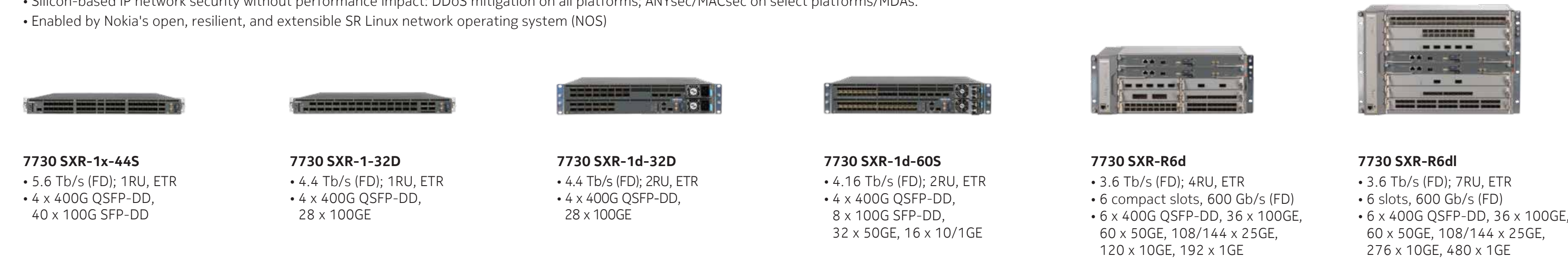


# IP Routing Portfolio

With the Nokia IP routing portfolio, connect users, things and clouds while securely delivering capacity, reliability and performance.

## 7730 Service Interconnect Router (SXR)

- Scalable, right-sized platforms designed for the access, aggregation and service edge applications in CSP and mission-critical networks
- Powered by Nokia FPCx 5.0 Tb/s (FD) routing silicon
- Interface breadth from 1GE to 400GE with full breakout and coherent optics support
- Silicon-based IP network security without performance impact: DDoS mitigation on all platforms; ANYsec/MACsec on select platforms/MDAs
- Enabled by Nokia's open, resilient, and extensible SR Linux network operating system (INOS)



- 7730 SXR-1x-44s**
  - 5.6 Tb/s (FD); 1RU, ETR
  - 4 x 400G QSFP-DD
  - 40 x 100G SFP-DD
- 7730 SXR-1-32D**
  - 4.4 Tb/s (FD); 1RU, ETR
  - 4 x 400G QSFP-DD
  - 28 x 100GE
- 7730 SXR-1d-32D**
  - 4.4 Tb/s (FD); 2RU, ETR
  - 4 x 400G QSFP-DD
  - 28 x 100GE
- 7730 SXR-1d-60S**
  - 4.16 Tb/s (FD); 2RU, ETR
  - 4 x 400G QSFP-DD
  - 8 x 100G SFP-DD
  - 32 x 50GE, 16 x 10/1/1GE
- 7730 SXR-R6d**
  - 3.6 Tb/s (FD); 4RU, ETR
  - 6 compact slots; 600 Gb/s (FD)
  - 6 x 400G QSFP-DD, 36 x 100GE, 60 x 50GE, 108/144 x 25GE, 120 x 10GE, 192 x 1GE
- 7730 SXR-R6di**
  - 3.6 Tb/s (FD); 7RU, ETR
  - 6 slots; 600 Gb/s (FD)
  - 6 x 400G QSFP-DD, 36 x 100GE, 60 x 50GE, 108/144 x 25GE, 276 x 10GE, 480 x 1GE

## 7250 Interconnect Router (IXR)

- High-port-density, scalable interconnect routers
- Optical breakout options include 4 x 100GE, 2 x 100GE, 4 x 25GE, 4 x 10GE
- Optimized for next generation of IP mobile transport (anyhaul), fixed-mobile convergence, and mission-critical applications
- 7250 IXR-e big, 7250 IXR-Xs, 7250 IXR-s, and 7250 IXR-Xi modes: 7x50 Ethernet Satellite port extender or stand-alone router
- Proven and highly resilient SR OS software delivers a rich set of IP routing capabilities



- 7250 IXR-e series**
  - Fixed/1RU, ETR
  - IXR-e2: 800 Gb/s (FD); 2 x 400G QSFP-DD, 2 x 100/40GE, 24 x 25/10GE, 24 x 10/1/1GE
  - IXR-e big: 300 Gb/s (FD); 2 x 100/40GE, 8 x 25/10GE, 24 x 10/1/1GE
  - IXR-e small: 120 Gb/s (FD); 14 x 10/1/1GE, 4 x 1GE/FE
  - IXR-e2c: 80 Gb/s (FD); 2 x 100GE, 12 x 25/10/1GE
  - IXR-ec: 64 Gb/s (FD); 6 x 10/1/1GE, 20 x 1GE, 4 1GE/FE
- 7250 IXR-R4**
  - 300 Gb/s (FD); 2RU, ETR
  - 4 slots, 160 Gb/s (FD) each
  - 4 x 100/40GE, 24 x 25GE, 42 x 10GE, 80 x 1GE
- 7250 IXR-R6d**
  - 2.4 Tb/s (FD); 4RU, ETR
  - 6 compact slots, 500/300 Gb/s (FD)
  - 4 x 400G QSFP-DD, 26 x 100GE, 52 x 50GE, 80 x 25GE, 120 x 10GE, 192 x 1GE
- 7250 IXR-X series, IXR-Xs**
  - Fixed/1RU
  - IXR-X3: 14.4 Tb/s (FD); 36 x 400G QSFP-DD
  - IXR-X1: 4.8 Tb/s (FD); 4 x 400G QSFP-DD, 32 x 100GE
  - IXR-Xs: 4.8 Tb/s (FD); 6 x 400G QSFP-DD, 48 x 50/25/10GE
  - IXR-Xi: 800 Gb/s (FD); 6 x 100GE, 48 x 10/1/1GE
- 7250 IXR-6**
  - 14.4 Tb/s (FD); 7RU
  - 4 slots, 3.6 Tb/s (FD) each
  - 144 x 100/40GE, 192 x 10/1/1GE
- 7250 IXR-10**
  - 28.8 Tb/s (FD); 13RU
  - 8 slots, 3.6 Tb/s (FD) each
  - 288 x 100/40GE, 384 x 10/1/1GE

## 7210 Service Access System (SAS)

- Access, demarcation and cost-effective GE aggregation routers
- High-density and line-rate throughput
- 7210 SAS-S, 7210 SAS-Sx and 7210 SAS-Mxp series modes: 7x50 satellite port extender and stand-alone router
- Proven and highly resilient SR OS software delivers a rich set of IP routing capabilities



- 7210 SAS-K30 ETR**
  - 30 Gb/s (FD); 2RU, fanless
  - 3 x 10GE, 8 x 1GE, MACSec
- 7210 SAS-Dxp-16p and Dxp-24p (DIN rail and ETR)**
  - Dxp-16p: 3x Gb/s (FD); 2 x 1/10GE, 4 x 1GE, 10 x 1GE with PoE+/++/HPoE
  - Dxp-24p: 42 Gb/s (FD); 2 x 1/10GE, 6 x 1GE, 16 x 1GE with PoE+/++/HPoE, MACSec on 4 x 1GE
- 7210 SAS-Dxp (ETR option)**
  - 30 Gb/s (FD); 1RU; fanless
  - 2 x 10GE, 10 x 1GE
- 7210 SAS-Sx and SAS-S 1/10GE**
  - 64 or 88 Gb/s (FD); 1RU
  - 24 or 48 1GE, 4 x 10GE, PoE/PoE+ option
- 7210 SAS-Mxp (ETR option)**
  - 64 Gb/s (FD); 1.5RU
  - 4 x 10GE, 24 x 1GE (2 with PoE/PoE+)
- 7210 SAS-R6**
  - 480 Gb/s (FD); 3RU
  - 6 slots, 100 Gb/s (FD) each
  - 2 x 100GE, 24 x 10GE, 132 x 1GE
- 7210 SAS-Wx (2 variants)**
  - 5 Gb/s (FD), outdoor mountable
  - 5 x 1GE, optional PoE+, GPS
- 7210 SAR-Hm and SAR-Hmc**
  - LTE, 3G, Wi-Fi (SAR-Hm), GNSS receiver
  - SAR-Hm: 6 x 10/100 Mb/s; 2 x RS-232 async, raw socket
  - SAR-Hmc: 3 x 10/100 Mb/s; 2 x RS-232 async, raw socket
- 7210 SAR-Hc**
  - 2.5 Gb/s (FD), DIN rail-mountable
  - 6 x 1GE (2 with PoE/PoE+); 2 x RS-232 serial ports
- 7210 SAR-X**
  - 27 Gb/s (FD); 1RU
  - 12 x 1GE, 2 x 10GE, 8 x T1/E1
- 7210 SAR-Ax**
  - 5 Gb/s (FD); fanless; 1RU
  - 12 x 1GE, GNSS receiver
- 7210 SAR-8**
  - 30 Gb/s (FD); 2RU
  - 4 slots, 2.5 Gb/s (FD) each; 2 slots with 10 Gb/s (FD) each
  - 48 x 1GE, 12 x 10GE, multiservice interface ports
- 7210 SAR-18**
  - 70 Gb/s (FD); 10RU
  - 12 slots, 2.5 Gb/s (FD) each; 4 slots with 10 Gb/s per slot (FD)
  - 136 x 1GE, 28 x 10GE, multiservice interface ports

## 7750 Service Router (SR)

- Scalable, comprehensive and deterministic routing for edge and core applications in CSP, webscale and mission-critical networks
- Powered by Nokia FPS 6.0 Tb/s (HD) and FPA 3.0 Tb/s (HD) routing silicon
- Versatile 10GE, 25GE, 50GE, 100GE, 200GE, 400GE, 800GE and up to 1.6T clear channel interfaces
- Silicon-based IP network security without performance impact: all platforms support DDoS mitigation and line-rate encryption using ANYsec
- Proven and highly resilient SR OS software delivers a rich set of IP routing capabilities



- 7750 SR-1s**
  - Fixed: 4.8 Tb/s (FD); 2.4 Tb/s (FD); 3RU
  - Modular: 3 Tb/s (FD); 3RU
  - Up to 4.8 Tb/s (FD)/12 Tb/s intelligent aggregation (IA)
  - 24 x 400G QSFP-DD
  - 120 x 100G QSFP28
  - 360 x 10G QSFP28
  - 32 x 100G SFP-DD
- 7750 SR-1se**
  - 19.2 Tb/s (FD); 3RU
  - Fixed, up to 19.2 Tb/s (FD), all ports are line rate
  - 24 x 800G QSFP-DD
  - 48 x 400G QSFP-DD
  - 192 x 100G QSFP28
  - 360 x 10G QSFP28
- 7750 SR-2s**
  - 9.6 Tb/s (FD); 5RU
  - 2 slots of 4.8 Tb/s (FD)/12 Tb/s IA
  - 48 x 400G QSFP-DD
  - 240 x 100G QSFP28
  - 720 x 10G QSFP28
  - 64 x 100G SFP-DD
- 7750 SR-2se**
  - 36 Tb/s (FD); 5RU
  - 2 slots of 18 Tb/s (FD)/19.2 Tb/s IA
  - 48 x 800G QSFP-DD
  - 96 x 400G QSFP-DD
  - 384 x 100G QSFP28
  - 720 x 10G QSFP28
  - 64 x 200G SFP-DD
- 7750 SR-7s**
  - 108 Tb/s (FD); 16RU or 17RU
  - 6 slots of 18 Tb/s (FD)/19.2 Tb/s IA
  - 144 x 800G QSFP-DD
  - 288 x 400G QSFP-DD
  - 384 x 100G QSFP28
  - 2160 x 10G QSFP28
  - 64 x 200G SFP-DD
- 7750 SR-14s**
  - 216 Tb/s (FD); 27RU or 28RU
  - 12 slots of 18 Tb/s (FD)/19.2 Tb/s IA
  - 288 x 800G QSFP-DD
  - 576 x 400G QSFP-DD
  - 2304 x 10G QSFP28
  - 4320 x 10G QSFP28
  - 384 x 200G SFP-DD
- 7750 SR-1**
  - 1.5 Tb/s (FD); 2RU
  - Modular, 1.5 Tb/s (FD)/4.0 Tb/s IA
  - 8 x 400G QSFP-DD
  - 40 x 100G QSFP28
  - 240 x 10G QSFP28
  - 32 x 10/25G SFP28
- 7750 SR-1x-48D, SR-1-24D**
  - 6 Tb/s or 2.8 Tb/s (FD); 2RU
  - Fixed, up to 6 Tb/s (FD)/19.2 Tb/s IA
  - 48 x 800G QSFP-DD
  - 96 x 400G QSFP-DD
  - 384 x 100G QSFP28
  - 480 x 10G QSFP28
- 7750 SR-1x-92S, SR-1-92S, SR-1-46S**
  - 6 Tb/s or 2.8 Tb/s (FD); 2RU
  - Fixed, up to 6 Tb/s (FD)/12.8 Tb/s IA
  - 12 x 800G QSFP-DD
  - 24 x 400G QSFP-DD
  - IXR-Xs: 4.8 Tb/s (FD); 6 x 400G QSFP-DD, 48 x 50/25/10GE
  - IXR-Xi: 800 Gb/s (FD); 6 x 100GE, 48 x 10/1/1GE
  - 200 x 10G QSFP28
  - 80 x 100G SFP-DD
  - 40 x 200G SFP-DD
- 7750 SR-7/7450 ESS-7**
  - 4 Tb/s (FD); 8RU
  - 5 slots of 800 Gb/s (FD)/1.2 Tb/s IA
  - 20 x 400G QSFP-DD
  - 60 x 100G QSFP28
  - 600 x 10G QSFP28
  - 160 x 10/25G SFP28
  - 400 x 1G CSFP
- 7750 SR-12/7450 ESS-12**
  - 8 Tb/s (FD); 14RU
  - 10 slots of 800 Gb/s (FD)/1.2 Tb/s IA
  - 40 x 400G QSFP-DD
  - 120 x 100G QSFP28
  - 1200 x 10G QSFP28
  - 320 x 10/25G SFP28
  - 800 x 1G CSFP
- 7750 SR-12e**
  - 13.5 Tb/s (FD); 22RU
  - 9 slots of 1.5 Tb/s (FD)/4 Tb/s IA
  - 72 x 400G QSFP-DD
  - 360 x 100G QSFP28
  - 2160 x 10G QSFP28
  - 288 x 10/25G SFP28
  - 720 x 1G CSFP

## 7705 Service Aggregation Router (SAR)

- Access and aggregation routers supporting datapath encryption including IPsec and NGE (on select platforms)
- Well-suited for mission-critical and industrial applications, particularly for legacy-to-packet adaptation
- Multiservice interfaces delivering Ethernet, packet microwave, TDM, RS232, C37.94, E&M and other legacy interfaces
- Proven and highly resilient SR OS software delivers a rich set of IP routing capabilities



- 7705 SAR-Wx (2 variants)**
  - 5 Gb/s (FD), outdoor mountable
  - 5 x 1GE, optional PoE+, GPS
- 7705 SAR-Hm and SAR-Hmc**
  - LTE, 3G, Wi-Fi (SAR-Hm), GNSS receiver
  - SAR-Hm: 6 x 10/100 Mb/s; 2 x RS-232 async, raw socket
  - SAR-Hmc: 3 x 10/100 Mb/s; 2 x RS-232 async, raw socket
- 7705 SAR-Hc**
  - 2.5 Gb/s (FD), DIN rail-mountable
  - 6 x 1GE (2 with PoE/PoE+); 2 x RS-232 serial ports
- 7705 SAR-X**
  - 27 Gb/s (FD); 1RU
  - 12 x 1GE, 2 x 10GE, 8 x T1/E1
- 7705 SAR-Ax**
  - 5 Gb/s (FD); fanless; 1RU
  - 12 x 1GE, GNSS receiver
- 7705 SAR-8**
  - 30 Gb/s (FD); 2RU
  - 4 slots, 2.5 Gb/s (FD) each; 2 slots with 10 Gb/s (FD) each
  - 48 x 1GE, 12 x 10GE, multiservice interface ports
- 7705 SAR-18**
  - 70 Gb/s (FD); 10RU
  - 12 slots, 2.5 Gb/s (FD) each; 4 slots with 10 Gb/s per slot (FD)
  - 136 x 1GE, 28 x 10GE, multiservice interface ports

## Portfolio Building Blocks

### Nokia FP routing silicon

- FPS**
  - 6 Tb/s half duplex (HD), fully programmable network processor brings high-performance, scale and feature richness for the most demanding IP edge and core applications
  - Deterministic, ensures performance certainty under all network loads, capacities and full services without compromise
  - Silicon-based IP network security without performance impact: all platforms support DDoS mitigation and line-rate encryption using ANYsec
- FPCx**
  - 5 Tb/s full duplex (FD), fully programmable network processor brings performance and feature-richness optimized for IP access, aggregation, and smaller edge applications
  - Deliver secure and assured services with granular SLA enforcement and high service scale for a wide range of routing applications
  - Silicon-based IP network security without performance impact: all platforms support DDoS mitigation, and line-rate encryption using ANYsec/MACsec is offered on select platforms/MDAs

### Network operating systems

- SR OS**
  - Proven, robust and highly reliable, supports the industry's most comprehensive suite of IP, MPLS and segment routing features
  - Carrier-level scale and performance across all VPN and subscriber management services
  - Ground-up model-driven architecture and telemetry sensors at a high level of granularity
  - Industry-leading non-stop services, routing and in-service software upgrade support
- SR Linux**
  - Embraces cloud-native design principles with a Linux-based, modular, microservices, state-sharing architecture
  - Leverages proven SR OS protocol stacks and networking applications for a feature-rich, hardened, interoperable, and secure solution
  - Ground-up model-driven architecture and telemetry sensors at a high level of granularity
  - Built for openness and raises the bar on customizability, offering a true app-development platform

### Virtualized Service Router (VSR)

- VSR**
  - Flexible, high-performance, virtualized IP router designed and optimized for cloud scaling in x86-based server environment
  - Enables agile delivery of a wide range of SR OS IP routing and network applications, deployable as a virtual network function or container network function
  - Allows simplified life-cycle management, operations and maintenance, ensuring uniform operational practices in hybrid network scenarios (i.e., when deployed along with physical network elements)

### Network Services Platform (NSP)

- Delivers a programmable, network automation framework for IP/MPLS, Ethernet, IP/optical and microwave networks
- Abstracts network complexity by using intent-based networking that turns high-level service definitions into device-specific commands
- Improves network availability with powerful assurance and analytics capabilities to anticipate and troubleshoot the network and fix issues quickly and efficiently

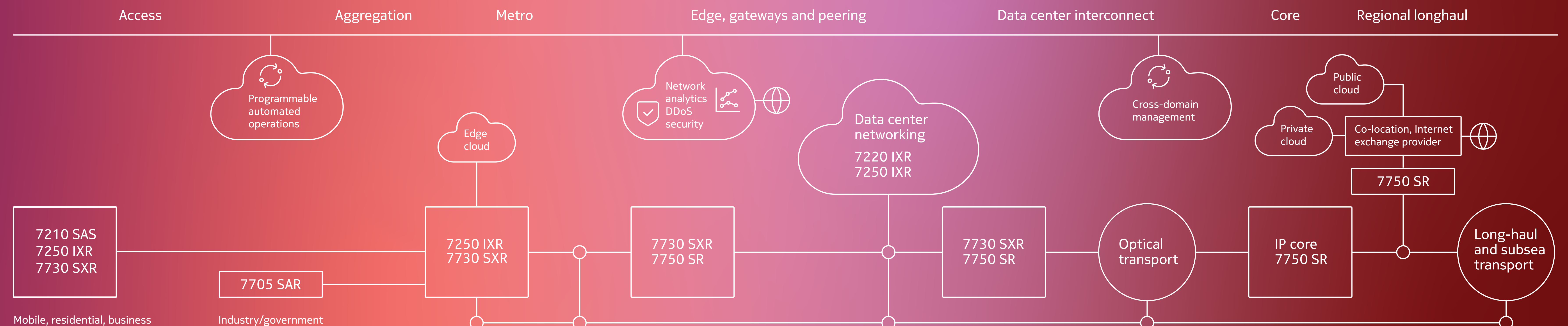
### Deepfield Network Analytics and DDoS Security

- Petabyte-scale, big data software portfolio for real-time, multidimensional network, service and subscriber insights
- Deepfield Cloud Genome® and Deepfield Secure Genome® data feeds for up-to-date internet content/applications/services and security context
- Deepfield Defender for fast and accurate DDoS detection and mitigation orchestration
- 7750 DMS-1-24D: Purpose-built FPS-based, 2.8 Tb/s (FD) system for scalable, cost-efficient DDoS mitigation

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