

Low-latency Data Center and Financial Networking

Solutions Overview

Arista Networks and Infinera have partnered to create the industry's highest density low-latency solution for inter-data center optical networking. As demands for higher-speed bandwidth services and low-latency transport between data center locations continue to increase for applications ranging from latency-sensitive cloud networks to financial trading, reliable high performance 10/40/100GbE networking has become increasingly critical. Arista's industry-proven data center switches alongside Infinera's data center-optimized Cloud Xpress [CX] optical transport system offer a high-performance, modular, rack-and-stack data center networking solution with industry-leading capacity and latency.

Low-latency, High-performance Networking

Latency in data center networking solutions is a critical performance requirement in mission-critical application environments where microseconds matter. These range from financial networking applications such as high-frequency trading (HFT) and high-speed data feed delivery to and from exchanges to cloud networking applications and high-performance computing (HPC) applications that demand the lowest possible networking latency and jitter solution.

These environments need to support high-performance Ethernet speeds (10/40/100GbE speeds), as well as scalable fiber capacity, all wrapped up in a highly reliable solution that consumes a minimal space and power footprint within the data center. With the cost of metro dark fiber reaching points where it is often most economical to lease dark fiber and deploy one's own optical networking solution,

deploying and operating a low-latency inter-DC solution has now become much simpler with this pre-certified, pre-tested plug-and-play solution from Arista and Infinera.

This unique combination of Arista's low-latency switching solutions for data center networking and low-latency financial applications, along with Infinera's low-latency, high-capacity Cloud Xpress transport platform, creates the ideal inter-data center networking solution that satisfies the most stringent performance demands.

Low-latency Switching and Transport Solution

Applications that require high performance ultra-low latency messaging and reliable, high-throughput message delivery rely on two key networking technologies:

1. Proven real-world ultra-low latency Ethernet switching using cut-through technology that is capable of supporting multi-cast messaging and handling emerging higher-rate interface speeds (40GbE and 100GbE)
2. Low-latency high-capacity optical transport that minimizes contributions to latency and is optimized for Ethernet transport

The combination of Arista's switching platforms and Infinera's CX Ethernet transport platform creates a compact rack-and-stack solution ideal for space-constrained data center footprints that demand high performance.

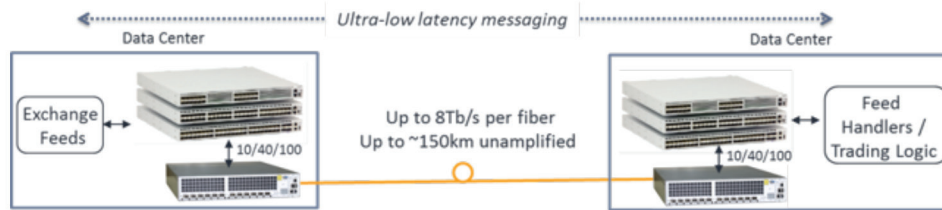


Figure 1: Arista and Infinera low-latency networking solution.

The Arista 7150S represents the industry's leading ultra low latency 1RU 1/10/40GbE layer 2/3/4 wire speed switch family. Designed to meet demanding environments such as ultra low latency financial ECNs, HPC clusters and cloud data centers, the 7150S solution includes key features such as:

- Deterministic 350 ns latency
- Ultra deep buffers for high performance storage applications
- Industry-leading predictable and deterministic performance (lowest latency and jitter)
- Multi-cast scalability
- Highly programmable with Arista EOS® extensible Operating System

For enabling Ethernet connectivity between data centers or exchanges, the Infinera CX provides the industry's most compact and power-efficient Wavelength Division Multiplexing (WDM) solution:

- 1 Tb/s of transport traffic (500 Gb/s client traffic + 500 Gb/s WDM capacity) in 2RU footprint
- Reach extension up to 200 kilometers
- Stackable to support up to 8 Tb/s per fiber capacity
- Lowest power density footprint (~100W per 100

Gb/s transport]

- Options to support 10/40/100GbE client interfaces
- Ultra-low latency 100G Forward Error Correction (FEC)
- Plug-and-play optical networking with fast three-step provisioning

Sample Configuration

With the Arista 7150S-64 configured to utilize 4 x 40GbE QSFP+ uplinks, a total of 480 Gb/s of L2/L3 throughput between two data centers can be realized with the following configuration:

- Three Arista 7150S-64 1RU switches (144 x 10GbE ports, 12 x 40GbE uplinks), providing an aggregate of 3.84 Tb/s of L2/L3 packet throughput
- One Infinera CX-40E-500S Ethernet transporter (12 x 40GbE ports, 1 500 Gb/s WDM super-channel)
- Typical solution power: 1317W
- Total rack space: 5RU

For more information, contact your Arista and Infinera sales teams.

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