

The networking world was revolutionized in the 1990's with the introduction of Structured Cabling, which divided the entire IT infrastructure into manageable blocks and then systematically integrated these blocks. This advancement to Structured Cabling was instrumental in the creation of high performance networks capable of supporting large user populations and high bandwidth application simultaneously.

Like legacy wired networks, today's legacy Wi-Fi networks cannot handle large user populations or high bandwidth applications such as voice, video, and data. Many IT professionals view these legacy Wi-Fi networks as an underperforming clutter of Access Points, controllers, and antennas strewn throughout an organization without rhyme or reason – expensive and difficult to manage.

With the creation of the Xirrus Wi-Fi Array, network managers can now deploy **Structured Wi-Fi** as an extension of **Structured Cabling** to create a high performance network to cover large areas, support large user populations, execute high bandwidth applications, and provide the same quality of experience and level of security throughout the network – cost-effective and easy to manage.

Xirrus is the only company capable of delivering Structured Wi-Fi.

	Legacy Cabling	Structured Cabling	Legacy Wi-Fi	Structured Wi-Fi
Flexibility	-	✓	-	✓
Distance	-	✓	-	✓
Attenuation	-	✓	-	✓
Capacity	-	✓	-	✓
Resiliency	-	✓	-	✓
Troubleshooting	-	✓	-	✓

## Flexibility

Network managers must ensure their networks can cost-effectively change due to growth in employees, applications, buildings, etc. with minimal inconvenience to the network.

- **Structured Cabling** provides flexibility by incorporating patch panels that allow changes with a simple switch of patch leads, using standard sockets for easily interchanging telephone and data feeds back to the patch panel, and neatly laying and labeling enough cable for future use.
- **Structured Wi-Fi** provides greater flexibility and upgradeability by incorporating a modular design to allow for the replacement of the Arrays' Integrated Access Points for future upgrades as new standards become available (802.11n); using centralized management to automatically discover, authenticate, and configure new Arrays; and delivering enough Wi-Fi bandwidth for future growth.

## Distance

Network managers must ensure that every possible employee work location has network connectivity and supports all existing, new, and emerging user applications.

- **Structured Cabling** resolves distance limitations by using a star topology of cables that are individually insulated, twisted, and jacketed providing greater network interconnection.
- **Structured Wi-Fi** resolves distance limitations by using a multi-sector, directional antenna system to create a 360° coverage providing 2X the range/4X the coverage in all directions.

## Attenuation

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Network managers must ensure their networks mitigate attenuation to improve the network's signal strength for faster speeds.

- **Structured Cabling** reduces loss by utilizing industry standard cable types, connectors, and lengths from the building entrance through to the workstations.
- **Structured Wi-Fi** reduces loss by utilizing multiple Wi-Fi radios in a circular configuration, each with greater directional receive sensitivity resulting in greater range and more effective throughput to the Wi-Fi clients.

## Capacity

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Network managers must ensure that their networks can successfully handle increasing numbers of users and traffic from high bandwidth applications.

- **Structured Cabling** provides greater bandwidth for more users by combining a system of high quality cables, switches, etc., to mitigate insertion loss and cross-talk across the network, while coordinating security and Quality of Service (QoS) functions.
- **Structured Wi-Fi** provides 8X greater RF bandwidth (up to 864Mbps) for more users by combining a system of multiple radios with a 2Gbps Wi-Fi switch to coordinate the RF spectrum, security, and Quality of Service functions.

## Resiliency

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Network managers must ensure their networks can adapt and accommodate for outages, whether planned or not.

- **Structured Cabling** delivers higher resiliency with proper cabling design and redundancy built into the Equipment Rooms, Telecommunication Closets (terminations and/or cross-connect for the horizontal and backbone cabling system), etc.
- **Structured Wi-Fi** delivers higher resiliency with failover protection between adjacent radios, complete Array failover with "hot standby", switch port failover with dual Gigabit uplinks, and wireless backhaul failover by utilizing up to three radios per backhaul link.

## Troubleshooting

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Network managers must ensure they can isolate and resolve an issue quickly and without disturbing the network.

- **Structured Cabling** improves troubleshooting by dividing the entire infrastructure into manageable blocks that can be easily isolated and tested for specific points of fault and then correct them with minimal disturbance to the network.
- **Structured Wi-Fi** improves troubleshooting by dividing a traditional 360 degree RF pattern into sectors that can be individually controlled, thereby creating an adaptive pattern of coverage that can be monitored for interference and automatically load balance clients based on changing conditions in the network.



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