



AF24 Case Study Number 1

Fox Valley Internet, Elgin, IL, USA

With over 15 years of experience in the wireless broadband business, Fox Valley Internet is one of the largest and most successful Internet service providers in the Chicago area. Amidst a large installed base of wireless equipment, Fox Valley Internet uses wireless backhaul products that operate in both the licensed and unlicensed bands to provide Internet connectivity for its multipoint networks.

Problem

Many of Fox Valley Internet's currently deployed backhaul links were becoming saturated as business and residential customers increased their usage of IP services that required greater bandwidth, such as video streaming and file sharing. With its legacy backhaul links limited to speeds of 250 Mbps, Fox Valley Internet needed an affordable solution that it could readily deploy without having to deal with the hassle of licensed radios, or the crowded spectrum and performance limitations of many unlicensed products. Unless it quickly found an easily deployable and economic solution, Fox Valley Internet faced a difficult choice: limit network expansion or be unable to provide the high bandwidth that its top-tier customers desired, risking the loss of high-value accounts.

Solution

Fox Valley Internet installed *airFiber* unlicensed, 24 GHz, Point-to-Point (PtP) links to provide the infusion of bandwidth needed to keep up with customer demand. Deployed in the locations experiencing the worst network congestion, *airFiber* vastly increased the available bandwidth to not only support the higher-tier customers, but also enable network expansion.

John Diem, Vice-President of Fox Valley Internet, stated, "The *airFiber* links were very easy to deploy and provided a tremendous boost in our network capacity. We no longer have to worry about maxing out the bandwidth on our older licensed and unlicensed legacy equipment. Aligning the *airFiber* radios was a snap because it has a numeric LED display, which tells you the calibrated receiver signal strength. The user interface is very intuitive, and the level of performance is unbelievable – it just blows away everything else, regardless of price."

Fox Valley Internet deployed *airFiber* at a site where it needed to make sure the radios would successfully co-locate, and it has configured systems for both Time Division Duplexing (TDD) and Frequency Division Duplexing (FDD) operation, depending on the bandwidth requirements and availability. As described by Diem, "We have one link running at greater than 9 miles to off-load substantial bandwidth from our lower data rate, licensed band link." *airFiber* is also used as the primary link in 1-mile and 2.6-mile applications. Diem added, "Our installer loves the fact that the unit is a single-piece assembly with precision adjustments for perfect aiming. And because it's PoE, there are fewer cables to run."



Results

"Our business customers now have access to huge amounts of bandwidth, and we can supply that bandwidth very cost-effectively. We plan to use *airFiber* for co-located deployments in a hub-and-spoke configuration to deliver bandwidth to big users." Taking advantage of the versatility of the *airFiber* platform, Fox Valley Internet used the GPS-synchronized TDD configuration for co-location and FDD for enormous bandwidth on its shorter links.

Configurations

The table lists the *airFiber* links used in the deployment:

| Link Distance | Configuration |
|--|---|
| 9.1 miles | TDD system for maximum robustness. Units placed in a clear LoS (Line of Sight) condition. Used with a traffic aggregator to provide additional bandwidth to off-load a licensed band link that has run out of capacity. |
| 3.8 miles | TDD system for maximum robustness. Used in a PtP network with 500 Mbps capacity. |
| 2.6 miles | FDD system. Used for a primary, PtP, 1 Gbps, backbone link. |
| 1 mile | FDD system. Used for a primary, PtP, 1.4 Gbps, backbone link. |
| 0.3 to 1.5 miles (hub-and-spoke distribution) | TDD system for ultra-high capacity, multipoint distribution to business customers. |

