



Nokia 7750 SR

Apresentação Técnica

Roteador IP para Telecall

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Nokia 7750 SR7 overview da oferta

7750 SR-1

Chassis

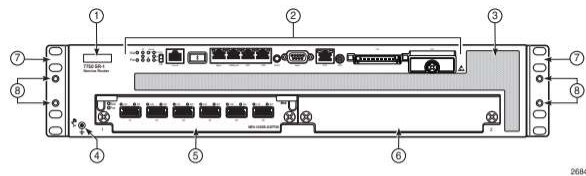
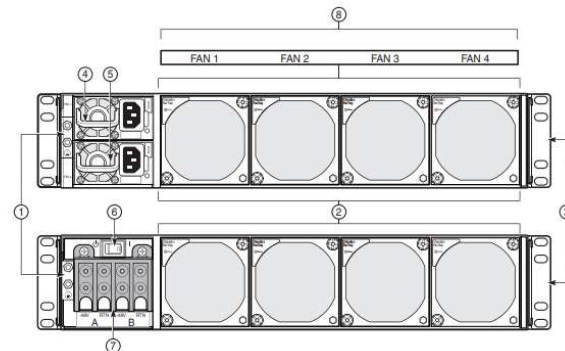


Table 5 Chassis Front View Components

Key	Description
1	Illuminated chassis label
2	LEDs, ports, and controls. See LEDs, Ports, and Controls
3	Air intake
4	ESD plug receptacle
5	MDA-e-XP slot 1, with MDA-e-XP installed
6	MDA-e-XP slot 2, with impedance panel installed
7	Factory-installed front, rack-mounting, chassis brackets



Overview

O Roteador 7750 SR1 possui 1 slot
 O mesmo está com a IOM5 que possui dois slots para MDA.
 Cada slots está alocado com duas MDA-e-XP 12 portas
 de 100G que possibilitam a conexão com satélite ou breakout
 ou mix entre ambas as possibilidades

As fontes ofertadas são AC. Opcionalmente pode ser
 adquirido com fontes DC -49volts

Table 6 Chassis Rear View Components

Key	Description
1	Chassis safety ground lug studs
2	Four individually installed fan modules
3	Optional rear rack-mounting brackets
4	AC PSU in slot 1 (AC chassis only)
5	AC PSU in slot 2 (AC chassis only)
6	DC chassis power On/Standby switch (DC chassis only)
7	Terminal block with cover (DC chassis only)
8	The Fan tray slots numbered 1 to 4 on the top of the chassis

7750 SR-1 Chassis



12-connector Universal
QSFP28 MDA-e-XP



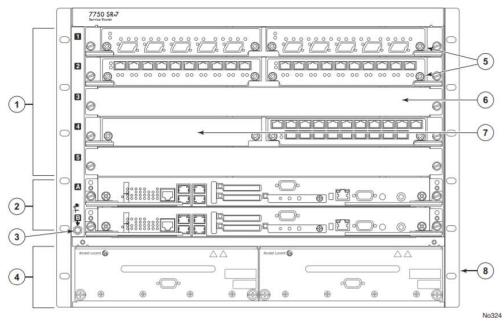
IOM5-e

7750 SR Input / Output Module 5e (IOM5-e):

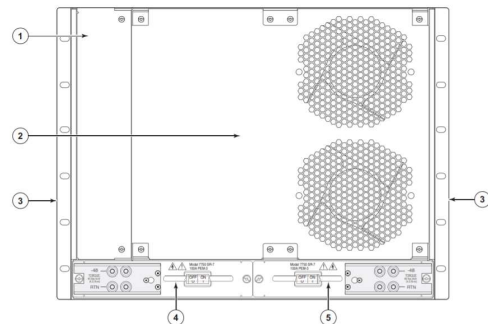
- Accepts up to two MDA-e-XPs
- Configured with two MDA 12 ports 100G QSFP28

7750 SR-7

Chassis



Key	Description
1	IOM slots 1 to 5
2	SF/CPM slots A and B
3	ESD plug receptacle
4	Figure 6: DC power filter bays showing one Power Supply Filter installed in each of the two bays (without the safety panel) Figure 7: DC power filter bays covered by the safety panel
5	IOM with installed MDAs
6	Impedance panel installed in an empty IOM slot
7	Impedance panel installed over MDA slot
8	Factory-installed rack-mounting bracket

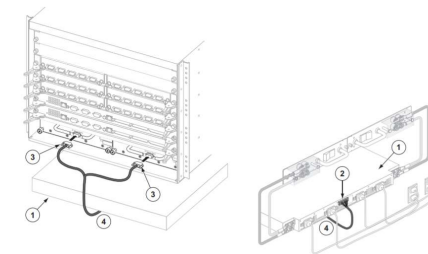


Key	Description
1	Air Filter Tray faceplate
2	Enhanced Fan Tray
3	Factory-installed rack-mounting brackets
4	DC PEM-3 in power bay slot 1
5	DC PEM-3 in power bay slot 2

Overview

O Roteador 7750 SR7 possui 7 (sete) slots
O slots mais acima, numerados de 1 a 5,
são reservados para IOM - Input/Output Module.
O máximo de duas MDA – Media Dependent Adapter
pode ser inseridas em cada IOM

As fontes ofertadas são DC. Opcionalmente, caso necessário
Pode-se adquirir um Power Shelf dede AC para DC, conforme
abaixo:



Key	Description
1	AC power shelf
2	Cable connector on the AC power shelf (viewed from the rear of the chassis)
3	DB-9 connectors and DB-9 ports of the Power Supply Filters (viewed from the front of the chassis)
4	Power supply monitoring Y-cable.

7750 SR-7

Fabric and CPM Redundantes



400G FD
com 1+1 SFMs

SFM6



CPM5

SFM – *Switch Fabric Module*

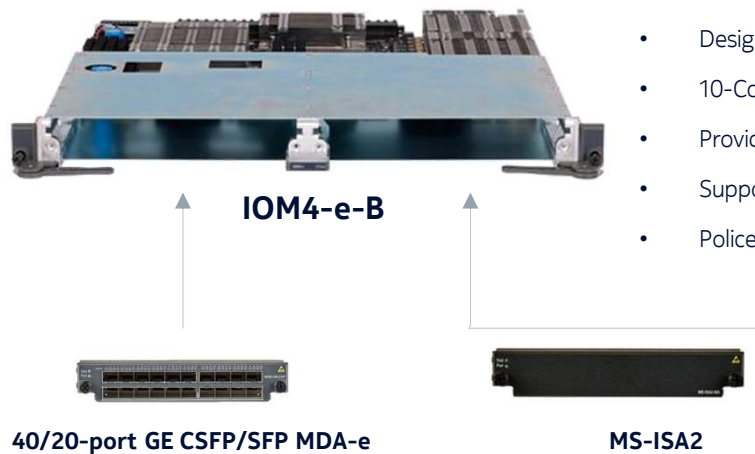
CPM – *Control Processor Module*

A SFM-6 executa a função de switching entre todos os slots do chassis. Temos redundância de 1+1, atuando como active/active com load sharing entre ambas.

A CPM5 é um modulo conectado diretamente na SFM6. A CPM5 fornece Gerenciamento, segurança e plano de controle para o Sistema. Em redundância, A CPM5 atua em modo hitless, stateful e failover

7750 SR-7

20x 1G SFP Ports e Placa de Serviços MS-ISA2 (Tunel GRE / IPIP e CGNAT)



- 200G FD per slot; 100G FD per MDA-e
- FP3-based, delivers deterministic performance without compromise
- Designed to accept up to two pluggable MDA-e and MS-ISA2 cards
- 10-Core 1.3 GHz CPU
- Provides performance, scalability and fully flexible configurations
- Supports a full range of services
- Policer Scale 256k ingress dedicated & 256K egress dedicated

ISA Application Type Available to Telecall	SR-7
Application Assurance	No
CG-NAT services	OK
LNS services	NO
WLAN services	NO
Virtualized Residential Gateway	NO
GRE Tunneling	OK

7750 SR-7

100G / 10G ports



6-connector Universal
QSFP28 MDA-e-XP

3 Unidades = 18 portas 100Gbps

10 portas 100G dedicadas
Conforme solicitado

+ 8 portas que possibilita:

- 80 portas de 10Gbps via Brakout (10x10 SR) ou;
- 24 portas 10G via Brakout (4x10 LR) ou;
- mix das duas possibilidades

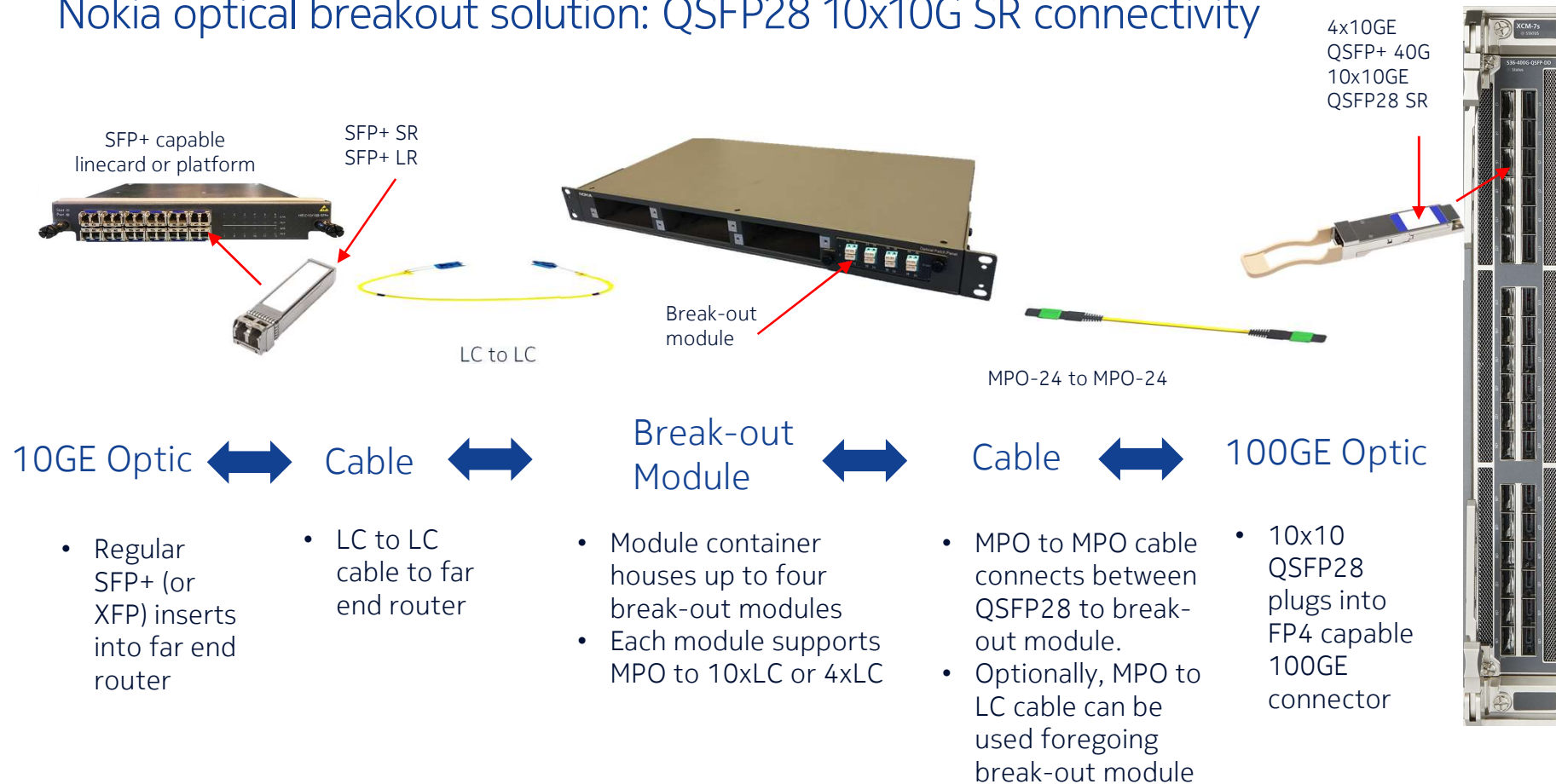


IOM5-e

7750 SR Input / Output Module 5e (IOM5-e):

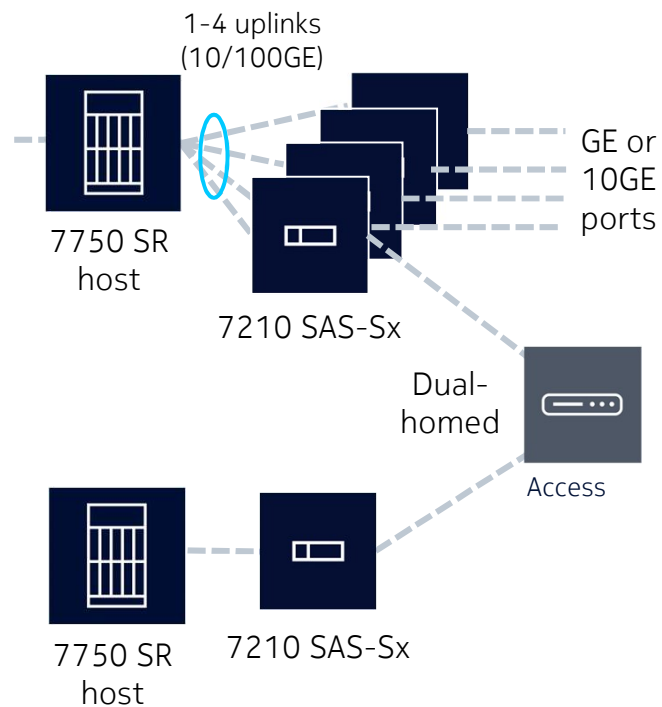
- Accepts up to two MDA-e-XPs
- SR-7: 400 Gb/s (redundant) (FD),

Nokia optical breakout solution: QSFP28 10x10G SR connectivity



Satellite Option

1/10G Downstream – 100G Connection Upstream



1/10GE satellite

- 64p10GE SFP+
- 4x 100GE CFP4/QSFP28 uplinks



7210 SAS-Sx

Extended Services Appliance (ESA)

The next generation in services processing

- Hardware compute platform for value-added services
 - Performs specialized packet processing within SR-OS
 - Hosts ESA-VMs, based on virtual ISAs (v-ISAs)
- Relieves 7750 SR slots from hosting service processing
 - 7750 SR forwards traffic from 100GE port to the ESA
 - Dedicate a 7750 SR port as an ESA port
 - Connect ESA to the 7750 SR with a P2P connection
 - Support: 7750 SR-s XMA-s and IOM-s; 7750 SR IOM5-e and IOM4-e
- Proven ISA architecture
 - Leverages 7750 SR ISA technology, CPM code and the VSR implementation for ISA (v-ISA)
- Integrated services use cases:
 - **Release20: AA, GC-NAT, Tunneling, IPsec, WLAN**
 - Future release*: vRGW, LNS and video services



ESA 100G - Front view



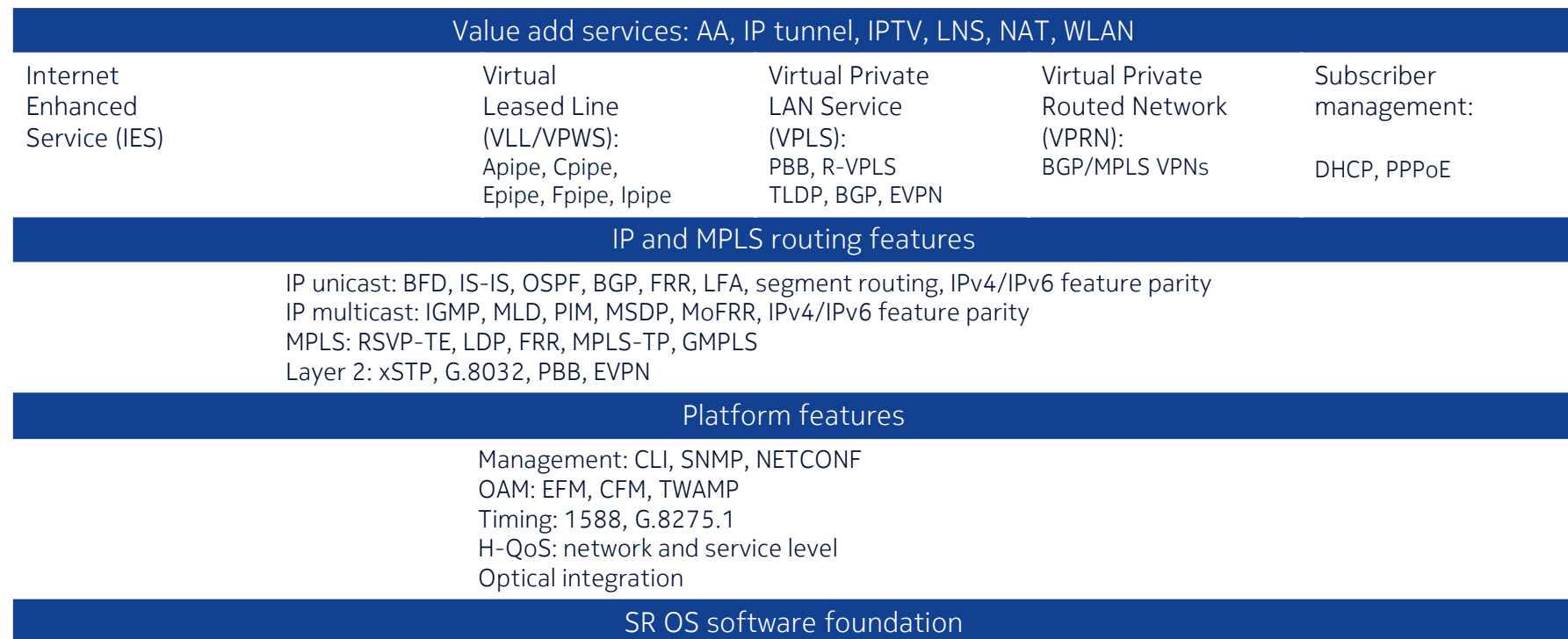
ESA 100G - Rear view

- 1RU Server: ESA 100G; AC and DC variants
- Single Intel Cascade Lake 6252 24 core processor
- NIC: 2x100 Gbps NIC with QSFP28; only one used

* For availability and timelines, contact Nokia

SR OS services architecture

Robust platform and IP/MPLS features support advanced services



SR OS key high availability features summary

Robust network architecture at every layer

Links

- Multichassis LAG, 64-Path ECMP
- 10 ms BFD for base router IP, MPLS, GRE and VPRN IP protocols
- MPLS: primary and standby LSPs, FRR
- IP: BGP FRR, IP FRR, PIC, LFA

Services

- Internet Enhanced Service (IES)
- Virtual Leased Line (VLL), Virtual Private LAN Service (VPLS)
- Virtual Private Routed Network (VPRN)
- Subscriber management

Protocols

- Nonstop Layer 2: OAM, xSTP, LACP, ARP, ND
- Nonstop IP unicast: VRRP, RIP, OSPF, IS-IS, BGP
- Nonstop IP multicast: IGMP, MLD, PIM, MSDP
- Nonstop MPLS: LDP, RSVP

SR OS software

- Major and minor ISSU
- Configuration and state synchronization between CPMs
- Modular process architecture
- Fault-tolerant design

Hardware

- Fully redundant hot swappable components*: power, cooling, SFMs, CPMs
- Multiprocessor architecture
- Distributed forwarding
- DoS protection, CPM per-protocol queuing, line-rate filtering*

* not applicable to x86 platforms

NOKIA



Appendix

7750 SR-1, 7750 SR-7, 7750 SR-12, 7750 SR-12e: System overview



	7750 SR-1	7750 SR-7	7750 SR-12	7750 SR-12e
Height	2RU	8RU	14RU	22RU
System capacity (HD)	3.0 Tb/s	4 Tb/s	8 Tb/s	21.6 Tb/s
System capacity (HD, non redundant)		8 Tb/s	16 Tb/s	27 T/bs
Fabric/control plane	Centralized/simplex	Redundant/redundant	Redundant/redundant	Redundant/redundant
Line card Slots	1 (integrated IOM); 2 x MDA-e-XP	5 IOM/IMM	10 IOM/IMM	9 IOM/IMM
Line rate slot forwarding capacity (FD):	1.5 Tb/s	400 Gb/s	400 Gb/s	1.5 Tb/s
- System density: GE/10GE/100GE/400GE:	-/120/14/2	400/200/20/5	800/400/40/10	720/1080/126/18
iFIFO slot capacity (FD):	4.0 Tb/s	1.2 Tb/s	1.2 Tb/s	4.0 Tb/s
- iFIFO system density GE/10GE/100GE/400GE:	-/240/40/8	400/600/60/5	800/1200/120/10	720/2160/360/72