

Glossary

- Add/Drop Multiplexer (ADM):** A SONET/SDH term for a device that can either insert or drop DS1, DS2 or DS3 channels or SONET signals into/from a SONET bit stream. The ADM can reach up into the SONET pipe and extract a DS1-level signal, without going through the rigorous process of demultiplexing and remultiplexing.
- Bandwidth:** Represents the amount of data that can be transmitted through a communications channel in a fixed amount of time. For digital devices, bandwidth is usually expressed in bits (or bytes) per second. For analog devices, it is expressed in cycles per second, or in hertz (Hz). The greater the bandwidth, the greater the information-carrying capacity and the faster the speed.
- Ethernet:** Protocol for data networking. Ethernet networks typically operate at 10, 100 or 1000 Mb/s.
- Fiber-to-the-x (FTTx) Technology:** The x in fiber-to-the-x is a variable indicating the point at which the fiber in a network stops and copper (coaxial or twisted-pair) cabling takes over. The further the fiber goes, the wider the bandwidth, the quicker the speed, and the more applications and services can be offered.
- Generic Framing Procedure (GFP):** Traffic adaptation protocol providing convergence between packet-switched and transmission networks. GFP elegantly maps packet-based protocols such as Ethernet, Fibre Channel, FICON, ESCON, and various forms of digital video into SONET/SDH, typically using virtual concatenation to provide right-sized pipes for data services.
- Gigabit Ethernet:** A version of Ethernet that operates at 1 Gb/s (1000 Mb/s).
- Internet Protocol (IP):** Method or protocol by which data is sent from one computer to another on the Internet. Each computer on the Internet has at least one IP address that uniquely identifies it from all other computers on the Internet. Because of these standardized IP addresses, the gateway receiving the data can keep track of, recognize and route messages appropriately.
- Intracytoplasmic Sperm Injection (ICSI):** Laboratory procedure that involves the injection of a single sperm cell directly into an oocyte (mature egg) using a glass needle (pipette). Some of EXFO's life sciences products are used in the reproduction of genetically identical mice for medical research, helping improve the yield of the ICSI procedure.
- Link Capacity Adjustment Scheme (LCAS):** LCAS is a bidirectional signaling protocol between network elements that continually monitors a link, ensuring that changes in network capacity do not impair a client's traffic transmission. This protocol uses virtual concatenation (VCAT) to dynamically allocate bandwidth by reconfiguring VCAT groups in real-time. LCAS allows carriers using next-generation SONET/SDH networks to provide bandwidth-on-demand to users.
- Multiservice Provisioning Platform (MSPP):** A packet-aware SONET/SDH add/drop multiplexer that offers network service providers (NSPs) an efficient means of transporting various types of packet-based client signals (such as Ethernet and Fibre Channel) over existing SONET/SDH infrastructures. This allows NSPs to offer multiple services to consumers and generate additional revenue without having to invest heavily in a new infrastructure.
- Nanotechnology:** Technology that involves manipulating materials on a very small and precise scale (nanometers; i.e., one billionth of a meter) in order to build microscopic machinery.
- Packet:** Bits grouped serially in a defined format, containing a command or data message sent over a network. Same as a frame.
- Piezoelectric (PZT) Technology:** Technology of piezoelectricity, which refers to the electrical field created by some ceramic materials when subjected to pressure. Precision positioning devices use the inverse effect; that is, when an electric field is applied to a piezoelectric material, it changes shape, and this shape change is used to create precise mechanical movements.
- Polarization Mode Dispersion (PMD):** Dispersion of light causing a delay between the two principal states of polarization propagating along a fiber or through a device due to the birefringence properties of the material.
- Protocol:** A formal set of rules governing the format, timing, sequencing and error control of data exchange across a network. Many protocols may be required and used on a single network.
- SDH:** Synchronous Digital Hierarchy. Standardized by the International Telecommunication Union (ITU-TSS). A protocol for transmitting information over optical fiber.
- SONET:** Synchronous Optical Network. Standardized by the American National Standards Institute (ANSI). A protocol for backbone networks capable of transmitting at extremely high speeds and accommodating gigabit-level bandwidth.
- Spot Curing:** Technology by which a dose of energy of a specific wavelength band and irradiance is used to cause an adhesive, encapsulant or sealant to change from a liquid to a solid in a small area.
- Triple-Play Services:** Also known as bundled services. The ability of a telecommunications carrier to supply voice, data and video applications at once. A typical example of a triple-play proposal would include one or multiple phone lines, a high-speed Internet connection and television/video services (such as HDTV), all offered by the same provider.
- Virtual Concatenation (VCAT):** Process enabling transport pipes to be "right-sized" for various data payloads by allowing SONET/SDH channels to be multiplexed in arbitrary arrangements. VCAT breaks down data packets and maps them into the base units of time-division multiplex frames. This data is then grouped in multiple data flows of various sizes to create larger, aggregate payloads optimally sized to match available SONET/SDH capacity. VCAT is applied to the end-points of the connections, which permits each channel to be independently transmitted through a legacy transport network.