facility, or rack-and-roll—building and testing racks off-site, then shipping them to your site. The latter is a reduced-touch process that speeds deployment and turn-up.

For outside plant construction, we can join or lead your team or provide and manage the resources to get the job done. Either way, CommScope Professional Services is equipped and qualified to handle the entire workflow from end to end:

- Work order assignment
- Walkout survey
- Right-of-way and permitting
- Design
- BOM creation
- Works planning
- Staffing/Planning
- Traffic Management
- Civils Construction
- Home Install
- QA Inspection
- Acceptance

CommScope Professional Services has provided over 2 million hours of managed staffing to our service provider customers.

CommScope maintains a broad resource network, with experienced field personnel in almost every state. They can deploy with little to no travel to keep your cost low and your installation on schedule. Their capabilities include:

- CMTS, CCAP and DAC engineering services
- Rack stack and wire-switching for servers, routers, VPNs, Wi-Fi, LTE, CBRS and DAS deployments
- Node splits and optimization
- Fiber splicing and characterization
- Walkout, permitting and construction support
- Logistics and material management
- Turn up, test and subscriber migration
- Break and fix support

Following CommScope's strict protocols—or yours, if you choose—we ensure the health and safety of all personnel, and the quality of the installation.

Managed staffing services

In today's new normal, the availability of your internal staff is impacted by factors such as employees' safety concerns. Operators need to be prepared to fill the gaps quickly with experienced professionals who can hit the ground running. Many rely on the managed staffing solutions provided by CommScope Professional Services. Whether you need help remotely or onsite, we can supplement your staff to address network capacity and software application performance challenges.

CommScope Professional Services has provided over 2 million hours of managed staffing to our service provider customers, and nobody gives you more technical expertise. As an industry leader in product development and engineering, we apply a disciplined approach to curating the right talent for each job. Whether you have a temporary staffing shortage and an impossibly tight deadline, or you need to staff up to tackle a new and complex project requiring specialized skills, we can help.

Our areas of managed staffing expertise include:

• Network capacity

- Device & service logistics
- Quality engineering
- Field installation and operations
- Fiber characterization/certification
- Wi-Fi, HFC, FTTH design
- Dashboarding and business intelligence to visualize network utilization

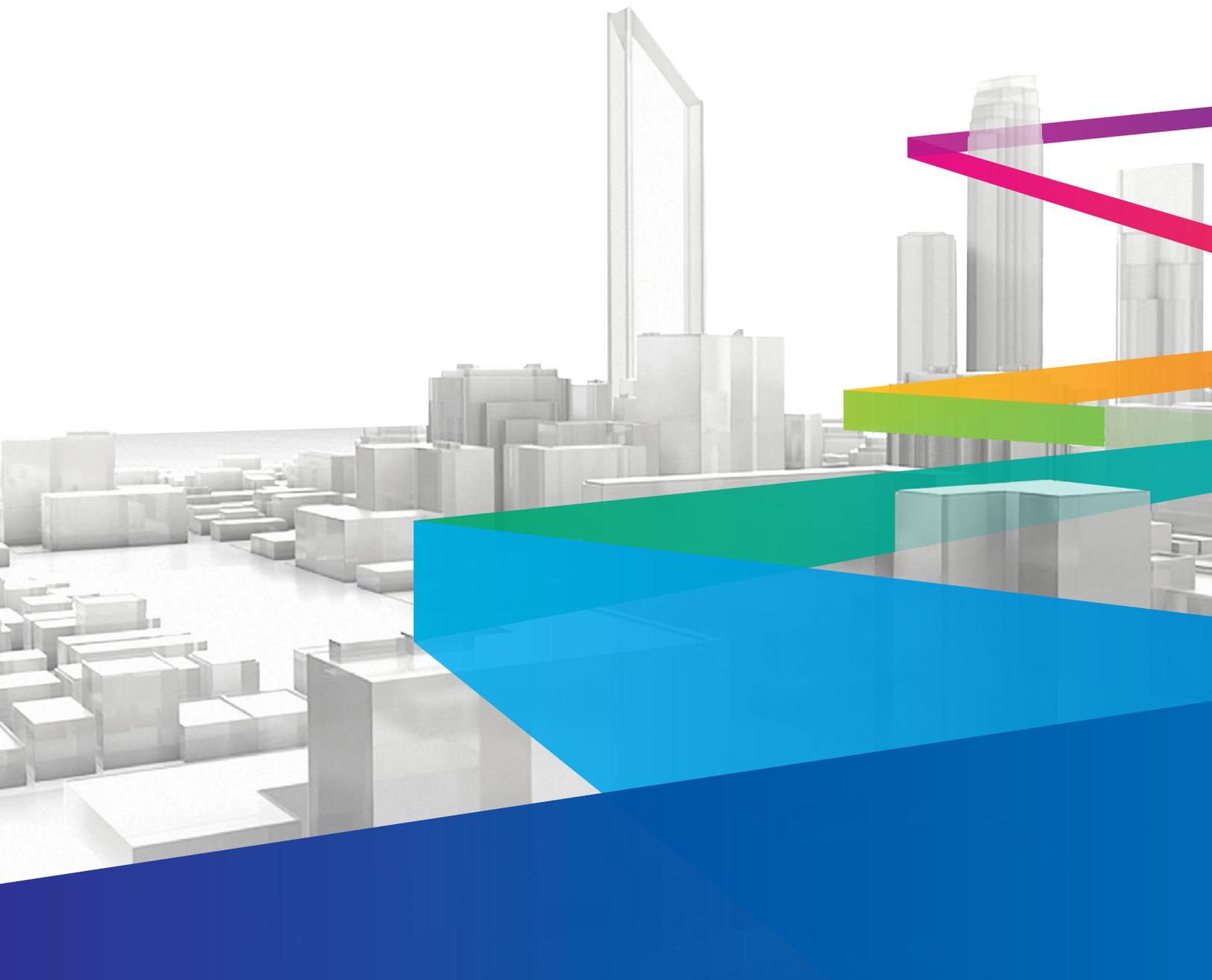
• Software and CPE capacity

- Applying big data and machine learning for predictive analysis of network utilization
- Development and integration of high-availability applications such as cloud DVR
- Test automation solutions to validate cloud applications and CPE scalability
- Customer care and support applications

The resources and vision to go from here to there

At CommScope, we've always had our feet firmly planted in the present with our eyes on the horizon. Regardless of the challenges, that will never change. When you need us, we're here. When uncertainty clouds the future, we're clear-eyed and confident, ready with the solutions and services you need to handle whatever comes next.

For more information on CommScope Professional Services and how we can help you navigate the new normal, contact your account manager or visit commscope.com/professional-services



CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com



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