Packet Optical Transport Products Portfolio

UT

Control Plane	Data Plane	Management Plane

10GE/100GE Ecosystem

NG-PTN

SDN/NFV

SOO Network

NETWORK **SOO**

				5U / 100G	9U / 100G / 9U / 100G	

L2/3 **TN701B/C**
10Gbps SW
GE SFP/RJ45
Indoor/Outdoor

1U **L2/3** **TN703A**
64Gbps SW
GE/XGE
E1/STM-1

2U **L2/3** **TN704A**
136bps SW
GE/XGE
E1/STM-1

2U **L2/3** **TN704B***
680Gbps
100GE
GE/XGE

5U **100G** **L2/3** **TN705E ***
800Gbps SW
1/10/100GE
10G POS

9U **100G** **L2/3** **TN765**
960Gbps SW
1/10/100GE
10G POS

9U **100G** **L2/3** **TN765E***
2Tbps SW
1/10/100GE
10G POS

GE/10GE Ecosystem

PTN

TN701A
4.4Gbps SW
GE SFP/FE RJ45
Indoor/Outdoor

1U **TN703C**
6.4Gbps SW
FE/GE/E1
Indoor/Outdoor

1U **TN703E**
44Gbps SW
FE/GE/XGE
E1/STM-1

3U **TN705**
88Gbps SW
2.5/10G POS
FE/GE/XGE
E1/STM-1

7U **TN725**
108Gbps SW
2.5/10G POS
FE/GE/XGE
E1/STM-1

7U **TN725E**
176Gbps SW
FE/GE/XGE
E1/STM-1

18U **TN735**
400Gbps SW
10GE/10G POS
FE/GE
E1/STM-1

Netman OMC-O

NMS

CPE	Access	Aggregation	Core	Network Intelligence

* Development

SDN Product Line: "SOO (Software Defined Open Packet Optical) Network"
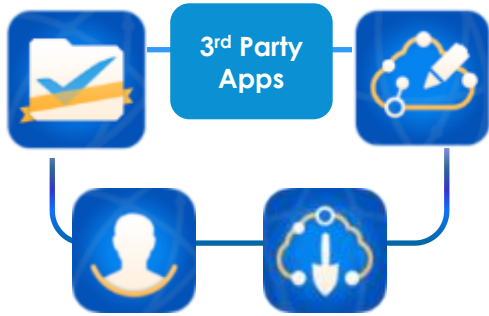
"SOO APP": *SOO Store/Design/Care/Build/3rd party's*

- In house developed apps for customer manager, network design, maintenance & deployment etc.
- Open & standard interface for 3rd party's APPs integration

"SOO Station": *SDN Controller*

- Distributed hierarchical SDN Controller
- Orchestration of abstracted underlying network resources
- Open APIs for vertical integration of applications
- End-to-end automated service provisioning
- Path computing and management

"SOO Device": *SDN-ized Network Devices*

- Controlled by SOO station
- Hybrid network devices: legacy packet switching & open flow device
- Open& standard interface for 3rd party systems integration

Moving to a 100G Mobile Backhaul

MBH Networks today: BW shortage

- *LTE networks growth and broadband bandwidth demand are pushing networks upgrade*

- *Most mobile operators' MBH networks are based on GE Access and 10G Aggregation or below which is not enough today*

100G: The technology is there!

- *100G cost reduction and new hardware solution available today*

- *10G access and 100G become very cost competitive: same cost/price as GE/10GE system few years ago*
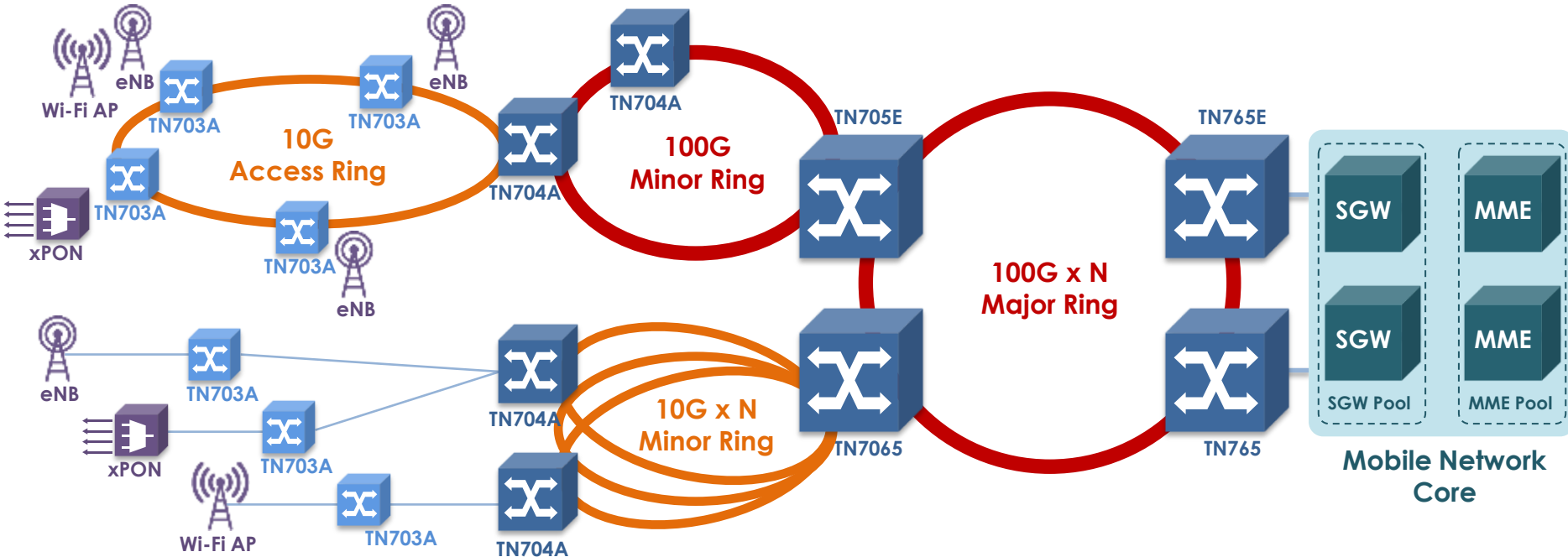
10G Access and 100G Aggregation

| Metro Access	Metro Aggregation/Core	Mobile Core

eNB
Wi-Fi AP
TN703A
eNB
TN703A
10G Access Ring
TN703A
xPON
TN703A
eNB
TN704A
TN704A

TN704A
100G Minor Ring
TN705E

100G x N Major Ring

TN765E

eNB
TN703A
xPON
TN703A
Wi-Fi AP
TN703A
TN704A
10G x N Minor Ring
TN704A
TN7065

TN765

SGW | MME
SGW | MME
SGW Pool | MME Pool

Mobile Network Core

UT

100GE

NETWORK SOO

FEATURES

- An ultra-high-capacity rack-mount device for Metro Aggregation or Metro Core Applications

- Simple and reliable transport with connection-oriented **MPLS-TP/CE** technology

- Carrier-class modular design with 16 pluggable slots

- **9U** small form factor

- Ultra high capacity: **2T** full duplex switching fabric

- Full hardware redundancy with 1+1 protection for control, switch, clock and power supply

- 10GE, **100GE**, 10G POS interfaces, industry leading 10GbE/100GbE port density

- Sub-50ms protection. LSP, PW protection, LACP, Dual homing, LPT

- Hierarchical MPLS-TP OAM support

- Ethernet OAM: 802.3ah, 802.1ag, Y.1731*

- L3 Function*

- BoD*, Automated provisioning

- **IEEE1588v2* & Synch Ethernet**

- -48VDC power supply
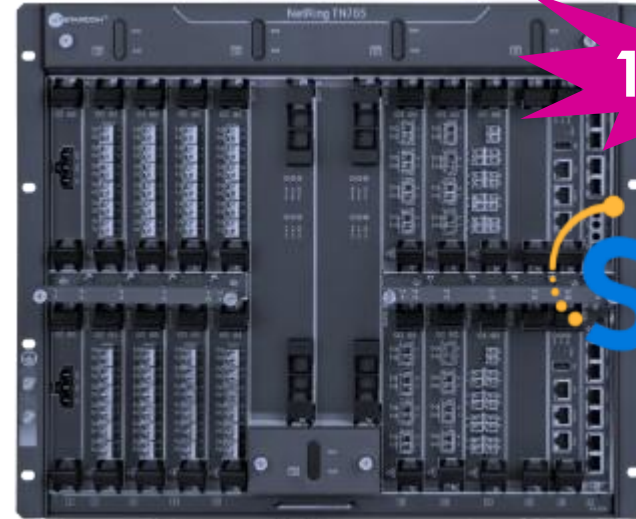
AT A GLANCE

- 2Tbps full duplex switching fabric

- 16 slots, maximum interface capacity:
  - 16 x 100GE
  - 64 x 10GE (XFP)
  - 96 x 10GE (SFP+)

- 9U, 19"/ETSI/ANSI rack mountable

- Typical Power Consumption: 1000W

- SDN SOO-Network compatible

* Denotes features available in a future release

UT

FEATURES

- An ultra-high-capacity rack-mount device for Metro Aggregation or Metro Core Applications

- Simple and reliable transport with connection-oriented **MPLS-TP/CE** technology

- Carrier-class modular design with 16 pluggable slots

- **9U** small form factor

- Ultra high capacity: **960G** full duplex switching fabric and 1.28T aggregated access capacity

- Full hardware redundancy with 1+1 protection for control, switch, clock and power supply

- GE, 10GE, **100GE**, 10G POS interfaces, built-in **DWDM**

- Sub-50ms protection. LSP, PW protection, LACP, Dual homing, LPT

- Hierarchical MPLS-TP OAM support

- Ethernet OAM: 802.3ah, 802.1ag, Y.1731*

- L3 Function*

- BoD*, Automated provisioning

- **IEEE1588v2* & Synch Ethernet**

- -48VDC power supply

100GE

NETWORK SOO

CE 2.0 MEF CERTIFIED

AT A GLANCE

- 960Gbps full duplex switching fabric

- 16 slots, maximum interface capacity 1.28T:
  - 4 x 100GE
  - 64 x 10GE (XFP)
  - 96 x 10GE (SFP+)

- 9U, 19"/ETSI/ANSI rack mountable

- Typical Power Consumption: 850W

- SDN SOO-Network compatible

- MEF CE2.0 Certified

*Denotes features available in a future release

UT

100GE

FEATURES

- A compact high-capacity rack-mount device for Metro Aggregation or Metro Core Applications
- Simple and reliable transport with connection-oriented **MPLS-TP/CE** technology
- Carrier-class modular design
- Hardware redundancy with 1+1 protection for control, switch, clock and power supply
- **5U** small form factor
- Ultra high capacity: **960G** total capacity
- GE, 10GE, **100GE**, 10G POS interfaces
- **Sub-50ms protection**. LSP, PW protection, LACP, Dual homing, LPT, Y-Cable Protection*
- Hierarchical MPLS-TP OAM support
- Ethernet OAM: 802.3ah, 802.1ag, Y.1731
- **L3 Function** (Static and Dynamic), IPv4/6 support
- BoD, Automated provisioning
- **IEEE1588v2 & Synch Ethernet**
- DC power modules with 1+1 protection

AT A GLANCE

- 960Gbps total full duplex capacity
- 8 slots, maximum interface capacity:
  - 8 x 100GE with hot pluggable CFP2 modules
  - 96 x GE/10GE with hot pluggable SFP/SFP+/T-SFP modules
  - 32 x 10G POS with tunable XFP
- 5U, 19"/ETSI rack mountable
- Max Power Consumption: 880W
- SDN SOO-Network compatible

FEATURES

- Simple and reliable transport with connection-oriented **MPLS-TP/CE** technology

- Carrier-class modular design

- Hardware redundancy with 1+1 protection for control, switch, clock and power supply

- **3U** small form factor

- High capacity: **88G** total capacity

- GE, 10GE, 10G POS interfaces

- **Sub-50ms protection**. LSP, PW protection, LACP, Dual homing, LPT, Y-Cable Protection*

- Hierarchical MPLS-TP OAM support

- Ethernet OAM: 802.3ah, 802.1ag, Y.1731

- BoD, Automated provisioning

- **IEEE1588v2 & Synch Ethernet**

- DC power modules with 1+1 protection

AT A GLANCE

- 88Gbps Full-Duplex Switching Fabric

- Dimension: 440x133x380mm WidthxHeightxDepth (3RU)

- 19"/ETSI/ANSI rack mountable

- Typical power consumption: 150W

- SDN SOO-Network compatible*

* Denotes features available in a future release

UT

FEATURES

- *A compact high-capacity rack-mount customer edge device targeted at Access Applications*

- *Simple and reliable transport with connection-oriented **MPLS-TP/CE** technology*

- *Carrier-class modular design, fixed system board and 2 exchangeable sub slots*

- *Compact design: **1U** high pizza box*

- *High capacity in compact enclosure: **64G** full duplex switching fabric*

- *GE, 10GE, E1, STM-1 interfaces*

- ***Sub-50ms protection**. LSP, PW protection, LACP, Dual homing, LPT, Y-Cable Protection, MSP for STM-1*

- *Hierarchical MPLS-TP OAM support*

- *Ethernet OAM: 802.3ah, 802.1ag, Y.1731*

- ***L3 Function** (Static and Dynamic) with support of IPv4/6**

- *BoD, Automated provisioning**

- ***IEEE1588v2 & Synch Ethernet***

- *AC or DC power modules with 1+1 protection*

- *Outdoor applications: -40…65°C*

NETWORK SOO

AT A GLANCE

- *64Gbps full duplex switching fabric*

- *2 sub-slots, maximum interface capacity:*
  - *4 x 10GE with pluggable SFP+ modules*
  - *28 x GE with pluggable SFP modules*
  - *8 x STM-1*
  - *32 x E1*

- *1U, 19"/ETSI rack mountable*

- *Max Power Consumption: 100W*

- *SDN SOO-Network compatible**

* Denotes features available in a future release

UT

FEATURES

- *A compact CPE/Access device targeted at Access Applications, optimized for Wireless Access Applications*

- *Simple and reliable transport with connection-oriented **MPLS-TP/CE** technology*

- *Compact enclosure, carrier-class design*

- *High capacity in compact enclosure: **10G** full duplex switching fabric*

- *Optical and electrical GE interfaces*

- *8 x GE(RJ-45) interfaces with support of **PoE** IEEE 802.3 af/IEEE 802.3at, max power budget is 80W*

- *E-LINE, E-LAN and E-Tree service*

- ***Sub-50ms protection**. LSP, LACP, LPT*

- *MPLS-TP OAM support*

- *AC power supply: 90V~240V*

- *Desktop and wall-mountable*

- *Outdoor applications: -40…65°C*

NETWORK SOO

AT A GLANCE

- *10Gbps full duplex switching fabric*

- *Maximum interface capacity:*
  - *2 x GE with pluggable SFP modules*
  - *8 x GE RJ-45 PoE*

- *300mm(W)*210mm(D)*44.45mm(H)*

- *Max Power Consumption: 100W*

- *SDN SOO-Network compatible**