

Spotlight on Microwave Technology...

Lets be realistic ☺ Ask for the impossible...

Technology Snapshot

In virtually any multi-location application using Internet technology or wireless, backhaul is required. As wireless technology evolves beyond traditional T-1 capabilities, wireless backhaul is emerging as a versatile and integral component of sending data from one point to another, where it can be distributed to many points of access. While it could be a choke point for the network, backhaul can also be its strength when designed correctly. Wireless backhaul in commercial or enterprise networks has become very attractive with the **high data rates, ease of installation and scalability**. Wireless backhauls are now capable of transmitting upwards of 1.25 Gbps, and they can travel over long distances to a network operations center or access point cluster.

Because of the large variation in **speed, distance, frequency type, and price**, choosing the correct backhaul solution can make or break the entire system

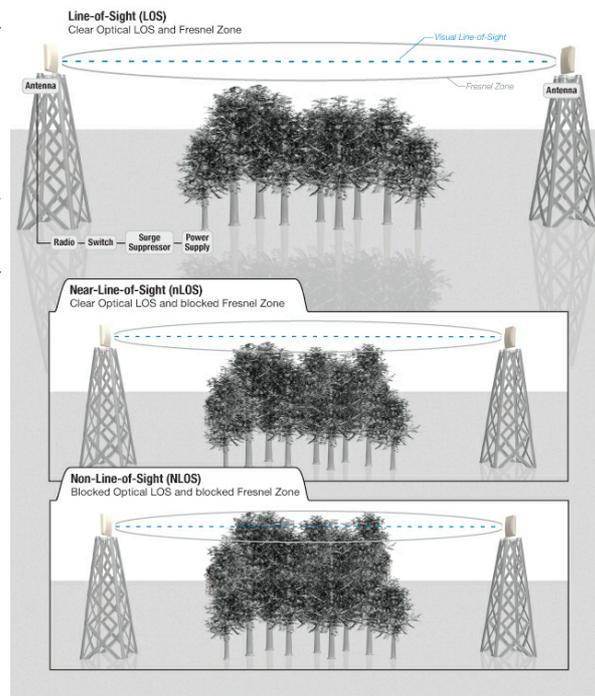
Selecting Your Backhaul Solution

Selecting the best backhaul option requires a balance of speed, distance and price. For wireless technologies, the general rule of faster and longer doesn't always mean more, so networks should be designed to support the current needs as well as **at least a 30% growth** in traffic. It is generally less expensive to install a unit that costs a little more on the front end, but can scale up by 30%, than to install one that will cost less in the beginning but needs faster replacement. More is not necessarily better! And if a network will only require 10 Mbps for the foreseeable future, there is no need for a 300 Mbps backhaul that will increase short-term costs with no long-term return

TRIWAY WIRELESS

Best Applications:

- Network cellular backhaul.
- Physically diverse networks.
- Wireless rings/WWAN.
- Longer distances.



Learn More on Backhaul

Technologies:

- TDM
- IP
- FDD
- TDD

TDM: Time Division Multiplexing

IP : Internet Protocol

FDD: Frequency Division Duplex

TDD: Time Division Duplex

More on technologies in our next Frequency 03...

Microwave radios, can move large amounts of information at high speeds. They have the ability to transmit both digital and analog data. Microwave can also penetrate rain, fog, and snow, which means inclement weather does not disrupt the transmission. Microwave radios support high bandwidth requirements while proving the highest level of encryption. Microwave radios also have the ability to withstand the highest amount of interference.

Unlicensed Links

Lower total cost, no licensing fees, quick and easy deployments. Disadvantage is that ISM bands and unlicensed frequencies are subject to potential interference issues. Can be up and running in a relatively short time and without a lot of added expense to the end user. The drawback is potential interference or lack of coordination among individual users. With unlicensed radios the end user has no control over who is able to use the frequency and thus can encounter unexpected or unplanned interference. However if the proper precautions are taken one can use an unlicensed link successfully for a number of years.

Licensed Links

Licensed links tend to have higher throughputs and be more reliable. Because the frequency is licensed, users are certain they're the only ones in the area allowed to use that frequency. They also have confidence of knowing the occasional access point at a home or coffee shop is not going to take down mission-critical data or slow their network. Licensed links are generally more expensive because of licensing fees and the additional time needed to install the system.

Licensed microwave is inherently interference-free. Unlicensed is not.

Licensed radios have to meet stringent FCC specs concerning transmit power, channel spacing, bandwidth utilization, receiver discrimination, antenna size and even the width of the radio beam. All this maximizes efficiency of the licensed spectrum, enabling a multitude of users to enjoy their own clear slice of radio heaven. No such provisions or design attributes are built into unlicensed radios.

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