



LINX110

Technology Update
November 2020

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Agenda

01 LON1, Juniper progress and EVPN

02 400GE Readiness

03 Manchester upgrade

04 Automation & Self Service

05 Service Issues



“With our investments in disaggregated networking and the Juniper MX10K platform, we are managing capital investment in the region of £2-2.5M”

01

LON1, Juniper progress and EVPN

LON1, Juniper progress and EVPN

- On the latest PoC
 - We had to run this remote, across 3 time zones
 - Our experience of doing this type of PoC with Edgecore and IP Infusion has helped us adapt well
 - Two LINX staff worked across UK and US time zones to get the best outcome on testing
- The issues explained....

LON1, Juniper progress and EVPN

- On the latest PoC – **EVPN Issues**
 - We had two instances when a **brief loss was observed on restore**. For one of these a PR had already been raised by Juniper, marked as 'working as expected' however this needs further explanation. The 2nd instance needs explanation/fix.
 - A larger than expected **loss (5 seconds) during one of the protocol disruption tests**. This needs to be qualified as being within acceptable margins.
 - During a protocol disruption test, **LSPs were observed flapping** between primary and secondary paths on 2 nodes, although this did not impact traffic. Despite being non-disruptive this requires explanation/fix.
 - During a few different tests **BGP took longer than expected to restore** on the test CEs. From the logs it looks like a DDoS attack is observed on the CE (MX80's) which causes a 5min back off before BGP restores. This looks like a bug on the MX80's, Juniper need to confirm this.

LON1, Juniper progress and EVPN

- On the latest PoC
 - The cut-off for the next 18.4 'S' release is now, so any fixes required will not hit that release.
 - There is a further S7 release due in 6-8 weeks, the aim is to get any fixes necessary into that release.
 - This means that the upgrades we intended to do prior to the EVPN migration will be pushed into January
 - Thereafter, we should still be on track for a Q1-21 migration to EVPN, unless something comes out once the issues identified are diagnosed further.

02

400GE Readiness

400GE Readiness

- Time Frame
 - We continue to discuss member plans and ask for input into procurement time frames from those of you running and testing 400GE
- Juniper
 - We continue to track Juniper's readiness on both the MX960 platform (as an interim) and the MX10K platform
 - The MX960 MPC card will be ready first, the MPC10 is out but we need to look at SBCs, Junos readiness and cost
 - The goal would be to use the MX10K as soon as possible

400GE Readiness

- Edgecore
 - We have discussed the options on the different Edgecore devices and associated Broadcom offerings
 - Certifying the OcNOS to any new Edgecore platform will be a 3-to-6-month process if we are the first to request the integration
- Nokia
 - We have completed a PoC with the Nokia 7750 SR-x series routers running 400GE
 - As yet this has only been tested against traffic throughput, device management, automation and telemetry, with some follow work on automation needed
 - Further testing will be done against MPLS and EVPN integration

03

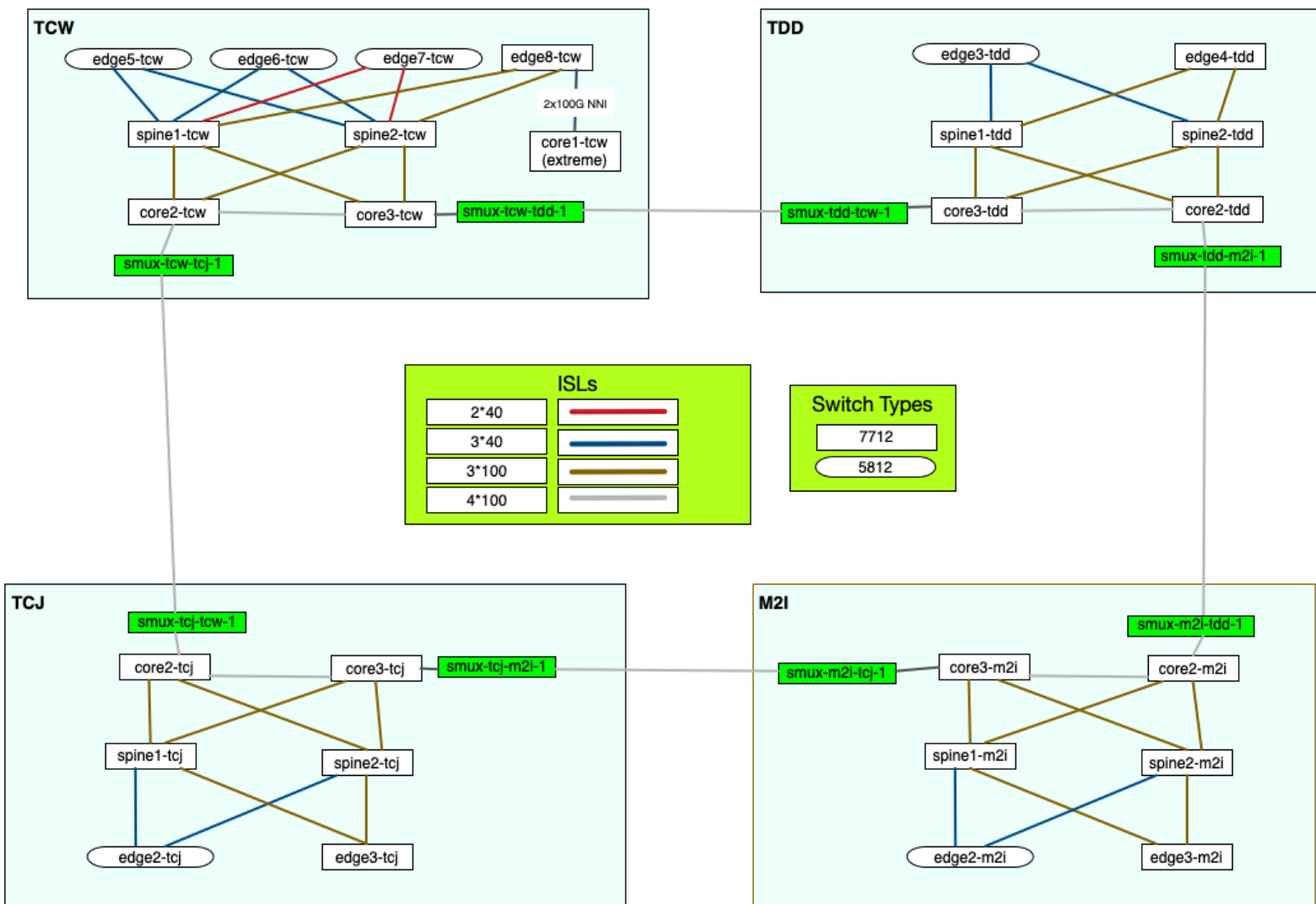
Manchester upgrade

Manchester Upgrade

- Growth in Manchester to date is good, ASNs, traffic, interest and orders are all still positive
- The Extreme kit is EOL and we are running low on 100GE cards
- New orders expected at the Teledata PoP in Q1
- Automation has been tested good on LON2 OcNOS 1.3.8 so Manchester will start life fully automated under NCA 2.0
- We will order kit and plan work in November/December and plan is to be done early 2021

Manchester Topology

- Teledata will move to a full exchange PoP
- Similar design to LON2, core/spine/edge design
- ISL upgrades throughout

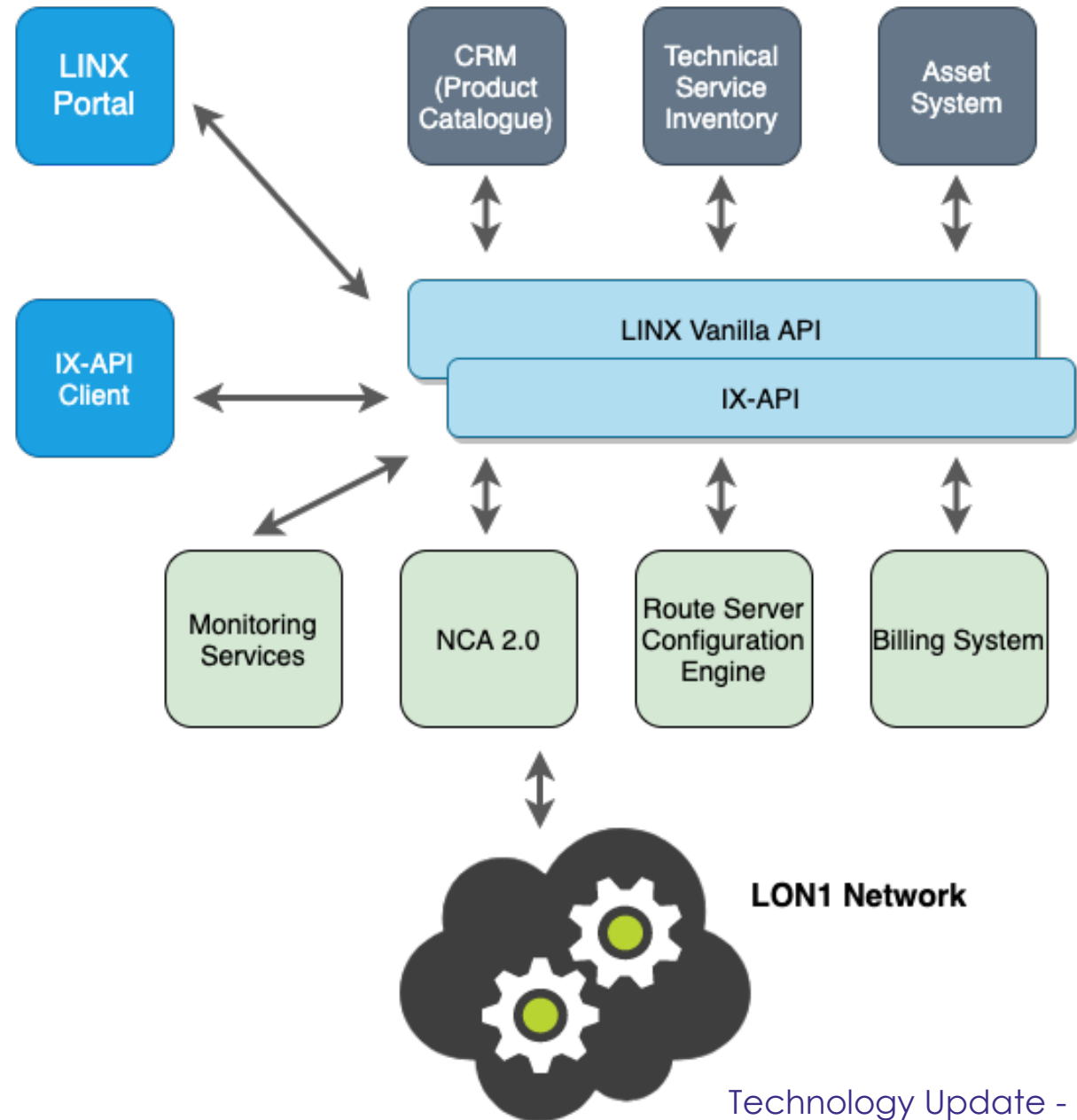


04

Automation & Self Service

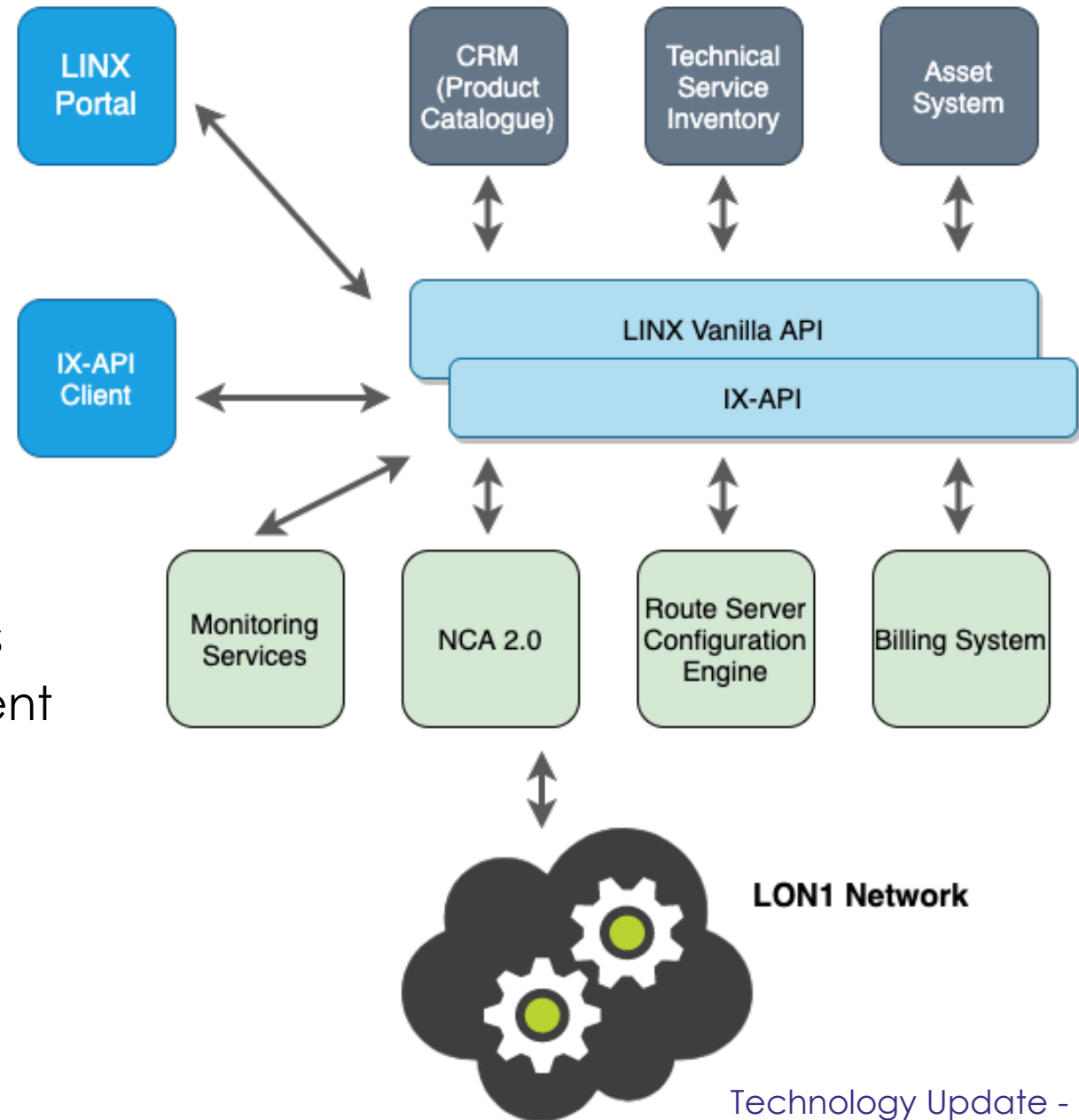
2020

- TSI investment
- CRM improvements
- NCA 2.0, adding config scheduler
- Centralised Route Server Configuration
- Portal, feature enhancement
- IX-API v1
- Monitoring investment



2021

- TSI completion
- CRM product catalogue
- CRM Pricing Logic
- CRM Discounts
- IX-API v2
- Portal Self Service
- Billing automation
- Monitoring with telemetry feeds
- Improved workflow management
- Maintenance workflow and tooling



Automation & Self Service

- Why we are making this investments in network automation, workflow and API development:
 - New products need to be developed quickly
 - Running existing and new IXPs, at scale and across geographies, calls for full automation and better standardisation
 - Exposing more of the state of health and allowing members access to; peering services insight, real time configuration (self-service) and network health is a driving ambition

05

Service Issues

Service Issues – 3

- 29/September/2020 - LINX LON1 (195.66.224.0/22) - edge1-tcm
 - BGP flap issue due to memory leak
 - This impacted 9 members on this device
 - A configuration option triggered a Juniper bug
 - We are working with Juniper on this
- 30/September/2020 - PROBLEM Service Alert: rs2-in2-lon2.linx.net is DOWN - 192.168.12.231 rta nan, lost 100%)
 - Power failure to the Interxion site in London, leading to an aircon issue across the site, leading to server power down due to unsafe operating temperatures
 - This is part of a redundant pair of RS on LON1
 - We are working with Interxion on this

Service Issues – 3

- 1 October/2020 - LON1 Equinix LD6 Power Issue
 - A Juniper PEM (PSU) failed, causing a spike and a trip in the 'A-feed' power supply
 - The resulting full power draw for the rack was above the 'B-feed' rating
 - The investigation found the A and B feeds had crept above the 50% mark and our audit process did not capture this sufficiently
 - A site review is under way and a maintenance will be schedule to rectify
 - We are working with Equinix on this

Change Freeze

USA, NoVA Thanksgiving change freeze

- 5pm EST Wednesday 25 November – 9am EST Monday 30 November

UK, Christmas and New Year change freeze

- 17:30 GMT Friday, 18 December to 09:00 GMT Monday, 4 January 2021



Thank you



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