Unified MPLS

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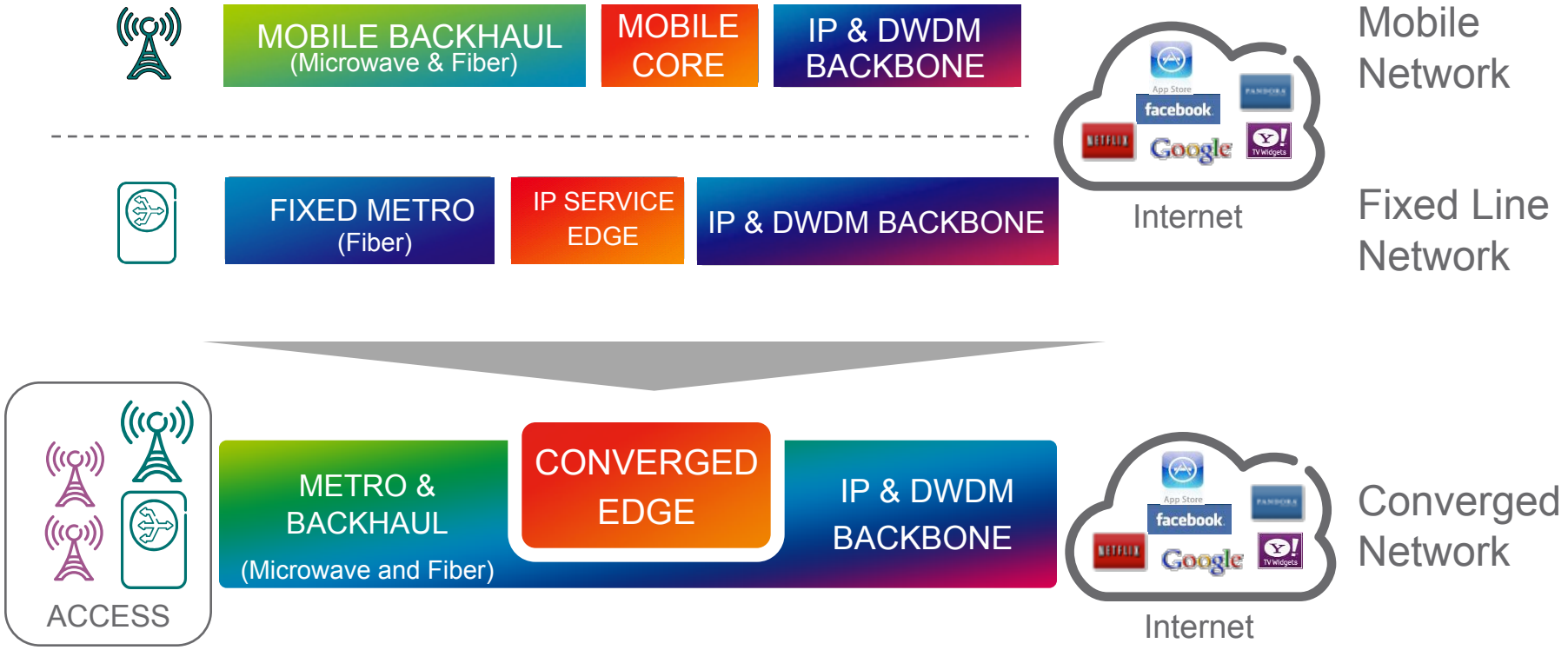
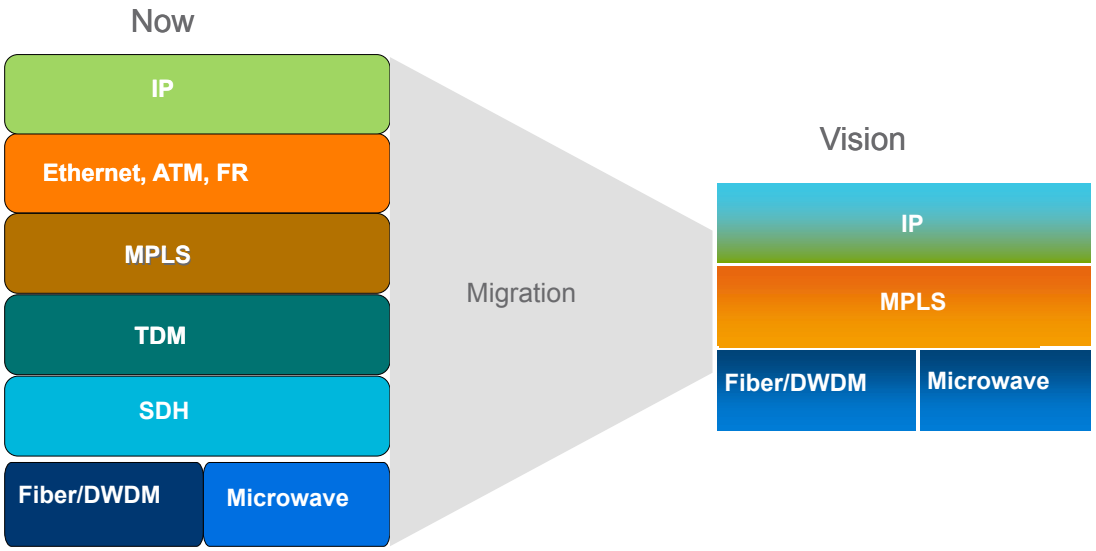
Architecture Evolution



From multiple dedicated parallel networks to single network for multiple services (wholesale, fixed BB, mobile BB, multicast video, enterprise)

Converged transport with common control

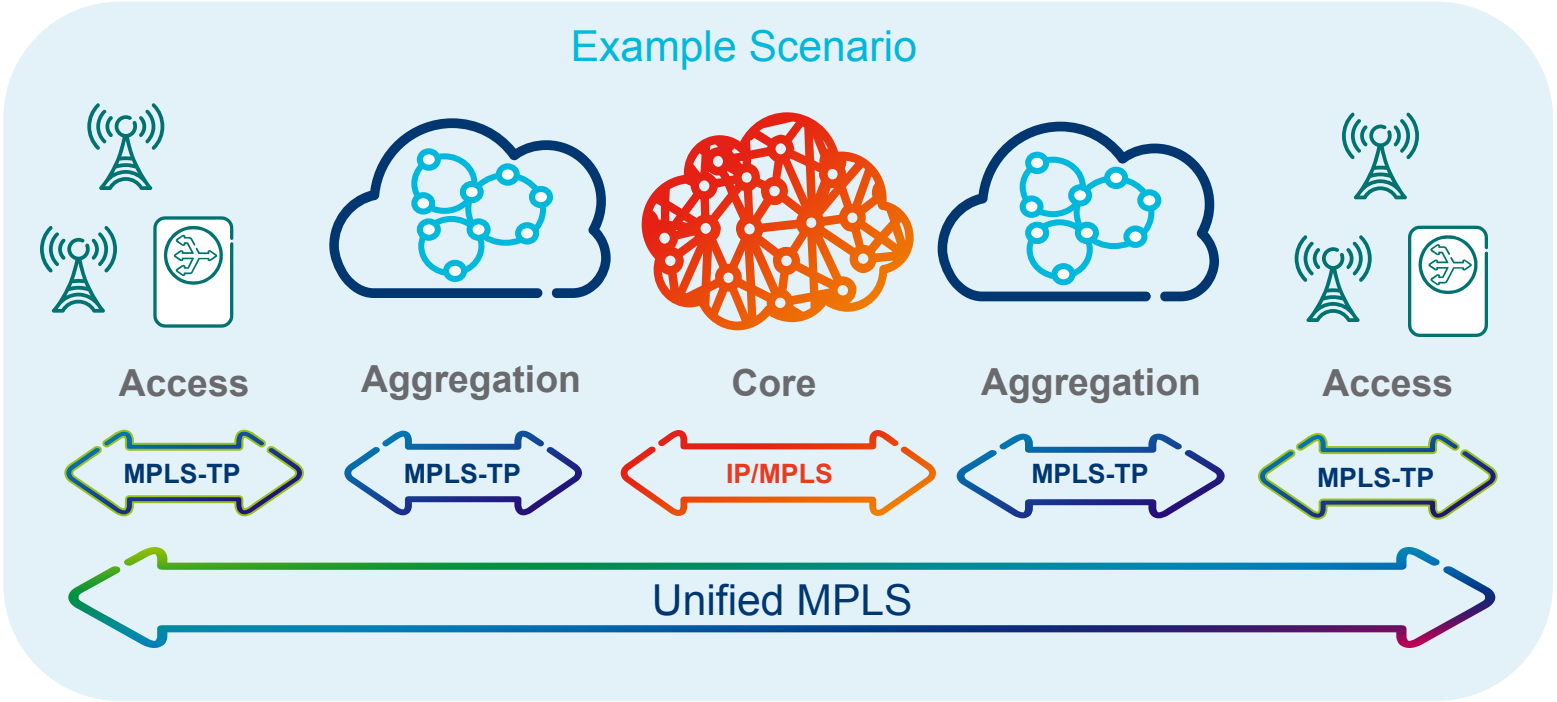


TECHNOLOGY AND SYSTEM CONSOLIDATION

- The overall goal is simplification of the network (lower TCO)
- Cost-effective transport of IP services
- Optimal combination of IP/ MPLS, MPLS-TP, OTN & WDM
- Unified control plane and OSS / NMS

Unified MPLS

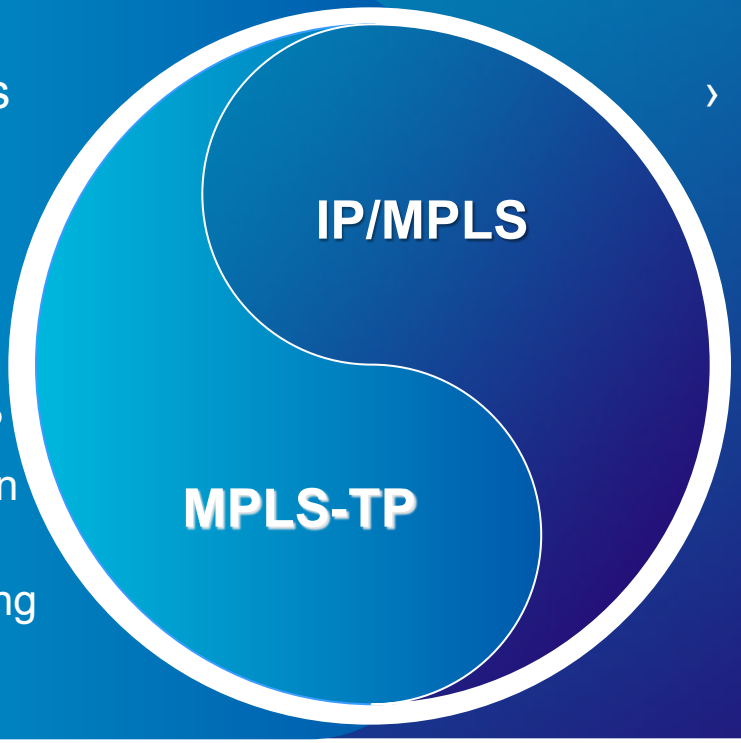
- Scaling MPLS in access and aggregation
- Carrier grade through enhanced OAM and traffic monitoring
- Mix of transport grade and dynamic IP services



Leveraging MPLS to support end to end IP & Ethernet services across the network

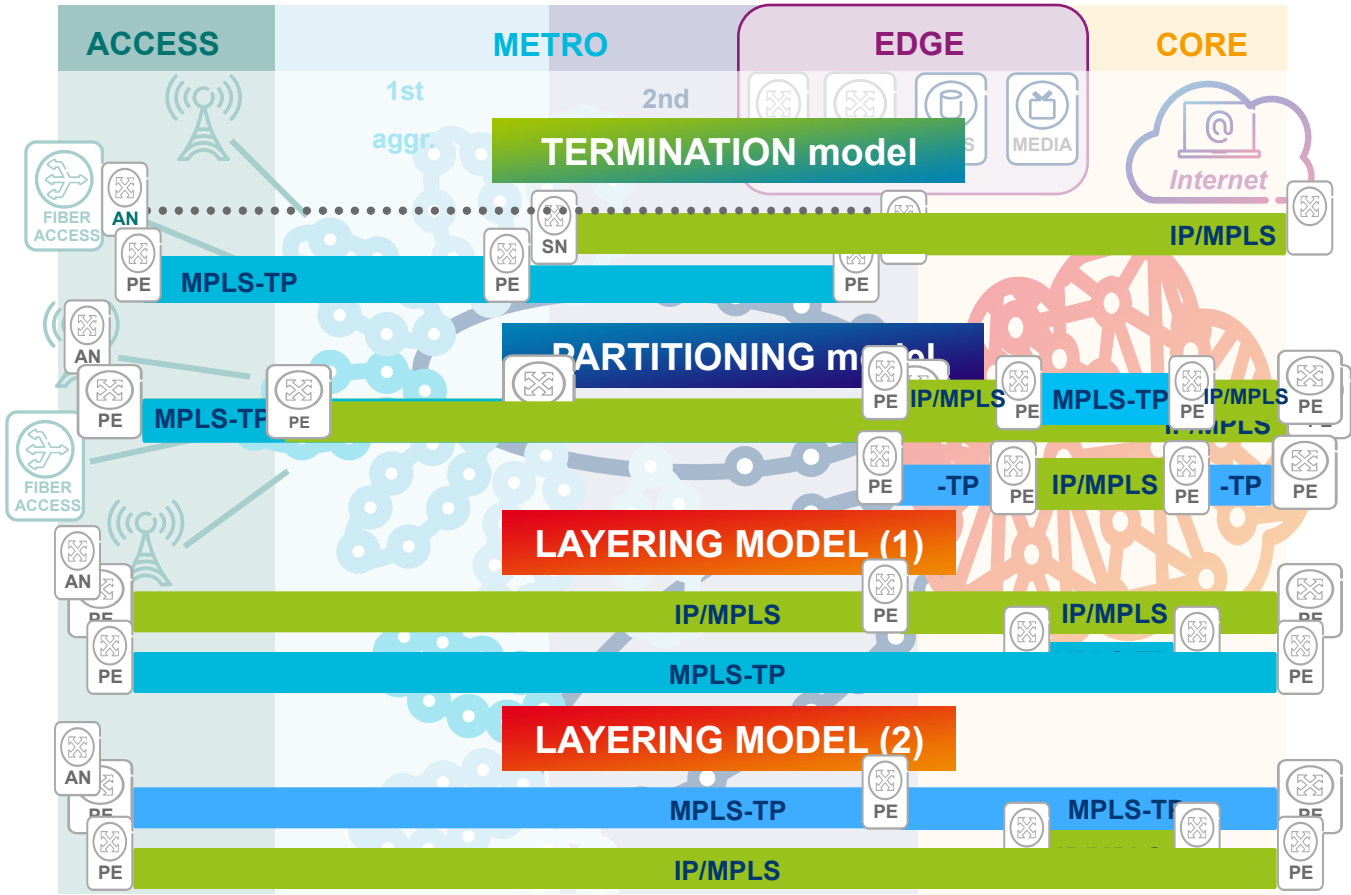
UNIFIED MPLS ARCHITECTURE FOR CONVERGED NETWORKS

› MPLS-TP at the access aggregation and metro domain
  – Ethernet PW over bi-directional, co-routed, traffic engineered LSP
  – OAM data plane driven protection switching
  – Performance monitoring



› IP/MPLS at the edge and core domain
  – Ethernet PW terminated on IP VPN / VPLS / BRAS / S-GW service instances
  – Multi-Segment PW
  – LSP stitching
  – LSP tunneling

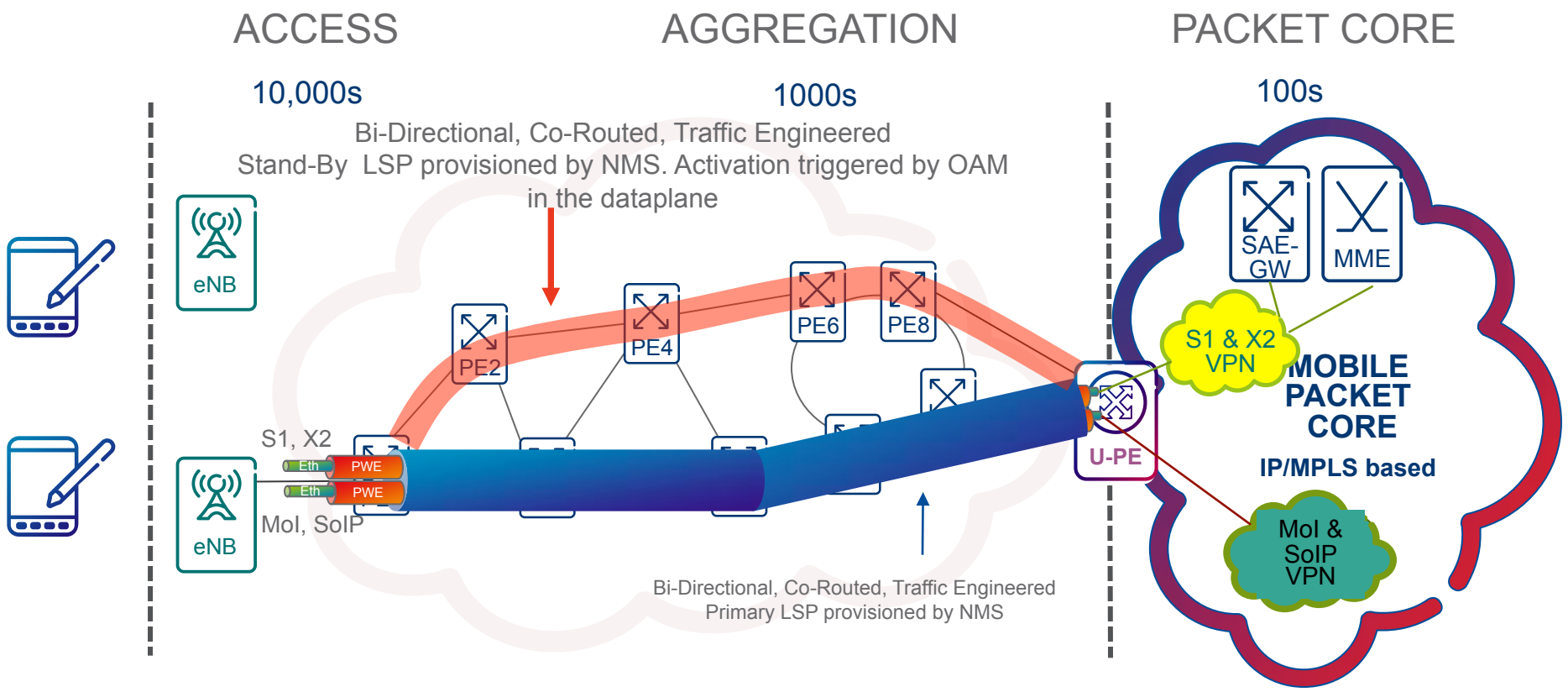
Different connection models



Connectivity	Services
AN-to-SN	Fixed BB, Mobile BB
AN-to-AN	Business VPN (L2, L3)
AN-to-AN	Business VPN (L2, L3)
AN-to-AN	Business VPN (L2, L3)

Various connection model options to be chosen based on type of service and network specific considerations

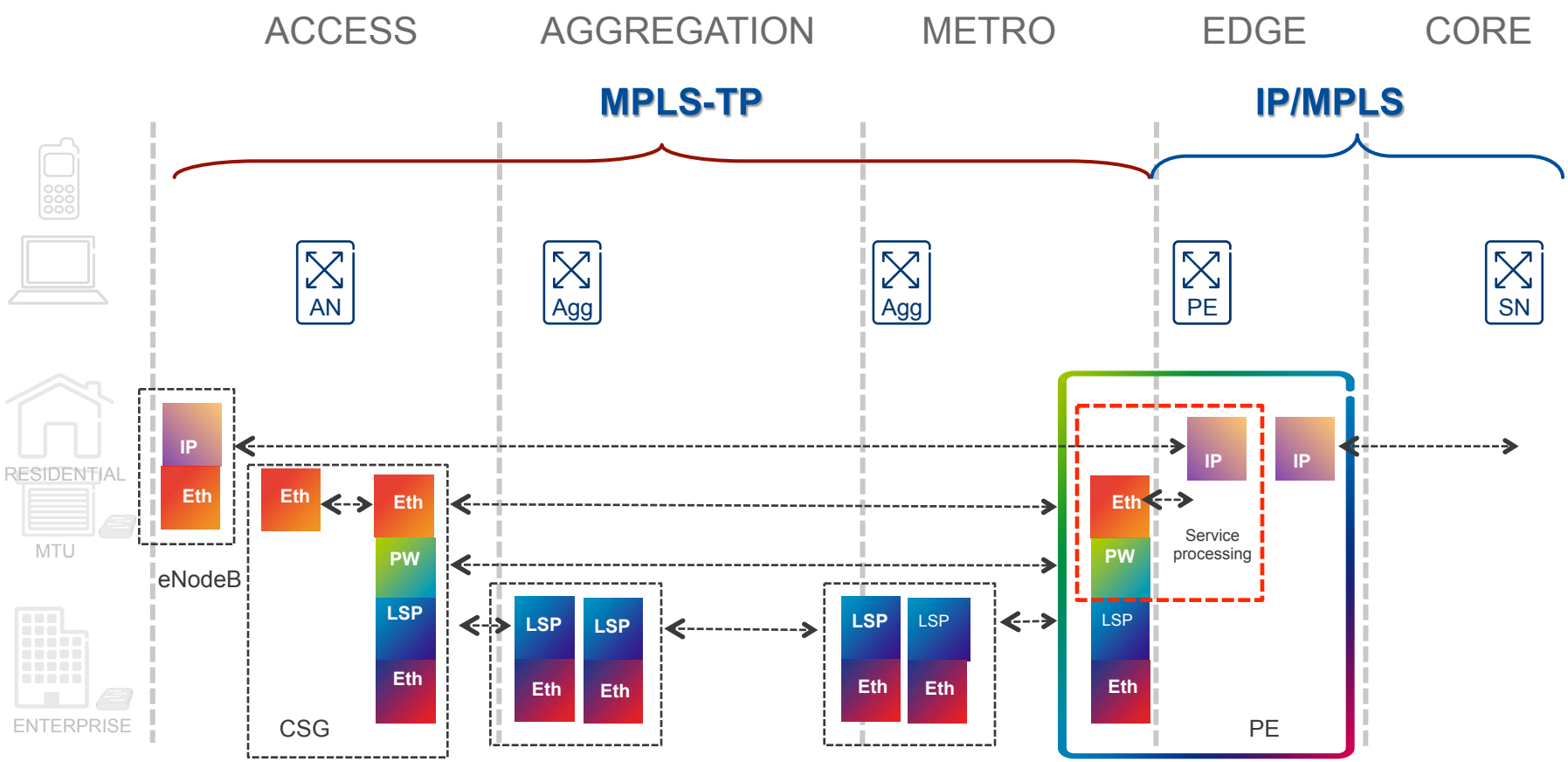
LTE Backhaul



- Bi-directional Co-Routed Traffic Engineered primary MPLS LSP and backup stand-by LSP provisioned via NMS (1:1)
- Protection events handled autonomously by the data plane
- S1/X2 Ethernet PWs (E-Line) terminated at U-PE

Unified MPLS INTEGRATION mode

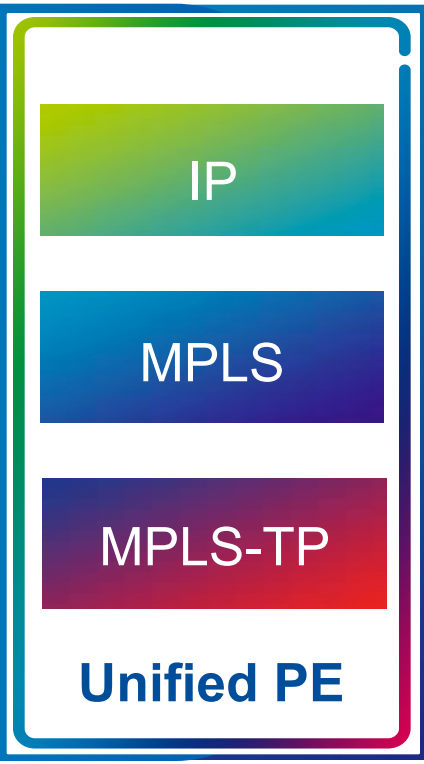
Converged services



- Service processing
  - Mobile (LTE backhaul): L2 VPN (p2p)
  - Fixed: IPoE/PPPoE, IP VPN, VPLS, VPWS

UNIFIED PE ARCHITECTURE

- Termination of IP and packet transport are integrated at the node level
  - Remove the need for external Ethernet/VLAN NNI handoff
  - In an end-to-end MPLS network, the MPLS PW becomes the NNI handoff
  - Network simplication
    - Reduced technology layers
    - Node consolidation

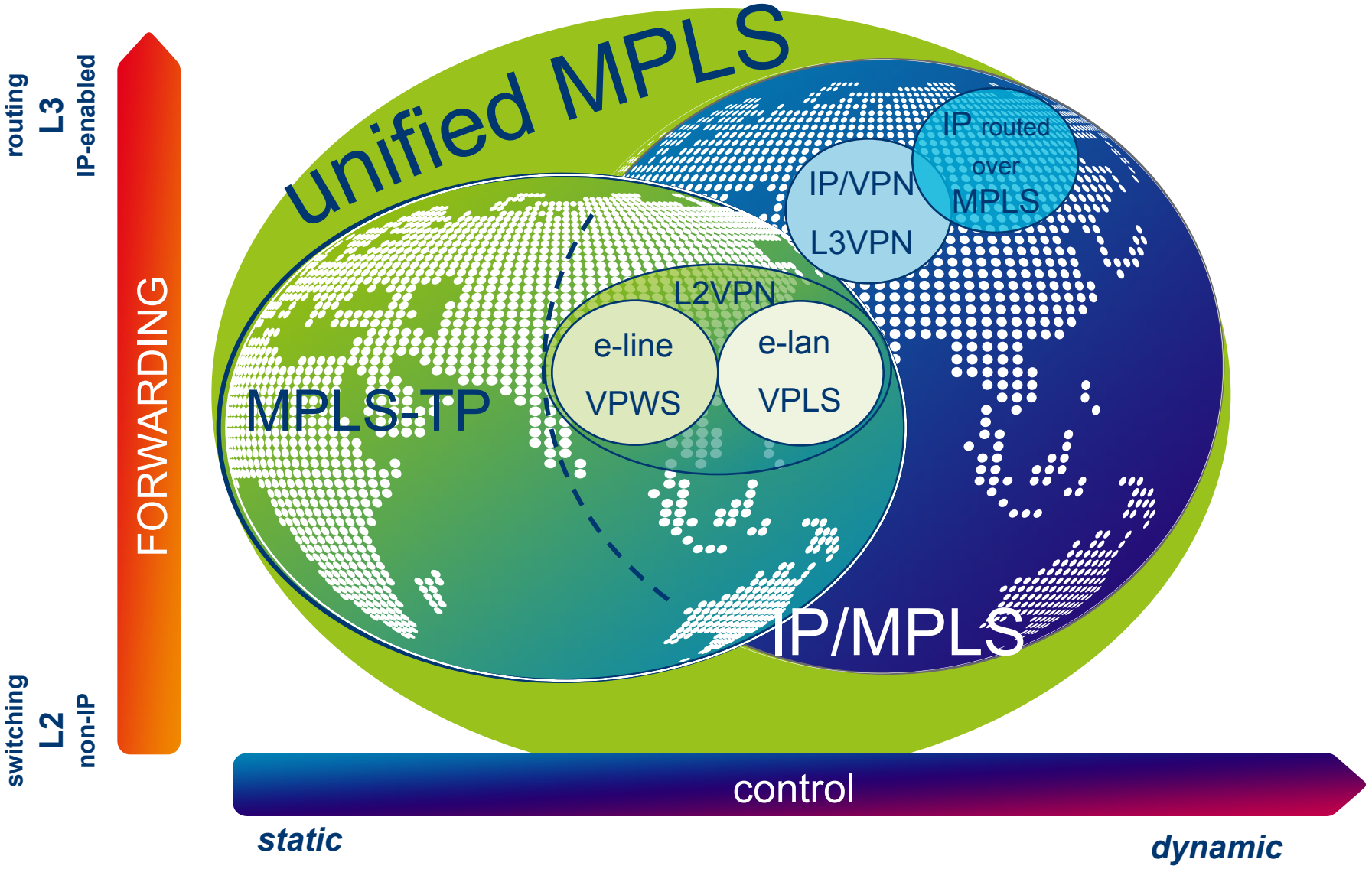


- Multi-service Edge platform for delivery of converged services
  - Mobile: LTE backhaul, WLAN integration
  - Fixed: BRAS, CDN, WLAN integration
  - Business: IP VPN, L2 VPN (p2p, multipoint services)

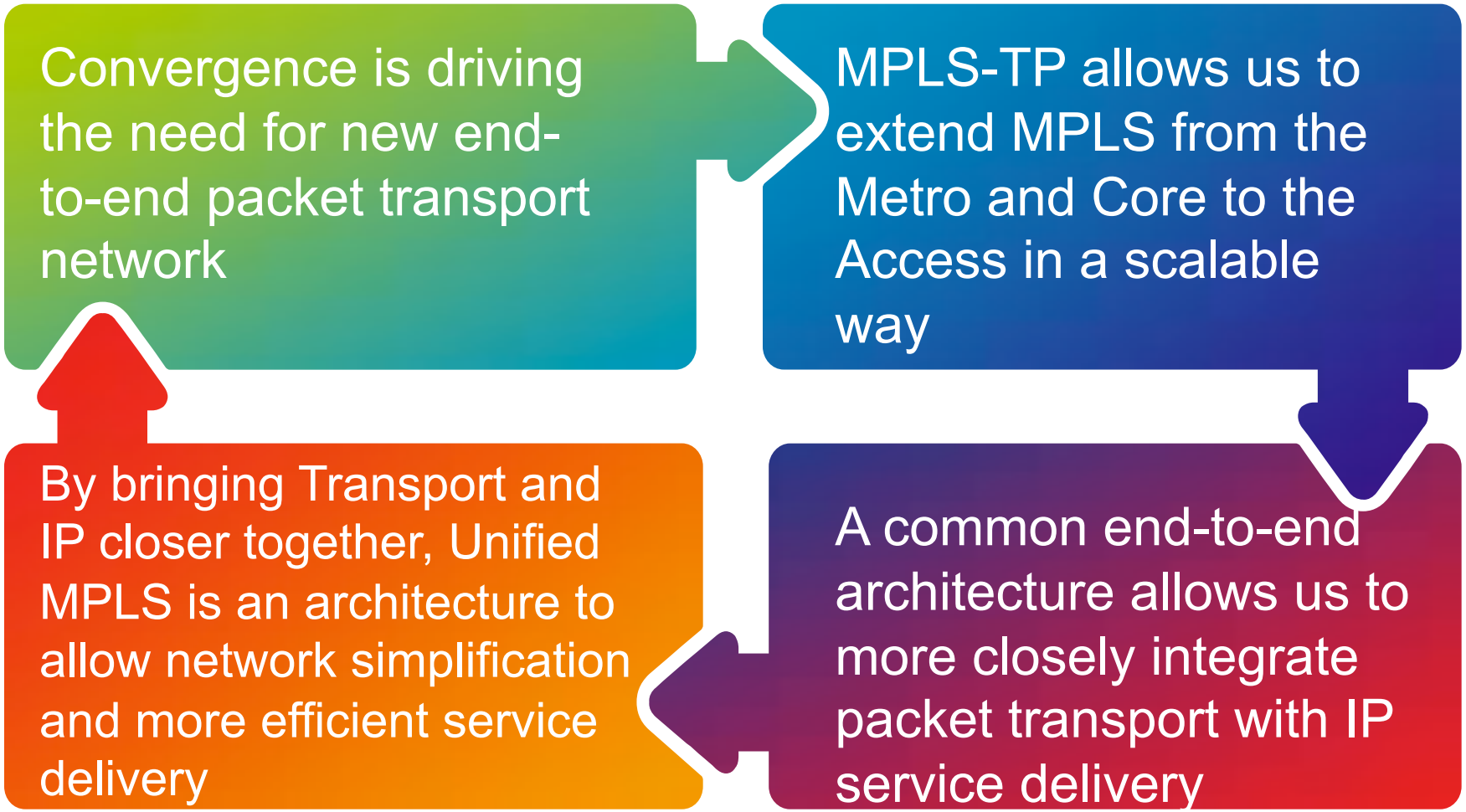
- Unified PE could be located at the edge or metro core layer
- Integration point for MPLS-TP and IP/MPLS networks
  - MS-PW, SS-PW (LSP stitching, LSP tunneling)

[Unified PE is a convergence point for Mobile and Fixed]

Service mappings



Summary


Convergence is driving the need for new end-to-end packet transport network
MPLS-TP allows us to extend MPLS from the Metro and Core to the Access in a scalable way
A common end-to-end architecture allows us to more closely integrate packet transport with IP service delivery
By bringing Transport and IP closer together, Unified MPLS is an architecture to allow network simplification and more efficient service delivery

ERICSSON