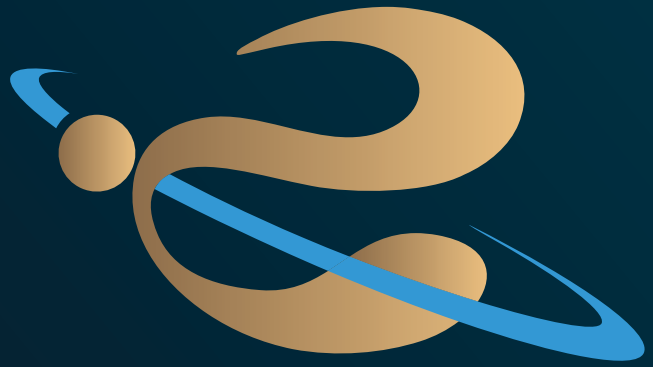

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FIBER OPTIC NETWORK

Fiber optic networks are a type of telecommunications infrastructure that uses optical fibers to transmit data, voice, and video signals at incredibly high speeds over long distances. They are a fundamental part of modern telecommunications and data communication systems, offering several advantages over traditional copper-based

High Data Transmission Speeds: Fiber optic networks can transmit data at the speed of light, which is significantly faster than the data rates achievable with copper-based networks. This high-speed transmission is crucial for applications such as high-definition video streaming, and cloud computing

Large Bandwidth: Optical fibers have a much greater bandwidth capacity compared to copper cables. This means they can carry a more extensive range of data signals simultaneously, making them ideal for handling increasing data demands.

Durability: Optical fibers are resistant to environmental factors such as moisture and temperature fluctuations, making them suitable for use in a wide range of climates and conditions.

Low Latency: Fiber optic networks offer low latency, which is critical for applications that require real-time data transmission, such as online gaming and video conferencing. Lower latency results in faster response times.

Immunity to Electromagnetic Interference: Unlike copper cables, fiber optic cables are not susceptible to electromagnetic interference (EMI) or radio-frequency interference (RFI). This makes them more reliable in environments with high levels of electrical noise, such as near power lines or industrial machinery.

Long-Distance Transmission: Fiber optic cables can transmit signals over much longer distances without significant signal degradation. This makes them suitable for connecting distant locations, including undersea cables for global communication.

Security: Fiber optic communication is inherently more secure than copper-based communication because it is difficult to tap into the signal without physically accessing the fiber. This makes it a preferred choice for transmitting sensitive data.

Scalability: Fiber optic networks are highly scalable. New fibers can be added to existing networks to increase capacity as needed without major infrastructure changes

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