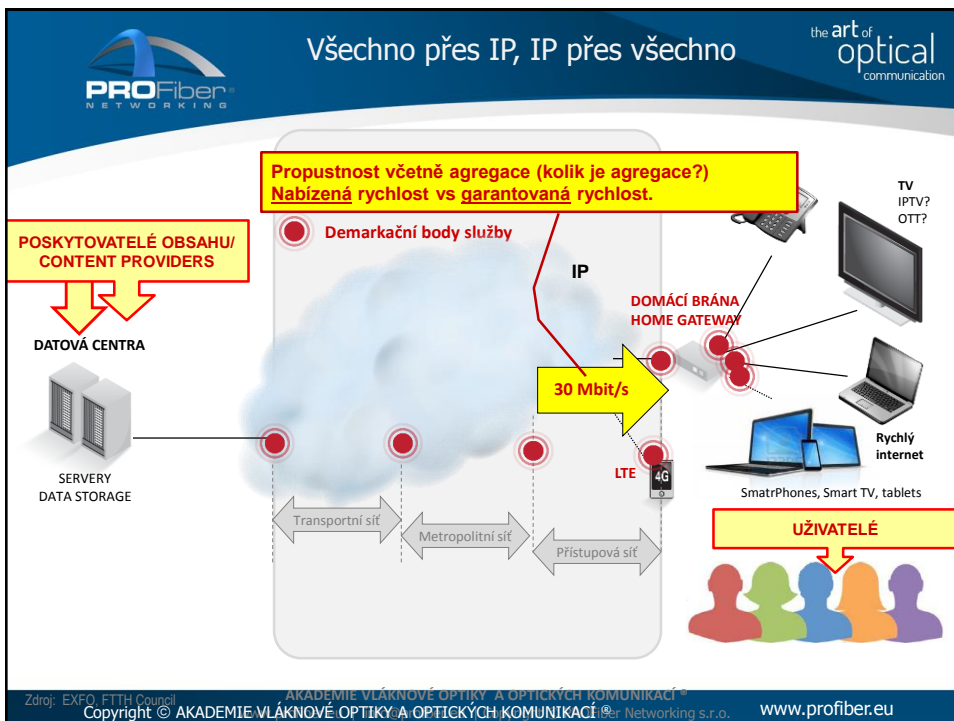
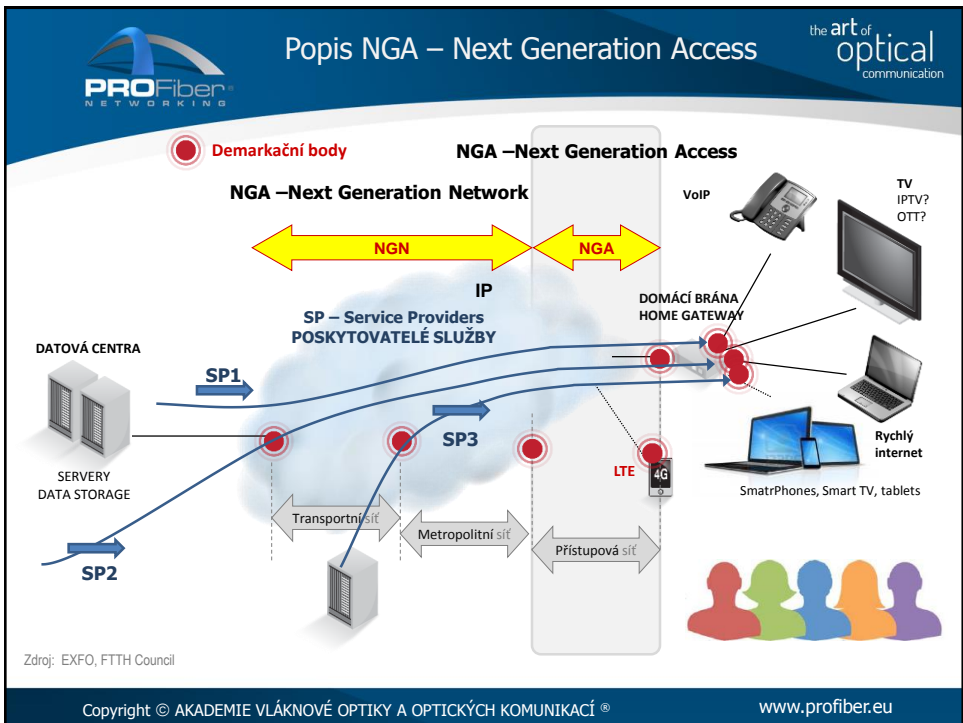
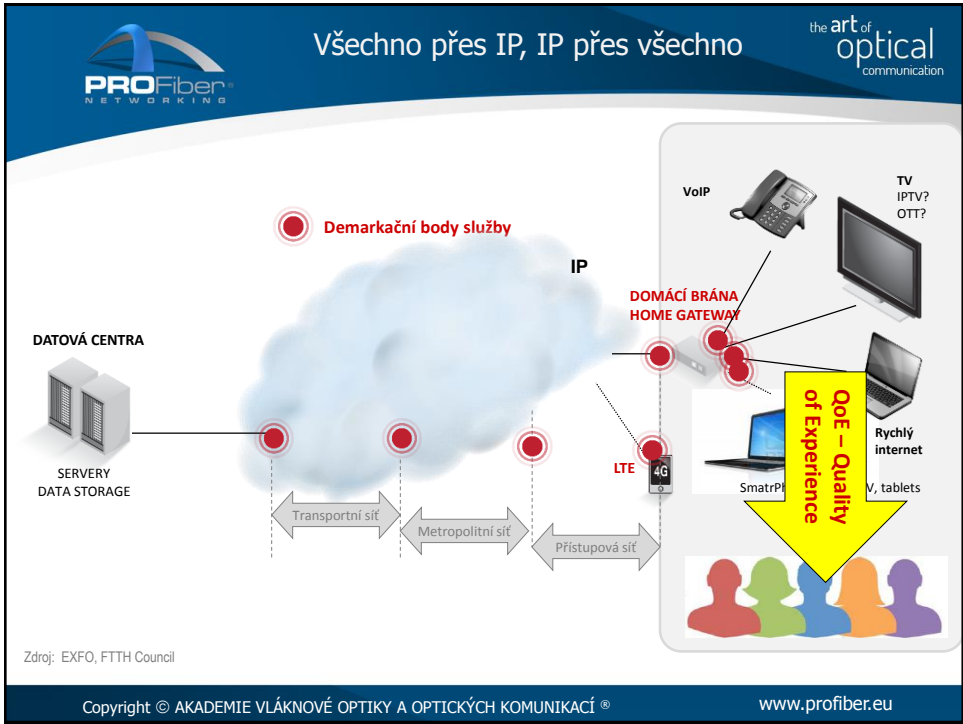


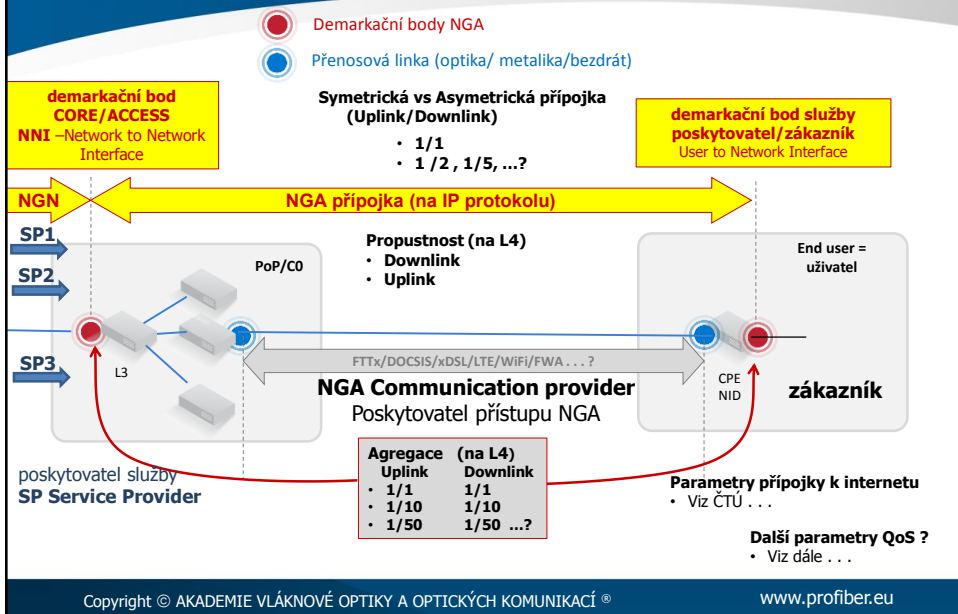
# QoS na L2/L3/L4

Uherské Hradiště, 15.07.2015

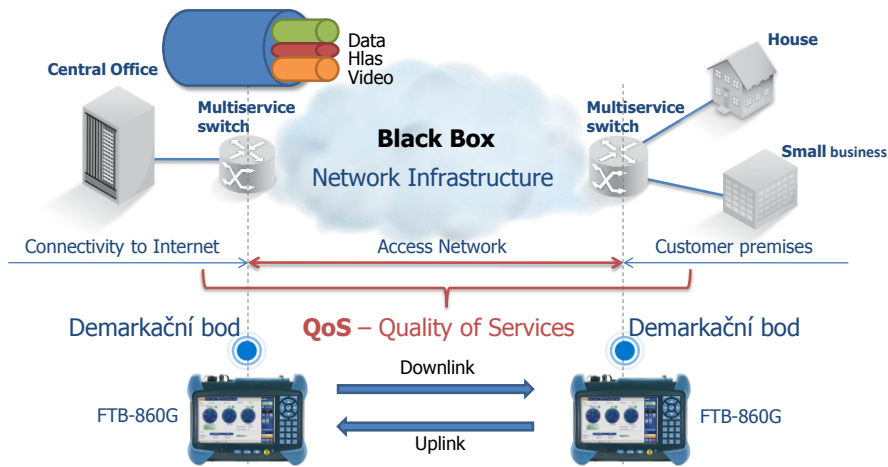
Ing. Martin Ťupa

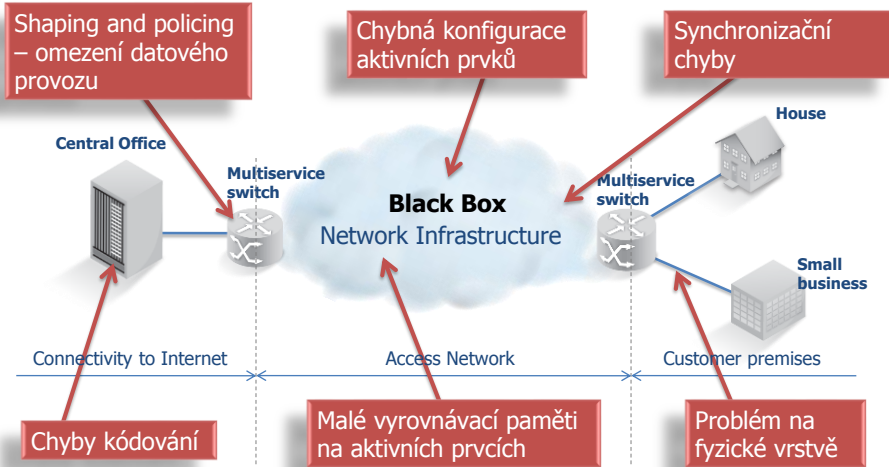






Kolik protlačíte přes aktivní prvky? Kde jsou limitní hodnoty ETH spoje?





Díličí parametry QoS – Quality of Services, KPIs – Key Performance Indicators

Key QoS Metrics	
Data transmission speed – Downstream (Download)	Datová přenosový rychlost ve směru ke koncovému uživateli
Data transmission speed – Upstream (Upload)	Datová přenosový rychlost ve směru k poskytovateli služby
Delay	Zpoždění
Delay Variation	Kolísání zpoždění
Packet Error	Pakety mimo pořadí, chyba CRC
Packet Loss	Ztrátovost paketů
Multicast Join Time (Zap)	Doba přepnutí

## Důležitost tech. parametrů dle služeb

**Table 2: Relevance of Technical parameters for the evaluation of typical IAS**

Service/Application	Data transmission speed		Delay	Delay variation	Packet loss	Packet error
	Downstream	Upstream				
Browse (text)	++	-	++	-	+++	+++
Browse (media)	+++	-	++	+	+++	+++
Download file	+++	-	+	-	+++	+++
Transactions	-	-	++	-	+++	+++
Streaming media	+++	-	+	-	+	+
VoIP	+	+	+++	+++	+	+
Gaming	+	+	+++	++	+++	+++

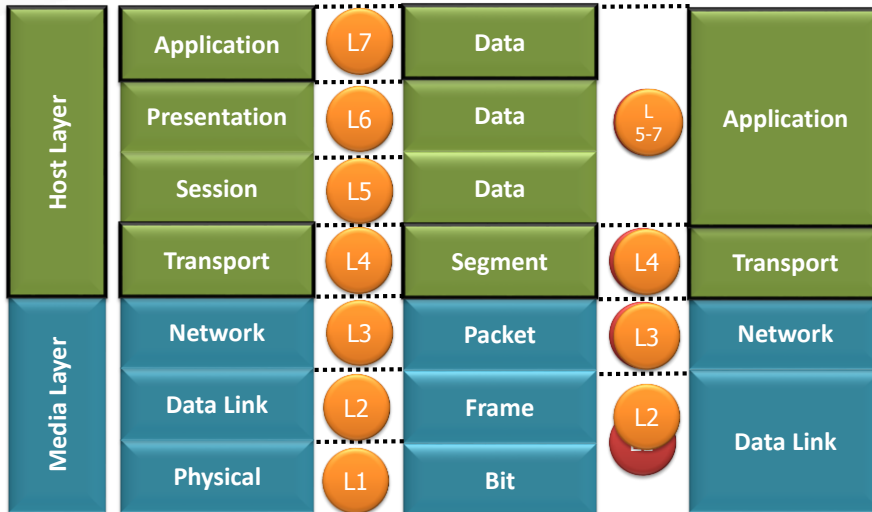
- : not relevant                      +: slightly relevant                      ++: relevant                      +++: strongly relevant

Source: Based on ETSI EG 202 057-4, ITU-T Rec. Y.1541 and ITU-T Rec. G.1010

## Názvosloví – OSI vs TCP/IP

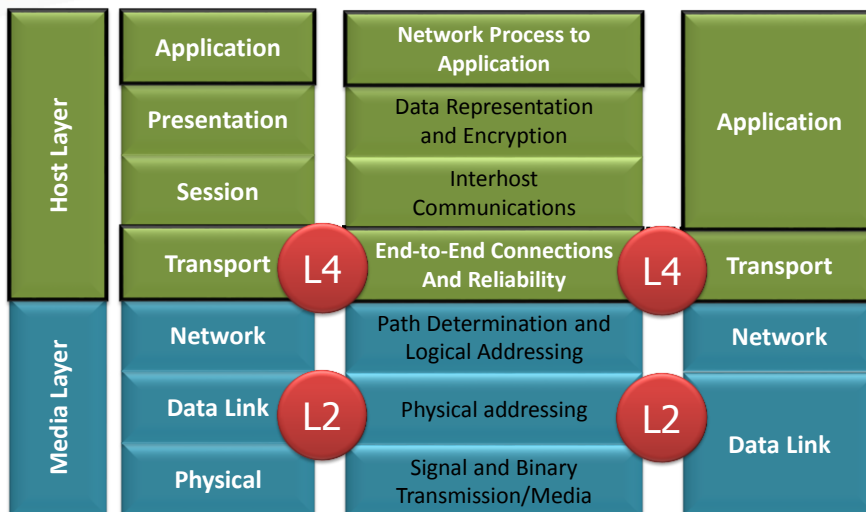
Referenční Model ISO/OSI

Model TCP/IP

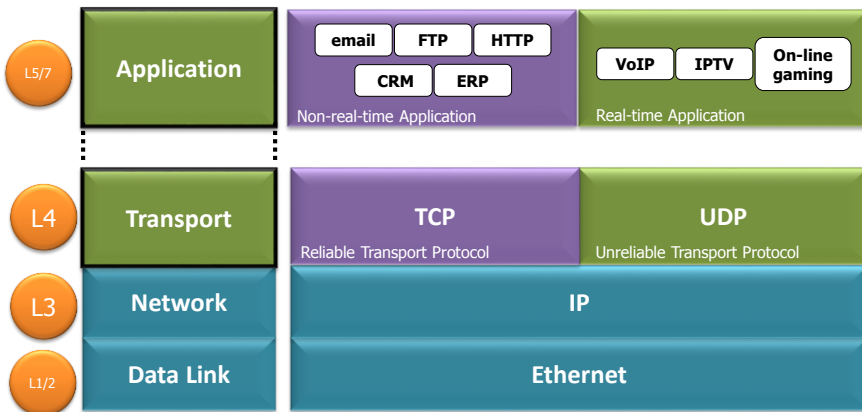


Referenční Model ISO/OSI

Model TCP/IP



Aplikace běží přes TCP a UDP

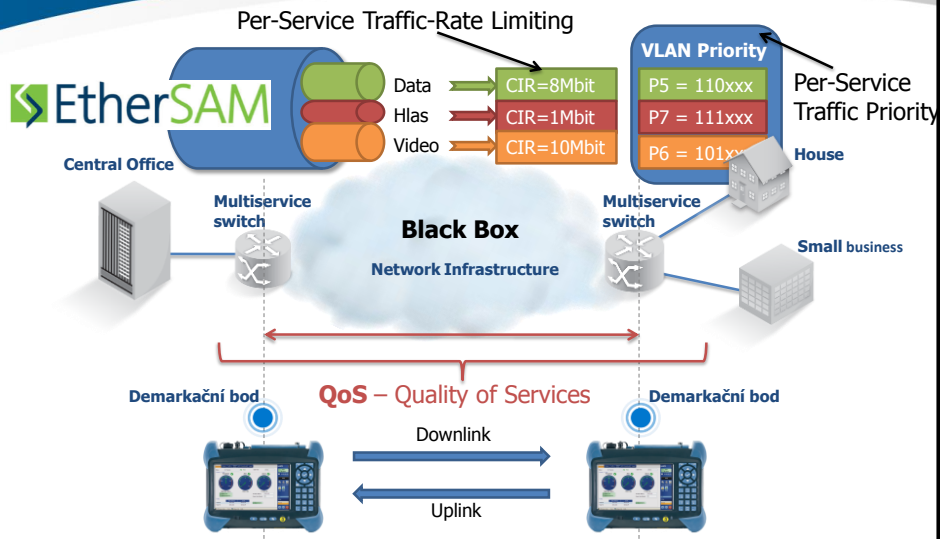
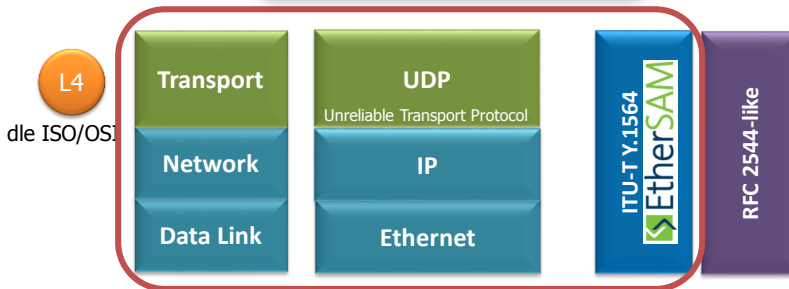


## Metodologie dle vrstev a protokolů

Metodologie pro verifikaci ETH služeb na vrstvě L4 a protokol UDP

**PROFiber doporučení:**

Turn-up/Installation/SLA validation  
Ethernet Business Services  
Ethernet Mobile Backhaul

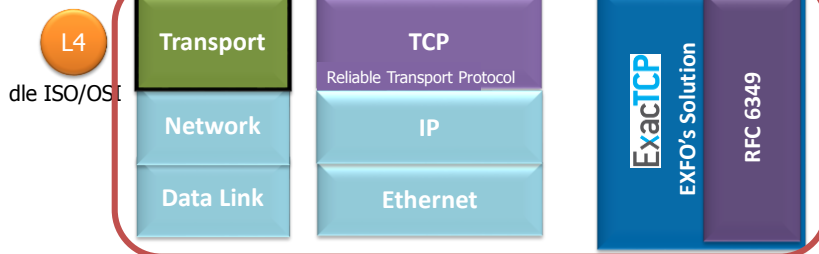




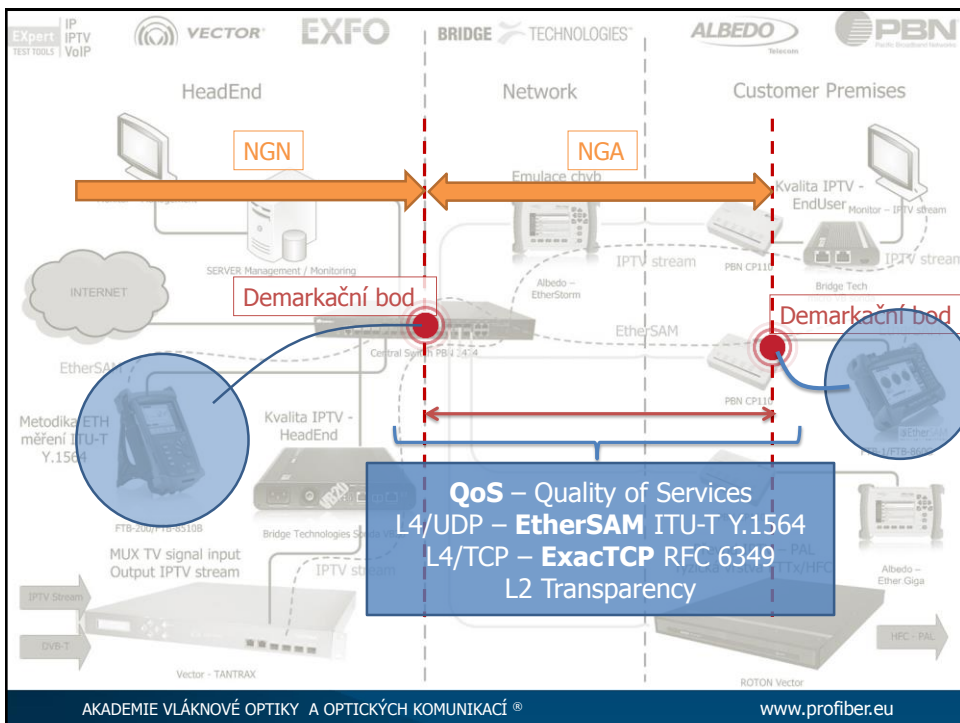
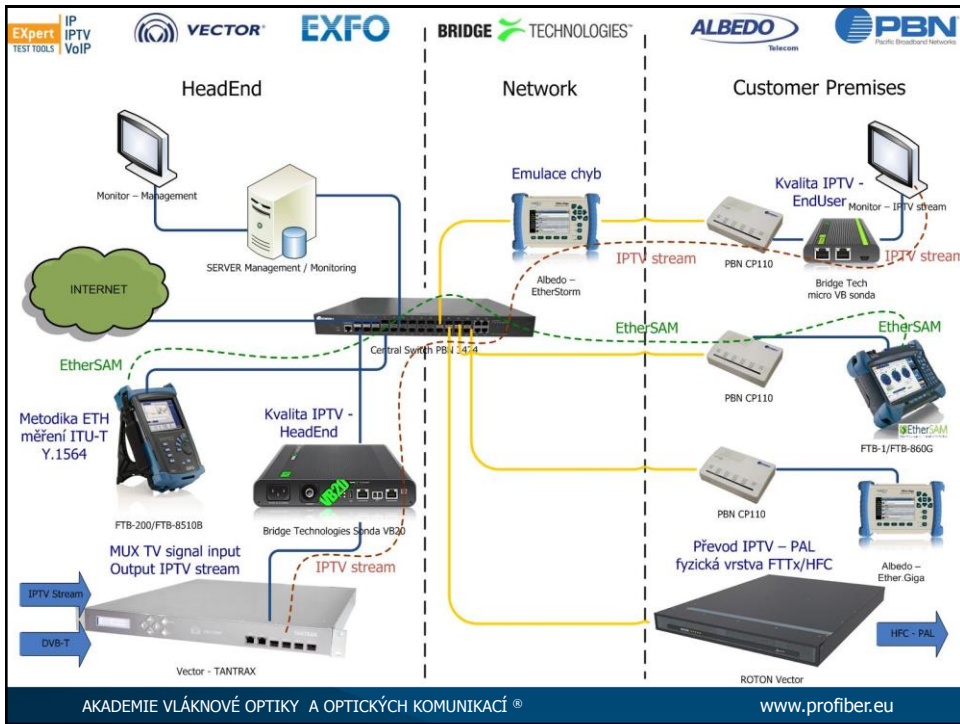
Metodologie pro verifikaci ETH služeb na vrstvě L4 a protokol TCP

PROFiber doporučení:

Troubleshooting/Conflict resolution  
Ethernet Business Services  
Ethernet Mobile Backhaul



## Popis pracoviště/výstavka



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