DATA SHEET

Waveserver Ai

Waveserver® Ai delivers unmatched capacity—up to 2.4 Tb/s in a single rack unit—with a familiar operational toolset to tackle the largest scalability and automation challenges in the Data Center Interconnect (DCI) market.

More capacity, lower power, effortless DCI

Waveserver Ai was designed to address evolving density and power requirements for ultra-high-capacity interconnect applications while retaining the simplicity and ease of deployment for which Waveserver products are known. Its unprecedented density, scale, and capacity per wavelength allow Internet Content Providers (ICPs), Data Center Operators (DCOs), and communications service providers to drive down energy and transport costs and increase their competitive differentiation. With its full suite of management interfaces and open APIs, Waveserver Ai is easy to operate and integrate into existing networks and facilitates mass deployment of on-demand cloud and high-capacity connectivity services.

Harnessing Ciena's WaveLogic Ai coherent optical technology, Waveserver Ai offers the scalability required to satisfy the largest interconnect requirements, from metro to ultra-long-haul distances. With the strong performance and programmability offered by WaveLogic Ai, operators can maximize capacity at any distance by tuning capacity from single-carrier 100 Gb/s to 400 Gb/s in 50 Gb/s increments. The platform can operate at a selectable baud rate of 35Gbaud or 56Gbaud to trade-off channel throughput for optical performance and spectrum usage. For long-haul applications, where wavelengths were previously limited to 100 Gb/s, operators can now upgrade these links to 200 Gb/s; on regional links previously limited from 150 to 200 Gb/s, operators can now attain capacities of 300 Gb/s. By extending the distance of higher bit-rate wavelengths, Waveserver Ai provides better economics and more fiber capacity for DCI networks.

Features and Benefits

- Provides massive service density, with 2.4 Tb/s of client Ethernet ports plus 2.4 Tb/s of line capacity in a compact, 1RU platform
- Utilizes Ciena's WaveLogic Ai coherent technology for tremendous scalability and high performance to maximize capacity at any distance, from metro to long-haul
- Provides unique, industry-leading per-wavelength capacity of up to 400 Gb/s
- Increases total fiber capacity with support for C and L-band
- Offers ultra-low power per bit to reduce ongoing energy costs
- Offers ultra-low-latency, AES-256-GCM wire-speed encryption for highly secure in-flight data protection
- Provides a suite of management interfaces and open APIs for automation, provisioning, management programmability, and ease of back-office integration
- Zero-Touch Provisioning (ZTP) simplifies on-site commissioning and service provisioning to get traffic up and running quickly

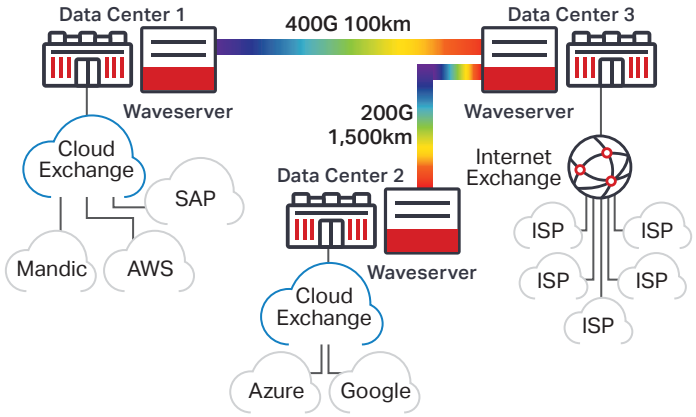

Figure 1. Simple, high-capacity, any-distance DCI

Designed with a modular architecture, Waveserver Ai offers both rack-and-stack simplicity and pay-as-you grow scalability. It supports three pluggable Waveserver modules. When fully equipped, Waveserver Ai provides unmatched density, with up to 2.4 Tb/s of client plus 2.4 Tb/s of line capacity in a single rack unit.

It dramatically increases fiber capacity in flexible grid networks up to 30 Tb/s in the C-band, plus an additional 30 Tb/s in the L-band, and can be deployed across third-party line systems. For lower traffic applications, Waveserver Ai can be configured with single-modem traffic modules (providing up to 400 Gb/s of capacity per module). AES-256-GCM wire-speed encryption is available to enable up to 400 Gb/s of encrypted capacity per traffic module for highly secure, ultra-low latency, in-flight data protection across metro, regional or long-haul distances.

When deployed across a Ciena line system, Waveserver Ai interoperates with the ROADM and photonic layers, allowing the line system to directly provision line port parameters, such as the transmit wavelength and transmit power, to enable faster wavelength configuration and service turn-up. Waveserver Ai provides high performance for deployment across any line system or fiber type, including foreign line systems, whether it is a greenfield or existing network use case.

Customers can positively impact their bottom lines with Waveserver Ai's power efficiency and density. Its compact form factor can be used in rack-and-stack deployments to save space, and it can be used to reduce ongoing co-location footprint charges. With its massive density, it provides space savings for even the largest traffic requirements. Waveserver Ai is also highly power efficient. With ultra-low power consumption it reduces energy consumption, cooling, and recurring power costs.

Waveserver Ai, like Waveserver, is built to offer a simple, secure, server-like deployment and operational model. It is intuitive to install and easy to operate, so customers can manage the platform in a way that fits with their operations. Waveserver Ai can be managed through Ciena's rich management software, Blue Planet Manage, Control and Plan (MCP). All the essential tasks that keep Waveserver Ai networks running smoothly, such as service provisioning and network assurance, can be performed with Blue Planet MCP's scalable, modular, open architecture. Waveserver Ai can also be managed directly through its industry-standard, open APIs. This flexibility allows operators to develop scripts and customized applications to automate tasks or integrate the platform into their back-office operational systems.

With Waveserver Ai, ICPs and data center operators can more efficiently scale their networks, generate more revenue using a single compact platform, and reduce transport costs on their high-capacity interconnect links. The ease of use and open APIs of the platform let customers focus on growing their core business rather than wasting effort on complex operations and integration. With its compact, dense form-factor and ultra-low power consumption, Waveserver Ai sets a new standard for DCI.

Visit the Ciena Community
Get answers to your questions

Technical Information

Waveserver Ai modules

Dual modem (2 x 400 Gb/s) C-band or L-band module:

- Provides eight QSFP28 ports supporting 100GE, OTL4.4 for up to 800 Gb/s of client capacity
- Provides two coherent ports for up to 800 Gb/s of line capacity

Single modem (1 x 400 Gb/s) C-band module:

- Provides four QSFP28 ports supporting 100GE, OTL4.4 for up to 400 Gb/s of client capacity
- Provides one coherent port for up to 400 Gb/s of line capacity
- Optimized cost for lower traffic applications

400G Encryption (1 x 400 Gb/s) C-band module:

- Provides four QSFP28 ports supporting 100GE for up to 400 Gb/s of client capacity
- Provides one coherent port for up to 400 Gb/s of encrypted line capacity
- Provides full throughput, Layer 1 encryption for all in-flight data

40x10G Single modem (1 x 400 Gb/s) C-band module:

- Provides ten QSFP+ ports supporting 4x10GE and 4 QSFP28 ports supporting 100GE for up to 400 Gb/s of client capacity
- Provides one coherent port for up to 400 Gb/s of line capacity
- Supports mix of 10 and 100 Gb/s clients

Dual modem (2 x 400 Gb/s) C-band module with Integrated OPS:

- Provides eight QSFP28 ports supporting 100GE, OTL4.4 for up to 800 Gb/s of client capacity
- Provides two coherent ports for up to 800 Gb/s of line capacity with integrated OPS enabling per wavelength optical protection

CMD4 module:

- Four channel passive mux/demux module
- Enables add/drop up to 1.6 Tb/s for point-to-point applications

CMD10 module:

- Ten port mux/demux module with integrated EDFA, bi-directional OSC, and OTDR
- Enables add/drop up to 4 Tb/s for point-to-point applications

Physical dimensions

1U 44.45 mm (H) x 444 mm (W) x 584 mm (D)

1U 1.75 in. (H) x 17.48 in. (W) x 22.99 in. (D)

Weight:

9.52 Kg, 21.0 lbs (without modules)

14.92 Kg, 32.88 lbs (with 3 modules, no plugs)

Capacity

Supports three pluggable Waveserver modules

Client: Up to 24 x QSFP28 with 100GbE or OTL4.4 (OTU4) clients, or up to 30 x QSFP+ with 4x10GE clients

Line ports support the following rates: 100, 150, 200, 250, 300, and 400 Gb/s at 56Gbaud or 100, 150, 200, and 250 Gb/s at 35Gbaud

Maximum capacity per fiber: 30.4 Tb/s with flexible grid (C-band) plus 30.4 Tb/s with flexible grid (L-band), can be deployed across third-party line systems

Integrated OPS functionality

Common equipment

Redundant/field-replaceable power supply

Field-replaceable fan unit

Power options: AC or DC power

AC input voltage range: 100 Vac to 264 Vac

DC input voltage range: -40 Vdc to -72 Vdc

Power consumption: 0.4 W/Gb

Management

CLI, SNMP v2c, SNMPv3, Blue Planet MCP, SSH, HTTPS, TLS

API: Websocket, RESTCONF, NETCONF, gRPC based on OpenConfig YANG models, Streaming Telemetry and Declarative Configuration

Submarine communications channel

Zero-Touch Provisioning (ZTP)

Remote management

Security

AES-256-GCM wire-speed encryption, PSK or X.509 certificates, FIPS 140-2 Level 2 and Common Criteria certification ready, Secure memory wipe, Secure boot, RADIUS, TACACS+

Environmental characteristics

Normal operating temperature: 0 °C to +40 °C (32 °F to 104 °F)

Normal operating humidity: Between 5% and 85%