

Optical modules cause high network latency



Overview

Optical Amplifier Noise: Amplifiers like EDFAs introduce spontaneous emission noise, which can degrade the signal-to-noise ratio (SNR) and increase jitter. Latency is a critical factor in optical networks, especially as we increasingly rely on real-time applications that demand quick and efficient data transmission. At its core, latency refers to the time delay experienced in a system—in this context, the delay from the moment data is sent to when it is received. Latency variation are very important in applications requiring accurate timing (e.g., PAM-4 or Coherent), require complex digital signal processors (DSPs) in optical EPON data content for propagation delay. C. 2" pluggable : 2% of the cTE budget ITU-T G. 20". Reducing jitter is fundamental to achieving low-latency optical transport, a key requirement for modern 5G backhaul and data center interconnects (DCI). Effectively combating jitter starts with diagnosing its sources. It is usually measured in milliseconds (ms) and represents the propagation delay caused by the physical distance, the properties of the transmission medium. Latency in optical networks isn't just a technical metric; it's a physical reality. To achieve ultra-responsive services, engineers must adopt a holistic.



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