

LOW LATENCY NETWORK SOLUTIONS

Are you Ready for the Fast Lane?

The importance and market demand for low latency networking is pertinent to a broad range of verticals and network applications. In today's economy, a millisecond advantage can be valued in the millions of dollars. Network performance now has a market and operational impact; to many service providers it is a major competitive differentiator especially for applications where low latency connectivity is a top priority.

High Frequency Trading



Electronic Communications Network (ECN) connectivity between Exchanges, Hosting Centers, and High Frequency Trading Centers delivers raw exchange feeds and transaction information to exploit trading opportunities available for fractions of a second

Cloud Services



On-demand, highly interactive, web-based applications require a network that helps to deliver a high quality of experience; a necessity to ensure incremental revenue and avoid lack of usability and poor service quality complaints

Business Continuity and Disaster Recovery



For disk mirroring and synchronous replication of mission critical data between a primary and a remote, secondary data center with the expectation or regulated mandate of zero data loss. (Recovery Point Objective (RPO) of 0)

In these cases, network connectivity with the fastest equipment and the shortest fiber distance make a significant impact on application performance.

Every <Micro>Second Counts

Network latency is largely a function of the speed of light through fiber optic cable. External influences, such as signal processing, can make the difference in many networks when every 5 microseconds (5 μ s) of latency is equivalent to adding an extra kilometer of fiber into the network.

- **Signal Processing:** Packet processing and data encapsulation delays network transmission
- **Platform Features:** Forward Error Correction (FEC) and enhanced performance management capabilities add latency
- **Network Capacity:** Insufficient bandwidth can cause congestion-based delays
- **Propagation Delay:** Dictated by distance a signal must travel; the fiber route, available rights-of-way, elevation changes, and even fiber patch cables play a role
- **Transmission Paths:** Indeterminate, variably routed paths can cause unacceptable fluctuations

Low Latency Network Considerations

- Choose the shortest [fiber route] distance to alleviate propagation delay
- Do not encapsulate (unless there is value in doing so)
- Stay at Layer 1 to eliminate higher layer payload processing
- Ensure sufficient capacity to provide full-rate protocol transmission
- If reach extension is required, use optimal technologies
- Minimize interconnect requirements (shortest patch cords, collocate equipment)
- Consider the "other path" — how would a protection switch affect latency?

The Low Latency Network You Need.

BTI's low latency solutions are built on five principles to ensure an optimized network connection:

- **Engineered Approach:** The BTI 7000 Series platform and client service modules have optimized architectures eliminating superfluous components, ensuring rapid transmission to the WAN
- **Simplified Transmission:** Leverage Layer 1 for high bandwidth, dedicated channels, limited payload processing, and connection security. BTI's transponder-based solutions provide time-efficient wavelength translation and signal regeneration for rapid delivery
- **Efficient Signal Processing:** Transmitting native client protocols directly on a wavelength eliminates latency associated with SONET/SDH or G.709 OTN encapsulation and other signal processing and monitoring features that add latency
- **Optimized Reach:** The BTI 7000 Series leverages "near-0" latency technologies for reach extension including Erbium Doped Fiber Amplifiers (EDFAs) and Fiber Bragg Grating (FBG) dispersion compensation
- **High Capacity:** WDM "virtual fiber" provides network scalability and up to 10Gbps-per-channel bandwidth to ensure sufficient bandwidth for mission critical network connections

The Simplicity You Want.

The BTI 7000 Series' focus on fundamental principles is key to addressing low latency network operational challenges. BTI Systems delivers with capabilities that provide low first-in cost and "add-a-wavelength" scalability,

maximize your fiber plant with WDM, and offer integrated protection strategies for high availability. These features in a high density, small form factor and modular platform for efficient use of rack space in collocation/hosting facilities or space-confined data centers to easily adapt to diverse applications and deployment environments.

Deployed, Proven & Certified

BTI has extensive field deployments for data center connectivity and low latency networking within the banking, insurance, gaming, and manufacturing verticals and within the utility space.

The BTI 7000 Series has completed extensive internal and customer-network technical architecture evaluations and configuration testing of its high availability data center solutions for data and storage distance extension. BTI 7000 Series client service modules are certified by leading storage networking vendor programs as interoperable with Storage Area Network (SAN) infrastructure and also provide multiprotocol capabilities to address a diverse range of low latency network applications.

BTI Systems: The Low Latency Network Onramp

Whether for a metro network, regional connectivity, or extension of a trans-oceanic network connection, BTI has the platforms and solutions optimized for rapid transmission of mission critical information.

