



# Business Access



leave it up to us



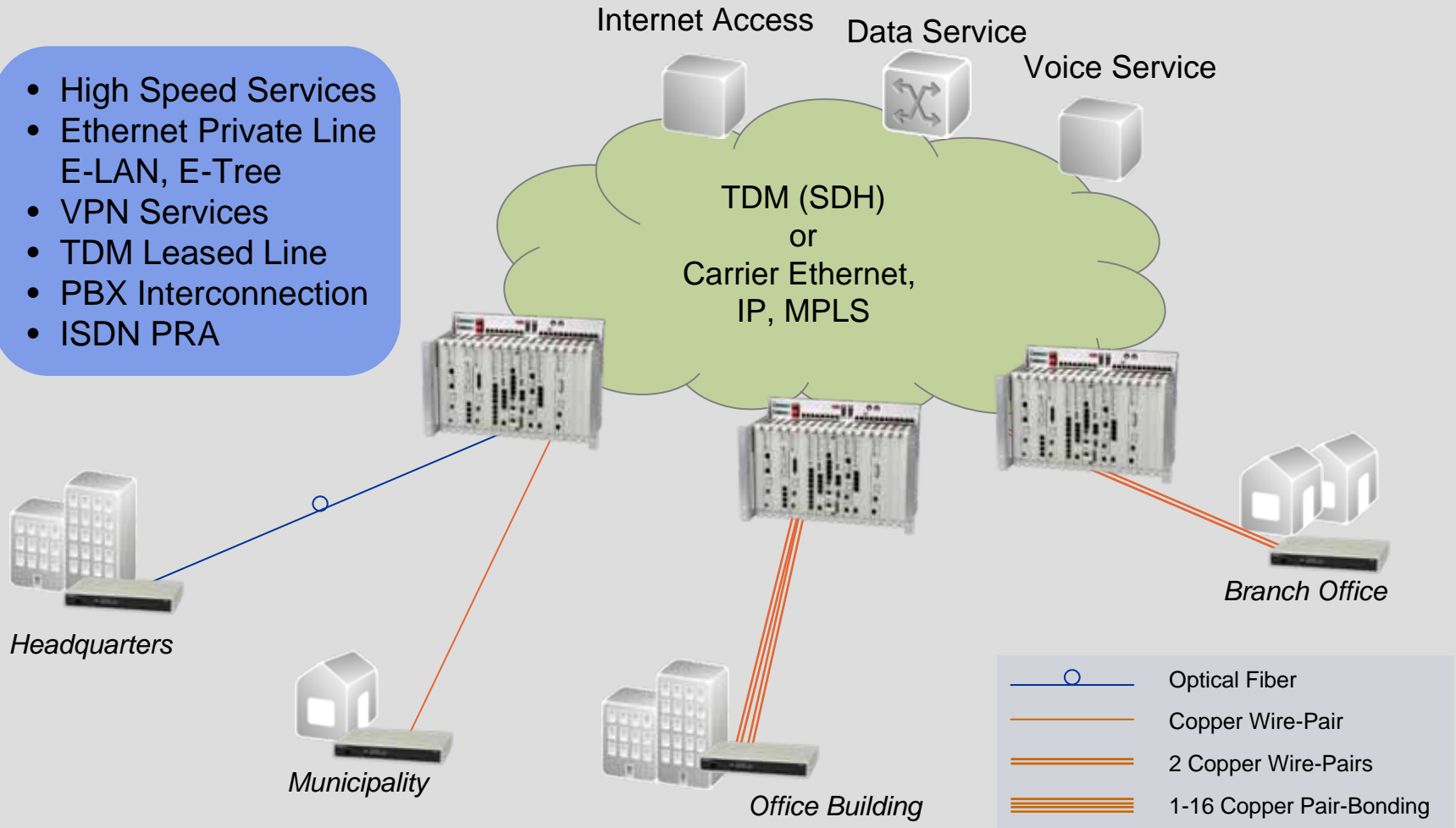
Universal Line Access Family

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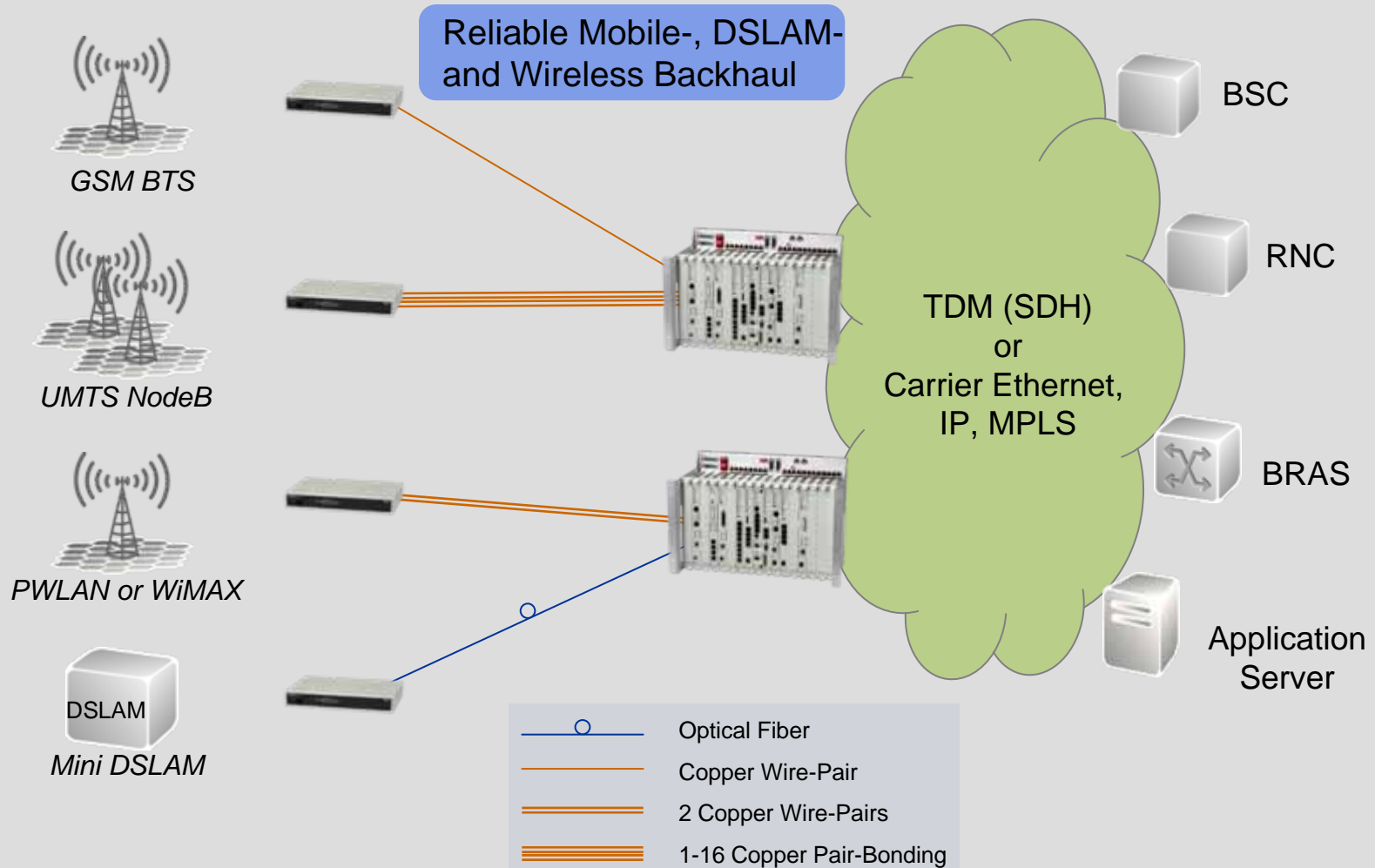
# Bridging the Last Mile Business Services

- High Speed Services
- Ethernet Private Line  
E-LAN, E-Tree
- VPN Services
- TDM Leased Line
- PBX Interconnection
- ISDN PRA



# Bridging the Last Mile

## Mobile- and DSLAM Backhaul



# Service Interfaces

ULAF+ offers the flexibility to provide versatile and comprehensive services out of the same subrack

Traditional E1 and Ethernet or data services can share the same subscriber line and CPE

## Ethernet

- 10/100/1000Base-T
- SFP's (electrical or optical)

## 2Mbit/s E1

- G.703 unstructured, structured or fractional E1

## N x 64kBit/s serial data

- X.21, V.35, V.36

## Clock

- 2Mbit/s clock interfaces providing access to accurate reference clock for timing critical applications

# Transmission Interfaces

The system offers copper and fiber interfaces to exploit existing access network infrastructure

Wire pair bonding allows for fiber like speed, quality and reliability on multi pair copper access links

Cascadable repeaters and built in remote feeding circuits extend high bit rate services to remote locations

## Copper

- ETSI/ITU-T compliant SHDSL.bis, up to 5.7 Mbps per wire pair
- up to 8 repeaters per wire pair
- bonding of up to 16 wire pairs with line protection
- spectral compatible with POTS, ISDN, HDSL, ADSL, VDSL etc.

## Fiber

- up to 1Gbit/s two or single fiber systems
- concurrent TDM and Ethernet transmission
- MSA compliant SFP slots allow for flexible choice of lasers
- sub 50ms line protection (automatic switchover)

# Carrier Ethernet Services

## Standardized Services

- E-Line, E-LAN and E-Tree Services
- TDM Circuit Emulation Service (CES)

## Scalability

- 10/100/1000Mbit/s User Network Interfaces (UNI's)
- per flow bandwidth profiles and SLA enforcement
- up to 64 customers per shelf, thousands of customers per network

## Quality of Service

- “Hard”-QoS - guaranteed bandwidth profile per service
- Minimum delay and jitter

## Reliability

- Distributed architecture, equipment redundancy
- Sub 50ms line- and path protection

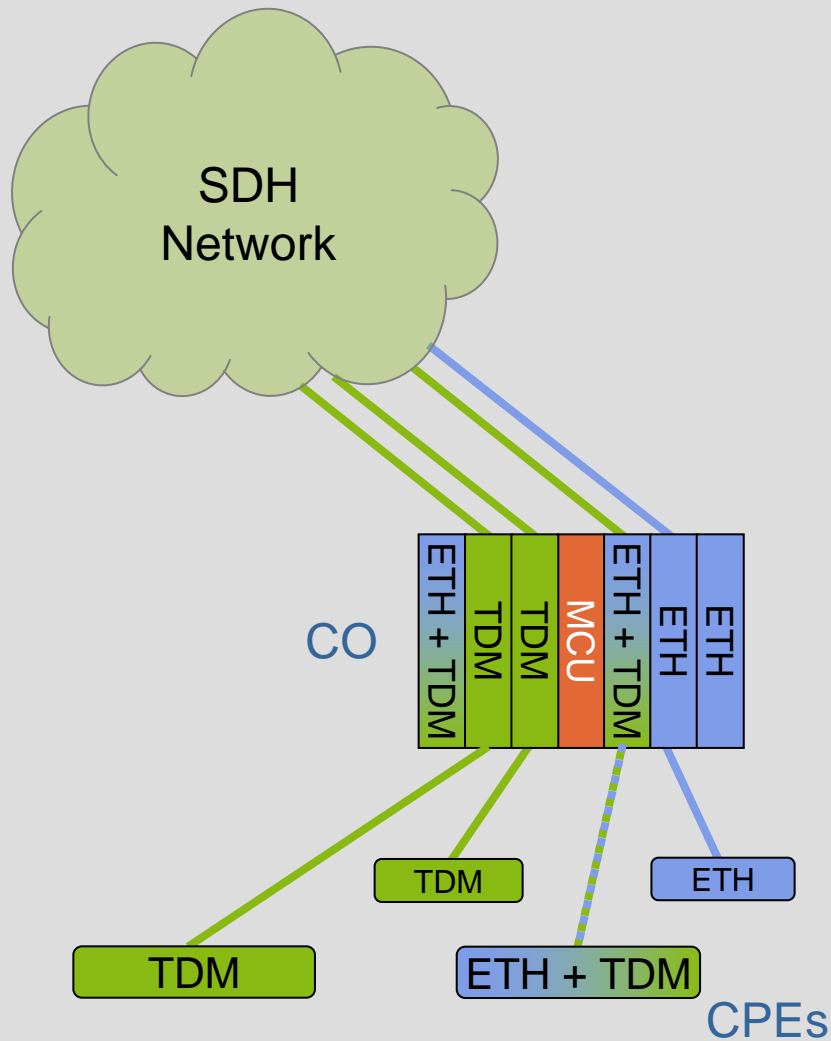
## Service Management

- Fast and flexible service provisioning
- Ethernet Service-OAM and Link-OAM



MEF 9/14/18 certified

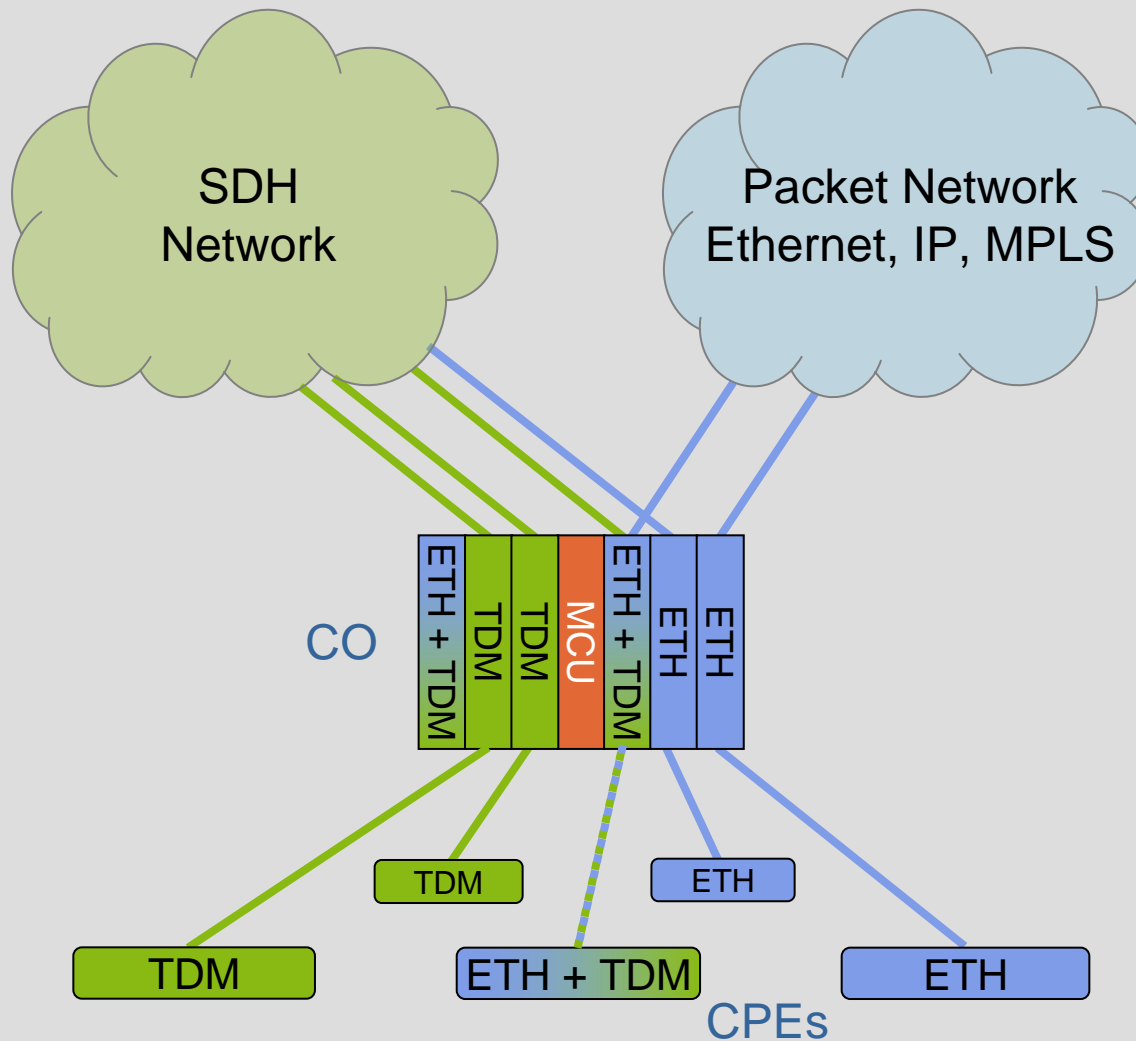
# TDM to Packet Migration



TDM Leased Lines

Ethernet Privat Lines  
(EPL)

# TDM to Packet Migration

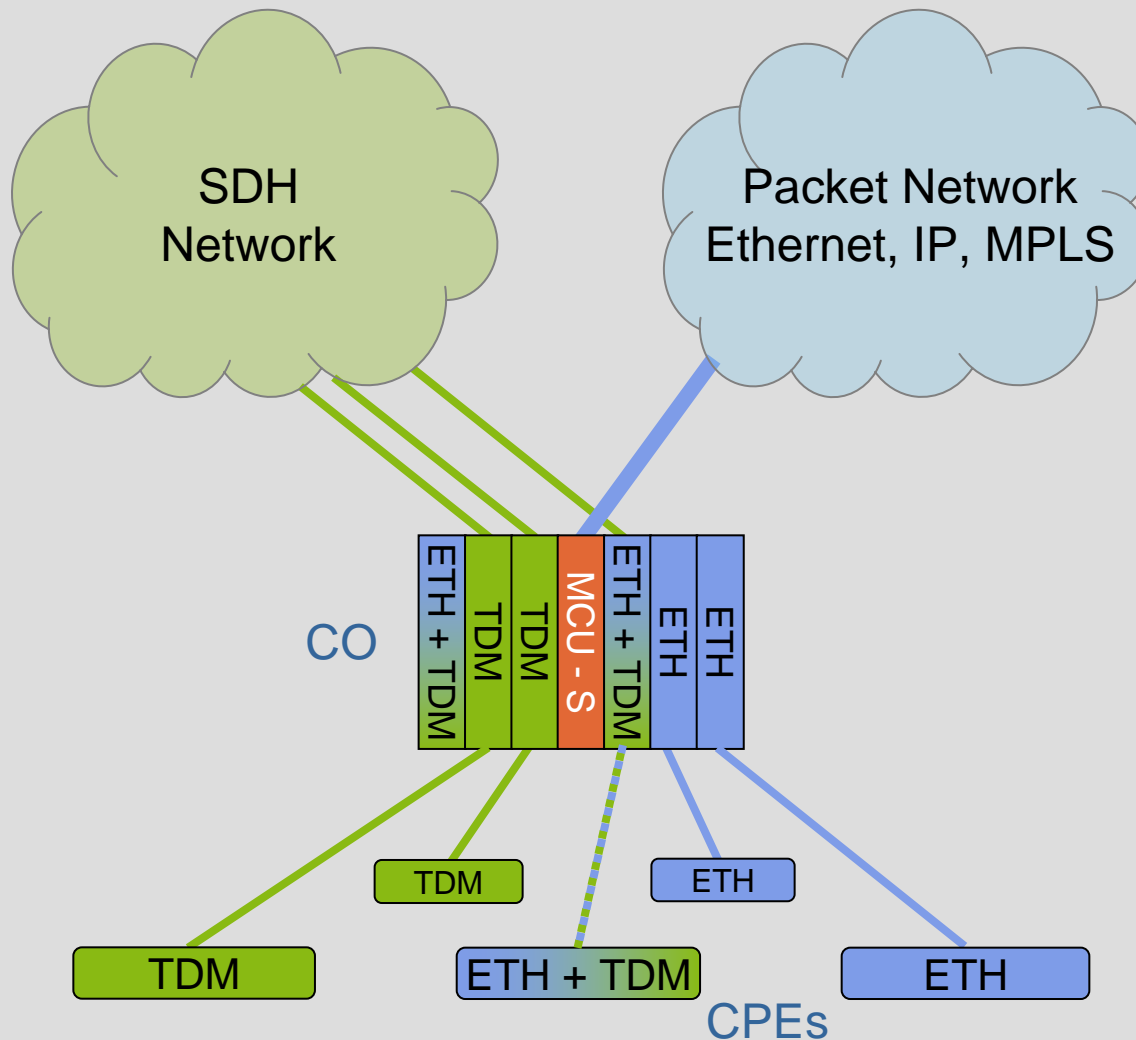


TDM Leased Lines

Ethernet Privat Lines  
(EPL)



# TDM to Packet Migration



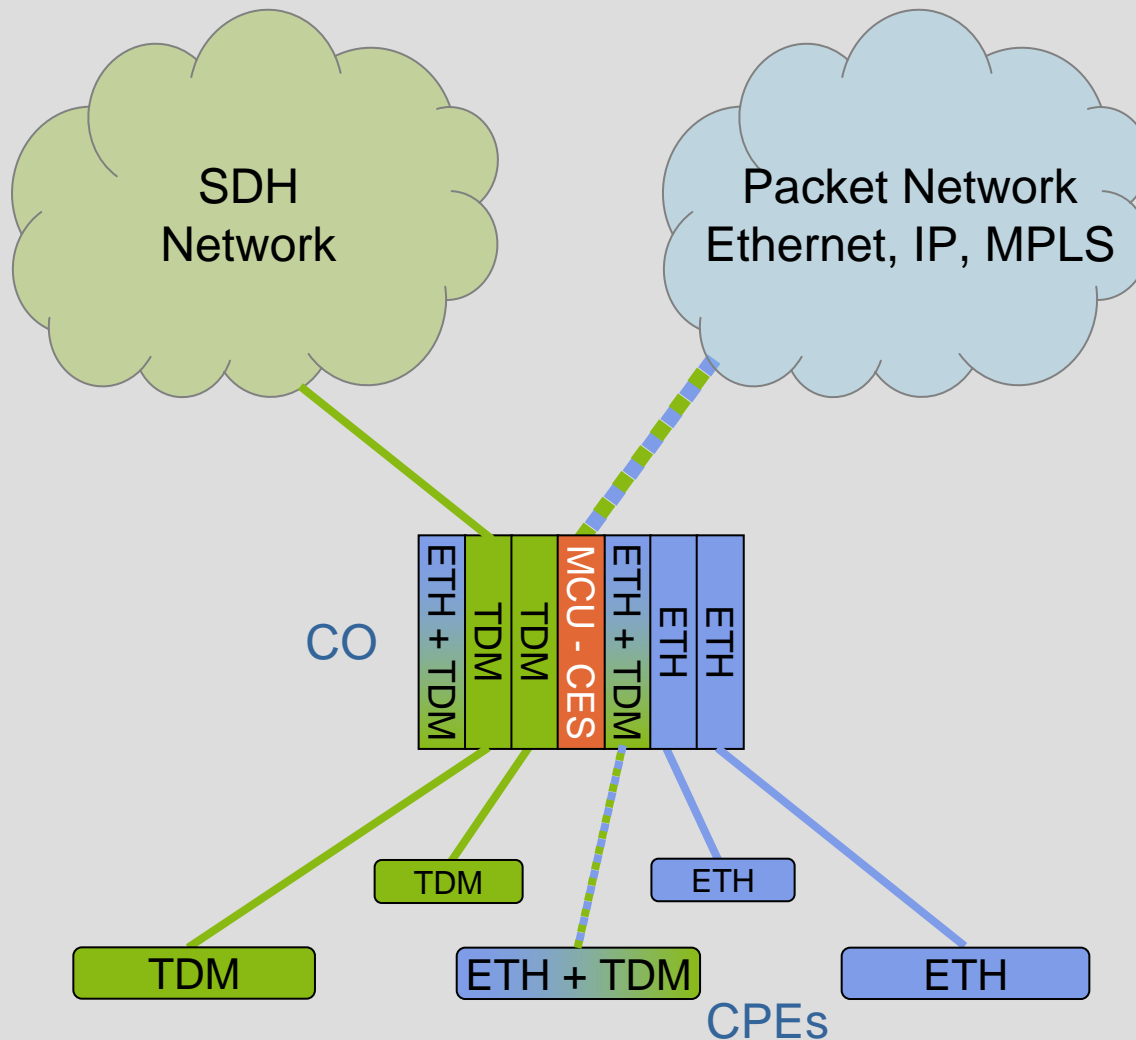
TDM Leased Lines

Ethernet Privat Lines  
(EPL)

TDM Leased Lines

Ethernet Virtual  
Private Lines (EVPL)

# TDM to Packet Migration



TDM Leased Lines

Ethernet Privat Lines (EPL)

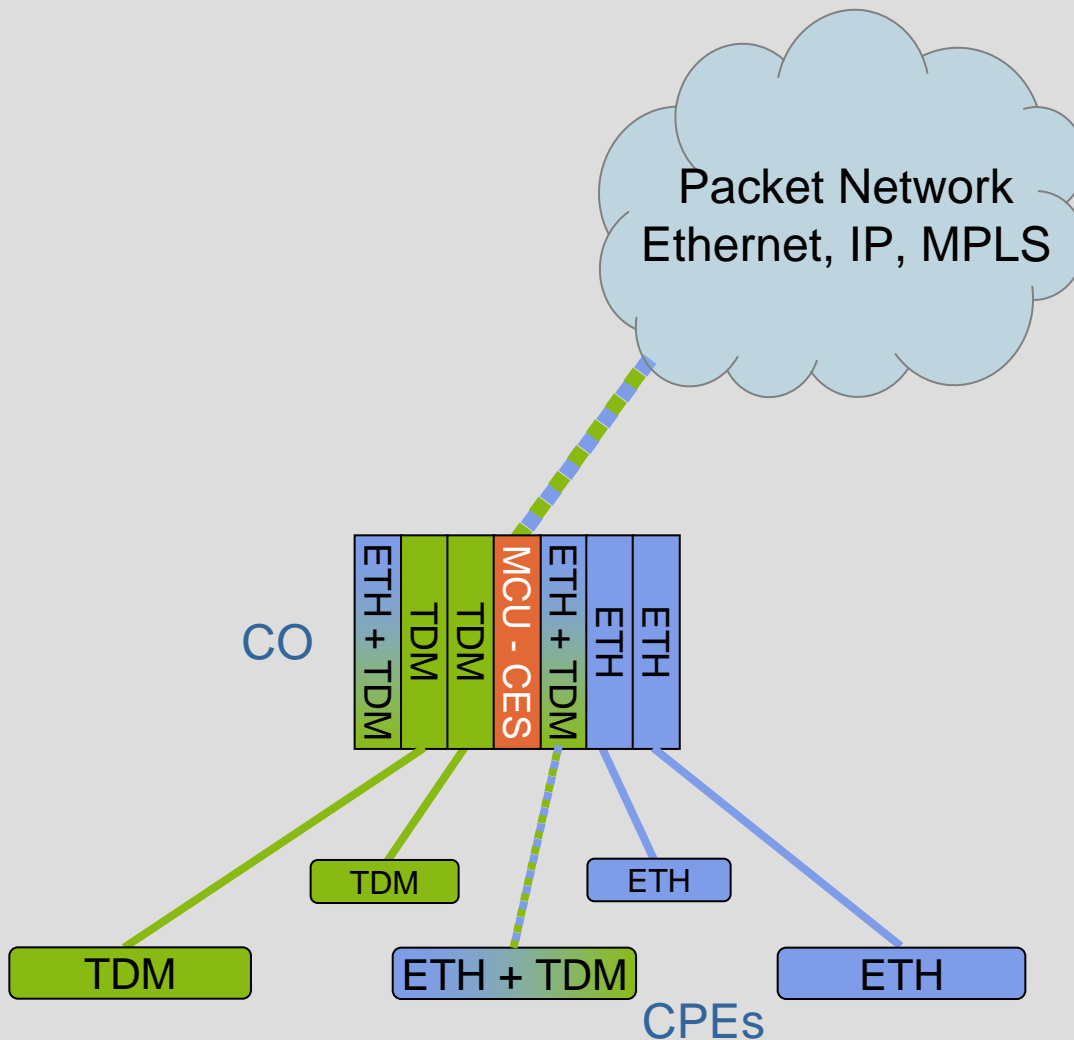
TDM Leased Lines

Ethernet Virtual Private Lines (EVPL)

CES for TDM

Ethernet Virtual Private Lines (EVPL)

# TDM to Packet Migration



TDM Leased Lines

Ethernet Privat Lines (EPL)

TDM Leased Lines

Ethernet Virtual Private Lines (EVPL)

CES for TDM

Ethernet Virtual Private Lines (EVPL)

# Management Systems

## Local Craft Terminal (LCT)

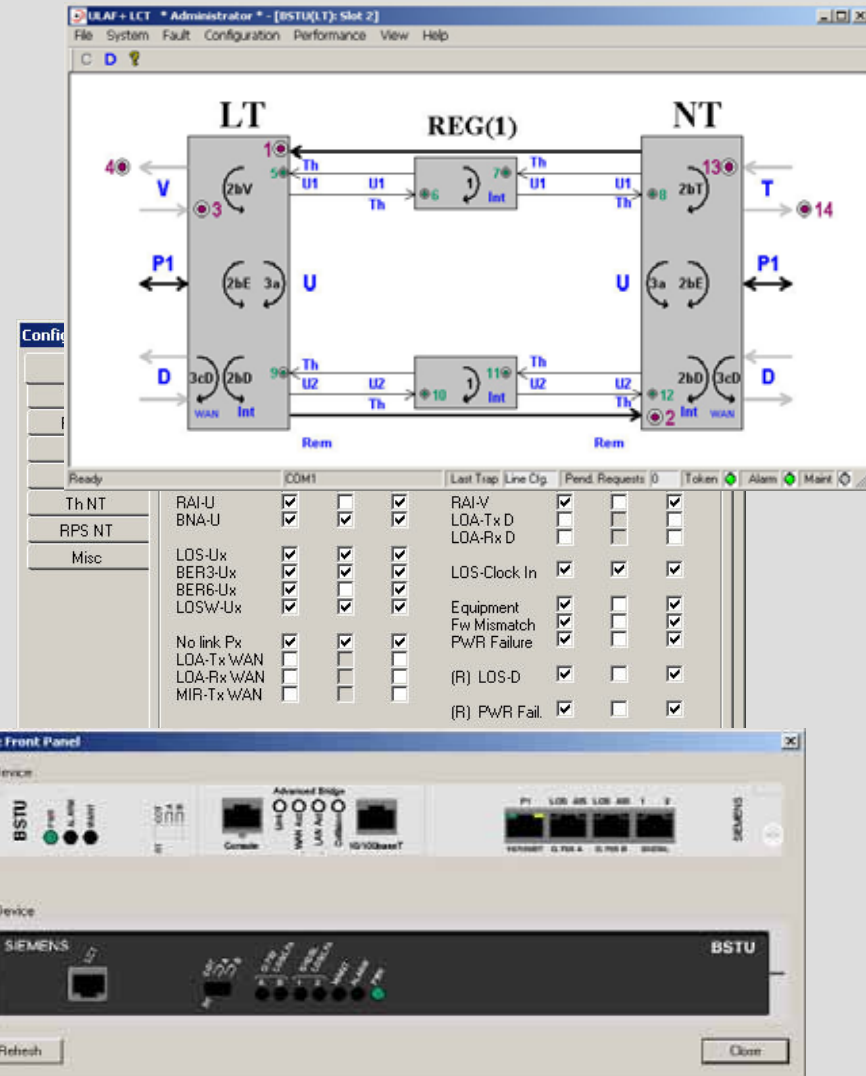
- Intuitive and easy to learn configuration and maintenance
- Windows operating system

## Element Manager for AccessIntegrator

- same look and feel as the LCT
- Windows and UNIX operating systems
- Cross Domain Manager (CDM) for AccessIntegrator supported

## Easy Management Integration

- standard protocols and interfaces
- SNMP V1, V2c and V3
- CORBA northbound interface for umbrella management integration



## **Carrier Grade System with outstanding performance and reliability**

- Lowest power consumption (green technology)
- Fan free operation
- Line cards with integrated Remote Power Supply (RPS) to feed repeater and CPE's over DSL
- CPE's feature integrated power supplies (no need for external power brick)
- High reliability

## **ULAF+ protects your investment**

- modular system (pay as you grow)
- all line cards can coexist in the same subrack (SHDSL, fiber, TDM, Ethernet)
- smooth migration path to packet networks
- timing output option available for all desktops (also for Ethernet CPE's)
- continuously being enhanced with the latest technology

# ULAF+ Product Range



**BSTU**  
SHDSL Termination Unit for  
1 or 2 wire pairs (11.4 Mbit/s)  
TDM and Ethernet interfaces  
Integrated Ethernet switch



**ACCEED 1416**  
EFMC-LR Termination Unit with  
Carrier Ethernet switch and  
up to 16 wire pairs (91.2Mbit/s)  
«Any Port to Any Card» bonding



**QSTU**  
Quad SHDSL Termination Unit  
4 E1 Interfaces  
1-, 2- or 4-wire pair mode



**ACCEED 2202**  
EFMF (optical) Termination Unit  
with Carrier Ethernet switch  
2 MSA SFP module slots for  
protected FE or GbE services



**BSTU4**  
SHDSL Termination Unit for  
advanced Ethernet services.  
4 wire-pair bonding (22.8Mbit/s)  
4 port Ethernet switch (VLAN, Cos)



**GTU4**  
Inverse multiplexer unit for  
Ethernet services over TDM  
networks. Bundling of up to 4 E1's  
4 port Ethernet switch



**BOTU**  
Fiber Optical Termination Unit for  
Ethernet and TDM services  
4 E1, Ethernet switch (VLAN, Cos)  
2 MSA SFP module slots



**GTU/BGTU**  
Flexible interface converter for  
Ethernet over E1 or  
fractional E1 and data over E1  
services

# ULAF+ Product Range



**MCU**  
SNMP Management Unit for  
local or remote control of up to  
64 access links  
Ethernet and serial interfaces



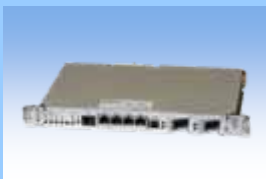
**Subrack V3**  
19" and ETSI rack suitable  
16 + 1 slots  
Ethernet and TDM backplane  
Clock and Alarm In-/Outputs



**MCU-S**  
Management and Concentrator Unit  
with additional Carrier Ethernet  
Switch with 2 GbE up-links and  
16 FE backplane ports



**Compact Shelf 2HU**  
19" and ETSI rack or desktop use  
2+1 slots or 3 slots  
Ethernet and TDM backplane  
Clock and Alarm In-/Outputs



**MCU-CES**  
Management and Concentrator Unit  
with Carrier Ethernet Switch and  
Circuit Emulation Service for up to  
32 E1 services over packet  
networks



**BSRU/BSRU+**  
2 wire pairs  
SHDSL Regenerator Unit  
Up to 8 BSRU cascable  
Remote and local power feeding



**EIU**  
Quad E1 Insertion Unit for  
structured or unstructured E1  
emulations services with MCU-CES



**Interface Modules**  
Various Interface Modules  
(V.35, V.36, X.21, Ethernet Bridge,  
Router)  
Clock and Alarm Module

# Customers all over the World rely on the Efficiency of ULAF+



More than 500'000 DSL and optical lines in operation worldwide



# Summary

The easiest and most convenient way for you to implement any access network connections

ULAF+ is the «All-in-One Platform» to offer **Ethernet and TDM services over packet or TDM networks** exploiting existing **copper or fiber** access infrastructure

The system features a **smooth migration path** to provide cost effective traditional leased line services with today's **packet networks**

The ULAF+ product family is continuously being enhanced with the latest technology and innovations

# Service and Quality guaranteed



## Customers get the service they need

- More than 15 years of experience in developing DSL and optical access systems

## You can rely on our competence

- Our systems proof the best SHDSL transmission performance in the field (reach, bit rate, and reliability)
- Albis Technologies is an  $\alpha$ -partner of Infineon Technologies

Do you need more? Ask us!



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