



Building Modern & Scalable DC Fabrics

Netnod Tech Meeting

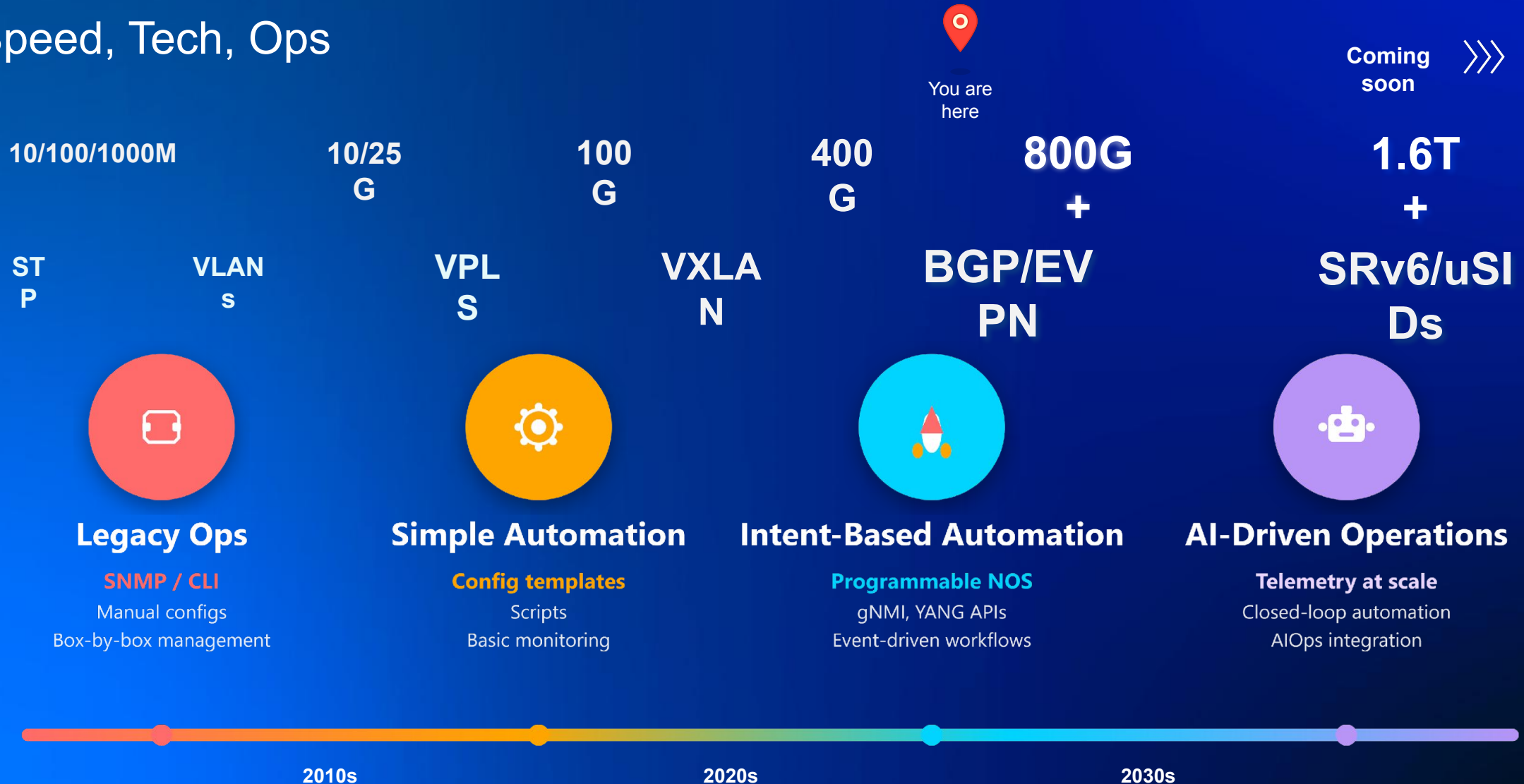
October'25

Alperen Akpınar

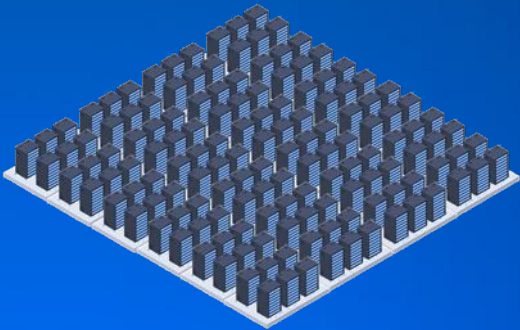
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Data Center Network Evolution

Speed, Tech, Ops



The Scale Challenge: Data Centers Are Getting Bigger!



AI is resetting the expectation of what a “large Data Center” is

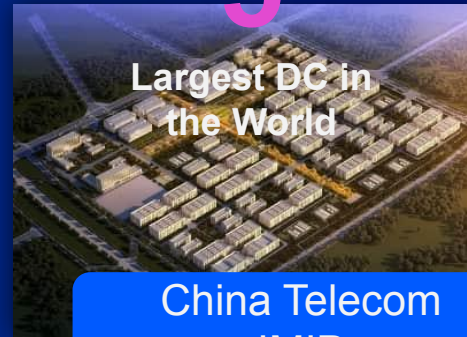
2013



Meta's Lulea Data Center

30
84,000 m²
Source: Baxtel

2022



China Telecom IMIP

150
1,000,000 m²
Source: Capacity

2028



Jeollanam-do Province South Korea

3,000
\$35B Investment
Source: Capacity

Power

Cooling

Networking!

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Nokia AI Deployment Examples

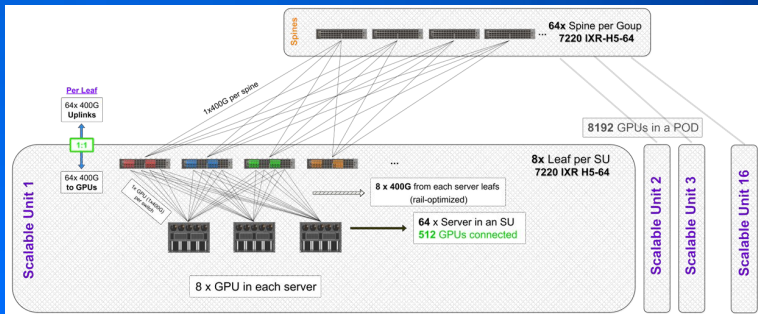
Based on Ethernet, open and future-safe networking



Press
release

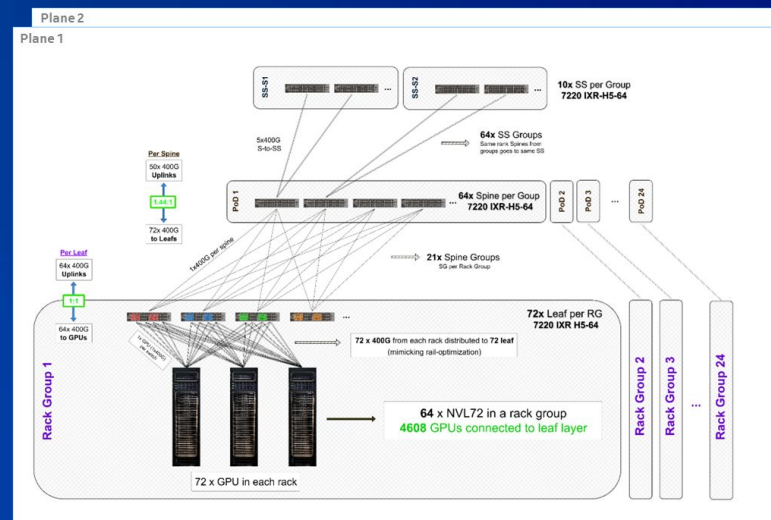
- “Smaller” Training Clusters
@1K to 16K GPUs

- Two-tier topologies



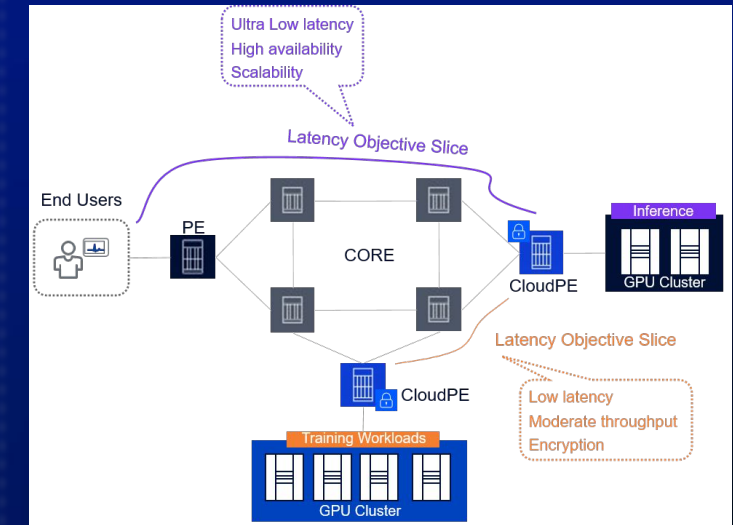
- “Giga” AI Factories
@100K+ to 1M GPUs

- Multi-plane topologies
- Advanced routing, QoS, and load balancing



- Inference Edge Clusters

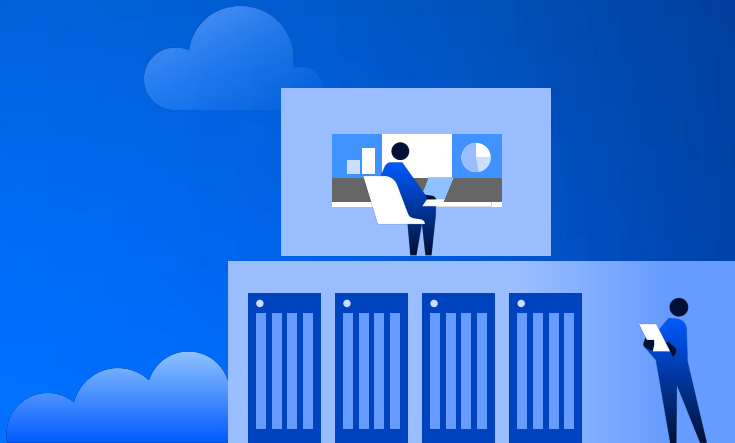
- Optimized for size and consolidation
- Integrated WAN interconnect



AI-ready networks

Between data centers

Inside data centers

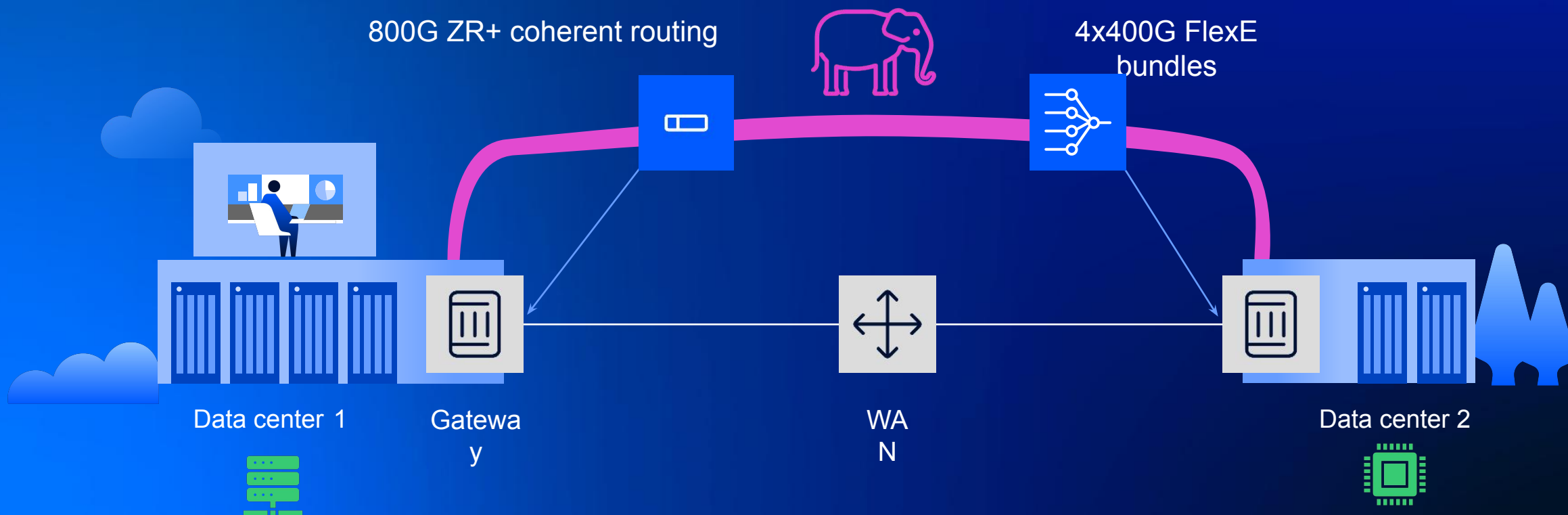


Data center

AI-ready networks

Between data centers

Inside data centers



AI-ready networks

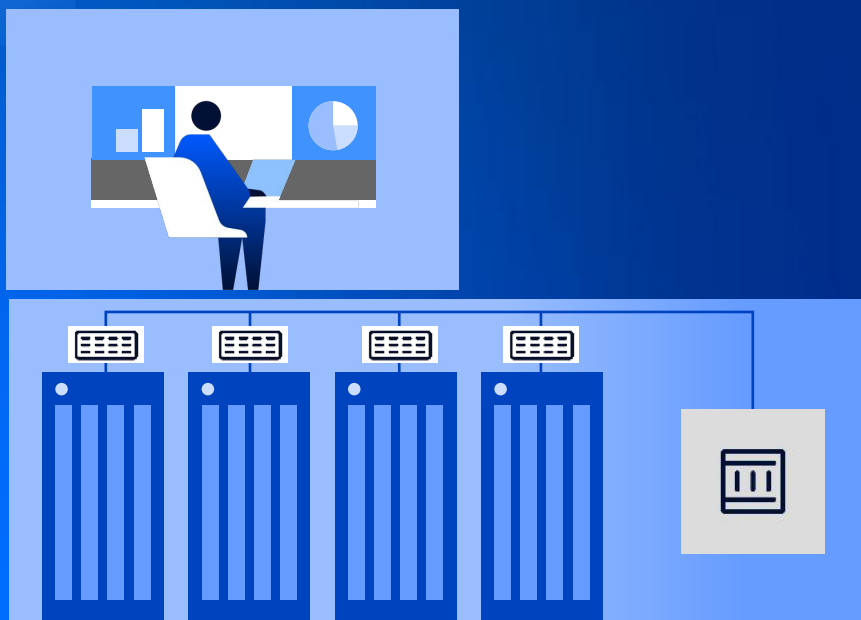
Between data centers

Inside data centers

Scalabl

Losses

§ Automated



800G AI backend

fingerprints on 7220 IXR-H5 and 7250 IXR Gen3

AI-ready networks

Between data centers

Inside data centers

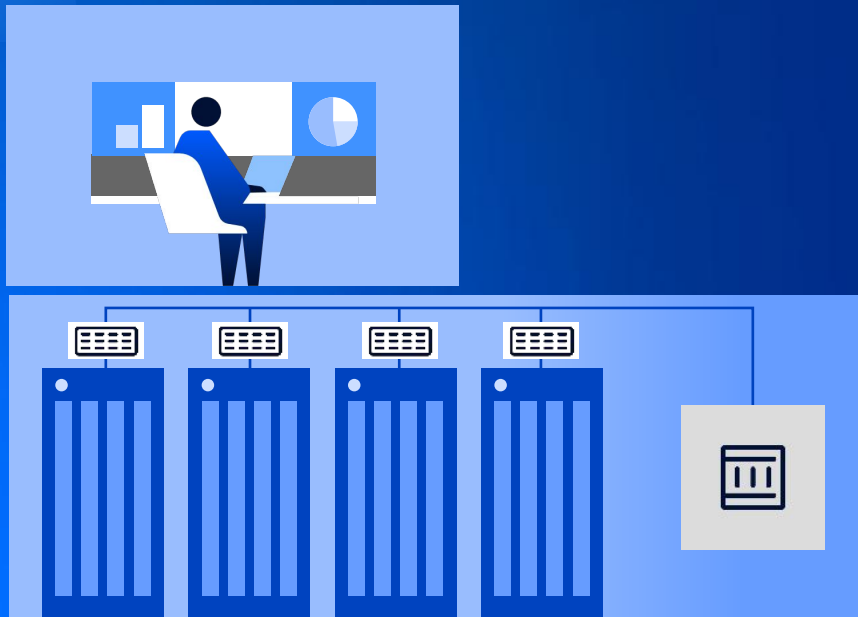
Scalabl

Lossles

Automated



800G AI backend
fabric features on 7220 IXR-H5 and
7250 IXR Gen3



Load balancing and
QoS, LB and RDMA aware (Q-pair)
hashing

- DCQCN (PFC/ECN)

AI-ready networks

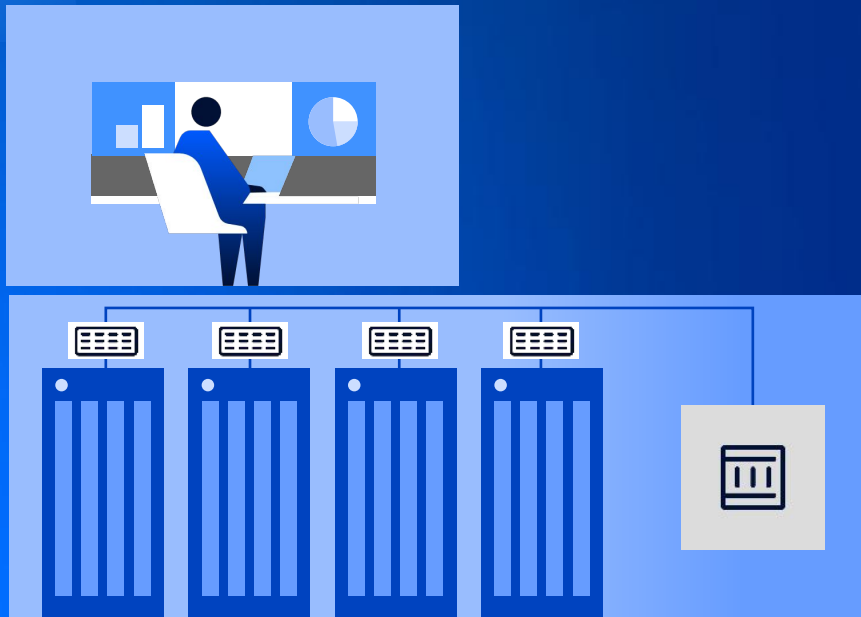
Between data centers

Inside data centers

Scalabl

Lossles

Automated



800G AI backend
fabrics
features on 7220 IXR-H5 and
7250 IXR Gen3



Load balancing and
QoS
SLB and RDMA aware (Q-pair)
hashing
• DCQCN (PFC/ECN)



Advanced AI telemetry
• Congestion indicators
• Real time insight

AI-ready networks

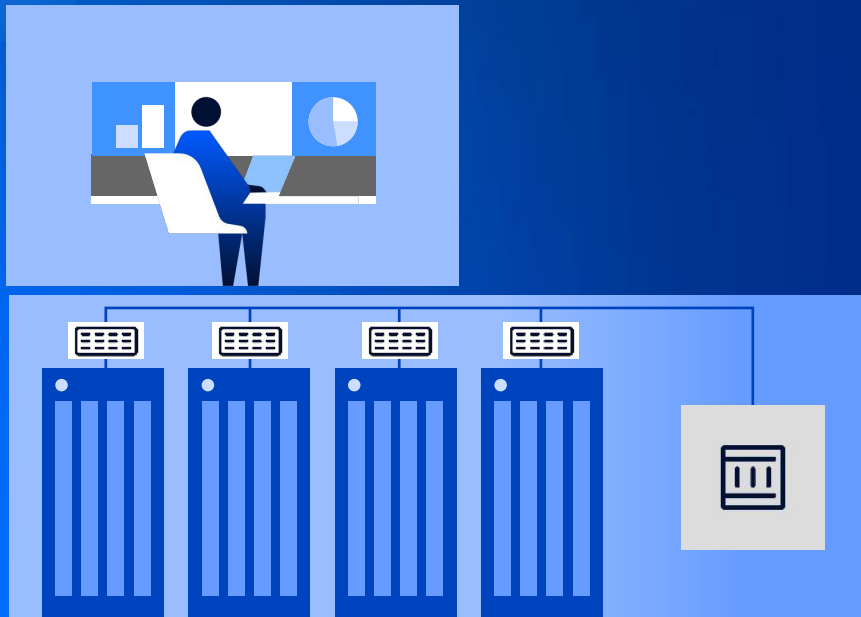
Between data centers

Inside data centers

Scalable

Lossless

Automated



800G AI backend
fabrics
Features on 7220 IXR-H5 and
7250 IXR Gen3



Load balancing and
QoS
Load and RDMA aware (Q-pair)
hashing
• DCQCN (PFC/ECN)



Advanced AI telemetry
• Congestion indicators
• Real time insight



Backend multi-tenancy
• Lightweight and secure segmentation

AI-ready networks

Between data centers

Inside data centers

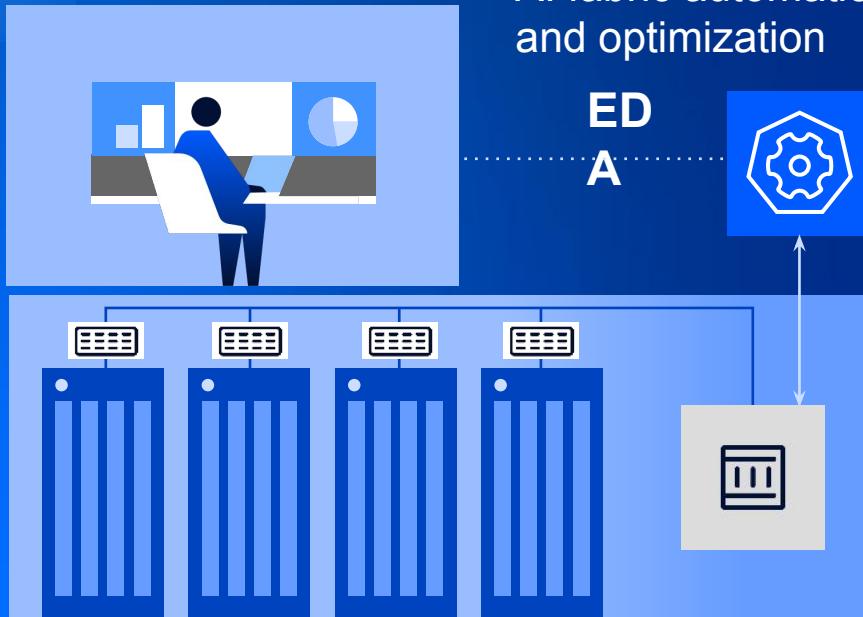
Scalable

Lossless

Automated

AI fabric automation
and optimization

ED
A



800G AI backend
fabric features on 7220 IXR-H5 and
7250 IXR Gen3



Load balancing and
QoS LB and RDMA aware (Q-pair)
hashing

- DCQCN (PFC/ECN)



Advanced AI telemetry

- Congestion indicators
- Real time insight



Backend multi-tenancy

- Lightweight and secure segmentation

Networking for the AI era



Builds on and leverages
kubernetes



Event-Driven-Automation

Intent-Based Network management, automation and orchestration



DDoS Protection

DDoS Detection, Mitigation and scrubbing



AI for network operations



Edge Cloud



WAN



Internet



Public cloud

IP connectivity

Optical connectivity



Data center fabric

Reliable data center switching with predictable and simplified operations for your data center environments



Data center gateway

High performance DC to DC, DC to internet, DC to WAN and DC to clouds interconnect and DDoS mitigation



Optical DCI

Dedicated optical networking enables high bandwidth, very low latency and highly secure data transmission for business-critical applications

The Nokia Data Center Fabric solution

Build and operate at scale with confidence

Event Driven Automation
Automation & operations
toolkit



Service Router Linux
Network operating
system

**SR
Linux**

7250 IXR, 7220 IXR
Data center platforms



Intent-driven
design and
operations



Digital sandbox
for true
emulation



Cloud-native
integration
model

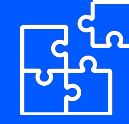


Cloud-native, Kubernetes-based extensible foundation

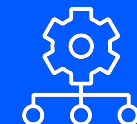
Open, scalable
telemetry
framework



Open-source
CLI plugins
(Python)



NetOps
Development
Kit (NDK)



Standard
Linux
kernel



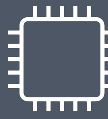
Ground-up,
model-driven
foundation



Resilient,
field-proven
protocol stacks

**SR
OS**

Based on
merchant
silicon



Common
hardware and
software design



Full range of DC
applications



DNY

Do none yourself

DSY

Do some yourself

DIY

Do it yourself

Building for open

Consistently raising the bar

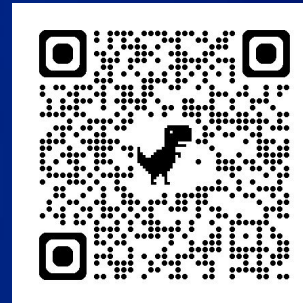


Try EDA

Powerful framework made easy to try

- The new reality: If you can't try it, it doesn't exist
- Try EDA sets up the full EDA system in an unattended way
 - No registration, no license required
 - make try-eda is all it takes
- It is the **only** system of that scale that offers the **unlicensed** and **unlimited** try experience

<https://docs.eda.dev/getting-started/try-eda/>



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