

INFINERA'S INTELLIGENT TRANSPORT NETWORK ENABLES WINDSTREAM'S WAVE TRANSPORT SERVICE EXPANSION

CUSTOMER

Windstream

CHALLENGE

Windstream needed to expand the bandwidth of its long-haul express network with an easy to operate solution that would enable Windstream to quickly deliver new services.

SOLUTION

Infinera's Intelligent Transport Networks enabled Windstream to scale network bandwidth, accelerate service innovation and simplify network operations.

The DTN-X XTC-10 Platform converges multi-terabit packet-enabled OTN switching with PIC enabled WDM transmission to reduce space and power.

Infinera's Global Customer Service and Technical Support Team takes responsibility for planning, building, supporting and operating the network.

RESULTS

Windstream expanded its express network by 9,500 miles and now provides 100G Wave transport services across its 125,000 mile, fiber-optic network.

Windstream increased service velocity, enabling it to deliver business services faster than its competitors.

Infinera's full turnkey services - combined with the DTN-X - enables Windstream to scale bandwidth without scaling network operations staff.



Windstream Holdings Inc. (NASDAQ: WIN), a FORTUNE 500 company, is a leading provider of advanced network communications to businesses and consumers nationwide. Windstream Holdings Inc. (Windstream) needed to quickly expand the bandwidth of its long-haul express network. Windstream's strategy is to offer new and advanced services to its customers in the shortest time possible.

Windstream's Wave Transport Service Expansion Strategy

Windstream is a leading provider of advanced network communications and technology solutions for consumers, small businesses, enterprise organizations and carrier partners across the United States. Windstream offers bundled services, including broadband, security solutions, voice and digital TV to consumers. The company also provides data, cloud solutions, unified communications and managed services to business and enterprise clients. The company supplies core transport solutions on a local and long-haul fiber-optic network spanning approximately 125,000 miles.

Windstream provides 100 gigabit per second (100G) Wave transport services on its wavelength division multiplexing (WDM) long-haul express network. Carriers, content/over the top (OTT) providers and other network operators rely on Windstream to provide

fiber-based, high-bandwidth transport services.

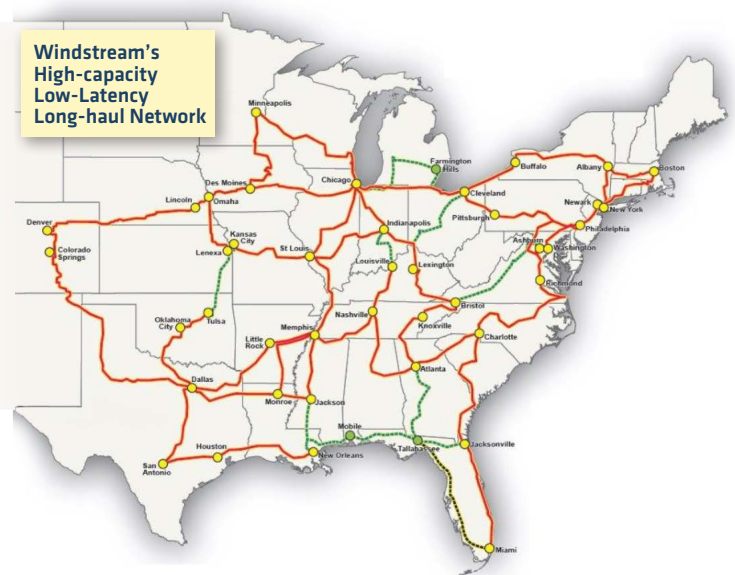
Windstream's strategy is to offer new and advanced services to its customers in the shortest time possible. By providing services from major peering points to rural markets, Windstream has a unique advantage over competitors focused solely on Tier 1 markets.

Windstream's Challenge

The legacy technologies deployed at the core of Windstream's network were

"By deploying the Infinera Intelligent Transport Network, Windstream has significantly increased the capacity of its network infrastructure to meet the large data transport needs of its customers. The Infinera DTN-X Platform positions Windstream as a leading national provider of reliable, low-latency, 100G services."

– Buddy Bayer, Vice President of Transport Engineering, Windstream





Infinera DTN-X XTC-10 Platform

“Windstream selected the DTN-X platform because of it enabled them to deliver high capacity services to their customers more quickly and reliably than their competitors.”

– Bob Jandro
Senior Vice President,
Worldwide Sales Infinera

complex to operate and difficult to scale. Windstream needed the ability to quickly expand the bandwidth of its long-haul express network. It was vital that the network be easy to operate so that Windstream could quickly deliver new services to business and residential customers across the country. Windstream’s challenges included:

Unrelenting Bandwidth Growth

- Growing demand for high-speed consumer broadband and business cloud-based services drove the need for more bandwidth at the core of Windstream’s long-haul express network

Ease of Use Critical

- Although the reach and bandwidth of the network was expanding dramatically, the size of the Windstream network operations team was essentially the same; having an easy-to-operate solution in place, one that existing staff resources could access quickly, was imperative

Rapid Service Delivery

- Windstream needed to quickly offer advanced services to enterprise and consumer broadband customers
- Windstream needed to reduce both the time to develop new services and the time from service order to activation

Infinera Selected for Phase 1 100G Expansion

Windstream decided to seek alternative approaches to address the challenges they faced, issuing a request for proposal (RFP) for a new 100G capable long-haul network.

In 2013 Windstream selected Infinera for Phase 1 of the expansion of its long-haul express transport network. Infinera offered an Intelligent Transport Network that directly addressed the challenges faced by Windstream as it scaled its network. The Intelligent Transport Network included the Infinera DTN-X XTC-10 Platform which, along with Infinera’s full turnkey and spares management services, enables Windstream to:

Scale Network Bandwidth

- The Infinera DTN-X XTC-10 Platform enables the rapid deployment of 500G long-haul WDM super-channels
- Infinera’s unique large-scale photonic integrated circuits (PICs) enable 500G of long-haul super-channel bandwidth to be deployed from a single line-card in the DTN-X XTC-10 Platform
- Infinera Instant Bandwidth™ enables pre-deployment of hardware capacity with pay-as-you-grow on-demand increments of 100G
- The DTN-X XTC-10 is designed to support 12T of non-blocking packet OTN switching converged with massively scalable WDM transmission

Accelerate Service Innovation

- Infinera Instant Bandwidth technology provides Windstream same day deployment of permanent line-side bandwidth in 100G increments

- Instant Bandwidth takes advantage of pre-deployed optical network capacity enabled by photonic integrated circuits (PICs)
- Infinera’s Bandwidth Virtualization provides Windstream a virtual pool of bandwidth, enabling point-and-click provisioning of bandwidth for any service, anywhere on the network
- Infinera’s Just-In-TIM program guarantees rapid shipment of client-side interfaces with committed delivery of 10 days or less

Simplify Optical Network Operations

- Infinera’s full turnkey services combined with the DTN-X enable Windstream to scale bandwidth without scaling network operations staff
- Infinera’s automated control plane provides Windstream with automatic topology discovery, simplifying service provisioning and enabling sub-50 millisecond network protection
- Infinera’s spares management services simplify the process of ensuring the availability of critical spare parts across the network

Phase 1 Deployment

In Phase 1, Windstream expanded its network by approximately 5,300 miles including routes from St. Louis to Chicago; Indianapolis; Lexington, Kentucky; Knoxville, Tennessee; Atlanta; Memphis and Dallas as well

“A top priority for Windstream Carrier Solutions has been to expand its network backbone in order to become the leading provider of fiber-based, high-bandwidth transport services nationwide. Our continued expansion westward will enable the Carrier Solutions team to provide high bandwidth transport solutions to content providers, cable companies, foreign carriers, and traditional wireline and wireless carriers.”

— John Nishimoto,
Vice President of Business
Development,
Windstream

as from Chicago to Cleveland, Pittsburgh, Philadelphia, the District of Columbia and Ashburn, Virginia. Phase 1 was successfully completed in March 2014.

Infinera Selected for Phase 2 and 3 100G Expansion

Phase 1 demonstrated the strength of the partnership between Windstream and Infinera. Because of these successes, Windstream selected Infinera for Phase 2 and again for Phase 3 of its core network expansion.

Phase 2 of Windstream’s network expansion was completed in 2014. Windstream expanded its DTN-X based network by 4,100 miles including routes from Chicago to Omaha, Kansas City and St. Louis; Cleveland to Albany, New York; Boston, New York City and Philadelphia; Atlanta to Charlotte and Ashburn, Virginia; and Monroe, Louisiana to Memphis. In Phase 2, Windstream’s expanded its 100G Wave transport services across the continental U.S.

Phase 3 of Windstream’s network expansion was completed in August 2015, adding 18 new 100G markets, an additional 2,200 route miles, and route diversity in regional markets. Windstream expanded 100G service from New Orleans to Jacksonville, Ashburn to Lexington, Chicago to Farmington Hills to Cleveland, and Atlanta to Tallahassee.

With Phase 3, and pre-built 500G capacity on routes, Windstream now offers customers Express Install of 10G Wave services within 25 business days. These service level agreements (SLAs) guarantee installation intervals for 10G Wave services between major U.S. cities.

Results

The Infinera Intelligent Transport Network and full turnkey and spares management services provided these results:

- Windstream expanded its long-haul express network by 9,500 miles and now provides 100G Wave transport services in 44 markets across the continental U.S

- Windstream’s long-haul express network can deliver up to 8T of bandwidth per fiber
- Windstream increased service velocity, enabling it to guarantee Express Install of 10G Wave services within 25 business days between major U.S. cities
- Windstream fulfilled its strategy is to offer new and advanced services to its customers in the shortest time possible
- Infinera’s Intelligent Transport Network enabled Windstream to scale network bandwidth, accelerate service innovation and simplify network operations

For more information on Intelligent Transport Networks, contact us at <https://www.infinera.com/company/contact-us/>.

Additional information on Windstream is available at windstream.com, news.windstream.com or follow Windstream on Twitter at @WindstreamNews.

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