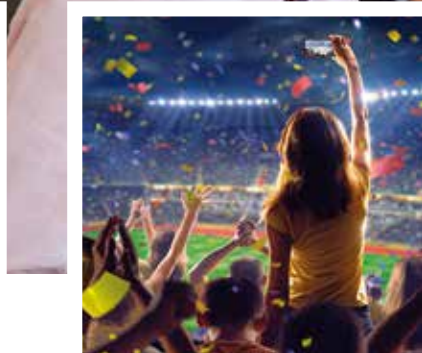


FiberLAN™

The Optical Fiber Broadband Technology
for LAN Environments



What is FiberLAN™

DZS' Optical LAN solution, called FiberLAN™, is an innovative extension of well-established fiber broadband technology that delivers the bandwidth, security, reliability, cost and space savings of fiber to enterprise LAN environments.

In a connected world, organizations rely on their data networks now more than ever. Based on carrier-class equipment, FiberLAN™ typically provides 99.999% availability with redundant and high availability options to increase uptime even further.

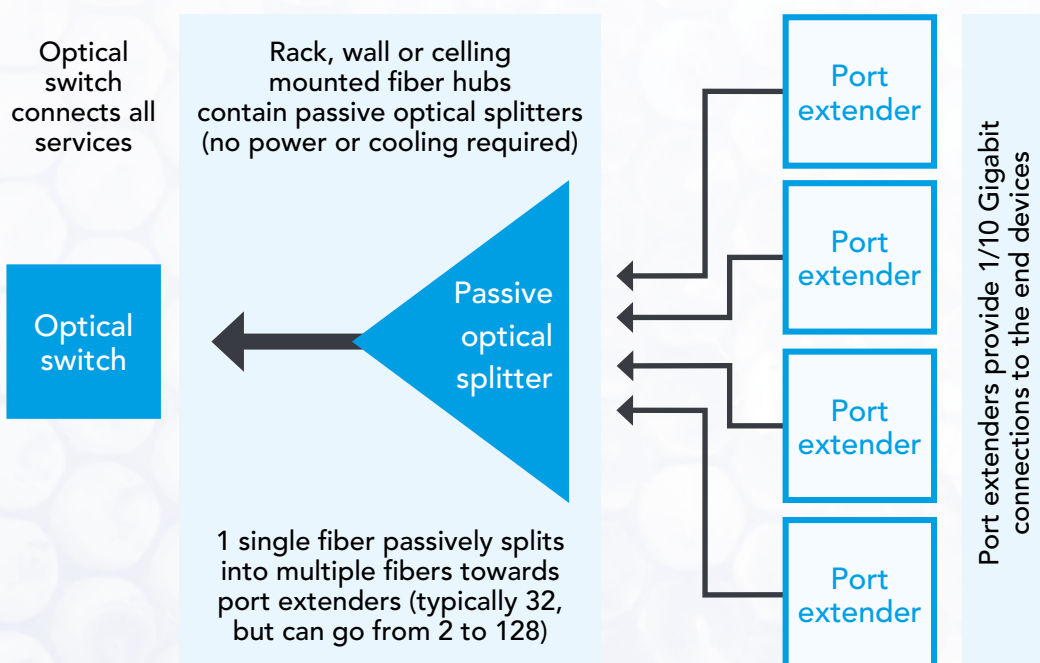
A FiberLAN™ network is a proven GPON architecture that shares a single mode fiber to offer point-to-multipoint network connectivity to subscribers using passive optical components. For application that require P2P connectivity, FiberLAN™ is capable of Active Ethernet, too.

The results are:

- More bandwidth
- Higher security
- Better reach
- Lower CAPEX and OPEX
- Future proof infrastructure

Proven technology:

- First standards developed in 1995
- TIA, BICSI, IEEE and ITU standards based
- Billions of dollars invested in perfecting PON technology



Optical Fiber Broadband Technology for LAN Environments

Target Markets

Corporate Campus

In an era where almost any device can connect to the Internet, organizations depend on their network to make better and faster decisions, service their customers and support all the processes to run their businesses. FiberLAN™ from DZS delivers the highest performance at the best value for high-speed data, voice, video and smart building applications. It can be deployed in offices, rooms or other facilities, delivering comprehensive connectivity for any Local Area Networking requirement.



Hospitality and Retirement Homes

Imagine the space savings if all the rooms in your hotel or retirement home can be served from a single 2RU FiberLAN™ switch in the MDF. There is no longer a need for multiple racks of equipment and patch panels on each floor. FiberLAN™ brings the benefits of fiber such as enhanced security, lower costs, space savings, lower power utilization and greater bandwidth to the hospitality industry.

Education

Today's students live in a connected world: digital learning technologies, entertainment via high-speed internet, smart phones and wireless TV are just a sample of the technologies that students consider essential. FiberLAN™ delivers secure, high-speed internet access to educational institutions in support of a variety of services including: WiFi access in rooms and common areas, remote learning capabilities, smart boards, interactive projectors, workstations and more.



Stadiums/Arenas

Thousands of fans are simultaneously streaming and posting to social channels during an event. High-speed internet capabilities are required to enhance the end-user experience in addition to supporting internet-dependent services required to run the facilities. FiberLAN™ delivers secure, high-speed network access to sporting venues in support of a variety of services including: high-fidelity audio, stadium video, surveillance cameras, ubiquitous WiFi access, Point of Sale (PoS) and building management.

Healthcare

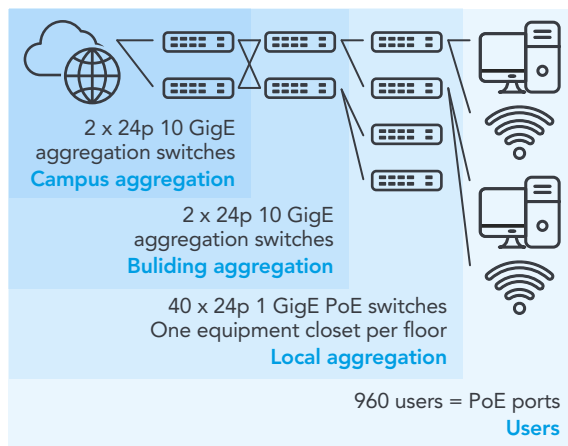
Sophisticated healthcare facilities are now looking at new models of IT and physical cabling infrastructure solutions to provide the highest bandwidth, reliability, flexibility and simplicity. FiberLAN™ enables this model by meeting the TIA-1179 specifications (Healthcare Facility Telecommunications Infrastructure Standard). FiberLAN™ also maintains a clean and sterile environment since cables will never have to be replaced once installed. Finally, FiberLAN™ enables the creation of multiple virtual networks with the highest degree of security.



Fiber Optic Cables Advantages Compared to Copper

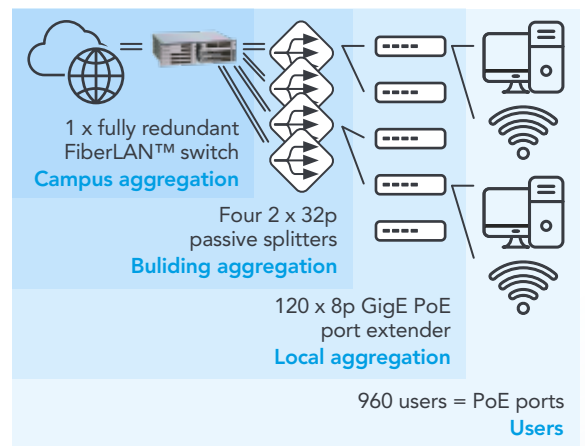


Typical Copper LAN



- Equipment closets (typically one/floor)
- Ethernet cable trays & supports
- Power & cooling for every switch
- Ethernet patch panels
- Provisioning of each aggregation switch
- Expensive annual maintenance contract

FiberLAN™ Benefits

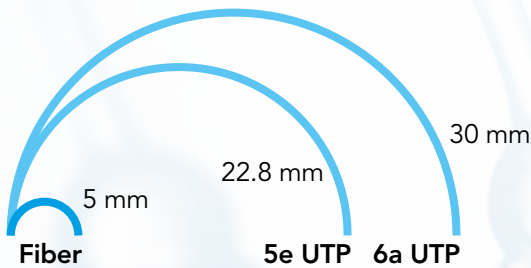


- No equipment closets (FiberLAN™ switch is in IT cabinet)
- No ethernet cable trays & supports
- Local power for each port extender, no special cooling
- No ethernet patch panels
- Central provisioning on FiberLAN™ switch
- Inexpensive annual maintenance contract
- Impervious to EMI and RFI

Fiber Optic Cable vs. Copper Cable in the Horizontal

Riser rated cables	Standard singlemode fiber	Tier 1 vendor category 5e UTP	Tier 1 vendor category 6a UTP
10G Distance	40 km	45 m	100 m
Cable OD	2.9 mm	5.7 mm	7.5 mm
Weight	5.95 kg/km	32.7 kg/km	58.0 kg/km
Minimum bend radius	5 mm	22.8 mm	30 mm
Tensile strength (Installation)	214 N	111 N	111 N

Relative bend radius comparison



Relative cable diameter comparison



Annual Power Consumption Comparison

Fiber instead of copper can save up to 75% of the electricity required to run an enterprise network

		Number of users		
		250	500	1,000
PON	Total power	3,350 W	5,400 W	9,650 W
	Per user	13.4 W	10.8 W	9.65 W
Copper	Total power	11,026 W	20,534 W	39,626 W
	Per user	44.1 W	41.0 W	39.6 W
Saving	Total power	7,676 W	15,134 W	29,976
	Per user	30.7 W	30.2 W	29.9 W
	% savings	69.62%	73.70%	75.65%

FiberLAN™ Infrastructure and Products

FiberLAN™ is a high performance solution built entirely on industry leading standards. This fully converged solution is scalable for a single or multilevel building. It is also very well suited for changes in LAN infrastructure for large campus environments where new facilities are being installed or upgraded.

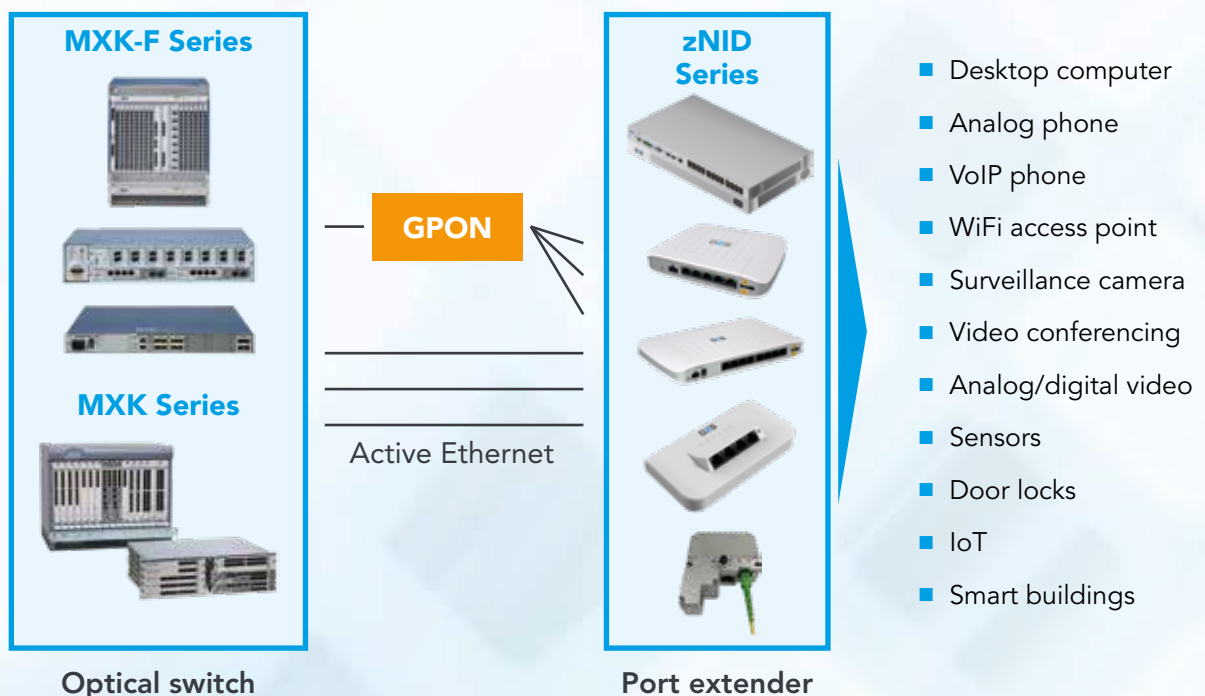
DZS' layer 2 transport infrastructure, FiberLAN™, delivers converged services over a single strand of fiber. FiberLAN™ reduces the costs of your LAN infrastructure cabling and electronics to a fraction of what is required to a traditional copper infrastructure. Operationally, FiberLAN™ greatly reduces the complexity of provisioning and managing a LAN network by acting as a one large virtual switch instead of multiple individual network elements. This virtual switch can be easily managed by either a graphical user interface (GUI) and/or a command line interface (CLI).

As technology advances, so do the ways to conserve energy and reduce operating costs. FiberLAN™ replaces conventional copper and multimode fiber used with traditional network infrastructures to a single mode fiber optic cable allowing for the elimination of the traditional workgroup switch, patch panels, and racks in riser closets.

FiberLAN™ significantly reduces:

- Power consumption by up to 80%
- Space requirements by up to 90%
- Operational costs by up to 50%
- Capital costs related to network elements by up to 50%, while improving availability and manageability

FiberLAN™ System Family



Optical Fiber Broadband Technology for LAN Environments

Key Benefits of FiberLAN™

- Lower TCO (Total Costs of Ownership)
- “Green” IT
- High availability and security
- Future-proof infrastructure
- Distance

Key Benefits of DZS

- **Leadership** – Enterprise & service providers market leader globally
- **Support** – Experienced sales & support worldwide
- **Commitment** – To the success and continuous improvement of enterprise PON
- **Reliability** – Redundant “carrier grade” systems offering up to 99.999% network availability
- **Scalability** – Enables optical LAN for small, medium or large locations
- **Flexibility** – More port extenders device choices





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