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# Technology

LINX126



# Agenda

01.

## **LON2**

LON2 Tech Refresh Success

03.

## **Operations and Maintenance**

Operational Issues, planned maintenance and route server updates

02.

## **Manchester**

Building 1Tb+ readiness for Manchester

04.

## **Internal Developments**

Security, AI and operational efficiencies

Transitioning from Edgecore/  
IP Infusion to Nokia SR Linux

# LON2 Tech Refresh Success

# Infrastructure Evolution

## Legacy Infrastructure

Successfully decommissioned retired hardware platforms

- Edgecore 7712-32-X
- Edgecore 5812-54-X

Running OcNOS software since 2018



## New Platform

Standardized on the Nokia 7220 IXR-D family

- D2, D3, and D5 platforms deployed

Full coverage across all LON2 sites – all sites support 10G >> 400G  
Advanced telemetry-driven operations

# Platform Capabilities



**IXR-D2L**

**2.0 Tb/s**

48\* SFP28 (1/10G)  
8\* QSFP28 uplink//ISL  
connectivity (100G)



**IXR-D3L**

**3.2 Tb/s**

32\* QSFP28 (100G)  
4\* 10G breakout mode



**IXR-D5L**

**12.8 Tb/s**

32\* QSFP-DD (400G)  
2\*100G/4\*100G  
breakout mode

2\*10G SFP ports on each for monitoring/probe connections

# Migration Steps

# 1

## Pre-Build of Nokia Network

Complete parallel build at each site of new topology (Nov-Dec '25)

# 2

## NNI Turn Up

Interconnect between legacy Edgecore and Nokia platform (Dec '25)

# 3

## Soak Period

Extended stability testing over the Christmas Period (Dec '25 – Jan '26)

# 4

## Migration

Final member transition to new platform over 6 maintenance windows (Feb '26)

# Migration Execution (1)

- Maintenances spread out over 3-week period
- Telehouse North 2 used as initial pilot site for migration
- Remaining maintenances migrated multiple sites per maintenance with separate teams at each site, and multiple remote engineers responsible for configuration deploys and verification
- Separate maintenances for the 2 largest sites at the end (Equinix, Slough and Telehouse North)
- Traffic across NNI closely monitored during migration window



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# Migration Execution (2)

In house NCA Automation platform utilised to allow for efficient bulk migration of members.

# 140+

members in a single overnight maintenance window

No manual building of member migration configs

Single NCA push decommissioning members on old platform, then a second push to deploy them on new switch

No issues with typos  
Bulk move members in TSI

Engineers were able to focus on physically migrating the ports and validating member reachability.

## Alias CLI Commands

- Custom CLI commands implemented for common commands.
- Information presented in easily readable table formats.
- Groups multiple metrics (Admin/Oper State, PortSpeed, MAC, Optics).
- Instant post-migration port health checks.

```
[alias]
"show system configuration session" = "info from state / system configuration session {} | as table | filter fields type name exclusive username started"
"show system configuration candidate" = "info from state / system configuration candidate {} | as table | filter fields type username started"
"show system configuration checkpoint" = "info from state / system configuration checkpoint {} | as table | filter fields name comment username created"
"show system configuration commit" = "info from state / system configuration commit {} | as table | filter fields type name status comment username started ended"
"x sub" = "info from state /interface {interface} subinterface {subinterface} | as table | filter fields admin-state oper-state description type last-change"
"x int" = "info from state /interface {interface} | as table | filter fields admin-state oper-state description oper-down-reason ethernet/port-speed ethernet/hw-mac-address last-change"
"x interr" = "info from state /interface {interface} | as table | filter fields admin-state oper-state description oper-down-reason statistics/in-error-packets statistics/in-fcs-error-packets statistics/in-discarded-packets statistics/out-discarded-packets statistics/out-error-packets"
"x xcvr" = "show xcvr | as table"
```

```
Arc909-bhn-1on2# x int
```

Name	Admin-state	Oper-state	Description	Oper-down-reason	Ethernet port-speed	Ethernet hw-mac-address	Last-change
ethernet-1/1	enable	up	marstone-C09852		10G	A8:E5:BC:78:5A:FC	2026-02-17T01:51:45.739Z (3 months ago)
ethernet-1/2	enable	up	bogona-C16567		10G	A8:E5:BC:78:5A:FD	2026-02-17T02:09:18.885Z (3 months ago)
ethernet-1/3	enable	up	ocavevuklimit-C28700		10G	A8:E5:BC:78:5A:FE	2026-02-17T06:07:24.106Z (3 months ago)
ethernet-1/4	enable	up	padgroup-C24815		10G	A8:E5:BC:78:5A:FF	2026-02-17T12:04:50.847Z (3 months ago)
ethernet-1/5	enable	up	oillookirelan-C28439		10G	A8:E5:BC:78:5B:00	2026-02-17T02:40:29.513Z (3 months ago)
ethernet-1/6	enable	up	burstfir-C26874		10G	A8:E5:BC:78:5B:01	2026-02-17T02:08:02.260Z (3 months ago)
ethernet-1/7	enable	up	cerberus-C24477		10G	A8:E5:BC:78:5B:02	2026-02-17T02:10:56.244Z (3 months ago)
ethernet-1/8	enable	down	ankrpb-C25504	lower-layer-down	10G	A8:E5:BC:78:5B:03	2026-04-09T16:08:38.200Z (a month ago)

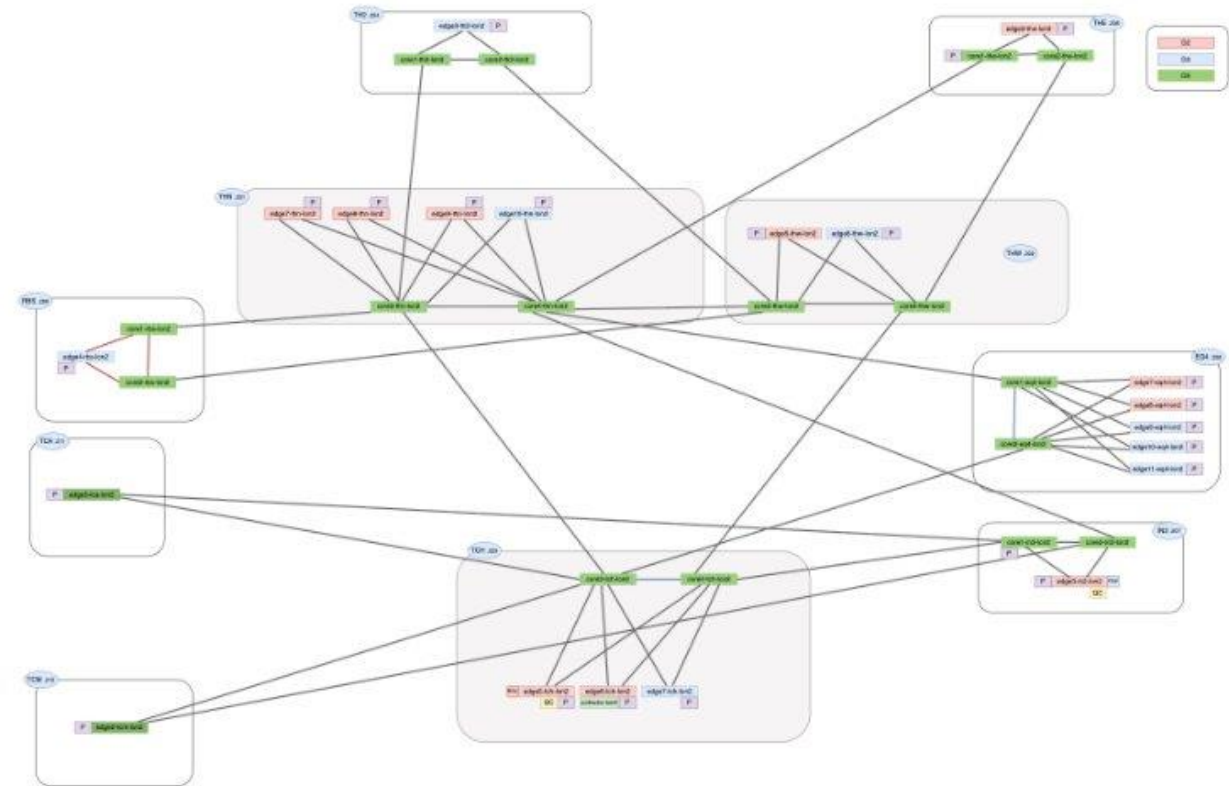
```
Arc909-bhn-1on2# x xcvr
```

Name	Channel-Index	Description	Vendor	Part Number	FPD	Input Power	Output Power	Bias
ethernet-1/1	1	marstone-C09852	FLEXOPTIX	P-1396.10	10GBASE-LR	-4.31	-2.51	32.114
ethernet-1/2	1	bogona-C16567	FLEXOPTIX	P-1396.10	10GBASE-LR	-4.44	-2.54	29.454
ethernet-1/3	1	ocavevuklimit-C28700	FLEXOPTIX	P-1396.10	10GBASE-LR	-4.24	-2.50	31.882
ethernet-1/4	1	padgroup-C24815	FLEXOPTIX	P-1396.10	10GBASE-LR	-4.98	-2.55	29.852
ethernet-1/5	1	oillookirelan-C28439	FLEXOPTIX	P-1396.10	10GBASE-LR	-4.25	-3.24	29.780
ethernet-1/6	1	burstfir-C26874	FLEXOPTIX	P-1396.10	10GBASE-LR	-3.85	-2.52	27.516

## Vendor Resiliency

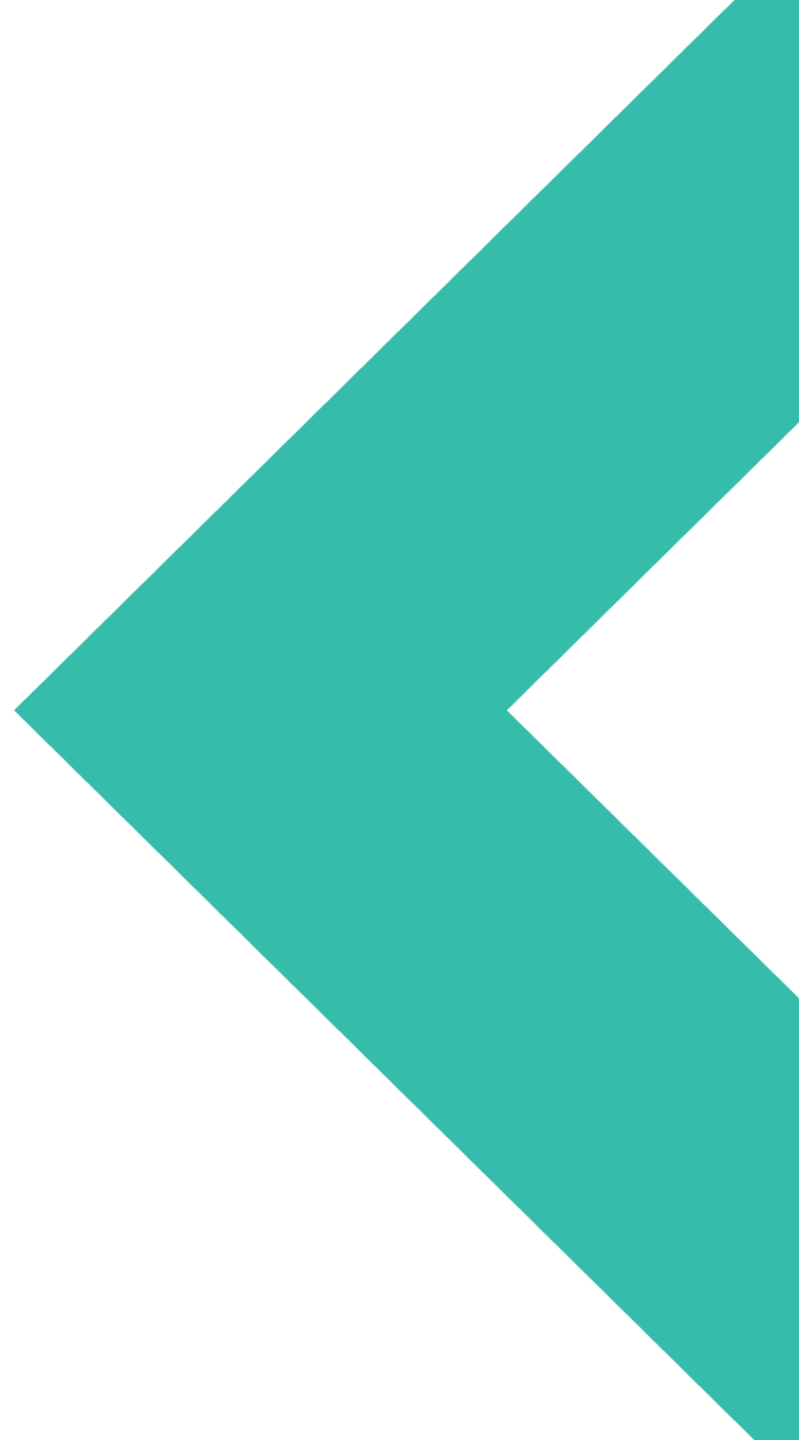
LON1/2 diversity maintained to protect against systemic bugs

- Different hardware platforms (7750 SR platform on LON1, 7720 IXR on platform on LON2)
- Different OS (SR-OS on LON1, SR-LinuxLON2).
- Different main release software versions
  - Upgrade schedule keeps platforms on different software (24.10.5 on LON2, currently 23.10.R2 | 3 on LON1, soon to be upgraded to 25.10.x)



Building 1Tb+ readiness for Manchester

# Manchester



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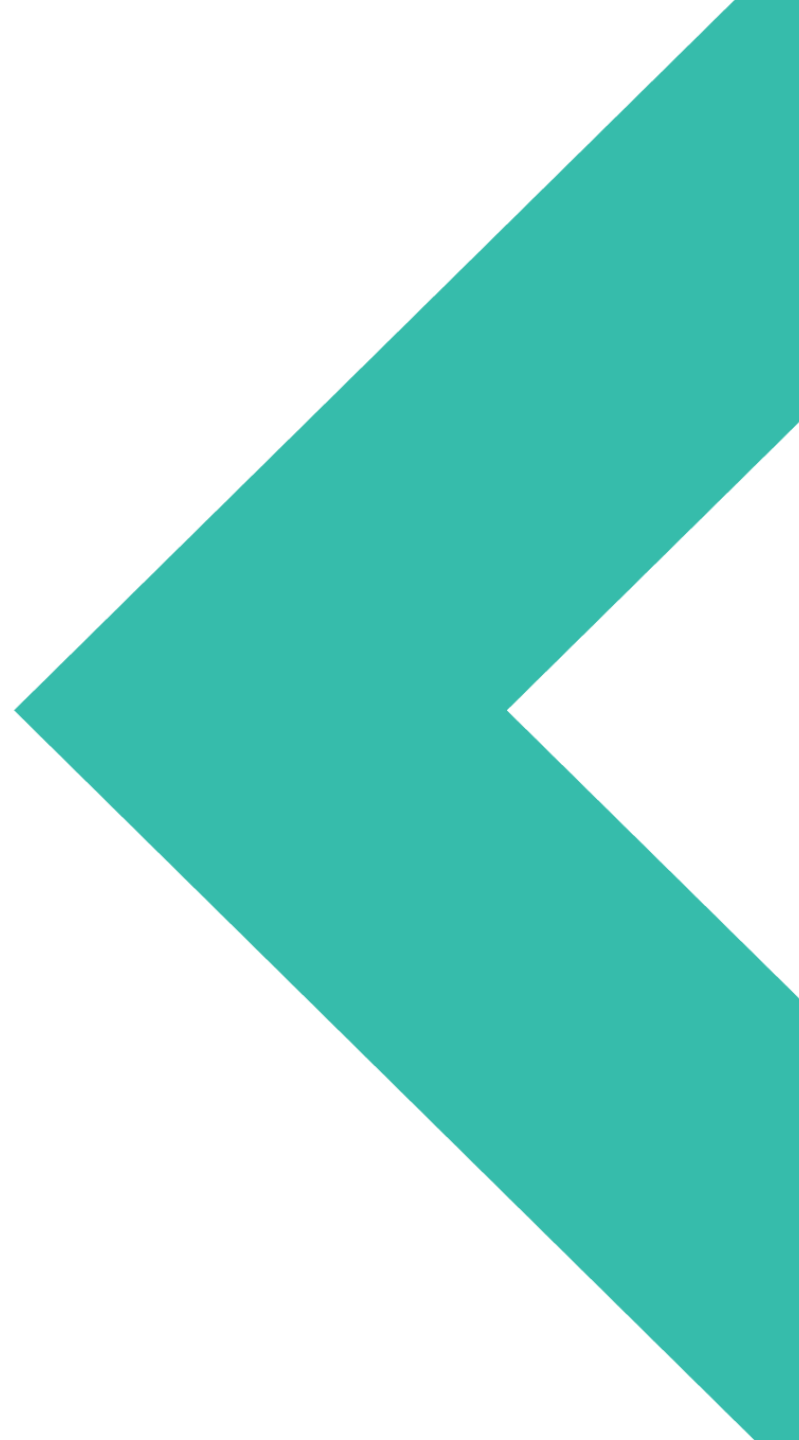
# Manchester Refresh

- **Vendor Selection:** Finalising vendor review based on the same framework used for LON2 refresh; selection imminent.
- **Proof of Concept (PoC):** Vendor PoC targeted for early Q3 to validate the preferred technical solution.
- **Parallel Build:** Scheduled for Q4, incorporating a soak period over the Christmas holiday to ensure stability of new network.
- **Migration Phase:** Execution of members slated for Q1 2027.



Operational Issues, planned maintenance  
and route server updates

# Operations and Maintenance



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# Incidents

## LAN

Systems (including route-servers)	0 ●
LON1	3 ●
LON2	2 ●
LINX Manchester	1 ●
LINX Wales	0 ●
LINX Scotland	0 ●
LINX NoVA	1 ●
Jeddah & Riyadh	2 ●
ManxIX	0 ●
Nairobi	7 ●
Mombasa	6 ●
Accra	2 ●
Transmission PoPs (London)	0 ●

## Incidents

0 ●
3 ●
2 ●
1 ●
0 ●
0 ●
1 ●
2 ●
0 ●
7 ●
6 ●
2 ●
0 ●



Portal: <https://portal.linx.net/maintenance-and-outages>

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# Incidents & Problem Management

LON1

17 January 2026

## Edge2-tcm linecard failure

Linecard on edge2-tcm experienced a hardware failure with EChip-39 Sbus communication errors, causing the MDA module to fail and all ports on that linecard to go offline

The linecard automatically recovered after it rebooted itself at 19:41 UTC, and all services were restored by 19:43 UTC.

Fixed in future software upgrades

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# Incidents & Problem Management

## LON1

29 January 2026

### Erroring transceiver on core3-in2

members on core3-in2 may have seen brief packet loss

Issue was initially mitigated on the 29th when the port was taken out of the lag, followed by both sides optics swaps before adding the previously erroring port back into the ISL. It has remained stable.

20 February 2026

### Core4-thw FPC2 Failure

Faulty FPC swapped from spares after reboot didn't resolve issue.

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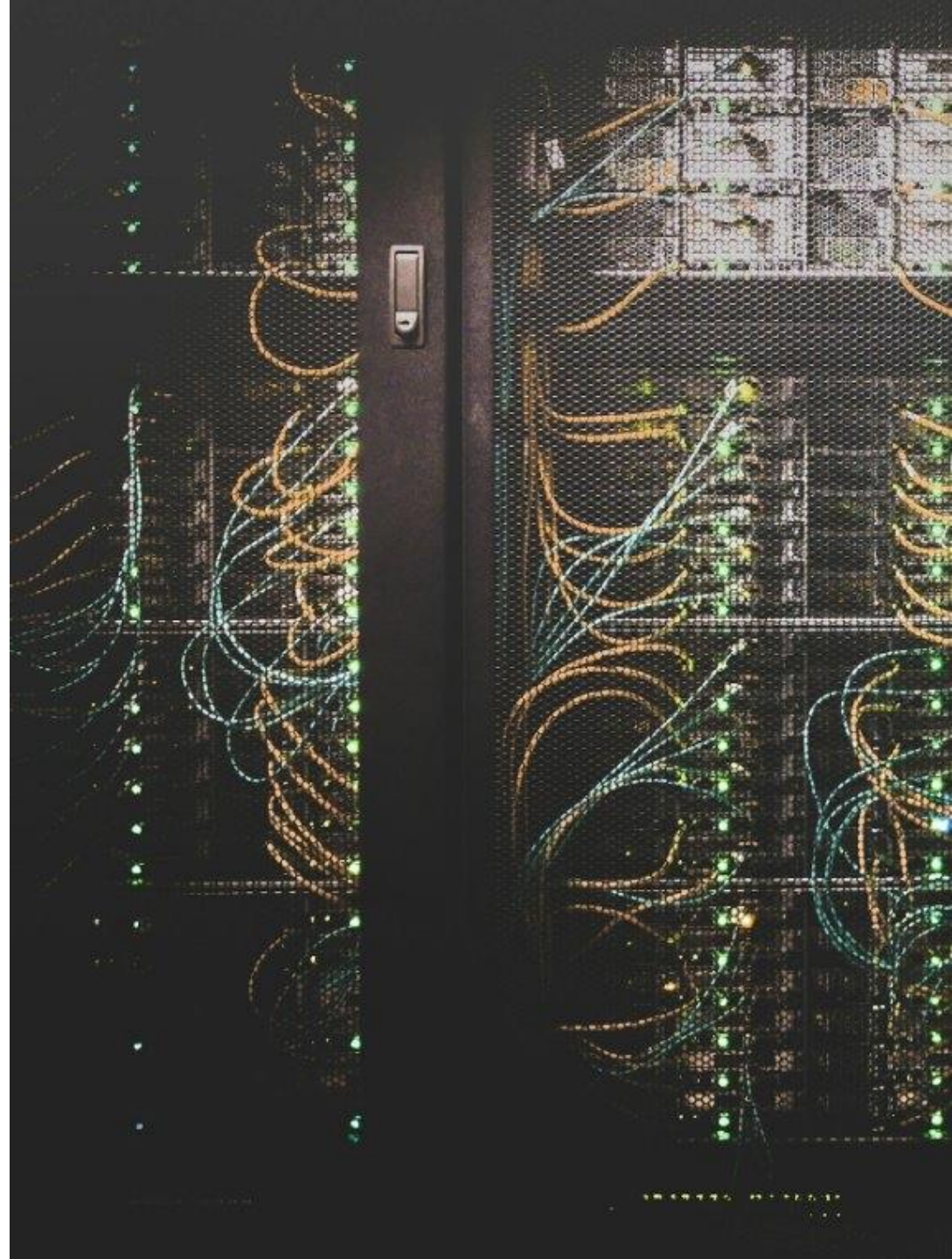
# Incidents & Problem Management

## NoVA

08 January 2026

### Short Isolation QTS Ashburn

Experienced a very short site isolation (3 minutes) on this exchange as a result of human error, remote hands rebooted the wrong device while troubleshooting an issue.



# Planned Maintenances



## Continuing with route-server upgrades

OpenBGPD Upgrades

BIRD2 Upgrades

- Including LINX Collectors



## Nokia SR-OS upgrades on LON1

All Nokia edges and cores

- Upgraded to 25.10.R2

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# Route-Server Update

Planned upgrades currently in progress

OpenBGPd route-servers from version 8.8 to version 9.0.

LINX Wales

LINX NoVA

BIRD route-servers from version 2.13.1 to 2.17.2

LINX Wales

LINX Collectors are in process of being upgraded

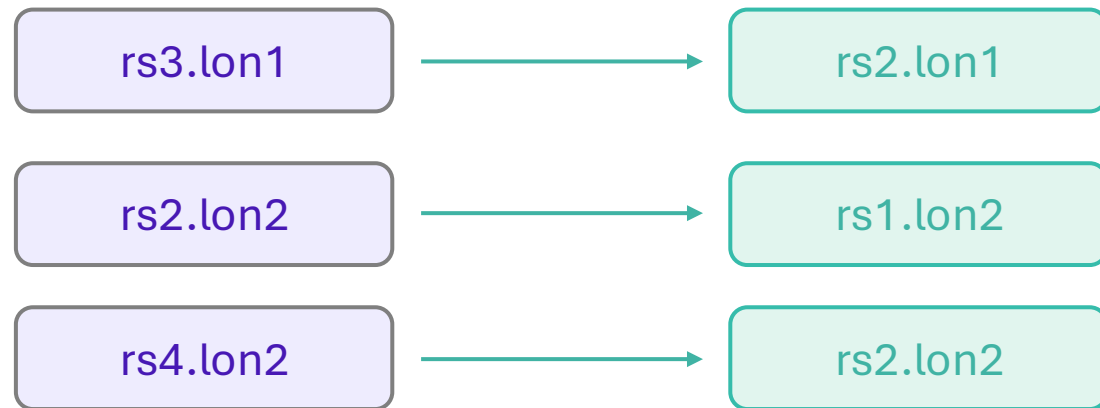
BIRD2 will have its last major release in Spring 2027

- Prepare for BIRD3 deployment
- Pending testing and stability
- Deploy in smaller network first.

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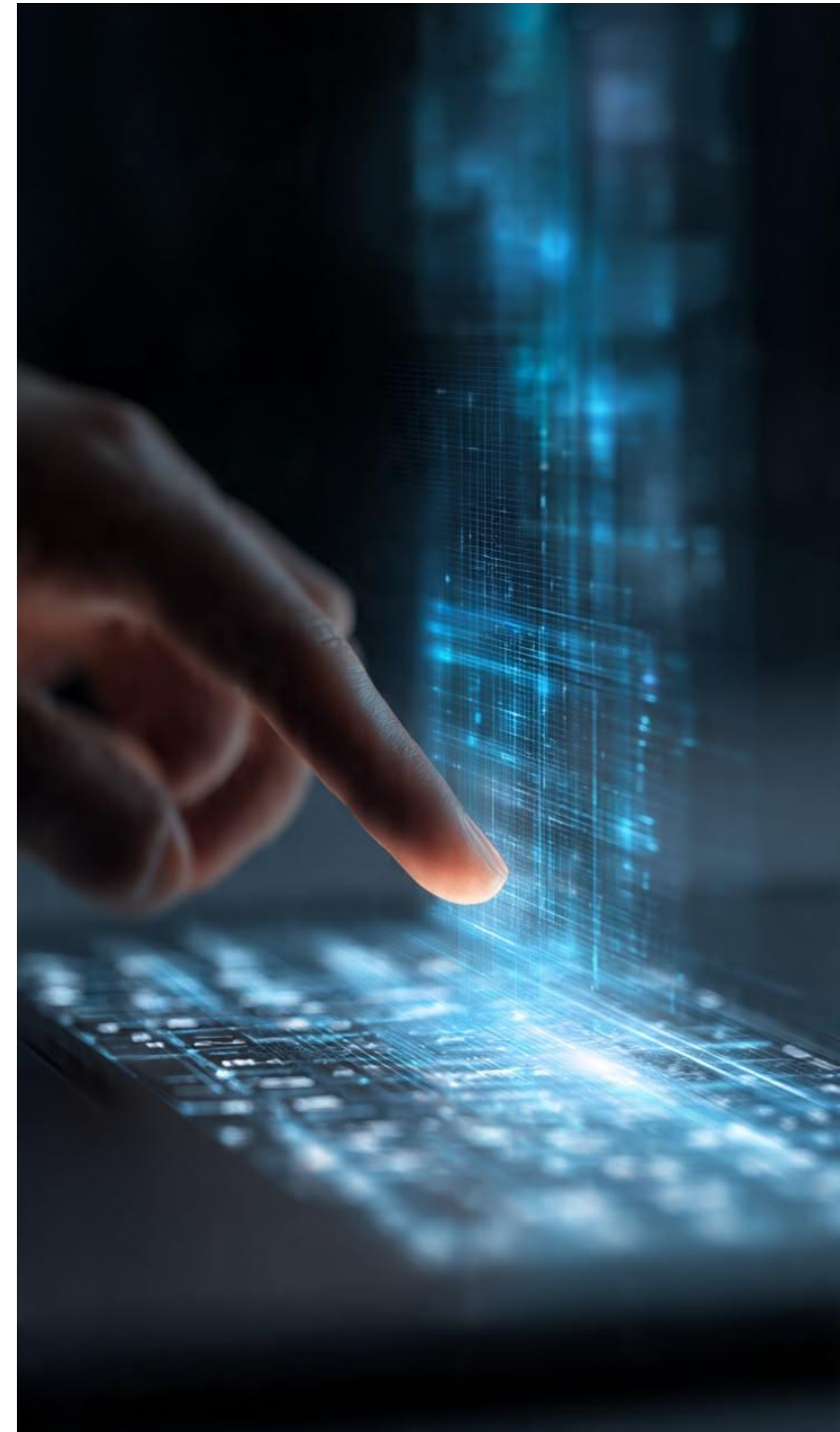
# Route-Server Update

Some LON1 route-servers are being renamed



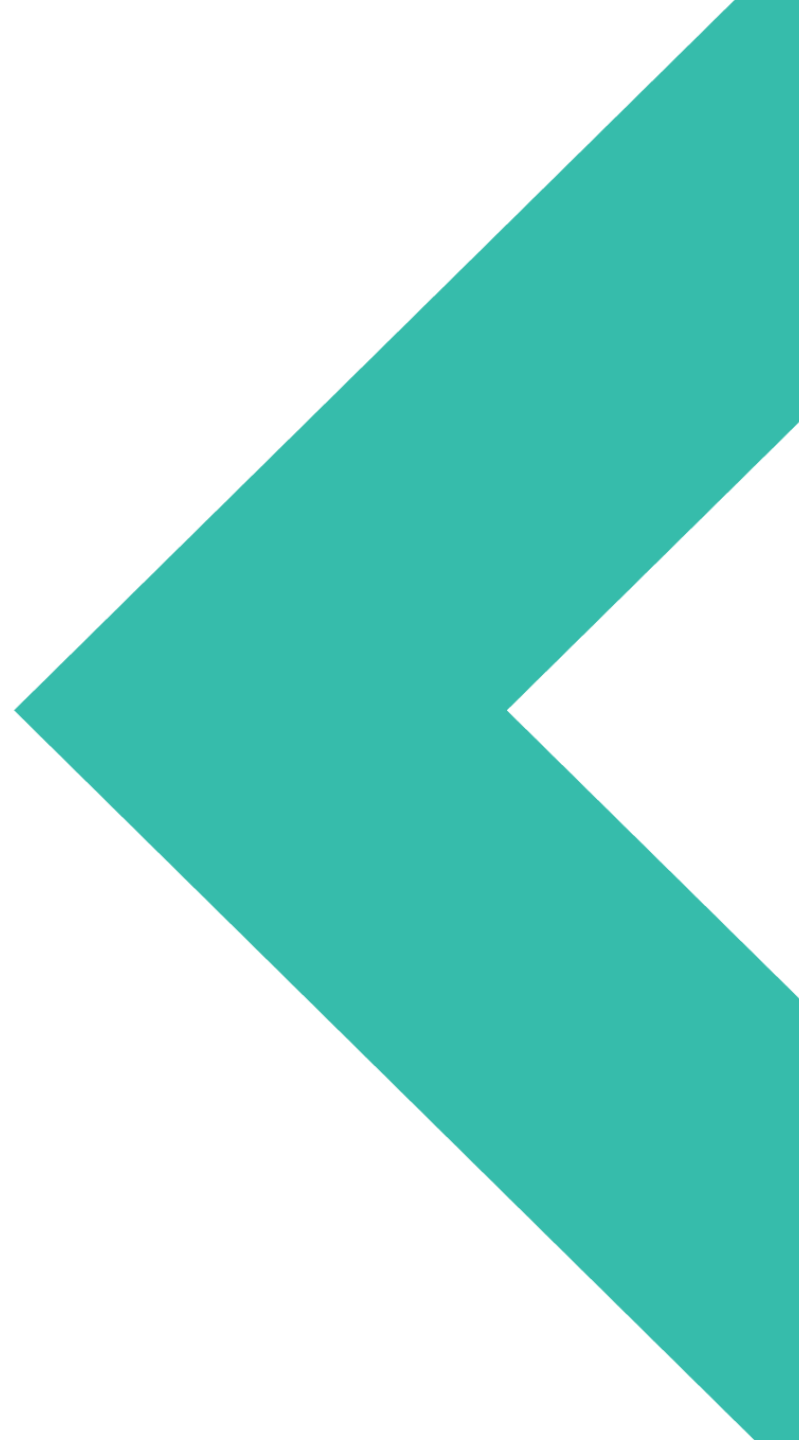
Work to complete this should not affect peering.

Peering IP addresses not changing.



Security, AI and operational efficiencies

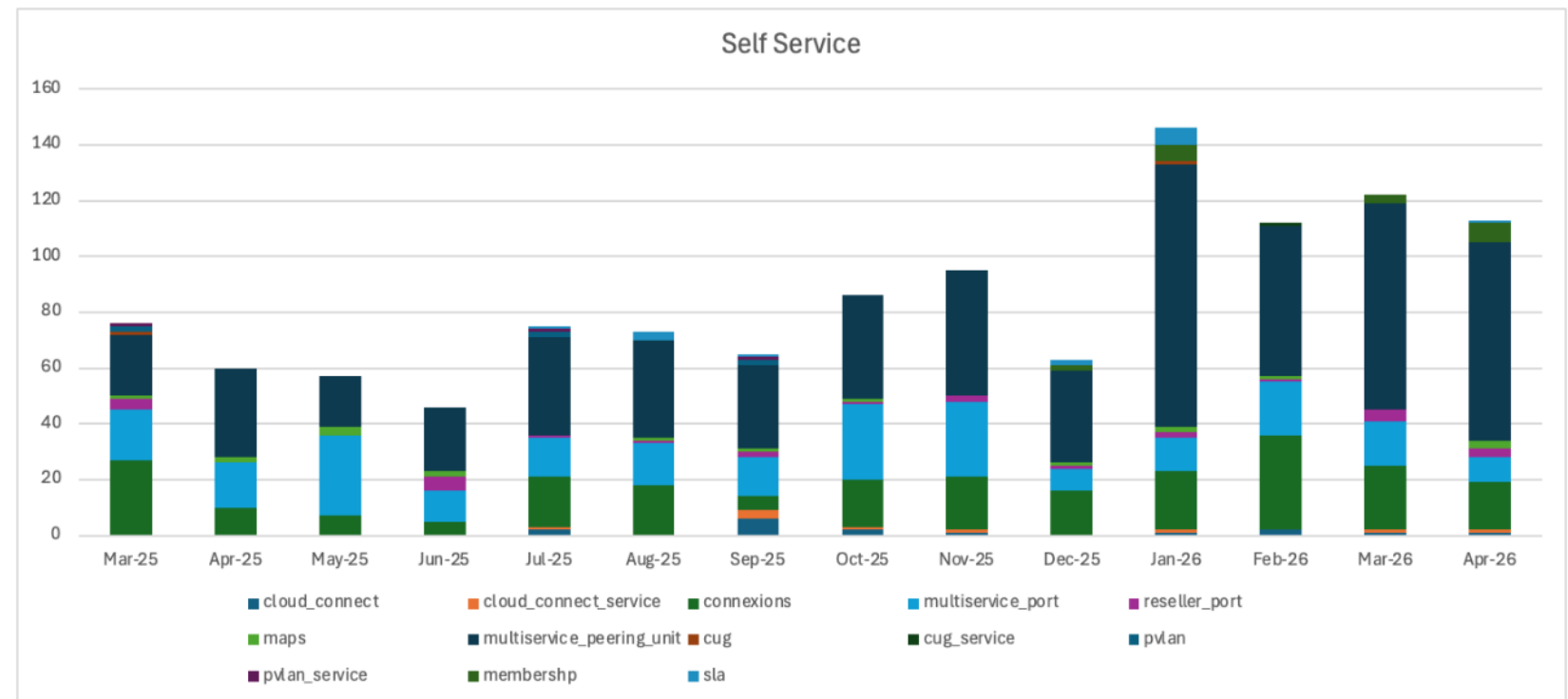
# Internal Developments



# Internal Developments

## Software Development

- Order Management System
- Maintenance
- Self-service

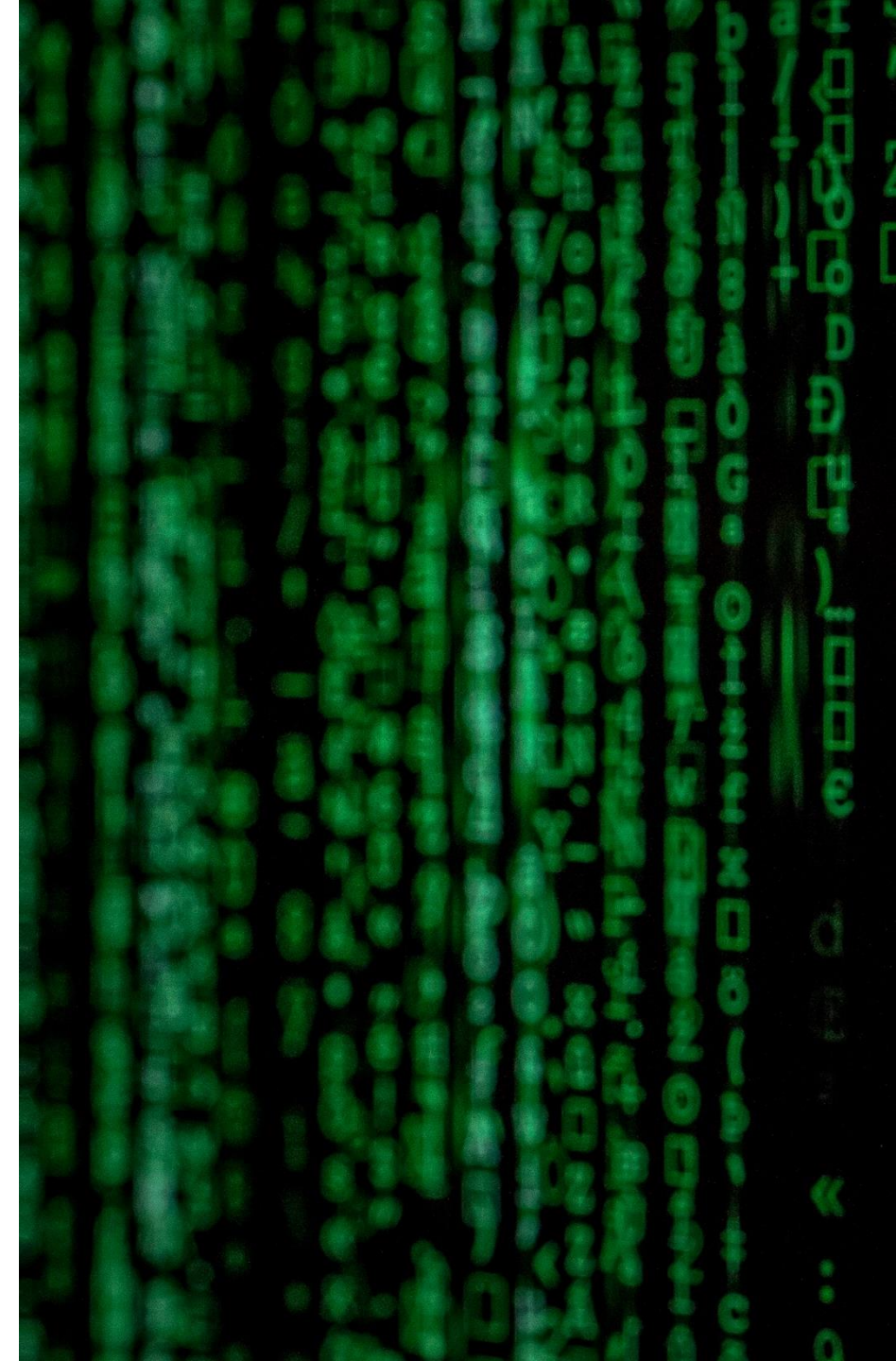


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# Internal Developments

## Security

- The security approach for LINX, CNI and for many enterprises is changing rapidly
- AI and AI generated exploits have shifted the operating model for all of us
- Much of our 2026 Technology Roadmap focuses on integrated security development



# Internal Developments

## Security

### AI benefits attackers

- Vulnerability discovery
- Exploit chaining
- Reconnaissance
- Malware variation
- Social engineering
- Operational scaling

### Defenders still rely on

- Patch cycles
- Change windows
- Asset inventories
- Human validation
- Organisational coordination

# Internal Developments

## Security

The emerging security model we are looking at focuses on

Assume compromise

Detect rapidly

Recover fast

Minimise blast radius

Contain automatically

Continuously validate trust

This means we are looking for investment in areas like

Identity centric security

Zero trust

Micro segmentation

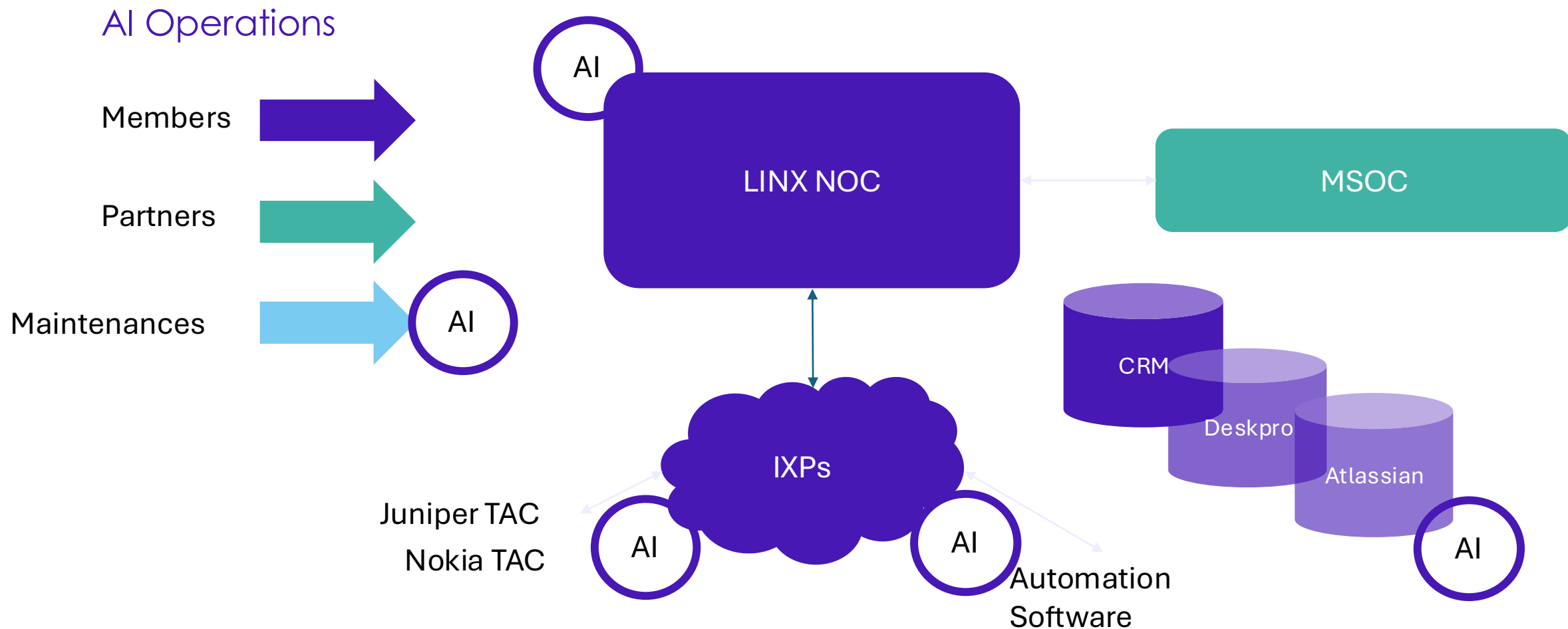
Behavioral analytics

Continuous verification

Short-lived credentials

Immutable infrastructure

# Internal Developments



# Thank you



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