

Alcatel-Lucent 1645 AMC Access Multiplexer Compact

Alcatel-Lucent 

Cost-effective and compact
STM-1/4 multiservice metro access





The Alcatel-Lucent 1645 Access Multiplexer Compact (AMC) is a Synchronous Transport Module 1/4 (STM-1/4) platform that allows service providers to deliver a rich set of cost-effective TDM and Ethernet services to small and medium enterprises (SME). Offering enhanced revenue-generating potential and eliminating the need for overlay networks, it is energy efficient and compact, improving the use of space while reducing operating expenditures (OPEX). Supporting fiber and copper, the 1645 AMC transports metro and access traffic to the network edge, using both optical and electrical interfaces.



Meeting enterprise demands

To be profitable, service providers must reduce OPEX while meeting business customers' demands by offering a host of revenue-generating Internet Protocol (IP) and Ethernet services. Simultaneously, some enterprises want to build, operate and control their own networks.

For the service provider, the 1645 AMC serves as a small-footprint, SDH multiservice provisioning platform (MSPP) that can be installed on the customer premises, providing TDM and Ethernet services. With versatile and robust management capabilities, it offers flexible installation options. Enterprises can use the 1645 AMC to build and operate their own optical networks, using leased or owned fiber.

The 1645 AMC provides flexible, multiservice access to business customers and extends Ethernet services to the metro and access edges. It also supports fiber and copper access for SDH, TDM and Ethernet traffic through both optical and electrical interfaces.

Key benefits

- Eliminates the need for overlay networks
- Enhances revenue-generating capabilities while reducing OPEX
- Provides flexible, rich, multiservice access to business customers
- Extends Ethernet services to the metro and access edges
- Offers flexible installation options through small-footprint
- Delivers versatile and robust management capabilities
- Supports fiber and copper access for SDH, TDM and Ethernet traffic through both optical and electrical interfaces

Fiber business applications

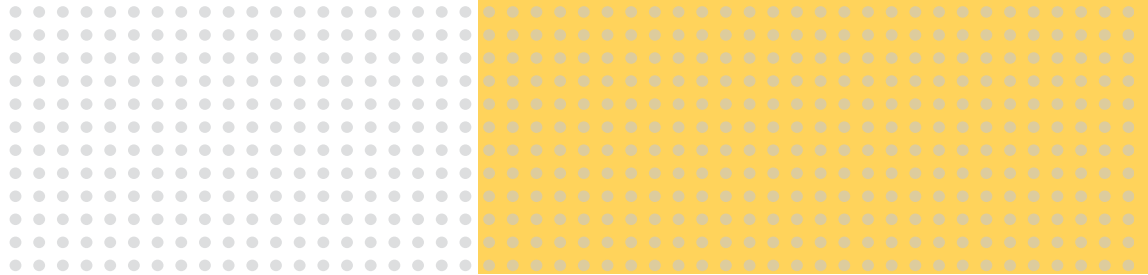
The 1645 AMC offers a powerful and economical base for fiber-to-the-business (FTTB) applications. This compact MSPP aggregates traditional TDM and Ethernet services over SDH transport and can operate as customer premises equipment (CPE) or network-edge devices. It supports Ethernet from 10/100 to Gigabit Ethernet (GigE), TDM from E1 to E3, SDH and a rich set of STM-1/4-line and client interfaces.



Providing highly effective solutions for enterprise network services, the 1645 AMC supports flexible ring configurations. Services include Ethernet business services, LAN and Private Branch Exchange (PBX) interconnection over fiber, all services where solid performance and reliability are essential service attributes. It can also be used for interoffice applications in both access and mobile networks based on fiber or copper, facilitating Ethernet local area network (E-LAN) communication on campus and in virtual private networks (VPNs).

No overlay networks

Available in STM-4 configurations, the 1645 AMC provides a wide range of interfaces, including private-line and switched Ethernet capabilities. It is an economical, multiservice unit that transports metro and access traffic over existing SDH networks, eliminating the need for overlay networks for Ethernet services.



Enhanced revenue generation, reduced expenses

The 1645 AMC enhances revenue-generating capabilities by allowing service providers to offer services such as IP transport, Ethernet Layer 2 switching and TDM to customers with various traffic demands. It improves OPEX through efficient use of space in tight environments and low energy consumption.

Flexible, multiservice business access

The 1645 AMC provides flexible multiservice access to business customers. It supports both ring or mesh configurations for FTTB applications in access networks. In addition to cost-effective enterprise network services, the 1645 AMC also offers interoffice applications in both access and mobile networks and facilitates LAN-to-LAN communication on campus and through VPNs.

The 1645 AMC, an economical, multiservice device, allows next-generation services over a legacy SDH network, leveraging existing service-provider assets.





Cost-effective TDM, IP and Ethernet

Create new revenue-generating opportunities by offering more services to SME customers. Transport metro and access services over existing SDH facilities, eliminating the need for overlay networks.

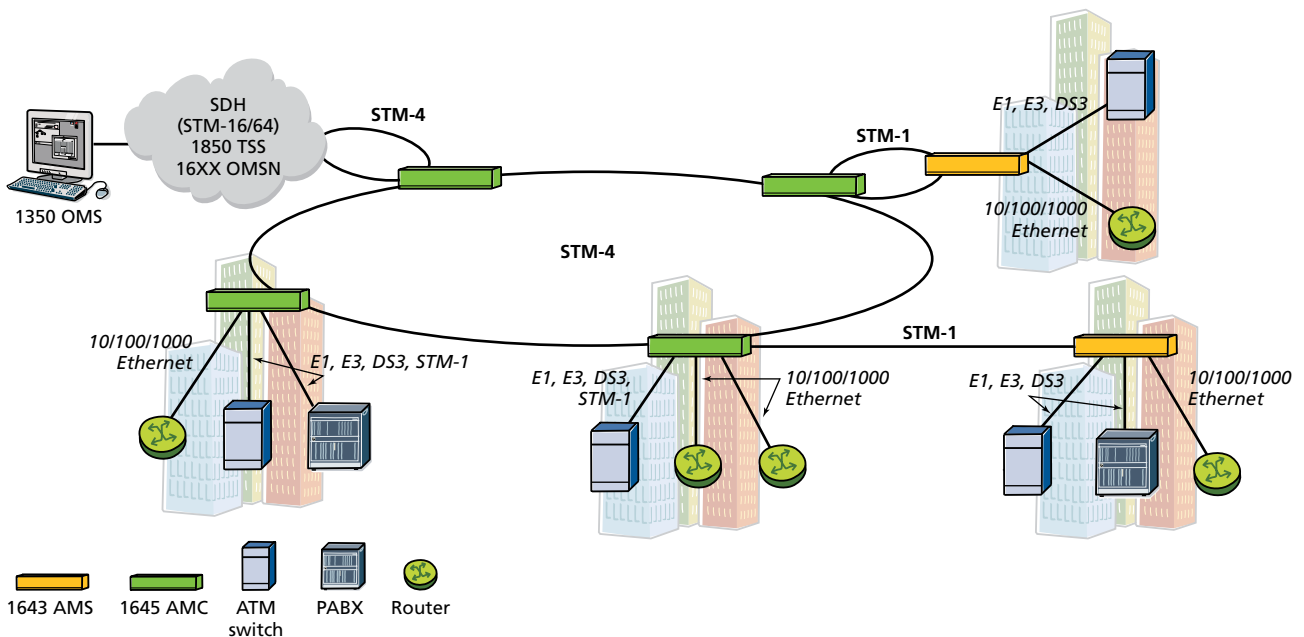
The 1645 AMC offers Ethernet and IP applications, including:

- Economical voice and data CPE
- Ethernet services for business customers:
 - Point-to-point Ethernet private line (EPL)
 - Point-to-multipoint Ethernet virtual private line (EVPL)
 - E-LAN
- Multipoint-to-multipoint virtual line/LAN services (packet ring) with bandwidth sharing and statistical multiplexing

- Ethernet over copper using symmetric high-speed digital subscriber line (SHDSL)
- Second-Generation Mobile Network/Third-Generation Mobile Network (2G/3G) mobile aggregation

The 1645 AMC supports cost-efficient and reliable transport of TDM and Ethernet services in the metro access. Figure 1 shows the 1645 AMC and the Alcatel-Lucent 1643 Access Multiplexer Small (AMS) platforms working together to support a typical metro-access application, with the 1645 AMC providing STM-4 transport and the 1643 AMS supporting STM-1 transport for multiservice traffic.

Figure 1. 1645 AMC supporting a typical metro-access application





Extended Ethernet services

When deploying the optional Alcatel-Lucent *TransLAN*[®] Card, the 1645 AMC supports a diverse mix of standardized Ethernet services. Depending on the *TransLAN* Card selected, the 1645 AMC provides the following capabilities:

- Full Layer 2 switching functionality: point-to-point and point-to-multipoint
- Virtual concatenation (VCAT) and generic framing procedure (GFP)
- Institute of Electrical and Electronics Engineers (IEEE) 802.1Q virtual local area network (VLAN) tagging and IEEE 802.1ad Provider Bridging, also called stacked VLANs
- VLAN trunking, saving physical interfaces at hub locations

Installation flexibility

With its compact design, the 1645 AMC is suitable for both street cabinet and CPE installation. It supports either AC or DC power supplies, further increasing deployment flexibility.



Versatile and robust management capabilities

Either the Alcatel-Lucent 1350 Optical Management System (OMS) or a PC-based, Graphical User Interface (GUI) craft terminal can be used to manage the 1645 AMC. When the OMS is deployed, the 1645 AMC communicates through an embedded communications channel. The PC-based craft interface can be used for local and remote management and cost-effective

centralized alarming. The 1645 AMC can also be integrated into Simple Network Management Protocol (SNMP) management systems.

The 1645 AMC derives fault-management information by monitoring and analyzing information contained in the path overhead of each virtual container (VC). Alarm information is filtered and displayed locally while it is simultaneously transmitted to the management-center database.



Performance-management information from the overhead bytes is analyzed and stored in the database of the 1645 AMC. When equipped with a *TransLAN*® Card, the 1645 AMC can also store Ethernet-specific performance information.

The 1645 AMC stores several different equipment configurations in its network management system. This feature facilitates quick turnaround for configuration changes.



Service level agreement (SLA) management is available with traffic profiles that include:

- Best effort
- Bandwidth guaranteed
- Regulated: minimum bandwidth guaranteed plus burst

Fiber and copper access options

When fiber access is available, the 1645 AMC can be installed directly as CPE. If the last mile to the customer must be bridged through copper, the 1645 AMC provides an SHDSL option card. As a result, E1 over copper or 10/100BASE-T Ethernet access through up to four combined SHDSL copper lines can be served.



The 1645 AMC can be equipped with the following high-speed optical Small Form Factor Pluggable (SFP) network interfaces:

- SMT-4 S-4.1 (short haul)
- STM-4 L-4.1 (long haul)
- STM-4 L-4.2 (long haul)
- SMT-1/4 multirate bidirectional
- STM-1 S-1.1 (short haul)
- STM-1 L-1.1 (long haul)
- STM-1 L-1.2 (long haul)

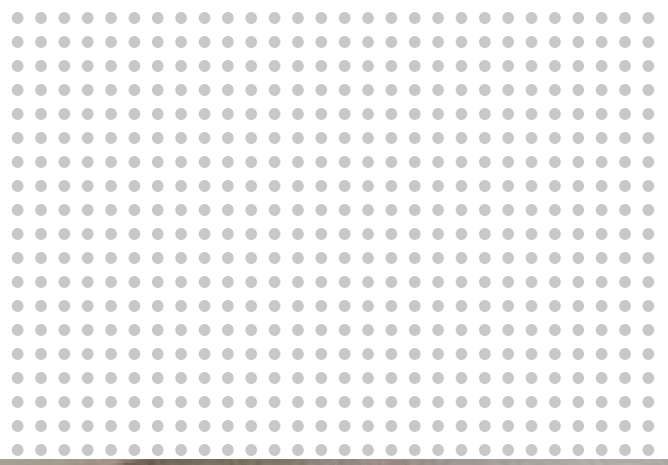
Equipped with 16 2 Mb/s (E1) G.703 tributary interfaces, an optional card can expand the 1645 AMC to a maximum of 32 interfaces. In accordance with G.704 and I.431, support of Integrated Services Digital Network (ISDN) modes is also available.

Adding an optional board offers support for other interfaces:

- 16-port E1: 2 Mb/s
- 16-port DS1: 1.5 Mb/s
- 3-port E2/DS3: 34 Mb/s to 45 Mb/s, provisional
- 6-port STM-1 supporting SFP
- 12 SHDSL: Ethernet over copper/E1
- 8-port 10/100BASE-T Ethernet private line
- 5-port switched Ethernet; 3 x 10/100BASE-T, 1 x 10/100/1000BASE-T, 1 x 1000BASE-X: SX/LX/ZX SFP

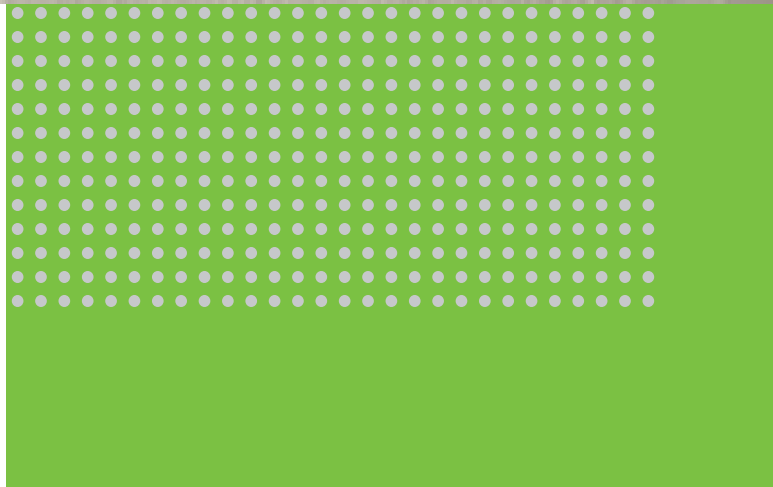
Key features

- Cost-effective multiservice access over the established SDH base
- Multiple main-board configurations to serve various needs
- Variety of option boards to serve individual service needs
- Ethernet EPL, EVPL and ELAN services using optional *TransLAN* Card
- Space-saving, compact design
- Low power consumption
- Street cabinet or CPE installation options
- VC-12, VC-3 and VC-4 SNC protection
- Ethernet and E1 over copper
- Cost-effective CPE for voice- and data-services transport
- Cost-effective business-data access, including E1/Ethernet over copper by SHDSL
- 2G/3G mobile aggregation



Recognized world leader in optical networking

Alcatel-Lucent delivers end-to-end communications solutions to service providers and enterprises anywhere in the world. Leveraging its network equipment as well as services, Alcatel-Lucent facilitates its customers' service offerings and revenue streams. As the recognized world leader in optical networking, Alcatel-Lucent is in a unique position to help service providers navigate through current market conditions. Alcatel-Lucent, with its global reach and scale, combined with local presence in over 130 countries, makes use of a deep understanding of global market dynamics, as well as the ability to anticipate local requirements.



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