



Service Provider PowerOne Leverages Motorola's PTP 300 Scalability to Boost Subscriber's Throughput

Tavares, Florida



PTP 300 Integrated Radio

For many Internet Service Providers (ISPs), the key to staying viable in a world of escalating broadband needs is the ability to respond to changing customer requirements while remaining profitable. When PowerOne™ Internet, an ISP in Tavares, Florida, got a request from an important subscriber customer for a significant increase in throughput, delivering higher bandwidth affordably became an urgent priority. PowerOne turned to Motorola for an economical and immediate solution that could multiply their customer's throughput using existing hardware. After explaining their need, PowerOne was able to leverage the line-of-sight (LoS) connection to the subscriber's site and upgrade their newly-purchased Point-to-Point (PTP) 300 Series Wireless Ethernet Bridges to maximum capacity. The subscriber's throughput potential was quickly increased to 15 times its previous level.

Customer

PowerOne Internet is a service provider serving central Florida and beyond for close to six years, focusing on the busy metro-Orlando area. With more than 500 customers, the Company delivers broadband access to personal and commercial subscribers through airPowered™ service (a service provided by PowerOne) and offers IT services, managed services, network maintenance and Voice-over-IP (VoIP) deployment under PowerOne's larger brand umbrella.

Subscriber

PowerOne's subscriber customer is a regional provider of online video content such as custom training and media-based presentations for companies mostly in the healthcare industry. A leading provider of "telehealth" streaming media solutions, this subscriber's programs contribute to the support of individuals with autism and other disabilities.

Situation

PowerOne had previously deployed Motorola's PTP 600 Series Wireless Ethernet Bridges for backhaul, and subsequently invested in PTP 300 Series Wireless Bridges to accommodate anticipated bandwidth growth. Within six months of purchasing the PTP 300 system, PowerOne's Senior Systems Manager, Dylan Bouterse, got a call from his telehealth subscriber. This subscriber was outgrowing its existing 3-Mbps throughput level. While they wanted to increase accessibility for day-to-day usage, they also wanted the ability to stream a greater volume of multimedia content. Because the subscriber is located in an underdeveloped area, implementing wired or fiber connectivity was not feasible, would have been exorbitantly expensive to implement and really was unnecessary in light of the expansive capabilities and economy of wireless.

Solution

PowerOne™ switched the subscriber's service over to the newly-deployed PTP 300 system, which offered speeds up to 25 Mbps in its standard mode. However, the subscriber needed even greater throughput on an ad-hoc basis for streaming audio and video when they conduct online training programs and multimedia presentations. The scalability of the PTP 300 proved to offer the perfect solution. After Bouterse consulted with a Motorola engineer, PowerOne decided to implement a cost-effective upgrade that would not require hardware changes and would protect their investment in the existing PTP 300 system.

Since the path between PowerOne and the subscriber could support LOS radio transmissions, PowerOne was able to implement a 50-Mbps LOS license-key upgrade on their existing PTP 300 radios. With the LOS mode enabled, the PTP 300 link could achieve a maximum throughput of 50 Mbps, satisfying the subscriber's immediate bandwidth needs while providing growth for future needs.

Technical Requirements

- Up to 50 Mbps throughput for multimedia training sessions
- Span a LOS path of 3.1 miles
- Provide Adaptive Modulation capabilities that would enable the link to automatically handle any changes in link quality due to path conditions
- Utilize wireless technology since the end-customer is located in an underdeveloped area with no established fiber connectivity
- Provide a cost-effective solution without changing hardware
- Accommodate the subscriber's expansion plans

Wireless

Attributes	Value	Units
Wireless Link Status	Up	
Maximum Transmit Power	27	dBm
Remote Maximum Transmit Power	27	dBm
Transmit Power	27.0, 21.8, 21.0, 21.0	dBm
Receive Power	-1.2, -56.9, -109.9, -54.8	dBm
Vector Error	2.7, -25.2, -56.4, -27.4	dB
Link Loss	145.1, 116.4, 0.0, 121.8	dB
Transmit Data Rate	32.85, 24.99, 0.58, 25.83	Mbps
Receive Data Rate	25.53, 25.19, 4.96, 25.53	Mbps
Link Capacity	51.24	Mbps
Transmit Modulation Mode	64QAM 0.83 (Dual) (15 MHz)	
Receive Modulation Mode	64QAM 0.83 (Dual) (15 MHz)	
Link Symmetry	Adaptive	
Line Of Sight Mode	Enabled	
Receive Modulation Mode Detail	Running At Maximum Receive Mode	
Range	3.1	Miles

PTP LINKPlanner Performance Details for PTP 300 50-Mbps LOS Upgrade

Deployment Detail and Interoperability

The PTP 300 system deployment was completed in approximately two to three hours. At the PowerOne end of the link, the PTP 300 radio is mounted on a cell tower with the opposite end of the link mounted on the rooftop of the subscriber's building. Approximately six months later, a 50 Mbps LOS upgrade to the PTP 300 link was accomplished via software license key and did not require any tower climb or equipment changes.

After installing the 50 Mbps LOS upgrade, Bouterse tested the upgrade and saw that the link was achieving aggregated speeds of only 33 Mbps. Then he contacted Motorola's engineer via email, and they analyzed the data generated by the Motorola PTP LINKPlanner, a comprehensive link planning and optimization tool that provides granular performance details. They quickly saw that the upgrade was configured with a 10-MHz channel size which produces a maximum speed of 35 Mbps. After making a simple configuration change to 15 MHz, the link easily achieved 50 Mbps.

To take full advantage of the upgraded speed, the PTP 300's built-in Adaptive Modulation capability enables the transmitters and receivers to negotiate the highest mutually sustainable data rate and dynamically "upshift" and "downshift" the rate as path conditions change. This allows the PTP 300 link to maintain the highest possible throughput for the link at all times.

Results

PowerOne Internet was able to maximize its investment in the PTP 300 system, bringing the radios up to their maximum throughput capacity via airPowered™ service. This provided PowerOne's subscriber, who had been working with them for four years, with throughput capacity that will last through several more productive years. As the subscriber utilizes more of its new capabilities, PowerOne will gain revenues from providing the additional throughput and services to their customer. With no fiber options available, the PTP 300 Wireless Ethernet Bridges were able to meet the needs of this underserved environment, facilitating faster, more-reliable connectivity while protecting the service provider's system investment.

“The cost for a wireline network would have been out of reach for our customer, and it couldn’t be done at their location. With the 50-Mbps LOS upgrade, the PTP 300 link is extremely cost effective and performs well in excess of the customer’s needs and expectations. Not only does the system allow us to provide the broadband service they need, but we are able to upgrade their service as they need it.”

— Dylan Bouterse, Senior Systems Manager, PowerOne™ Internet, Tavares, FL

Why Motorola?

- The existing Motorola Point-to-Point 300 system provided needed scalability that allowed PowerOne to support their subscriber customer’s extraordinary growth.
- The upgrade was completed quickly and required no changes in equipment.
- Motorola’s wireless broadband technology was able to supply a sophisticated, high-performance wireless link in an underserved area.
- Motorola’s PTP 300 system provided reliable, cost-effective, carrier-grade broadband connectivity to satisfy the changing needs of the service provider and its customers.

Motorola Wireless Broadband

PTP 300 Series solutions are included in Motorola’s comprehensive portfolio of reliable and cost-effective wireless broadband solutions that, together with our WLAN solutions, provide and extend coverage both indoors and outdoors. The Motorola Wireless Broadband portfolio offers high-speed Point-to-Point, Point-to-Multipoint, Mesh,

Wi-Fi and WiMAX networks that support data, voice and video communications, enabling a broad range of fixed and mobile applications for public and private systems. With Motorola’s innovative software solutions, customers can design, deploy and manage a broadband network, maximizing up-time and reliability while lowering installation costs.

About Motorola

A Fortune 100 company with global presence and impact, Motorola is known around the world for innovation and leadership in wireless and broadband communications. Inspired by our vision of seamless mobility, the people of Motorola are committed to helping you connect simply and seamlessly to the people, information, and entertainment that you want and need. We do this by designing and delivering “must have” products, “must do” experiences and powerful networks – along with a full complement of support services. For more information about our company, our people and our innovations, please visit www.motorola.com.



Motorola, Inc., 1303 E. Algonquin Road, Schaumburg, Illinois 60196 U.S.A. • www.motorola.com/ptp

MOTOROLA and the Stylized M Logo are registered in the U.S. Patent and Trademark Office. All other product or service names are the property of their respective owners.
© Motorola, Inc. 2009. All rights reserved.