

How to choose a networking method for multiple optical splitters



AI Overview

Multiple optical splitters in PON networks can be deployed using centralized or distributed architectures, often combined to optimize cost, scalability, and performance.

Centralized SplittingIn a centralized splitter network, one or more splitters are located at a central point, such as a central office or cabinet. This setup allows flexible assignment of subscribers to splitters using fiber jumpers, making it easier to manage and reconfigure connections. Centralized splitting is often used when network operators want to simplify maintenance and allow dynamic customer allocation without physically relocating splitters or fibers.

Distributed SplittingDistributed splitting involves placing splitters closer to the end users, typically in closures or pedestals. Once installed, the connections are fixed, and subscriber assignments cannot be changed via jumpers. This method reduces fiber usage in the feeder network and can lower initial deployment costs, but it offers less flexibility for reconfiguration.

Hybrid ApproachesNetworks often use a combination of centralized and distributed splitters to balance cost, fiber usage, and operational flexibility. For example, a 1x64 split ratio may be achieved by cascading smaller splitters (e.g., 1x4 followed by 1x16) in a distributed manner while keeping some centralized splitters for easier management.

Split Ratios and CascadingOptical splitters can have various split ratios, such as 1:2, 1:4, 1:8, 1:32, or 1:64. Large splits are typically implemented using Planar Lightwave Circuit (PLC) splitters for uniform signal distribution, while smaller splits may use Fused Biconical Taper (FBT) splitters. Cascading multiple splitters allows networks to reach high split ratios efficiently, distributing a single OLT port to many ONTs without excessive fiber runs.

Practical Considerations**Cost Efficiency:** Using splitters reduces the number of fibers and OLT...

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Your Go-to Guide to Optical Splitter

The optical splitter is an optical power distribution device that splits one optical signal into multiple optical fiber signals to achieve multichannel

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