

Open Transport Network (OTN) Put Your Entire World on a Fiber

Nokia Siemens
Networks



OTN (Open Transport Network) is a private communication system based on the latest fiber optics technology. You choose it, we connect it: any IP, any voice, any control data, any CCTV, any LAN... irrespective of the distances to be bridged.

OTN's dual ring approach results in high network availability, and the integration of different types of services in one network.

What is OTN?

Open = An 'Open minded' network that handles all existing interfaces, all different applications can be used in one 'open' network.

Transport = It 'transports' different types of present-day communications as they are used all around us, e.g. telephony (digital & analog), data (all standards), video,

CCTV (cameras & monitors) and Ethernet (LAN, Gigabit Ethernet) all together transparently on one fiber without interfering each other.

Network = A 'Fiber optic network', future-proof, over virtually unlimited distances.

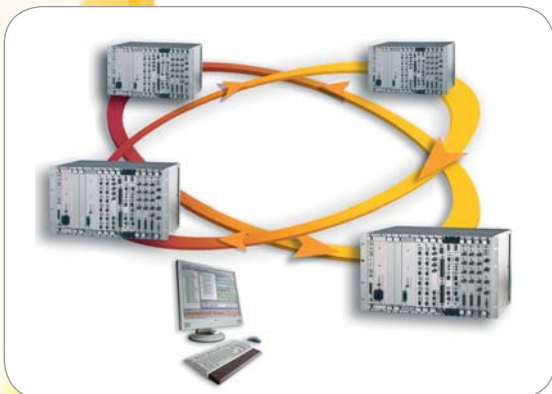
Where do we use OTN?

OTN segments:

- Metro & Lightrail
- Pipelines
- Mines
- Airports
- Tunnels
- ITS Highways
- Ports
- Bridges
- Petrochemical plants
- Universities
- Military
- Utility/Power Companies
- Municipalities
- Police
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What advantages does OTN offer?

- Different applications/ services sharing one equipment and one fiber
- Easy implementation in any environment
- Connections are transparent, making the network independent of any changes during operation of other applications
- Very easy and simple wiring, very easy maintenance and management
- Upgrading of the bandwidth is easy
- Automatic reconfiguration by fiber cuts
- Best cost of ownership
- True Quality of Service
- Deterministic Signal throughput
- Integrated real-time CCTV
- Embedded video switching
- Providing interfaces for the leading 3rd party CCTV systems



Why would we use OTN?

Simple

Plug & Play technology: To get OTN up and running, it's simply a matter of picking the right interface card for the needed application and plugging in the connector; plug and play, in a real sense.

Easy to manage: The OTN management software is a user-friendly GUI-based application that provides ease-of-use regarding network management.

Multi

Many interfaces: OTN provides a whole range of interface cards which can be used for diverse applications. This diversity of interface cards saves on all kinds of transmission equipment, such as protocol converters and conversion equipment.

Long distances: The OTN network allows you to span virtually all distances.

Bandwidth: OTN also provides full Quality of Service, meaning every application connected to the system is guaranteed the assigned bandwidth at all times.

Non Stop

Redundancy: The double ring structure provides full backup in case of an emergency, e.g. the network can never go down.



Which OTN flavors do we have?

Bandwidth:

OTN comes in different bandwidths: 150 Mb, 600 Mb, 2500 Mb and 10 Gbps. Upgrading of 4- or 8-slot nodes to higher bandwidth can be done by just replacing one card in the node, the network card (BORA).

Nodes:

A network is built around nodes, which are interconnected by two point-to-point fiber optic links.

When will OTN be the best choice?

- A multitude of voice, data, LAN and video communication
- A large mix of different services
- Future-proof solution
- Smooth upgrading capabilities
- High availability and redundancy is critical
- Unique requirements are important (customization)

Technical Operation

- Time Division Multiplexing (TDM)
- Counter Rotating Dual Fiber Ring
- 4- or 8-slot nodes, or nodes with on-board interfaces (for reduced space requirements)
- Backbone bandwidth (Optical)
 - 150Mbps
 - 600 Mbps
 - 2.5 Gbps
 - 10 Gbps
- 1310 or 1550 nm

OTN Management System (OMS)

- Hardware Management
- Database Management
- Graphical User Interface (GUI)
- Monitoring and Error Reporting
- Logging Network Events
- Internal Alarm forwarding
- External Alarm Management
- CORBA based client - server architecture
- Single, Multiple, Remote Client capable
- SNMP Alarm Forwarding
- SNMP MIBII interface
- On- and offline operation

Interfaces (Electrical)

Audio/Voice interface cards

- Analog telephony
 - 2 wire a/b
 - 4 wire E&M
- Digital telephony
 - S0
 - $U_{P0/E} / U_{P0}$
- Trunk
 - E1 2.048 Mbps
 - T1 1.544 Mbps
- Voice PA
- High Quality Audio (15 kHz)
 - Fixed / Switched
 - Mono / Stereo

Data interface cards

- RS-232, RS-422, RS-485 (Point-to-point, Multipoint, Multidrop)
- 64 kbps G.703 co-directional

LAN Interfaces

- Ethernet (10/100 Mbps)
- Gigabit Ethernet

Video (Fixed or Switched)

- PAL, NTSC (M-JPEG, MPEG compression)

The 4- or 8-slot nodes are equipped with universal interface slots. On the nodes for reduced space requirements, different interfaces are integrated on board.

Video Features

- Embedded switching
- PC-based GUI for easy operation
- Real-time/high-resolution images
- Open interfaces for 3rd party products

Dimensions and Weight

- 8-slot node
 - 48.3 x 26.7 x 29.2 cm (19 x 10.5 x 11.5")
 - 13kg
- 4-slot node
 - 48.3 x 13.3 x 29.2 cm (19 x 5.3 x 11.5")
 - 5.6kg
- Compact design with onboard interfaces
 - 48.3 x 4.5 x 29.2 cm (19 x 1.8 x 11.5")
 - 4kg

Power Consumption/ Input Power

- Power Consumption 400 W (maximum)
- Input Power (dual, redundant)
 - 90 to 264 VAC
 - 125 VDC
 - 18 to 60 VDC
 - or any combination of the above

Operating Environment

- Temperature -20° to 55° C (-4° to 131° F) or up to +70°C (+158°F) in case of the N2011-R 70C node
- Humidity 20% to 80% (non-condensing)
- EMC tight, designed for 10GHz radiation
- Vibration and fire resistant zinc-plated steel.