

# Customer premises

## Support for multiple services

Using Ciena's broadband solution, network operators deliver multiple services to customer premises—including enterprise services like Ethernet or broadband services to residential customers, multi-dwelling units (MDUs), and small-to-medium businesses/enterprises (SMBs/SMEs)—in a single converged network. This delivery helps operators better monetize their network and creates a more sustainable business.

With new applications and use cases constantly emerging, in-home and business technology needs to keep up with customer and application demands.

Optical network unit (ONU) or optical network terminal (ONT), residential gateways (RGs), and Wi-Fi gateways are key components of a broadband solution. Ciena not only has a full family of ONUs/ONTs to support a wide range of needs but also has the openness to support third-party ONUs.

**Learn more >**

Ciena ONU/RG

Third-party ONU/RG



# Customer premises

## Ciena family of ONUs/RGs

Ciena's XGS-PON ONU offerings are purpose-built for residential, multiple dwelling units (MDUs), and small-to-medium businesses/enterprises (SMBs/SMEs) with cost-effective metro access in mind. Enabled by flexible deployment within Ciena's 10G PON and universal aggregation routing and switching platforms, this family of ONU/RGs is lightning fast and secure. [Learn more >](#)



### 3801

XGS-PON ONU

- Provides up to 2.5 Gb/s access port speed
- Ideal for residential and SMBs/SMEs

[Learn more](#)



### 3802

XGS-PON ONU

- Provides up to 10 Gb/s access port speed
- Ideal for SMBs/SMEs

[Learn more](#)



### 3803

XGS-PON ONU/RG

- Multi-port support with speeds from 100M to 10GbE
- Integrated RG and ATA
- Voice support
- Ideal for residential, MDUs, and SMBs/SMEs

[Learn more](#)



### 3803-PSE

XGS-PON ONU/RG

- PoE PSE capable
- Multi-port support with speeds from 10M to 10GbE
- Integrated RG and ATA
- Voice support
- Ideal for MDUs and SMBs/SMEs—especially government offices and hospitality

[Learn more](#)



### 3804

XGS-PON ONU/RG

- Wi-Fi 6 capable
- Multi-port support with speeds from 10M to 10GbE
- Integrated RG and ATA
- Voice support
- Ideal for residential, MDUs, and SMBs/SMEs

[Learn more](#)



### 3806

XGS-PON ONU

- Weatherproof
- Provides up to 2.5 Gb/s access port speed
- Ideal for residential and small office/home office (SOHO) with outdoor installation

[Learn more](#)



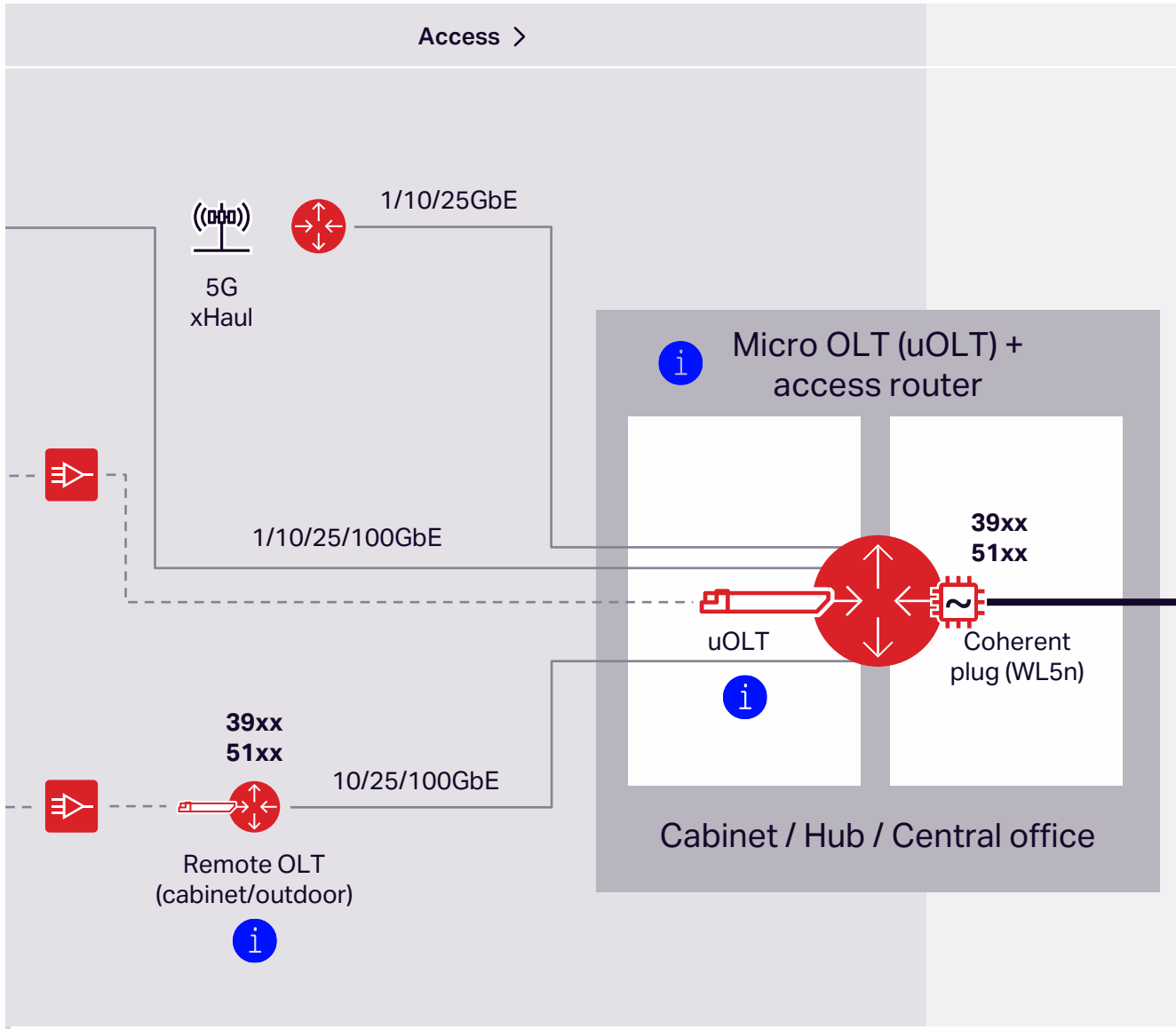
## Customer premises

### Third-party ONU/RG

Network operators often have several suppliers of ONUs and ONTs. The ability to support these suppliers is essential to minimize supply-chain risks and enable better control of procurement processes.

Ciena's broadband solution supports the standard ONU management and control interface (OMCI) so you can select which ONU or RG best serves your customers' needs.





## Access

Broadband has evolved significantly in the last decade, becoming a key part of how we play, work, and learn. Performance, reliability, accessibility, and affordability are critical elements of how network operators must prepare to provide a great quality of experience to their customers.

The legacy broadband access approach—based on closed solutions supported by single-purpose pizza-box or dedicated chassis and cards—is not enough. Having a flexible, scalable, and sustainable broadband access solution is essential in today's rapidly moving market.

[Learn more >](#)

OLT and access router

Remote OLT  
(cabinet/outdoor)

uOLT



# Access

## OLT and access router

Ciena brings more value to the network edge, enabled by flexible and scalable deployment within Ciena's routing and switching platforms. With Ciena's micro OLT (uOLT), operators can now deploy PON anywhere in the access network (outdoor cabinet, remote pole, or in a controlled environment) with port-level granularity while also converging other services (Ethernet, IP, TDM, PON, and so on) in the same router, enabling new revenue while reducing footprint and improving sustainability. [Learn more >](#)



### 5164

Router converges broadband, 5G xHaul, and business connectivity onto a common infrastructure

- Dense 1/10/25GbE to 100/200GbE aggregation and support for hard network slicing (FlexEthernet) and soft network slicing (segment routing)
- 32 x 1/10/25GbE user-network interface (UNI) ports
- 4 x 100/200GbE network-to-network interface (NNI) ports
- 25GS-PON ready
- Temperature hardened

[Learn more](#)



### 5166

Router converges broadband, 5G xHaul, and business connectivity onto a common infrastructure

- WaveLogic™ 5 Nano (WL5n) and both hard network slicing (FlexEthernet) and soft network slicing (segment routing) to de-risk 4G-to-5G journeys
- 32 x 1/10/25GbE UNI ports
- 2 x 100/200/400GbE NNI ports
- 25GS-PON ready
- Temperature hardened

[Learn more](#)



### 5169

Router simplifies and de-risks the unique 4G-to-5G journeys of mobile and wholesale operators, while equally capable of augmenting broadband deployment by sitting as top of rack (ToR) for subtended uOLT applications

- Temperature hardened (-40°C to +65°C) for temperature-challenged or space-constrained locations
- 4 x 100/200GbE fixed ports
- 8 x 100GbE fixed ports
- 4 x 1/10/25GbE fixed ports
- L1/L2/L3 low-latency switching

[Learn more](#)



### 5171

Platform provides seamless IP, Ethernet, and broadband services over a carrier-class, connection-oriented infrastructure for controlled and uncontrolled environments

- 8 x 10/25/50GbE UNI ports
- 32 x 1/10/25GbE UNI ports
- 2 module slots for FRU
- FRU (2 ports)
  - 1 x 40/100/200GbE QSFP-DD
  - 1 x 40/100GbE QSFP-DD
- 1 x 10/100/1000M RJ-45 mgmt. port
- 25GS-PON ready

[Learn more](#)

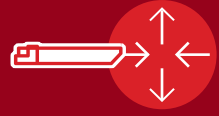


### 8114

Coherent Aggregation Router for 1/10/25/100GbE services and 100/200/400 Gb/s transport

- Dense 1/10/25GbE-to-400GbE aggregation, and the option of 100, 200, and 400 Gb/s WL5n
- 48 x 1/10/25GbE UNI ports including XGS-PON uONT pluggable
- 6 x 100GbE UNI ports
- 4 x 100/200/400GbE NNI ports
- 25GS-PON ready

[Learn more](#)



# Access

## Micro OLT

Ciena's micro OLT (uOLT) is the industry's first fully functional OLT in a small form-factor pluggable (with embedded Ethernet-to-PON OLT MAC bridge). The uOLT turns Ethernet ports in a host switch or a router into a fully functional OLT on a port-by-port basis (no dedicated chassis required). The uOLT can be deployed anywhere in the access network, whether in an outdoor cabinet, pole, or controlled environment, with port-level granularity. [Learn more >](#)



### XCVR-SGPL02

Extended temperature

- -40°C (min) to +50°C (max)
- 1:64 @ 20 km
- 1:128 max

[Learn more](#)



### XCVR-SGPL04

Industrial temperature

- -40°C (min) to +65°C (max)
- 1:64 @ 20 km
- 1:128 max

[Learn more](#)



### XCVR-SGPL02-BA

Extended temperature

- -40°C (min) to +50°C (max)
- 1:64 @ 20 km
- 1:128 max
- Build America, Buy America (BABA) compliant

[Learn more](#)

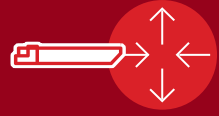


### XCVR-SGPL04-BA

Industrial temperature

- -40°C (min) to +65°C (max)
- 1:64 @ 20 km
- 1:128 max
- BABA compliant

[Learn more](#)



# Access

## Remote OLT (cabinet/outdoor)

Ciena has the perfect solution to extend broadband connectivity to small communities, rural areas, and tribal entities. Temperature-hardened or weatherproof routers converge OLT and routing functions at the edge, while supporting PON over shared fiber, as well as Ethernet services and extending 5G coverage through xHaul. [Learn more >](#)



### 3984

Router (advanced edge) for broadband, Carrier Ethernet, cell site router (CSR), and wholesale mobile services to almost any environment

- 6 x 1/10/25GbE user-network interface (UNI) / network-to-network interface (NNI) ports, including XGS-PON uOLT pluggable
- 25GS-PON ready

[Learn more](#)



### 3985

Router (ruggedized) enables network operators' direct outdoor deployment to accelerate permitting, avoid deployment delays, and reduce costly site infrastructure

- 6 x 1/10/25GbE UNI/NNI ports, including XGS-PON uOLT pluggable
- 25GS-PON ready

[Learn more](#)



### 5130

Router delivers multi-service to the network edge, supporting broadband, 5G xHaul, and business services on a common, simpler infrastructure

- 12 x 1/10/25GbE UNI ports, including XGS-PON uOLT pluggable
- 2 x 100GbE NNI ports
- 25GS-PON ready

[Learn more](#)



### 5131

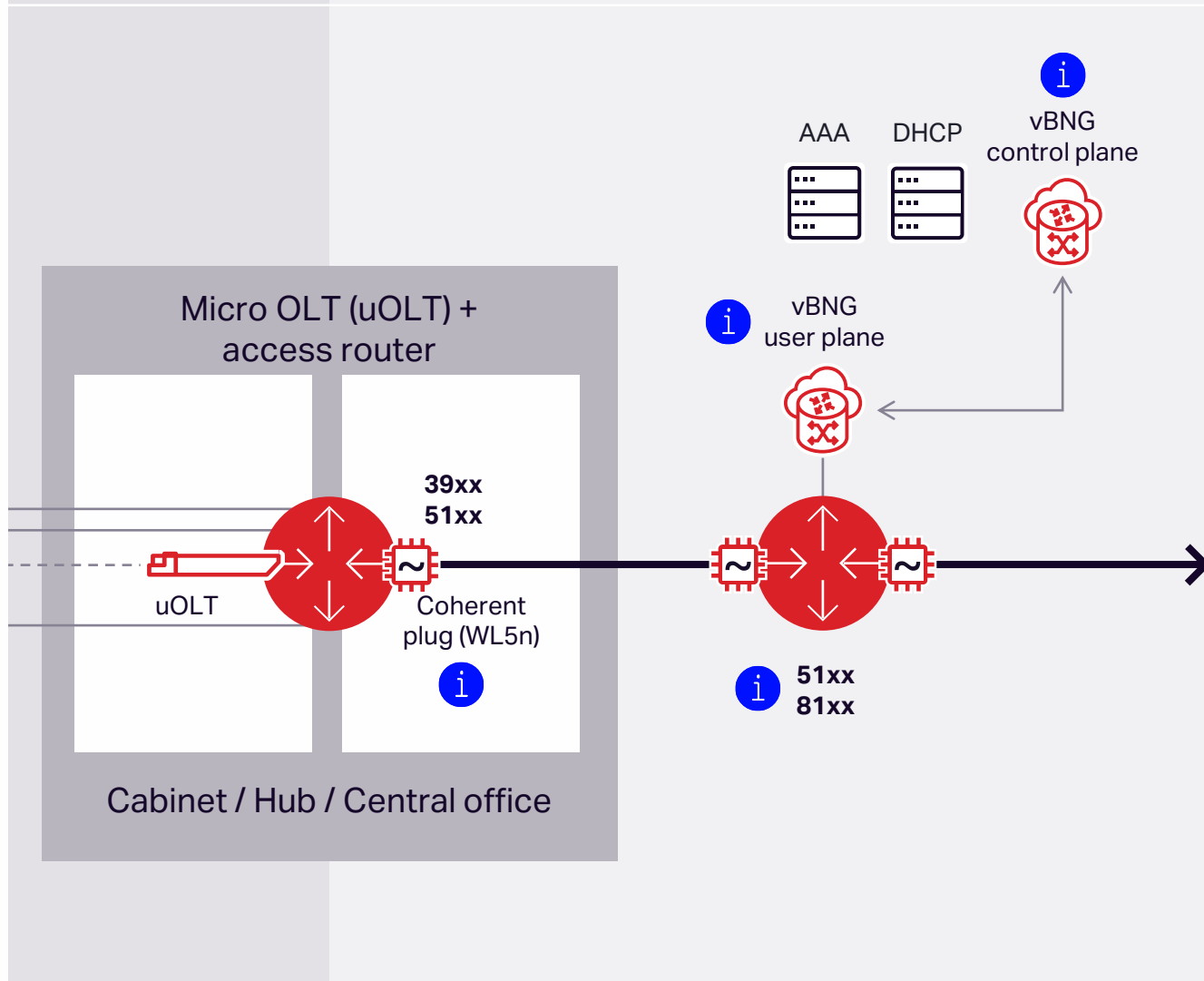
Router (hardened, weatherproof) to expand broadband connectivity and other high-revenue services in the most challenging outdoor and uncontrolled environments

- 12 x 1/10/25GbE UNI ports, including XGS-PON uOLT pluggable
- 2 x 100GbE NNI ports
- 25GS-PON ready

[Learn more](#)



## Aggregation >



# Aggregation

While network operators are investing in building fiber-based access networks, the ability to connect those networks to the internet is also a fundamental component of the broadband environment. With applications requiring more capacity and performance, the aggregation network should be flexible, scalable, optimized, and easy to operate.

[Learn more >](#)

vBNG UP

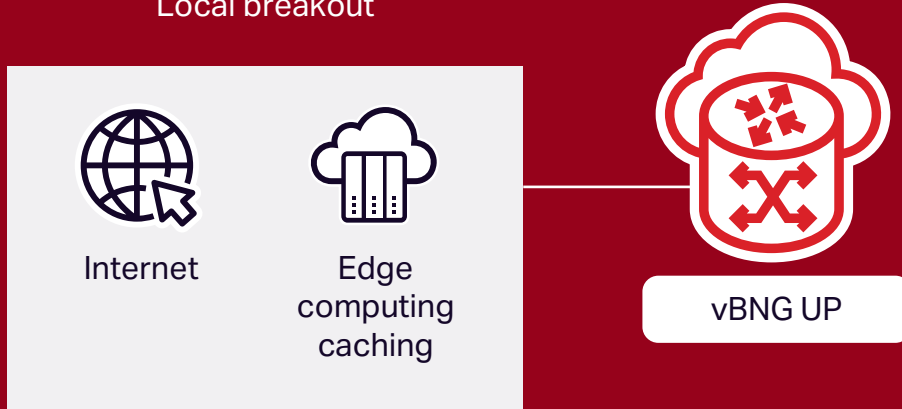
vBNG CP

WaveLogic 5 Nano

Coherent aggregation



### Local breakout



New applications need more from broadband networks, prompting operators to deliver content closer to users. Ciena's virtual Broadband Network Gateway (vBNG) is a disaggregated, cloud-native, fully virtualized system and has the flexibility and scalability needed to deliver high-value broadband services. Built to the Broadband Forum's TR-459 standard, Ciena's vBNG is open-architected and supports control and user plane separation (CUPS).

## Ciena's vBNG user planes

vBNG user planes (UPs) are responsible for handling network user traffic and can be placed anywhere in the network and sized as required. They can easily scale to meet increased traffic demands or be deployed into new areas, with specific configurations to optimize for different services like basic internet, streaming video, or low-latency edge applications to give operators the ultimate in flexibility for the evolving network.

[Learn more](#)



# Aggregation

## WaveLogic 5 Nano

The modularity and scalability of Ciena's broadband solution enables the convergence of access and aggregation functionality in a single platform. Alongside the uOLT pluggable, Ciena's 51xx/81xx routers support Ciena's WaveLogic 5 Nano (WL5n) coherent pluggables, for all the capacity and reach needed. Ciena's access routers can connect directly to the line system without requiring an additional aggregation router or expensive transponder.



### QSFP-DD

Ciena's WL5n 100G-400G Universal QSFP-DD Transceiver incorporates our advanced coherent optical technology.

[Learn more](#)



### CFP2-DCO

Ciena's WL5n 100G-400G Universal CFP2-DCO Transceiver delivers the power, space, and modularity benefits of pluggables across the widest range of applications.

[Learn more](#)



# Aggregation

## Coherent aggregation

As applications demand more capacity and performance, networks must support a mix of connections and services closer to customers, driving the need for 100/200/400 Gb/s coherent aggregation. Ciena's family of coherent aggregation routers and switches offers the right mix of connections and services.



### 8110

Coherent Aggregation Router provides dense 100GbE-to-400GbE aggregation, support for 1/10/25GbE, and, with the option of WL5n, addresses the need for high-capacity routing and switching applications

- Temperature hardened (-40°C to +65°C)
- Two flexible 800 Gb/s slots provide maximum port speeds and capacities at 100G, 200G, and 400G

[Learn more](#)



### 8112

Coherent Aggregation Router offers dense 1/10/25GbE-to-100/200/400GbE aggregation, and uses WL5n to address the need for medium-capacity routing and switching applications

- Temperature hardened (-40°C to +65°C)
- 36 x 1/10/25GbE fixed ports
- 4 x 100/200/400GbE fixed ports

[Learn more](#)

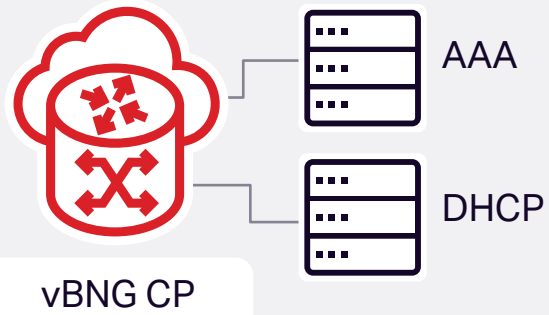


### 8114

Coherent Aggregation Router is purpose-built for 1/10/25/100GbE services and 100/200/400 Gb/s transport with dense 1/10/25GbE-to-400GbE aggregation, including the option of 100, 200, and 400 Gb/s WL5n

- Temperature hardened (-40°C to +65°C)
- Two flexible 800 Gb/s slots provide maximum port speeds and capacities at 100G, 200G, and 400G
- 48 x 1/10/25GbE fixed ports
- 6 x 100GbE fixed ports

[Learn more](#)



## vBNG control plane

The vBNG control plane is responsible for key functions such as subscriber authentication, IP addressing, and policy and session management.

Being separated from the user plane (UP), it is independently resilient and scalable. The control plane can be centralized, thereby simplifying subscriber management, streamlining management of IP address pools, and easing integration with northbound systems.

[Learn more](#)





## Blue Planet fiber broadband automation solution

Blue Planet accelerates fiber broadband network and service automation to improve time to market (TTM), expand subscriber bases, and improve the customer experience.

- Streamlines planning with a unified inventory of hybrid network resources and services, plus optimal route design for greater operational efficiency
- Automates service creation and activation for reduced errors and faster TTM
- Enables assurance of passive devices by harnessing AI / machine learning (ML) to accelerate issue resolution
- Supports achievement of sustainability targets by evaluating power consumption of network devices, decommissioning of legacy systems, and optimal path routing

[Learn more](#)





# Ciena Navigator Network Control Suite

Ciena's residential broadband solution uses the Navigator Multi-Layer Controller (Navigator MC), part of the Navigator Network Control Suite™. Navigator MC allows operators to scale the network—simplifying operations, reducing cost, and delivering the agility and resiliency their customers expect. It provides operators with the ability to manage and orchestrate their multi-layer network from end to end—including middle mile, last mile, and customer premises equipment (CPE)—when delivering broadband, enterprise, or mobile wholesale services using a common and integrated platform.

Supporting multi-vendor interop or third-party ONU integration, Ciena's residential broadband solution avoids vendor lock-in by supporting ONU management and control interface (OMCI) and Ethernet operations, administration, and maintenance (OAM) in-band management. With rich, carrier-class OAM and provisioning (OAM&P) software, operators can persistently store configurations, provide performance monitoring (PM) data collection, employ fault monitoring, and manage firmware images.

[Learn more](#)





# Ciena Services

Access to great technology is a strong start—but how will you make residential broadband a reality? Rather than reinvent the wheel, you can benefit from Ciena Services' technical, operational, and marketing expertise to reduce risk and efficiently roll out this essential service to your customers.

[Learn more](#)

