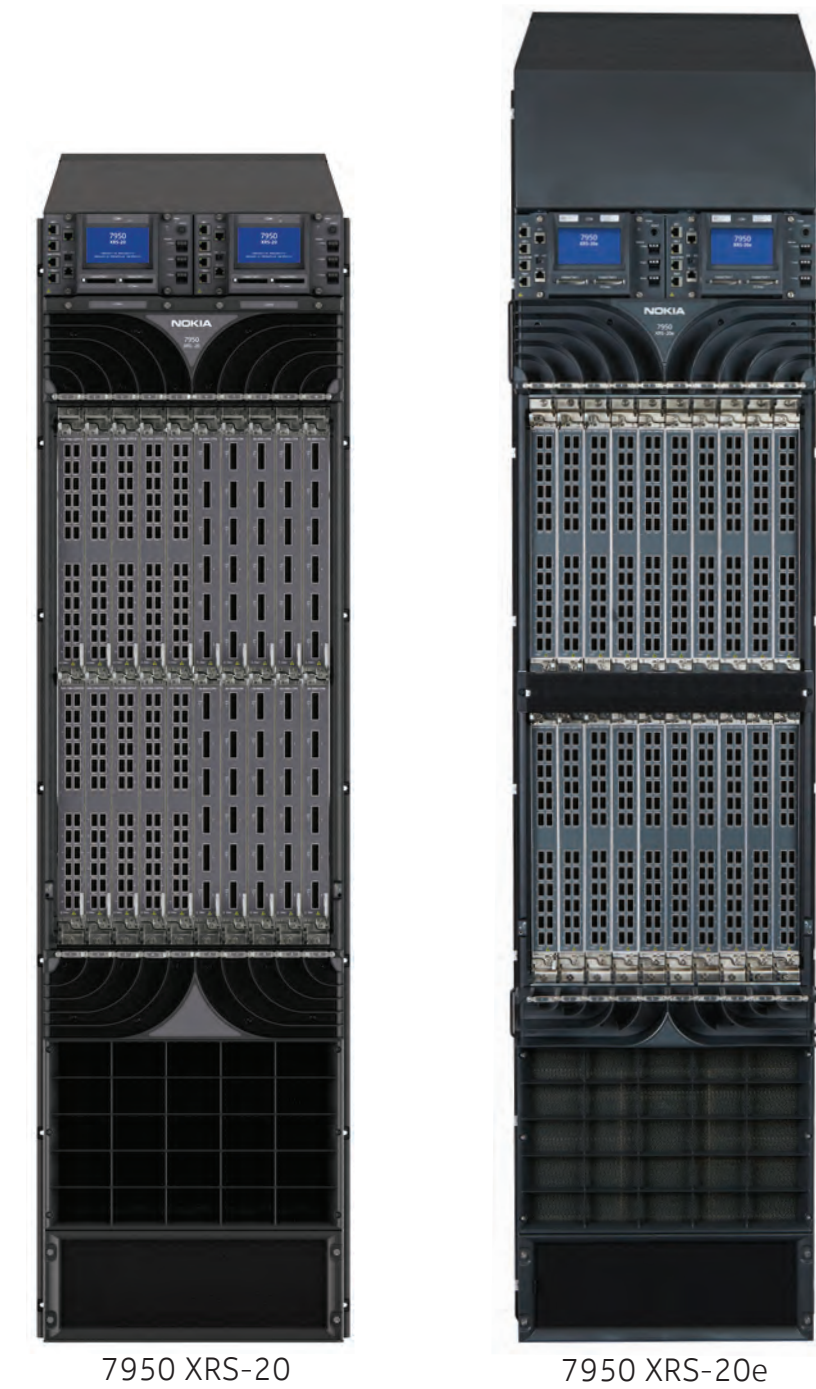




IP Routing Portfolio

7950 Extensible Routing System (XRS)

- Scalable, deterministic, and versatile core routing for the cloud, LTE/5G, and the Internet of Things (IoT)
- Powered by FP4 – groundbreaking 2.4T routing silicon from Nokia and proven SR OS software
- Versatile GE, 10GE, 40GE, 100GE, and 400G clear channel interfaces; integrated 100G DWDM
- Expands up to 0.576 Pb/s in a six-shelf system using chassis extension



- 7950 XRS-20**
- 64 Tb/s (half-duplex) system capacity
 - 20 slots of 1.6 Tb/s (full-duplex) in a 39 RU chassis with a standard 19-in. rack fit
 - Up to 4800 x 10GE, 960 x 40GE, 480 x 100GE, or 120 x 400G ports per chassis
- 7950 XRS-20e**
- 96 Tb/s (half-duplex) system capacity
 - 20 slots of 2.4 Tb/s (full-duplex) in a 44 RU chassis with a standard 19-in. rack
 - Up to 4800 x 10GE, 960 x 40GE, 480 x 100GE, or 120 x 400G ports per chassis

Portfolio Building Blocks

Nokia FP4: 2.4 Tb/s network processor

- The world's first multi-terabit network processor for the most powerful, scalable, and high-performance portfolio of IP routing platforms
- Deterministic QoS with multidimensional intelligence at scale without compromising capabilities or performance
- Enhanced packet inspection and correlation to optimize quality of experience and mitigate volumetric DDoS attacks
- Massive silicon miniaturization and memory integration significantly drives down power consumption per packet processed compared to competitive silicon

Service Router Operating System (SR OS)

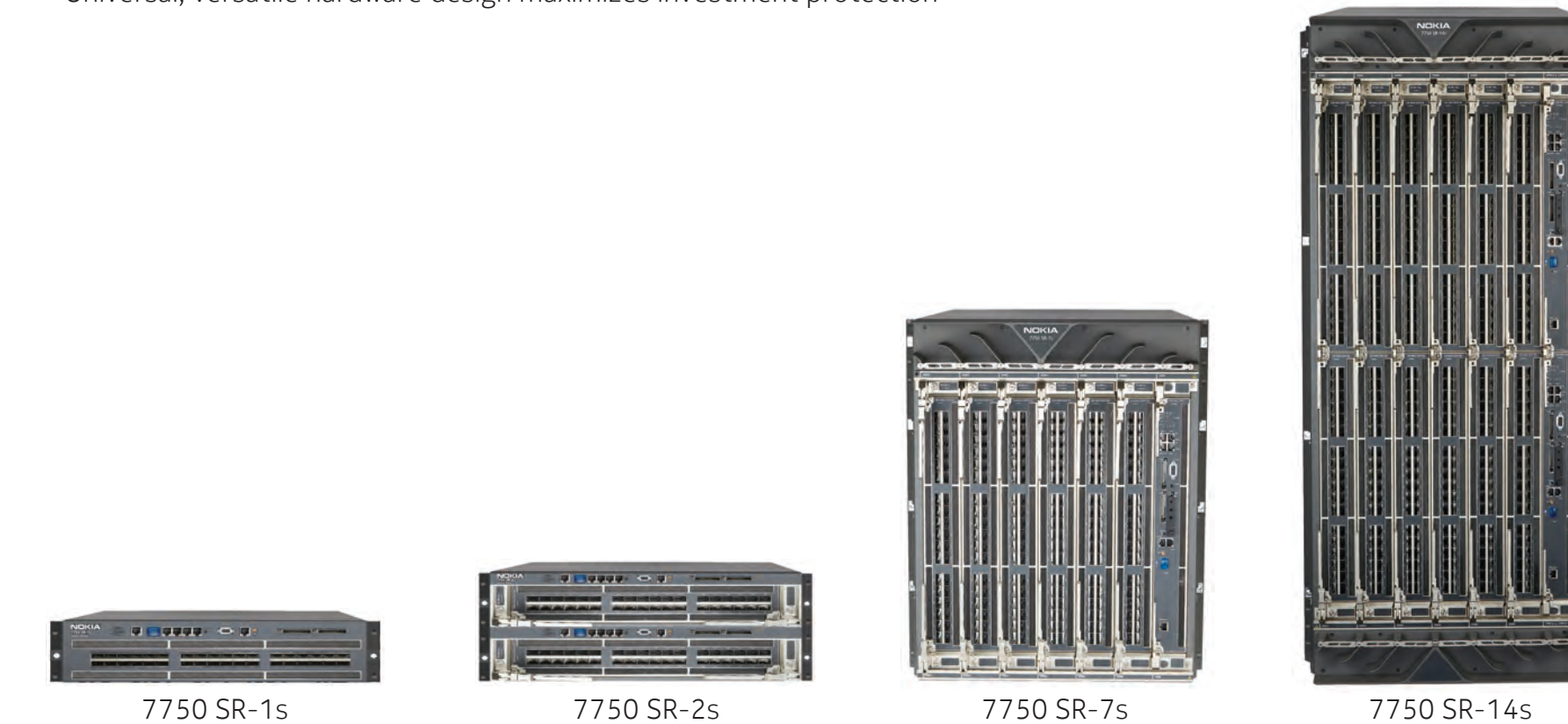
- One OS at the heart of the Nokia IP routing product portfolio
- A proven, robust, and highly reliable OS; broad feature set is deployed in more than 700 service provider networks worldwide
- Fully unleashes the power and performance of multi-core processing
- Streaming telemetry and programmable application control interfaces to enable insight-driven automation

Network Services Platform (NSP)

- Unifies service automation, network optimization, and dynamic assurance to deliver profitable, on-demand network services at scale using a carrier software-defined networking (SDN) and IP/optical network management platform
- Provides an efficient way to define, provision, and activate network services across networks that span multiple layers, services and physical/virtual infrastructure, as well as equipment from multiple vendors
- Enables insight-driven automation for global optimization and closed-loop control to mitigate congestion and/or performance issues detected by rich telemetry, or to improve peering point selection and allocation with integrated Deepfield analytics

7750 Service Router (SR)

- Scalable, comprehensive, and deterministic edge routing for the cloud, LTE/5G, and IoT
- Powered by FP4 – groundbreaking 2.4T routing silicon from Nokia and proven SR OS software
- Versatile GE, 10GE, 40GE, 100GE, and 400G clear channel interfaces; integrated 100G DWDM
- Universal, versatile hardware design maximizes investment protection



- 7750 SR-1s**
- 7750 SR-1s: 9.6 Tb/s (HD); 2 RU; 24 x 400G, 120 x 100GE, 72 x 40GE, 360 x 10GE ports
- 7750 SR-2s**
- 7750 SR-2s: 19.2 Tb/s (HD); 4 RU; 48 x 400G, 240 x 100GE, 144 x 40GE, 720 x 10GE ports
- 7750 SR-7s**
- 7750 SR-7s: 57.6 Tb/s (HD); 13RU; 144 x 400G, 720 x 100GE, 432 x 40GE, 2160 x 10GE ports
- 7750 SR-14s**
- 7750 SR-14s: 115.2 Tb/s (HD); 24RU; 288 x 400G, 1440 x 100GE, 864 x 40GE, 4320 x 10GE ports



- 7750 SR-1**
- 7750 SR-1: 2.4 Tb/s (HD); 2 RU; 2 x 400G, 24 x 100GE, 48 x 40GE, 240 x 10GE
- 7750 SR-7**
- 7750 SR-7: 4 Tb/s (HD); 8 RU; 5 x 400G, 120 x 100GE, 240 x 40GE, 1200 x 10GE, 800 x GE ports
- 7750 SR-12**
- 7750 SR-12: 8 Tb/s (HD); 14 RU; 10 x 400G, 240 x 100GE, 480 x 40GE, 2400 x 10GE, 1600 x GE ports
- 7750 SR-12e**
- 7750 SR-12e: 21.6 Tb/s (HD); 22 RU; 18 x 400G, 216 x 100GE, 432 x 40GE, 2160 x 10GE, 1440 x GE ports

- 7450 ESS-7**
- 7450 ESS-7: 2 Tb/s (HD); 8 RU; 5 x 400G, 120 x 100GE, 240 x 40GE, 1200 x 10GE, 800 x GE ports
- 7450 ESS-12**
- 7450 ESS-12: 4 Tb/s (HD); 14 RU; 10 x 400G, 240 x 100GE, 480 x 40GE, 2400 x 10GE, 1600 x GE ports



- 7750 SR-a4**
- 7750 SR-a4: 200 Gb/s (HD); 5 RU; 4 x 100GE, 4 x 40GE, 40 x 10GE, 176 x GE ports
- 7750 SR-a8**
- 7750 SR-a8: 400 Gb/s (HD); 7 RU; 8 x 100GE, 8 x 40GE, 80 x 10GE, 352 x GE ports
- 7750 SR-1e**
- 7750 SR-1e: 400 Gb/s (HD); 6 RU; 8 x 100GE, 8 x 40GE, 40 x 10GE, 160 x GE ports
- 7750 SR-2e**
- 7750 SR-2e: 800 Gb/s (HD); 10 RU; 16 x 100GE, 16 x 40GE, 80 x 10GE, 320 x GE ports
- 7750 SR-3e**
- 7750 SR-3e: 1.2 Tb/s (HD); 13 RU; 24 x 100GE, 24 x 40GE, 120 x 10GE, 480 x GE ports

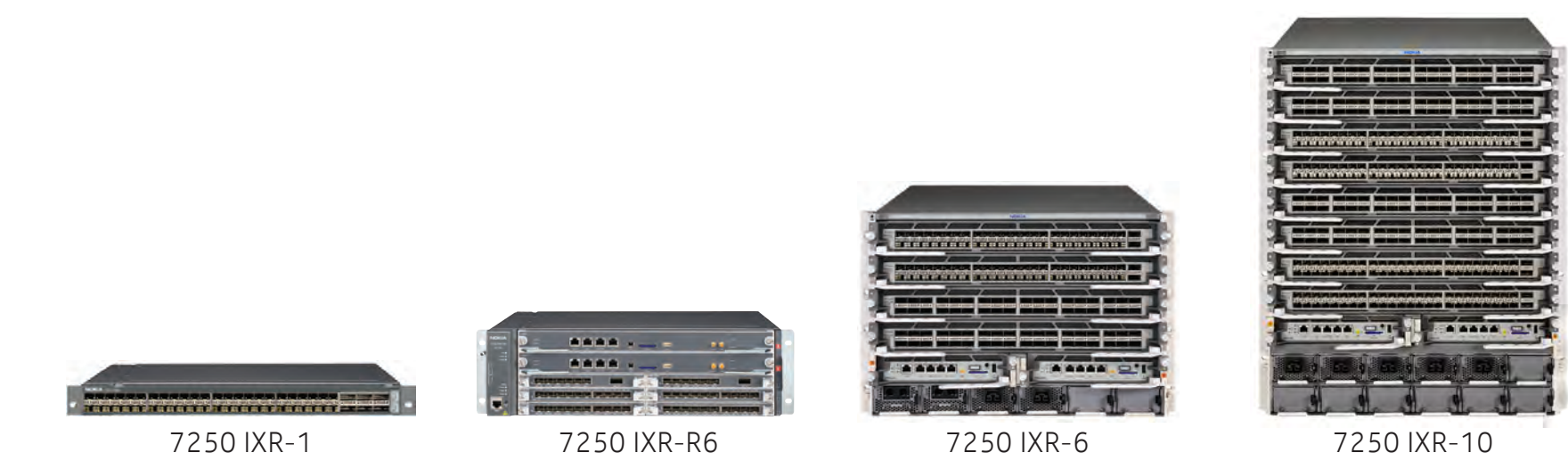
Virtualized Service Router (VSR)

- Flexible, high-performance, cloud-scalable, virtualized IP router designed and optimized for x86-based server infrastructure
- Full control plane (CP) and data plane (DP) separation with advanced CP and DP resiliency features
- Supports integrated single virtual machine (VM) or distributed (separate CP and DP VMs) deployment
- Allows simplified life-cycle management, operations and maintenance, as well as uniform management practices in hybrid network scenarios along with physical network elements
- Enables agile delivery of enterprise, residential, and mobile services through modular licensing and flexible configuration of many applications, such as: Route Reflector, Provider Edge, Data Center Gateway, Broadband Network Gateway, Residential Network Gateway, Network Address Translation, Mapping of Address and Port using Translation (MAP-T) Border Relay, Layer 2 TP Network Server, Application Assurance, Security Gateway, Wireless LAN Gateway.

7250 Interconnect Router (IXR)

- High density interconnect routing for the cloud, LTE/5G and IoT
- Spine and leaf datacenter aggregation WAN, and aggregation networks
- Proven and highly resilient SR OS software delivers a rich set of IP routing capabilities

- 7250 IXR-1**
- 1.63 Tb/s (HD); 1 RU; 6 x 100GE, 48 10GE/GE ports
- 7250 IXR-R6**
- 1.92 Tb/s (HD); 3 RU; 6 x 100GE, 60 x 10GE, 80 x GE, SONET/SDH ports
- 7250 IXR-6**
- 28.8 Tb/s (HD); 7 RU; 144 x 100GE, 144 x 40GE, 576 x 10GE, 192 x GE ports
- 7250 IXR-10**
- 57.6 Tb/s (HD); 13 RU; 288 x 100GE, 288 x 40GE, 1152 x 10GE, 384 x GE ports



7210 Service Access Switch (SAS)

- Access, demarcation and cost-effective GE aggregation routers
- High density and line-rate throughput
- Deep buffers with ingress and egress shaping
- 7210 SAS-S-series modes: 7x50 satellite port extender and fully-featured stand-alone router

- 7210 SAS-R12**
- 1.92 Tb/s (HD); 9 RU
 - 12 slots with 100 Gb/s per slot (FD)
 - 264 x GE, 48 x 10GE 12 x 100GE ports

- 7210 SAS-R6**
- 960 Gb/s (HD); 3 RU
 - 6 slots with 100 Gb/s per slot (FD)
 - 132 x GE, 24 x 10GE, 2 x 100GE ports

- 7210 SAS-Mxp (ETR option)**
- 128 Gb/s (HD); 1.5 RU
 - 24 x GE (2 with PoE/PoE+), 4 x 10GE ports

- 7210 SAS-M (10GE and ETR options)**
- 124 Gb/s (HD); 1.5 RU
 - 24 x GE, optional 2 x 10GE ports

- 7210 SAS-T (ETR option)**
- 124 Gb/s (HD); 1.5 RU
 - 22 x GE (2 with PoE/PoE+), 4 x 10GE ports

- 7210 SAS-Sx 10/100GE**
- 2.08 Tb/s (HD); 1.5 RU
 - 64 x GE or 10GE, 4 x 100GE ports

- 7210 SAS-Sx 1/10GE (6 variants)**
- 128 or 176 Gb/s (HD); 1 RU
 - 24 or 48 GE, 4 x 10GE ports, PoE/PoE+

- 7210 SAS-S 1/10GE (10 variants)**
- 128 or 176 Gb/s (HD); 1 RU
 - 24 or 48 GE, 4 x 10GE ports, PoE/PoE+

- 7210 SAS-Sx SONET/SDH**
- Satellite mode only, ETR
 - 4 x channelized OC-3/STM-1 or 1 x channelized OC-12/STM-1, 1 x GE ports

- 7210 SAS-D (ETR option)**
- 20 Gb/s (HD); 1 RU
 - 10 x GE ports

- 7210 SAS-K30 ETR**
- 60 Gb/s (HD); 1 RU; fanless, IP50
 - 3 x 10GE, 8 x GE ports, MACsec

- 7210 SAS-K12 (ETR option)**
- 18 Gb/s (HD); 1 RU; fanless, IP50
 - 12 x GE ports, MACsec

- 7210 SAS-K5 (ETR option)**
- 10 Gb/s (HD); 1 RU; fanless, IP50
 - 5 x GE ports

7705 Service Aggregation Router (SAR)

- Access and aggregation routers with hardware-based encryption support
- Multiservice interfaces delivering Ethernet, TDM, ATM, Frame Relay, HDLC, and GPON
- PoE/PoE+, microwave-aware, serial data, voice and teleprotection applications

- 7705 SAR-18**
- 140 Gb/s (HD); 10 RU
 - 12 slots with 2.5 Gb/s per slot (FD); 4 slots with 10 Gb/s per slot (FD)
 - 136 x GE, 28 x 10GE, multiservice interface ports

- 7705 SAR-8**
- 60 Gb/s (HD); 2 RU
 - 4 slots with 2.5 Gb/s (FD); 2 slots with 10 Gb/s per slot (FD)
 - 48 x GE, 12 x 10GE, multiservice interface ports

- 7705 SAR-X (2 variants)**
- 54 Gb/s (HD); 1 RU
 - 12 x GE ports, 2 x 10GE ports, 8 x T1/E1 ports

- 7705 SAR-M (2 variants)**
- 10 Gb/s (HD) plus expansion slot; 1 RU
 - 1 slot for a 6 x Ethernet/GE, 2 x 10GE or CWDM module
 - 7 x GE ports, optional 16 x T1/E1 ports

- 7705 SAR-Ax**
- 10 Gb/s (HD); fanless; 1RU
 - 12 x GE ports, GNSS receiver

- 7705 SAR-A (2 variants)**
- 10 Gb/s (HD); 1 RU
 - 4 x Ethernet, 8 x GE ports, optional 8 x T1/E1 ports

- 7705 SAR-H (2 variants)**
- 8.0 Gb/s (HD); 1.7 RU
 - 2 slots for 4 x Ethernet, 2 x T1/E1 and 2 x RS-232, or 1 x GNSS port modules
 - 8 x GE ports (4 with PoE/PoE+)

- 7705 SAR-Hc**
- 5.0 Gb/s (HD), DIN rail-mountable
 - 6 x GE (2 with PoE/PoE+); 2 x RS-232 serial ports

- 7705 SAR-Hm**
- LTE, 3G, 2G, Wi-Fi interfaces, GNSS receiver
 - 6 x 10/100 Mb/s; 2 x RS-232 async, raw socket

- 7705 SAR-O (14 variants)**
- Outdoor passive optical add-drop multiplexer
 - 8, 4 and 2-wavelength CWDM variants

- 7705 SAR-Wx (2 variants)**
- 10 Gb/s (HD); outdoor mountable
 - 5 GE ports, optional PoE+, GPS