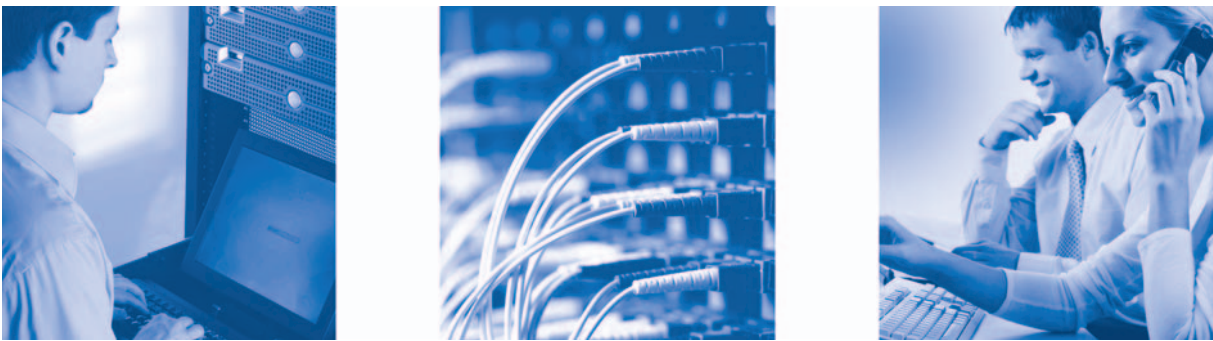


Application Note



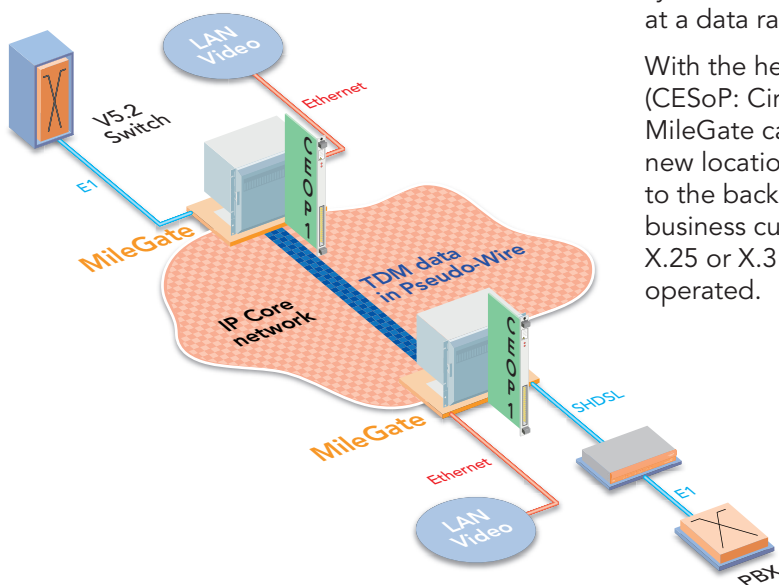
The Solution for migrating Business Services to Next Generation Networks

MileGate, the multi-service Network Node offers

- Carrier-grade Ethernet services and VPNs
- Symmetrical services via copper wire and fibre optics of 64 kbps to 1 Gbps
- Provisioning of traditional TDM services
- Compatible with MEF (Metro-Ethernet-Forum) and TR-101
- Transmission of TDM data services via Ethernet networks (CESoP)
- Performance management of the services

The migration of business services to Next Generation Networks (NGN), combined with an advanced access solution is the key that allows public network operators to offer existing services to current customers and new Ethernet services with the same access technology.

For business customers, symmetrical, broadband connections are vital to achieve enhanced, secure and fast exchange of data between different locations.



MileGate supplies carrier-grade Business Services in the NGN

MileGate is ideal for providing business services at data rates of 64 kbps to 1 Gbps in the subscriber access sector. Both via copper wire and fibre optics, MileGate is the perfect solution for business customers to link up different business locations and home offices.

And MileGate supports a variety of different VPNs and virtual LANs. As a result, the network operator can reliably separate customer data sets from one another.

Services and functions for business customers are a part of the multi-service IP DSLAM MileGate package, that also offers broadband Internet access and voice services.

MileGate facilitates TDM and NGN services from the same network nodes. As a result, MileGate allows simple migration of business services from V.35, X.21 und E1 etc. to Ethernet

networks and consequently a rapid switch to a pure NGN in the transmission network. With all its different functions, MileGate provides carrier-grade quality in all applications.

Simple Migration of Business Services

MileGate supports both the frequently-used 2 Mbps leased lines, e.g. connecting a traditional telephone system, and can provide symmetrical Ethernet broadband connections at a data rate of up to 1 Gbps.

With the help of a CESoP gateway function (CESoP: Circuit-Emulation-Services-over-Packet) MileGate can also offer TDM services, even to new locations that had an Ethernet connection to the backbone. ISDN services, used today by business customers for EC cash terminals with X.25 or X.31 protocols, can therefore still be operated.

Ethernet Services for Business Customers

Based on the MEF standards (Metro-Ethernet-Forum), MileGate supports a number of different methods for terminating Ethernet services to the customer and transmitting them via the access network. The Transparent-LAN-Service (TLS) for example can directly bridge several LANs via the service provider's network.

Even direct connections (point-to-point) can be configured in MileGate and therefore reduce the amount of traffic in the backbone network.

NGN Business Services via Copper Wires

With its variety of DSL interface types, MileGate offers a wide range of business services via one or several copper pairs.

SHDSL EFM

The SHDSL line card, SUSE1, offers 32 line interfaces at a symmetrical data rate of up to 5.7 Mbps per interface. To increase the bandwidth and/or range, several copper pairs can be switched to a joint transmission line (pair bonding) and supply the customer with up to 22.8 Mbps.

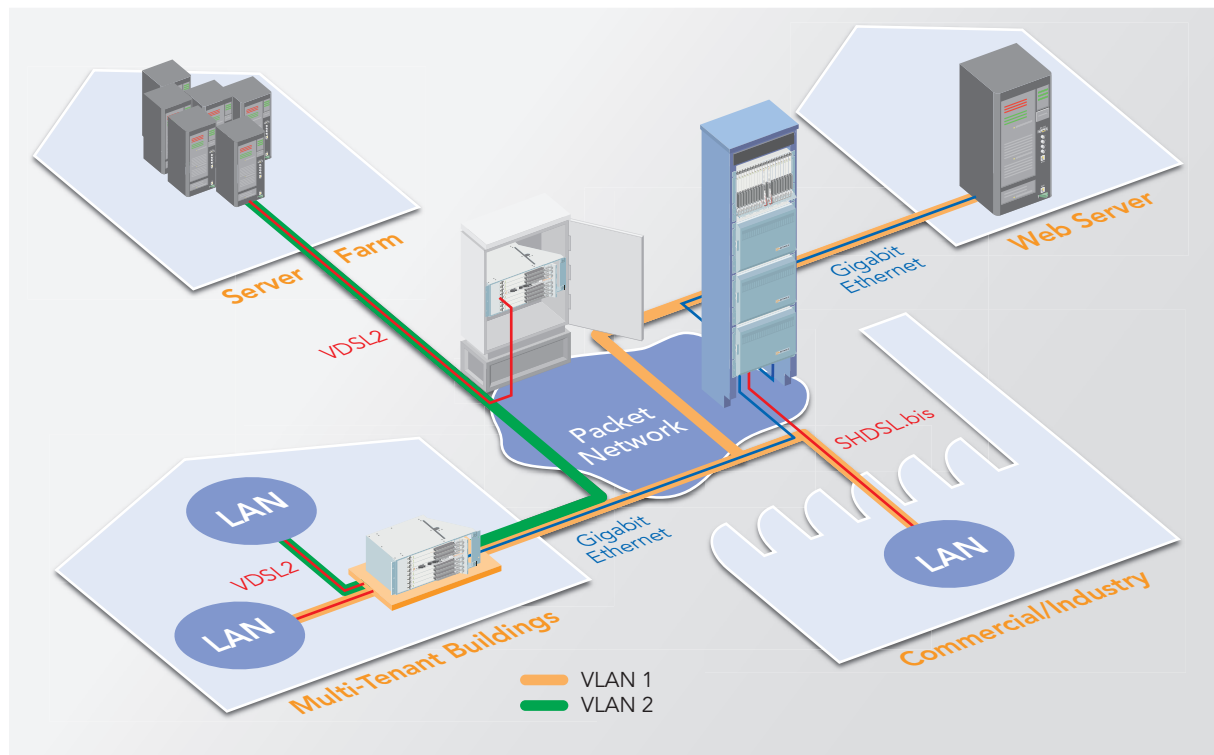
Pair bonding is carried out using an EFM protocol that maintains data transmission on the remaining lines should a copper pair fail. SHDSL transmission technology combines symmetrical broadband transmission with a high range and is therefore perfect for use on long copper wire lines.

VDSL2

The VDSL2 line card, SUVD1, permits high transmission rates at up to 100 Mbps. It allows symmetrical and asymmetrical services to be implemented.

NGN Business Services via Fibre Optics

SUEN1, the Ethernet line card can connect customers at up to 1 Gbps via fibre optics. Thanks to a consistent SFP concept, different ranges can be implemented via the fibre optic path: Single mode or multi-mode fibres, or bi-directional laser modules (transmitting the data over just one single fibre) can be used.



TDM Business Services

As well as providing NGN business services, MileGate enables the usage of TDM-based interfaces in one single platform.

SHDSL (TDM)

With eight TDM SHDSL interfaces, the STIM1 line card, in connection for example with KEYMILE LineRunner desktops, allows the possibility of providing E1, V.35 and X.21 to the customer, aggregation in MileGate and transmission via E1 interfaces or Ethernet (CESoP).

E1-2 Mbps line card

The LOMI8 E1 line card allows both the aggregation of TDM services and transmission to a TDM network.

CESoP (Circuit-Emulation-Services-over-Packet)

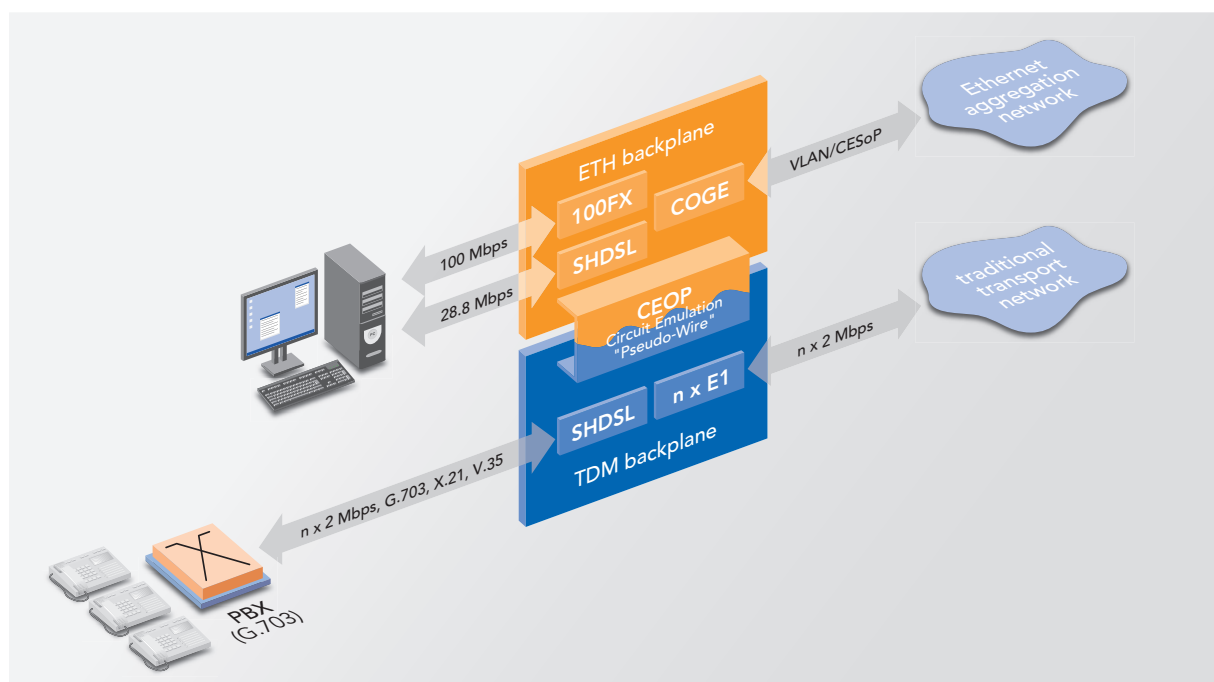
With the CEOP1 gateway card, MileGate connects packet-orientated networks with traditional TDM services. The CEOP1 converts a TDM data stream with the help of a SAToP procedure (Structure-Agnostic-TDM-over-Packet) into Ethernet packets, transmitting the TDM data stream via a packet-based network.

The original data stream is “unpacked” on the other end of the network, where the TDM data is processed. Using the CESoP procedure, the network operator does not need to operate Ethernet and SDH transmission networks simultaneously and can still offer traditional services via Ethernet. Even ISDN business services, such as ISDN dedicated lines, or ISDN data services can therefore be offered in a purely NGN environment at an affordable price.

With its CEOP1 line card, KEYMILE has removed the last hurdle towards seamless integration of business customer connections to the NGN.

High-level of Service Availability

Particularly in the case of business customer access, MileGate offers enhanced availability of services. MileGate has been designed to provide maximum service availability. The fail-safe concept is based on decentralised power supply than can be designed so that it is redundant. Combined with central transmission components that are also redundant, the likelihood of failure is reduced.



Compliant with Standards

MileGate implementation of business services complies with the DSLAM technology standards (TR-101) and the MEF (Metro-Ethernet-Forum) for Ethernet-based services. The aim is to obtain maximum compatibility with terminal equipment and to provide services for the network operator as easily and economically as possible.

Performance Management

MileGate supports network operation by extensively analysing performance data and by continually checking the quality of services. To do so, MileGate monitors operation constantly during data transmission to the customer interfaces, or in logical connections it counts packets sent and received, packet losses etc. and transfers this information to the UNEM management system. The management system displays this information clearly.

MileGate also supports the standard Ethernet OAM (OAM: Operation, Administration and Maintenance) and is therefore another performance monitoring tool.

Consequently, the network operator has constant access to the current status of service quality and history of events that have occurred in the past.

Multi-Service Access Platform MileGate

In addition to the services for business customers mentioned here, MileGate also supports the provision of telephony and high-speed Internet services for private user access from the same network element.

VoIP media gateways and line cards for traditional telephone lines (POTS and ISDN) are available.

Carrier-grade Solution

MileGate is tough and designed for use in outdoor housings. MileGate can offer redundant power supply and central modules to ensure carrier-grade quality.

Management System

MCST/UNEM manages MileGate and the variety of services centrally. With just one element manager for all service types, operators can save costs and accelerate the provisioning process.

Publisher

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