



Revolutionizing Data Center Management with PON Technology

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Find out more about Ciena here

About us

The global leader in high-speed connectivity

We build adaptive networks to support exponential growth in bandwidth demand—empowering our customers, partners, and communities to thrive in the AI era.

With unparalleled expertise and innovation, our networking systems, interconnects, automation software, and services revolutionize data transmission and network management.

Patents

2,400+

R&D specialists

4,500+

Employees

9,000+

Customers

1,700+

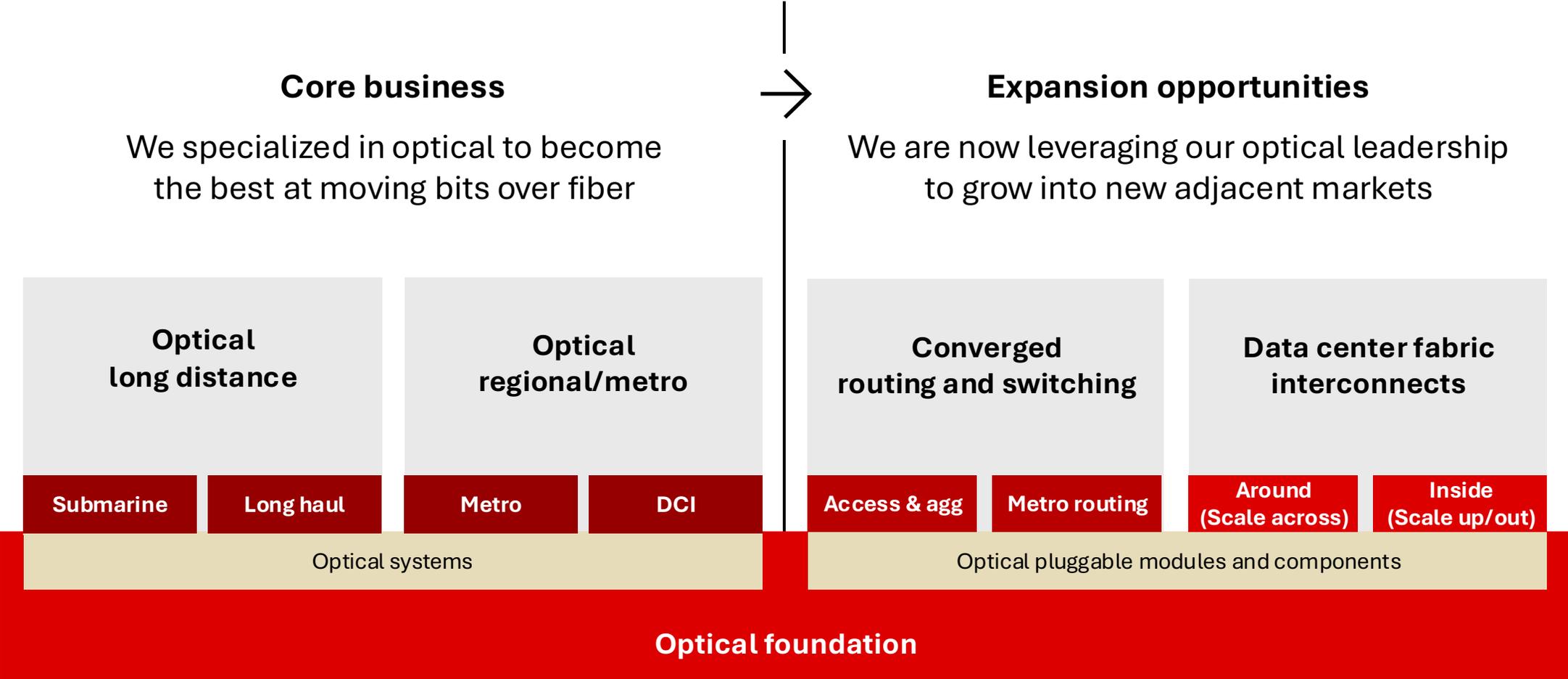
FY25
revenue

\$4.77B

Cash and
investments

\$1.4B

Optical technology underpins our business



Pioneering technology

Industry firsts

- Coherent optics at 40G, 100G, 400G, 800G, and 1.6 Tb/s
- Open, machine-programmable photonic line system designed for DCI
- Coherent router for IP/Optical convergence
- 400G, 800G, and 1.6T integrated in a router
- **PON for data center out-of-band management (DCOM)**
- Advanced AI-driven, multi-layer network controller
- Cloud-native OSS platform



A trusted adviser

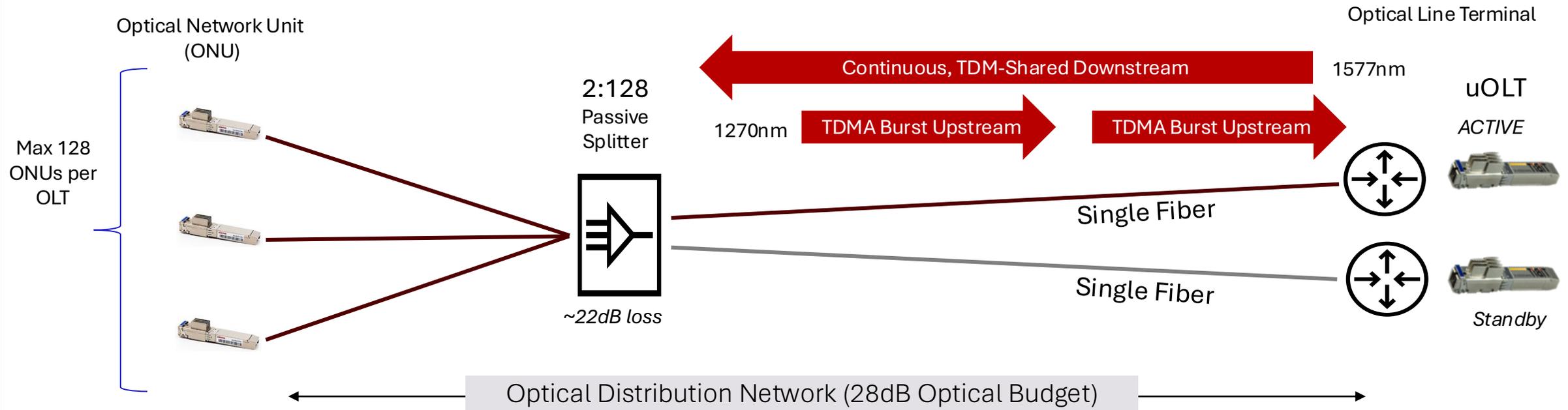
Europe, Middle East, and Africa





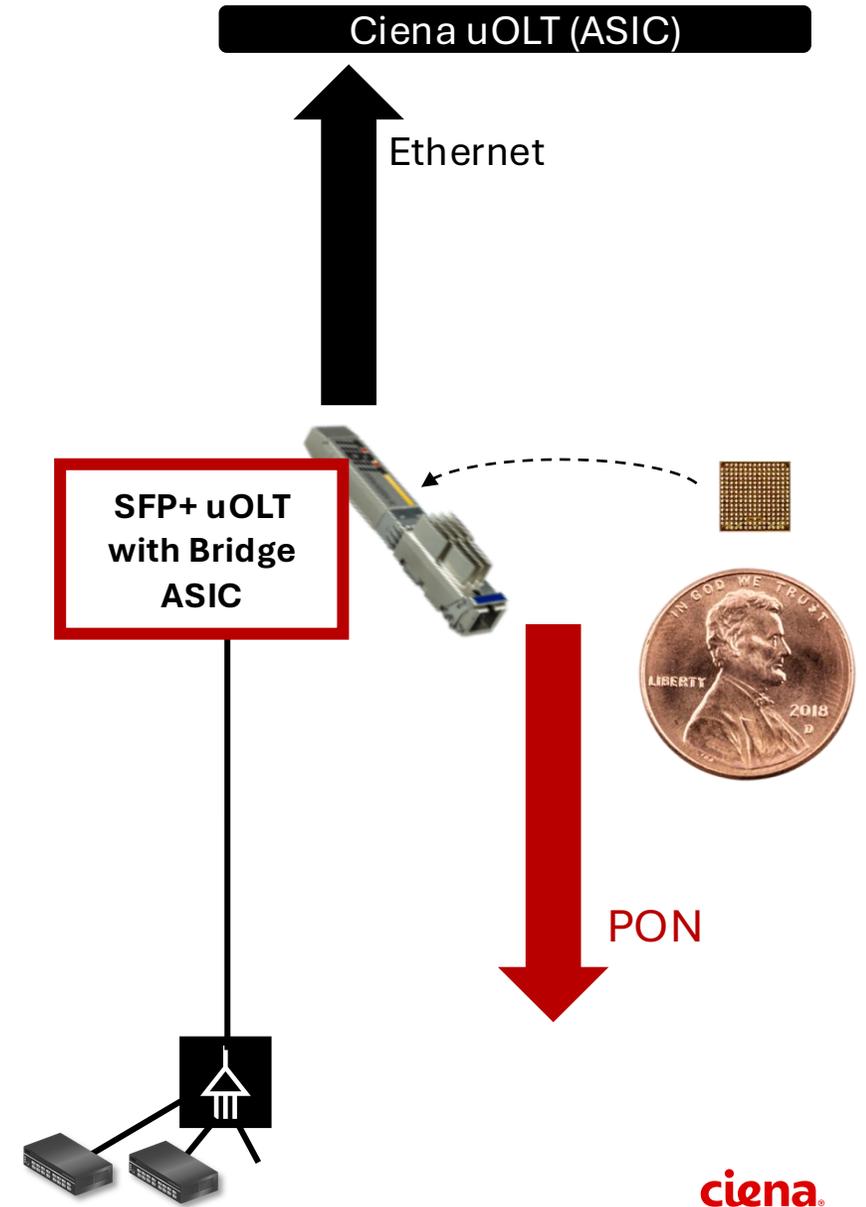
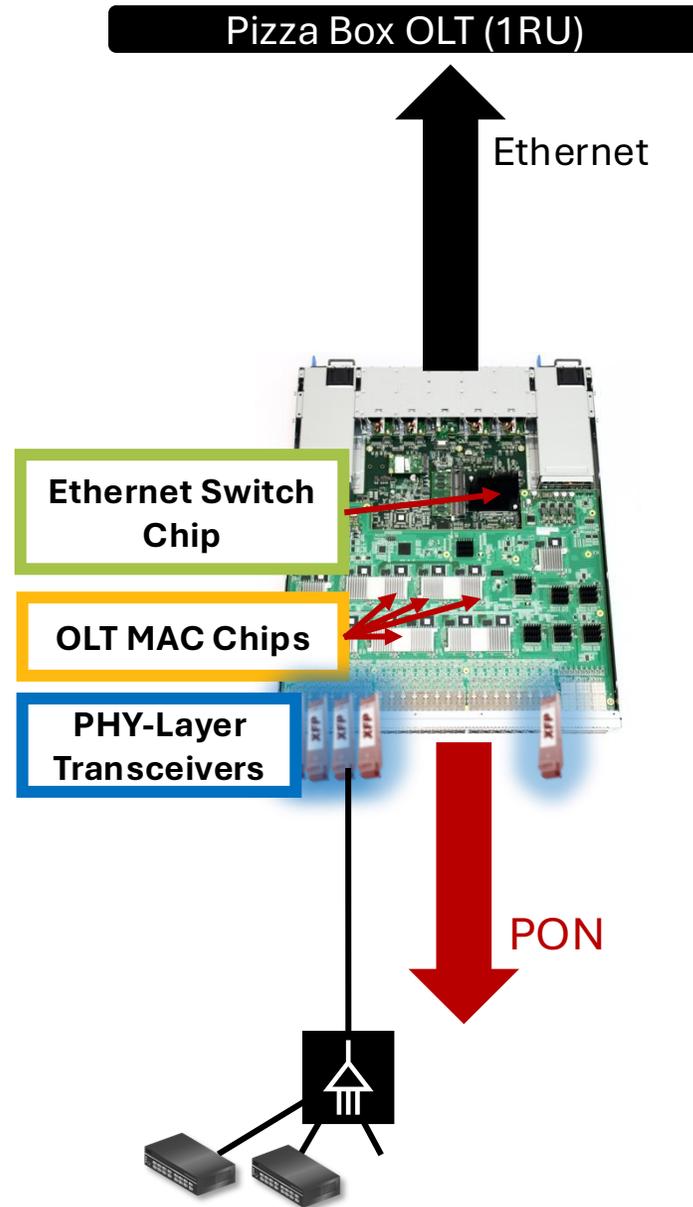
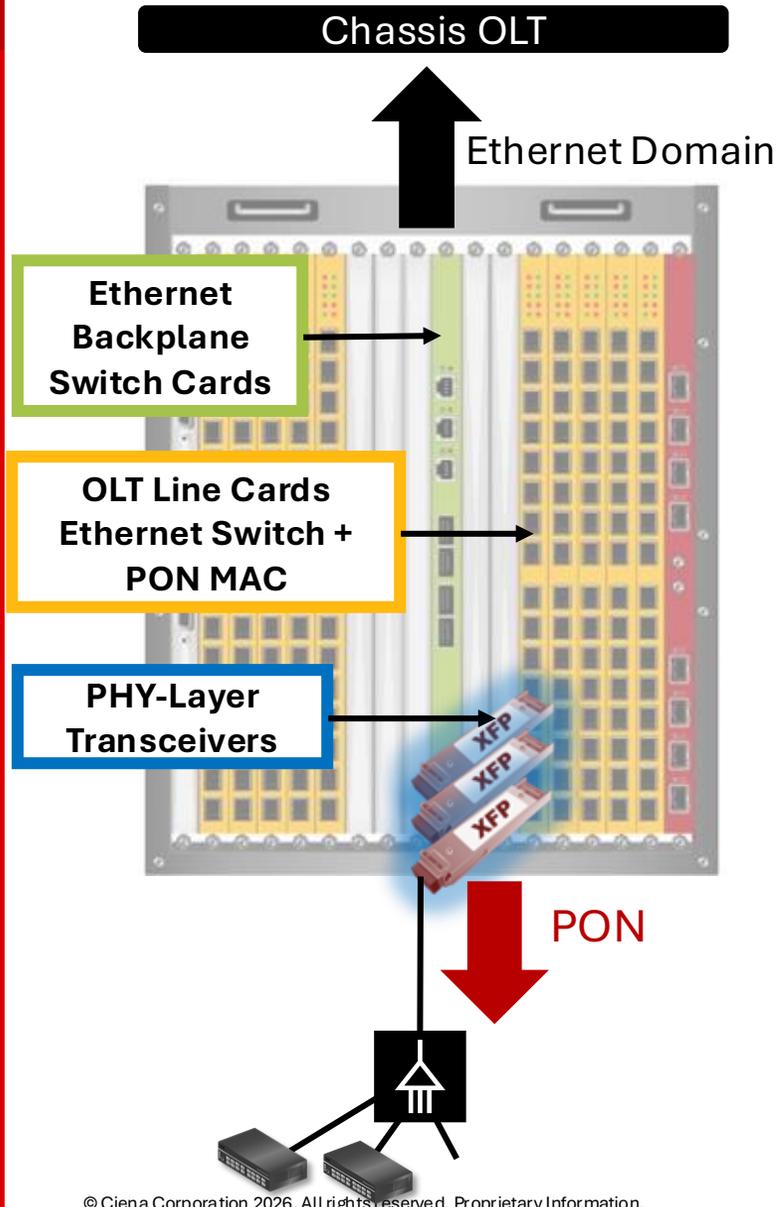
PON Technology Overview

What is a Passive Optical Network (PON)?



- Point-to-Multipoint Architecture
- Active / Standby Redundancy with auto-failover
- Passive Access Medium (Fiber & Splitters are not powered)
- Shared Long-Haul Fiber (= reduced fiber count)
- Single-mode fiber using 2 lambdas – U/S & D/S
- Low-Cost Optics (only one OLT transceiver required)
- AES-128 Encryption upstream and downstream
- Shared 10Gbps Symmetric Bandwidth
- Forward Error Correction (Effective 8.7Gbps data rate)
- OLT acts as SLA-based scheduler
 - OLT TDM-schedules U/S traffic from all ONUs
 - OLT TDM interleaves D/S traffic to all ONUs
- Standards-based Architecture / MAC

3 very different OLT approaches to Bridge the Ethernet & PON Domains



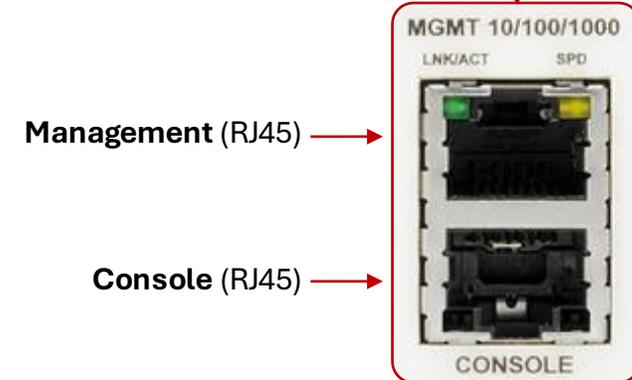


DCOM Solution Overview

What is Out-of-Band (OOB) Management?



OOB management uses a separate network for remote access and control of data center devices (servers, storage, etc.) via management (Ethernet) and/or console ports (RS232) even if the main network is down, enabling remote configuration, troubleshooting and maintenance.



Problem Statement: Meta's Requirements for an Optimized Data Center Management Solution



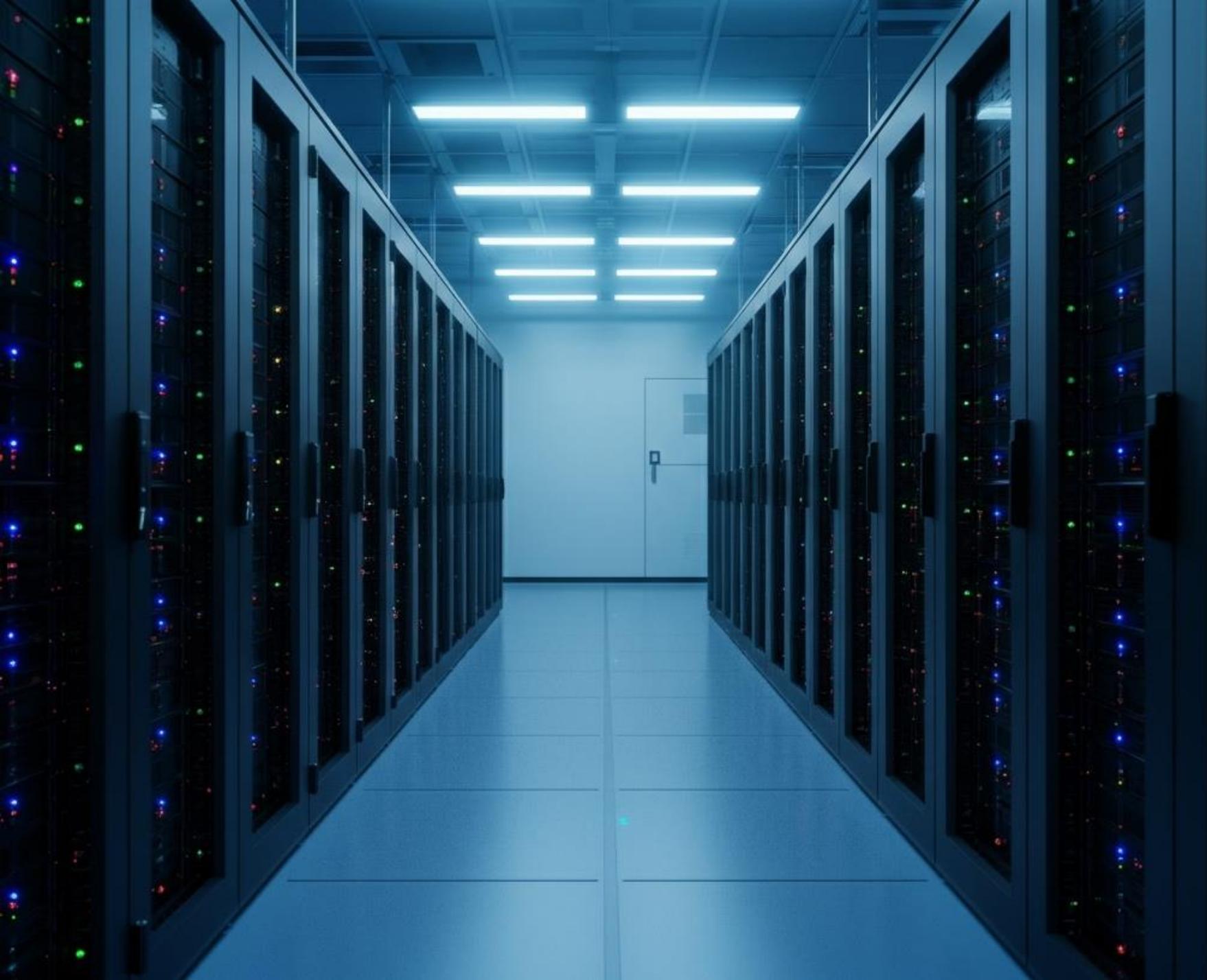
Data center
management solution
that can deliver

Minimize Power, Space, and Costs: Streamline operations while lowering energy consumption and physical footprint.

Fully Redundant Design: Ensures high availability with rapid convergence, even at scale.

Simplified Cabling: Significantly reduce cable clutter for cleaner and more efficient infrastructure.

Uncompromised Functionality: Maintain full Ethernet/IP connectivity and RS232 console access without any trade-offs.



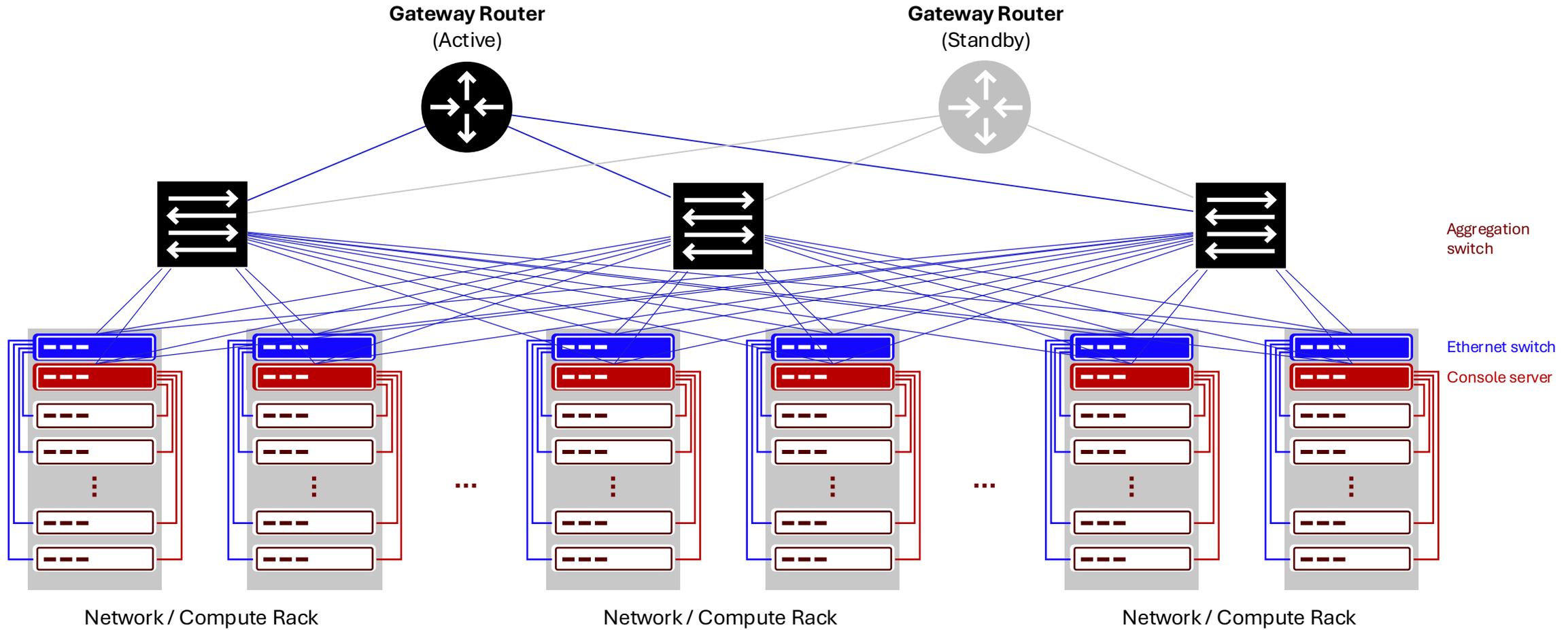
ciena

Introducing
DCOM



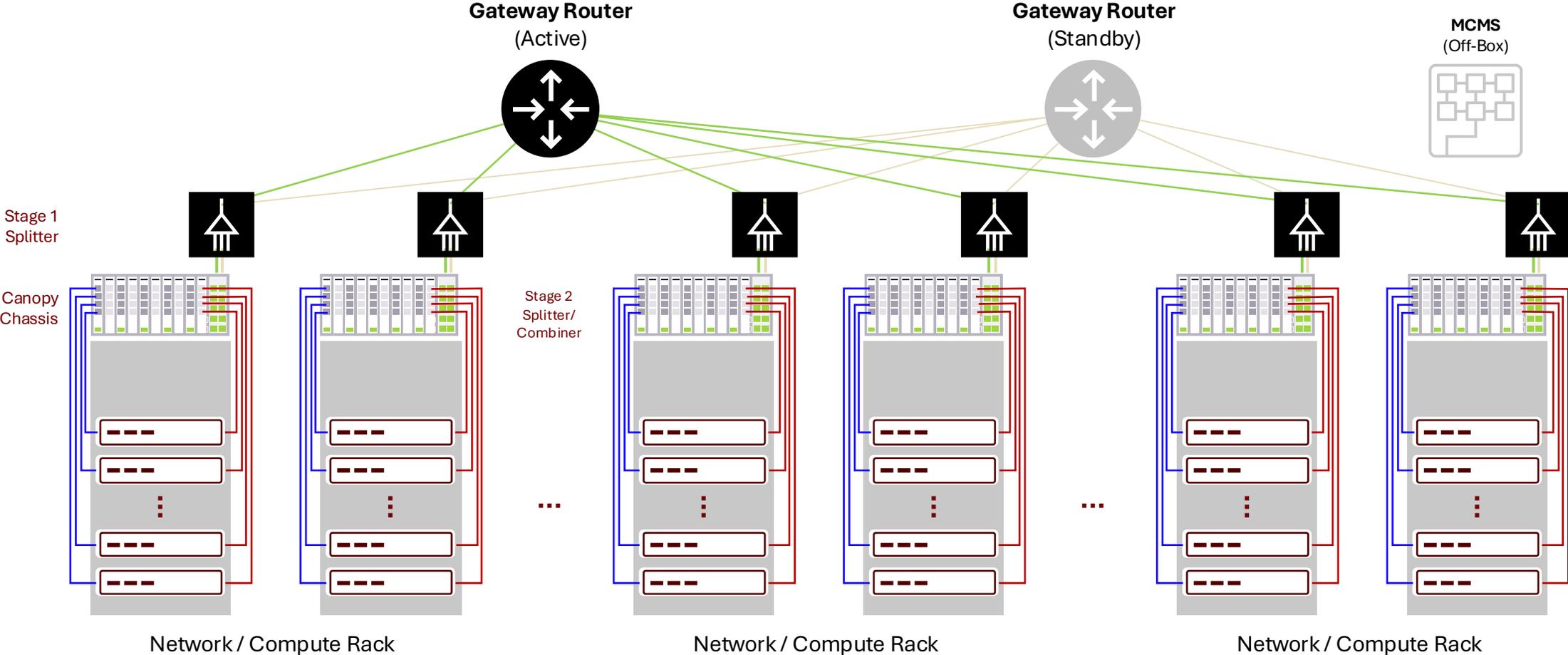
OOB DC Management Comparison

Present Mode (OOB)

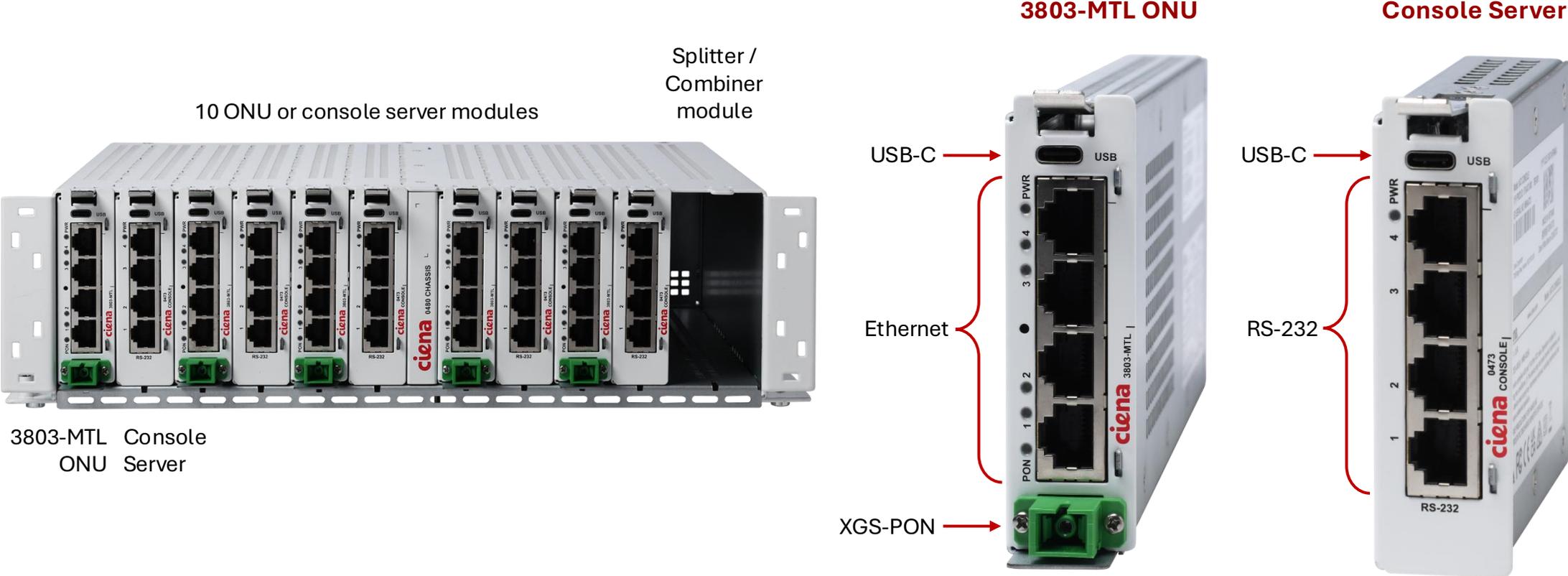


OOB DC Management Comparison

Future Mode (OOB)



Ciena DCOM Canopy Chassis and Components



Deliver the same functionality at higher scale with simpler devices

Meta DCOM use-case



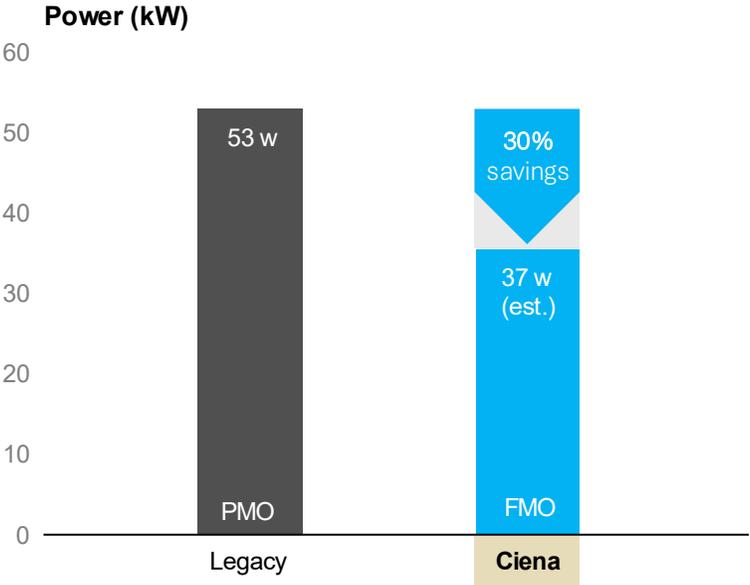
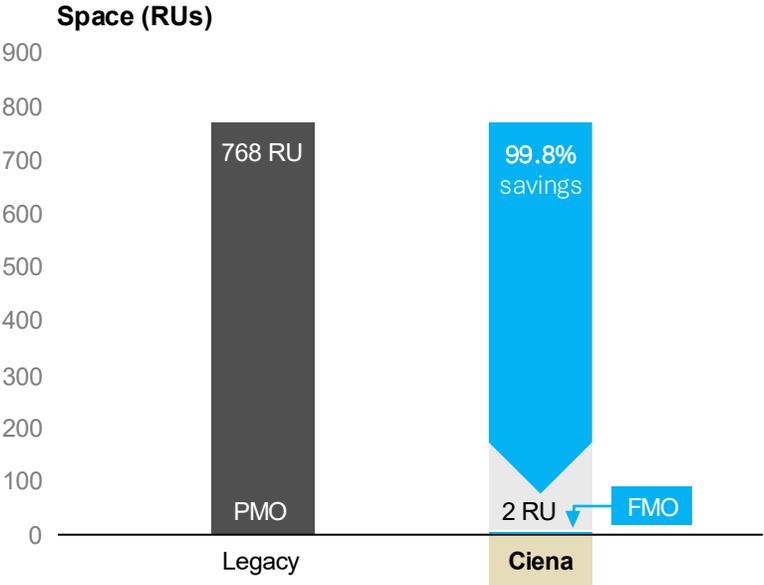
Space Saving Chassis



Passive Low Energy ONUs

Space Savings: **99.8%**

Power Savings: **30%**



Read the WHITE PAPER Today!



DCOM Key takeaways

Eliminate active equipment, saving power and space



Ensure mission-critical operations with advanced monitoring, redundancy and secure remote OOB management



Flexible deployment for various workloads and configurations



Capital & Operational efficiency – less devices, copper, and replace active with passive stateless devices



Reference Material

<https://www.ciena.com/solutions/data-center-out-of-band-management>

- White Paper: <https://www.ciena.com/insights/white-papers/revolutionizing-data-center-management-with-pon-technology>
- Blog: <https://www.ciena.com/insights/blog/2025/out-of-band-in-focus-tackling-complexity-space-and-scale-in-the-ai-era-data-center>
- Podcast: <https://www.ciena.com/about/newsroom/podcasts/episode-87-how-meta-reimagined-oob-management-in-the-data-center>
- Video: https://www.youtube.com/watch?v=qzI5r6_7uQA&list=PL08DR5ZGla8gr-Hw8obs1A0wgxJ4hHdmb&index=19
- Info Brief: <https://www.ciena.com/insights/infobriefs/data-center-out-of-band-management>
- Data Sheet: <https://www.ciena.com/insights/data-sheets/data-center-out-of-band-management>



DCOM Solutions

Thank You