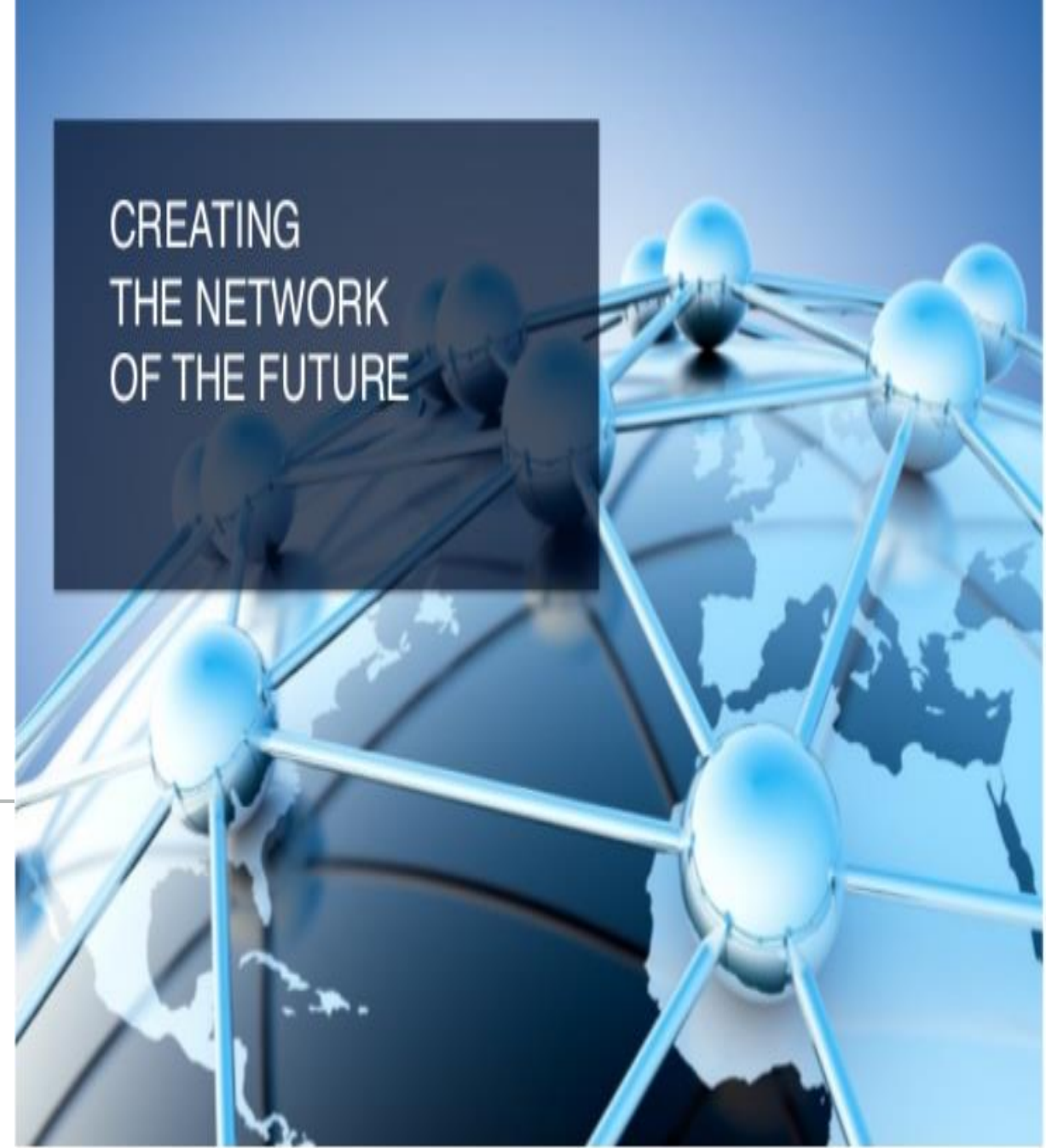




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The World at your fingertips

25-Nov-24

PacNOG



CREATING
THE NETWORK
OF THE FUTURE

Contents

- ❖ Network Operation Center - NOC
- ❖ The old ways of network monitoring
- ❖ Wifi Monitoring
- ❖ Cyber Security
- ❖ Telecom Network Layers
- ❖ TFL National Transmission Diagram
- ❖ NOC Transformation Overview
- ❖ Network Transmission Insights
- ❖ End

NETWORK OPERATION CENTER

- ❖ What is Network Operation Center?
- ❖ How can we use the new network management tools and features, to assist Network Operators?

Old Network Monitoring – Network Focus

- ❖ SNMP protocols
- ❖ Network status
- ❖ Up & Down status
- ❖ Node & Interface status
- ❖ CPU status
- ❖ Memory status
- ❖ Network alarms monitoring – alarm fatigue
- ❖ Power System Monitoring – Main grid / Genset / Low Power failure / Monitor fuel level / Door sensor
- ❖ CCTV Monitoring
- ❖ Network Maps

Home or Business Wifi

- ❖ Wifi environment
- ❖ Wifi best practices
- ❖ Process and standards
- ❖ Tools and skills

Cyber Security

- Organization Information Framework
- Standards – ISO 90001 & NIST Framework
- Process & Standards
- Tools & Skills
- Awareness & Educate people / staff
- Identify risks and threats

Telecom Network Layers



Application Layer

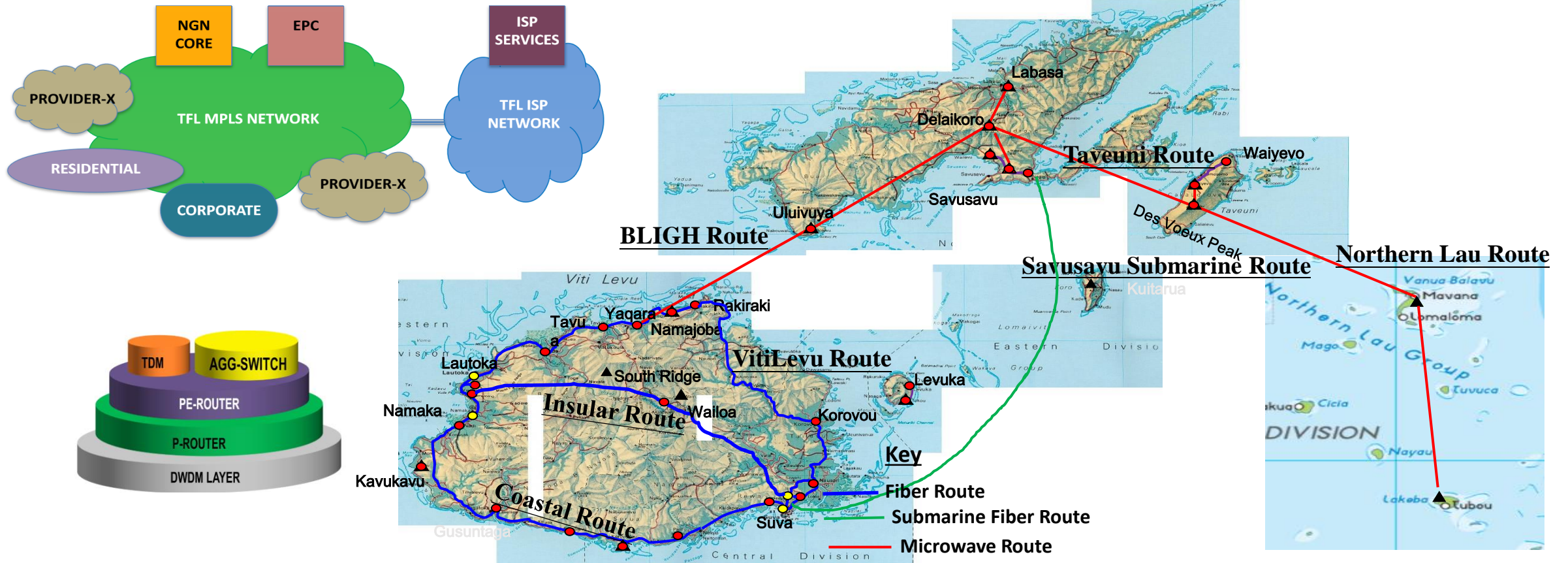
Network Layer

Physical Layer

Network Layers

- ❖ Physical Layer – Fiber / Copper / Radio
- ❖ Network Layer - Transmission / IP Transport / DWDM / Satellite / Cellular Microwave Links / Carrier Ethernet / GPON
- ❖ Application – Netflix / Office 365 / You Tube / Outlook / Facebook / BBC News / Twitter / LinkedIn / Internet Banking ..etc

Telecom Network Layers

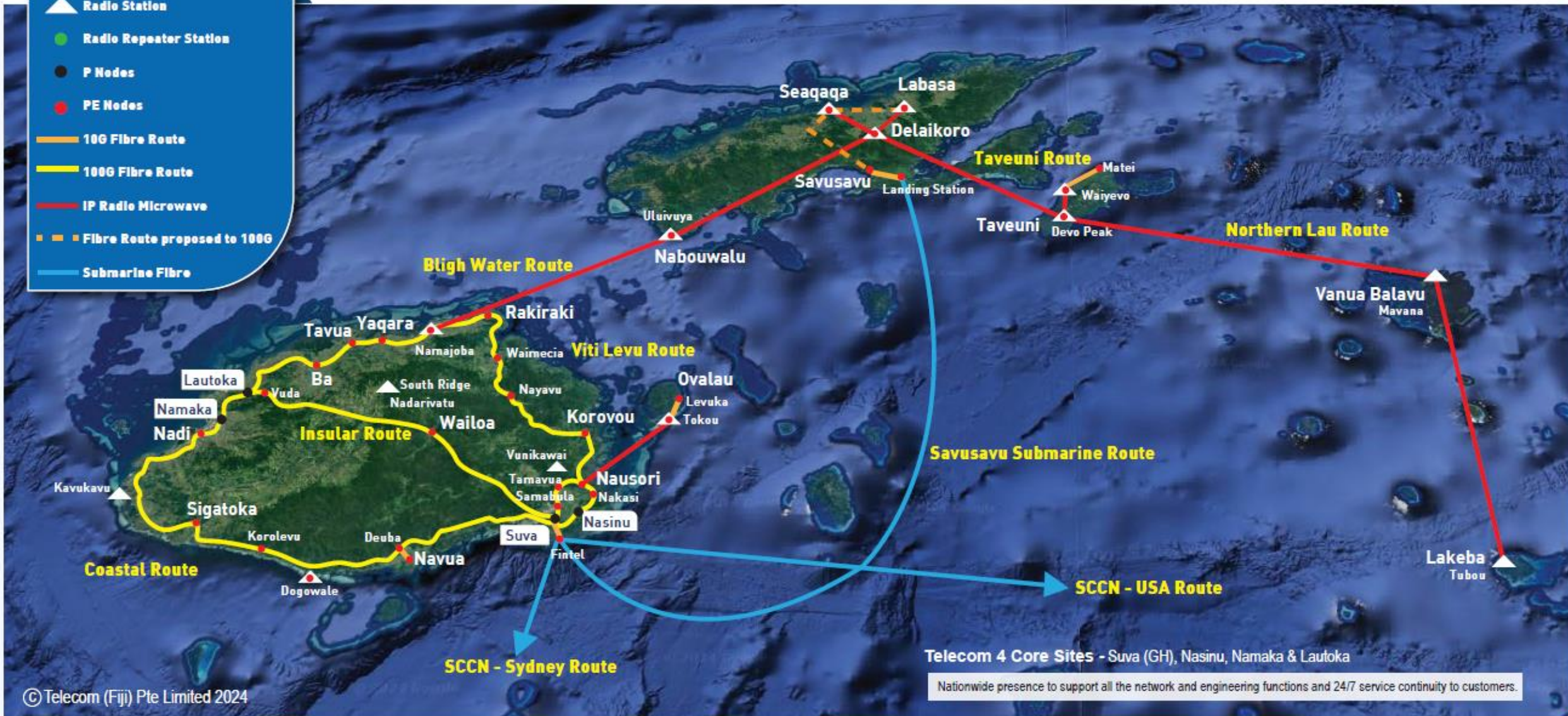


DWDM Network Scalable up to 400G on the same hardware, to ultimate throughput of 9.6T

Telecom Fiji Footprints



- Radio Station
- Radio Repeater Station
- P Nodes
- PE Nodes
- 10G Fibre Route
- 100G Fibre Route
- IP Radio Microwave
- Fibre Route proposed to 100G
- Submarine Fibre

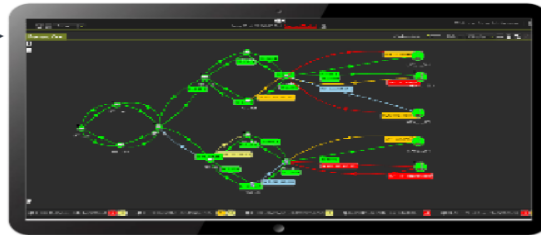


Network Operation Centre - NOC



- Complete Visibility for all Network Elements at different dimension – End to end
- With Data/Analytics to give real time insights and critical business decision
- Capacity Planning and Forecast

- Green/yellow/red indicators for service status
- Status map for all locations



E2E Service Topology View

Triggered events based on policies (switching of provider, application queuing)

- Health status per location with key KPIs/KQIs (Availability, Tunneling KPIs)
- Detailed Link view with Link KPIs

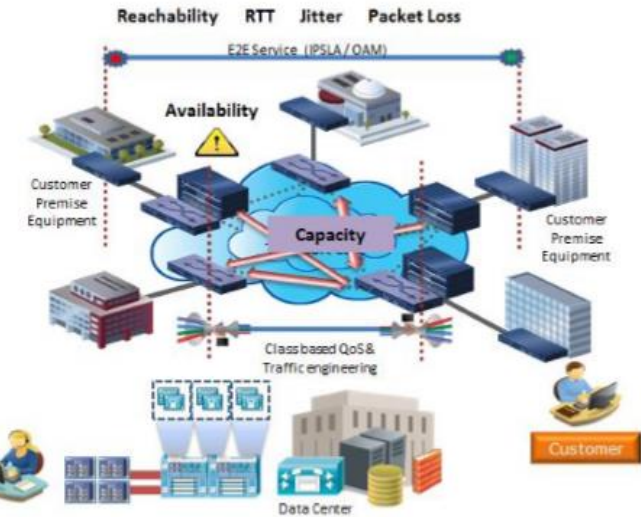


Location View



Location Event View

- ⊕ L2 or L3 VPNs
- ⊕ PE or CE managed contexts
- ⊕ MPLS Traffic Engineering
- ⊕ Device and interface utilization
- ⊕ Class-based QoS (TOS, CoS)
- ⊕ IPSLA/NQA/ RPM /OAM (Y.1731) E2E metrics
- ⊕ Alarms/Traps on any threshold violation (i.e. SLA)
- ⊕ Realtime, long term and capacity planning KPIs
- ⊕ Full visibility for both SP and customers



New NOC : End-to-end Service Focus

- ❖ **We don't want to miss a critical alarm!**
- ❖ **End-to-end Service Excellence – Challenge! Data Insights & Big Data analysis leverage AI/ML**
- ❖ Network Insights / Troubleshoot Network incident quickly.
 - ✓ Vendor agnostic – Multi domain
 - ✓ Dashboard – Network effect monitoring
 - ✓ Network and Service Visibility
 - ✓ Alarm correlation
 - ✓ Fixed & Mobile Broadband Unified Monitoring
 - ✓ Home Wifi management

Network Transmission Insights

❖ Node Dashboard

- Set KPI's (Key Performance Indicators)
 - ✓ Node UP or DOWN
 - ✓ CPU Utilization
 - ✓ Memory usage
 - ✓ PCRF/PCEF stats
- Set thresholds
 - ✓ Major alarm
 - ✓ Critical alarm – service affecting

thank you

danke 謝謝 ngiyabonga
teşekkür ederim
gracias tapadh leat
bedankt dank je
dziękuję go raibh maith agat
obrigado sukriya kop khun krap
terima kasih arigatō takk dakujem
merci

спасибо ありがとう
dank je misaotra matondo
gracias djiere dieuf
moichhakkeram mamnun
merci mercè мерси

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