



# Product Update

LINX Portal and LINX Marketplace

**Mike Hellers**  
**Product Development Manager**

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10/11/2021

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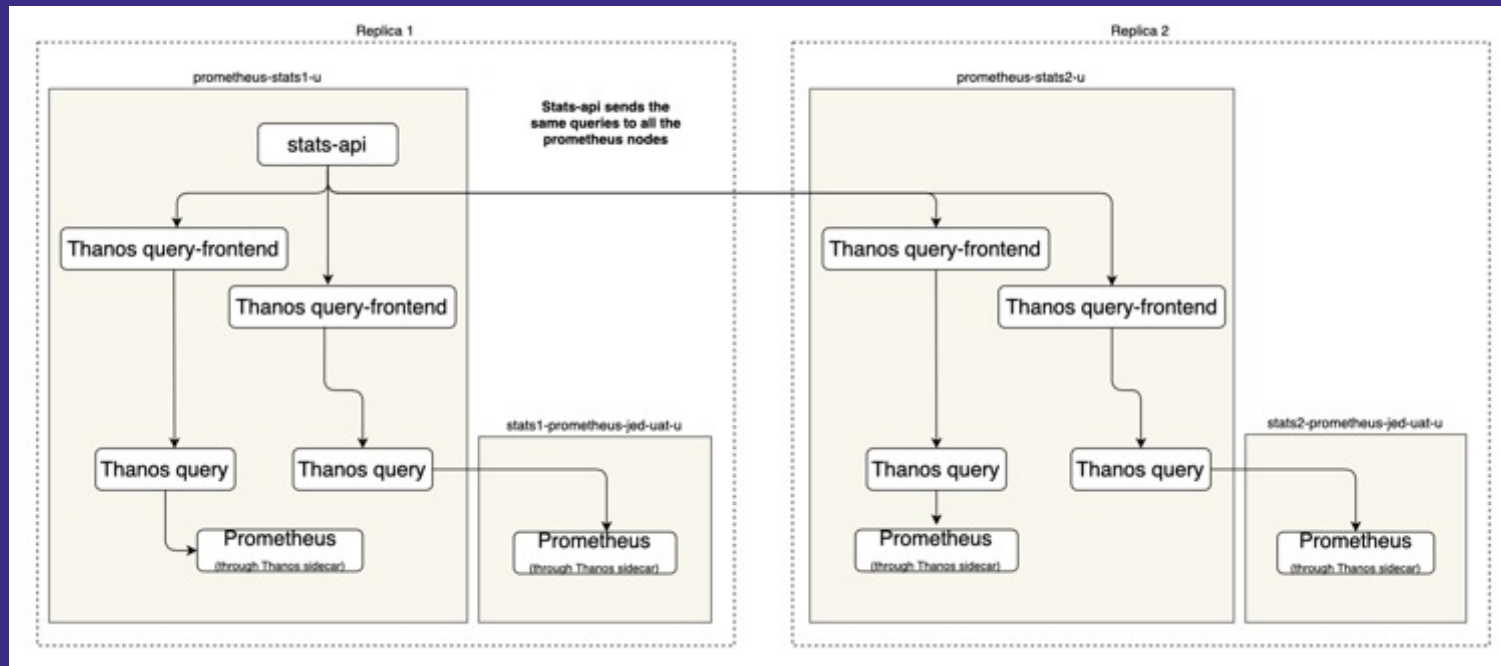
## New LINX Portal

## New LINX Portal

- Current Portal was launch at LINX100 in 2018
- Improvements over the years including better orderforms, access to invoices, user management and much more
- Performance, especially in relation to port (snmp) and peer (flow) statistics was a known issue
- Introduction of self-service functionality was another driver for change

# New LINX portal - Stats

- Stats collection and storage fully redesigned
- All data stored on Prometheus using Thanos for federation



## New LINX Portal – Frontend and UI/UX

- UI/UX developed together with 3rd party company
  - Interviews with selected group of LINX members
    - Collecting initial thoughts, and feedback throughout the design process
- Testing done internally and beta access to a small group of LINX members
- Based on Symfony as Middleware and ReactJS Front-End

# Welcome back, Mike Hellers

## LINX Service Availability

LINX LON1 for January	91.50000%	Q
LINX LON2 for September	99.99976%	Q
LINX Manchester for September	99.99997%	Q
LINX Wales for August	99.99994%	Q
LINX Scotland for September	100.00000%	Q
LINX NoVA for September	100.00000%	Q

Details of how the metric is calculated are available [here](#).

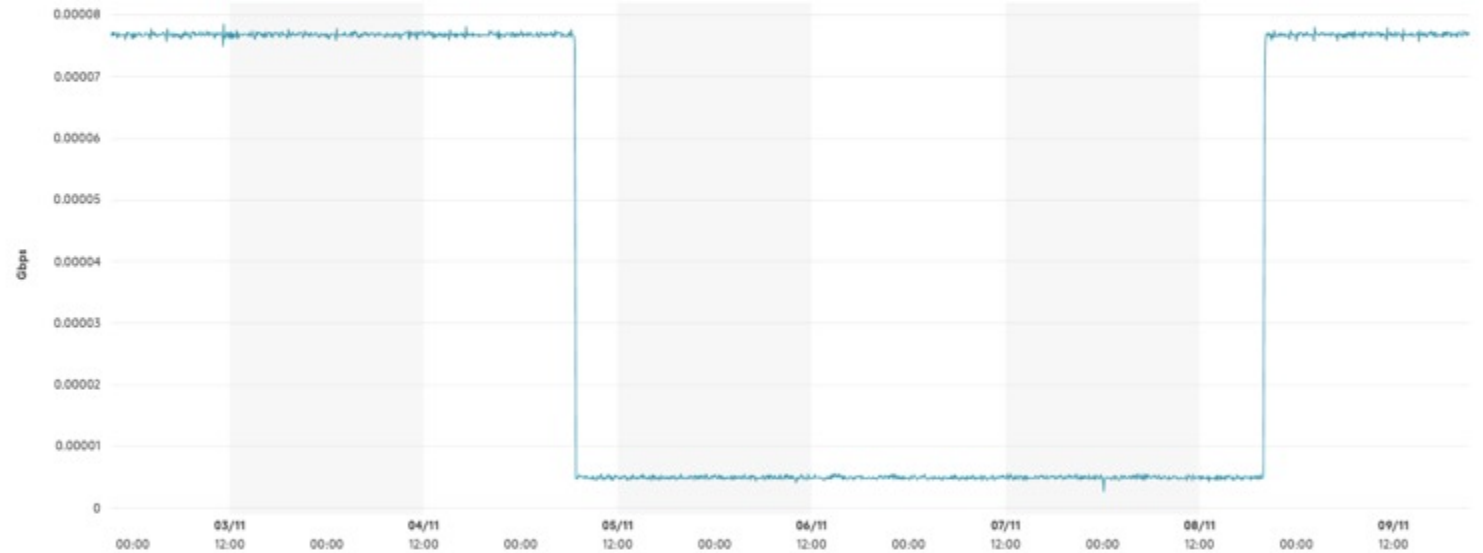
## Quick links

Access your most useful pages

- LANS SNMP >
- LANS FLOW >
- Members >

## LINX Limited top 5 port services

[VIEW MY SERVICES ANALYSIS](#)



### Ports with highest traffic:

- ge-2/3/9
- xe-2/0/0.100
- ge-0/0/10
- xe20
- ae300

## LINX traffic overview

[VIEW LINX TRAFFIC ANALYSIS](#)

## New LINX Portal – Authentication

- Option for members to enable two factor authentication
- Implemented using Okta
  - Allowing the use of the Okta App or standard TOTP as second factor (i.e Google authenticator, Microsoft Authenticator, ...)
- Enhanced control of portal users, allowing restriction of certain function based on User role (i.e. access to self service function)

# User Management

## Membership roles

See overview of the different types of membership roles below

Roles	Overview
<b>Legal</b>	Your legal representation responsible for maintaining the terms of services.
<b>Billing</b>	Your contact responsible for invoicing and billing.
<b>Guardian</b>	Senior key contact, responsible for contact administration including assigning of roles and authoriser of portal logins. (Senior Management)
<b>Implementation</b>	The contact responsible for provisioning, setting up the BGP testing, routing, etc.
<b>Marketing</b>	Your marketing team contact, responsible for your companies description and logo, possibly promoting our services.
<b>Sales</b>	Your sales team contact, possibly selling our services.
<b>NOC</b>	Your organisations 24x7 NOC desk or support team.
<b>Peering</b>	Used for peering queries and requests.
<b>Authoriser</b>	In addition to voter privileges, can manage who are the voters and other Authorisers for your organisation.
<b>Voter</b>	A voter can vote on resolutions or in the ballot to elect Board directors.

The screenshot shows the Linx user management interface. At the top, there is a navigation bar with the Linx logo and links for Home, Services, Orders, Members, and Events. Below the navigation bar, there is a breadcrumb trail: Home > Account users. The main content area is titled "users" and "User list". It features a table with columns for Name and Email. The table contains several rows of user information, with some fields blurred for privacy. On the right side of the interface, there is a "CENTRE" button and a pagination indicator showing "Page 10 of 13".



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## New LINX Portal – Port and Peers Stats

- Completely re-designed with focus on functionality and performance
- Additional features and functionality will be added

Home > My services

My services PORT SERVICES CO-LOCATION PRIVATE INTERCONNECT OTHERS

PORT BASED VIEW

PEERS VIEW

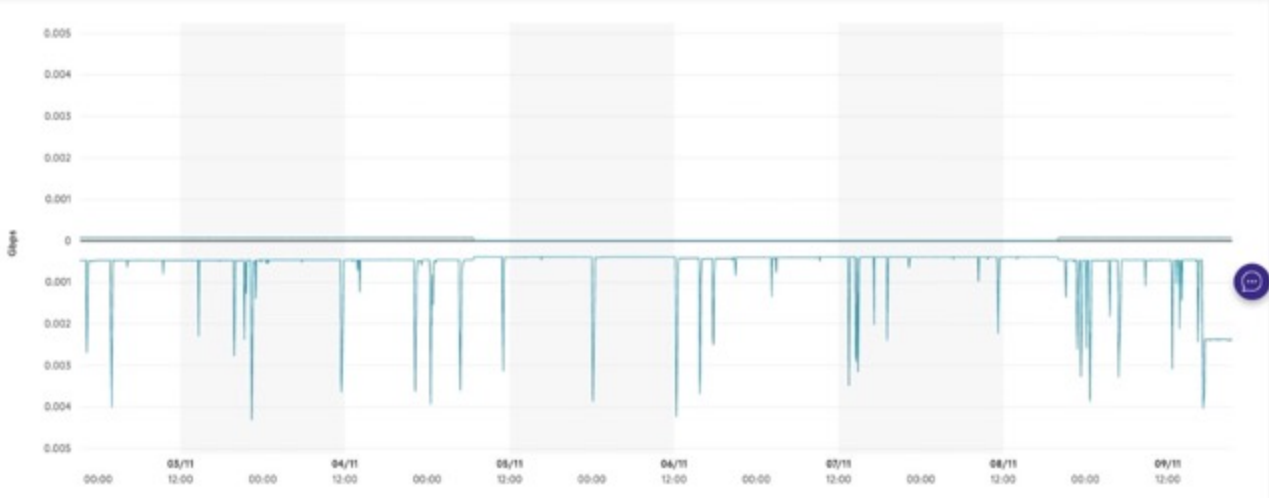
OTHER TECHNICAL ANALYSIS

Port services - traffic visualisation Select service from port based services to see visualisation

Data updated November 9, 2021 9:26 PM

Period: Past week Metric: Btrate Time Zone: Local UTC

Under Construction PREVIEW



Ports: ge-2/3/9

Aggregate view (average of ports)

Sorted by: Current Out traffic (desc) Modify Columns Search (showing 10 of 42) + ADD PORT SERVICE

Name	Service type	Switch	Port	IPv4	MAC address	LAN	Size	Current Out traffic	Current In traffic	Avg Out traffic	Avg In traffic	Max Out traffic	Max In traffic	Utilisation (change / capacity)
18782	Regular port	edge2-eq4	ge-2/3/9	195.66.225.182	00-07-32-77-61-53	LON1	1 Gbps	2.375 Mbps	76.902 Kbps	0.571 Mbps	40.35 Kbps	4.042 Mbps	78.063 Kbps	0% 0%
22935	Multiservice port	edge3-tch-lon2	xe20			LON2	1 Gbps	0.002 Kbps	0.002 Kbps	0 Kbps	0 Kbps	0.002 Kbps	0.01 Kbps	0% 0%
22910	Multiservice port	edge3-tj-man1	xe16			MAN1	1 Gbps	0.002 Kbps	0 Kbps	0 Kbps	0 Kbps	0.002 Kbps	0.004 Kbps	0% 0%
23023	Multiservice port	edge1-in2	xe-9/2/1			LON1	10 Gbps	0 Kbps	0.034 Kbps	0 Kbps	0.008 Kbps	0 Kbps	0.035 Kbps	0% 0%
22930	Multiservice port	edge1-in2-lon2	xe19			LON2	1 Gbps	0 Kbps	0.002 Kbps	0 Kbps	0 Kbps	0.002 Kbps	0.004 Kbps	0% 0%
22897	Multiservice port	edge3-tcw-man1	xe28			MAN1	1 Gbps	0 Kbps	0.002 Kbps	0 Kbps	0 Kbps	0.002 Kbps	0.004 Kbps	0% 0%
22507	Multiservice port	edge1-inn-nva1	ge-2/1/7			NVA1	1 Gbps	0 Kbps	0.002 Kbps	0 Kbps	0 Kbps	0.002 Kbps	0.002 Kbps	0% 0%
pe300	Port Group	edge1-lac-lon2				LLO2	20 Gbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0% 0%
pe300	Port Group	edge1-lah-lon2		172.22.252.17		LLO2	20 Gbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0% 0%
pe302	Port Group	edge1-la1				LLO1	20 Gbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0% 0%

# New LINX Portal – Port and Peers Stats

Modify Columns

Search

(showing 6 of 6)

+ ADD PORT SERVICE

Name	Service type	Switch	Port	IPv4	MAC address	LAN	Size	Current Out traffic	Current In traffic	Avg Out traffic	Avg In traffic	Max Out traffic	Max In traffic
po-...	Port Group	edge4-thw-lon2		195.66.2...	22:4E:...	LON2	100 Gbps	Gbps	Gbps	Gbps	Gbps	Gbps	Gbps
ae:...	Port Group	core4-thw		195.66.2...	F6:CC:...	LON1	200 Gbps	Gbps	Gbps	Gbps	Gbps	Gbps	5 Gbps
	Regular port	core4-thw	et-:	195.66.:	F6:CC::	LON1	100 Gbps	Gbps	Gbps	Gbps	Gbps	Gbps	Gbps
	Regular port	core4-thw	et-:	195.66.:	F6:CC::	LON1	100 Gbps	Gbps	Gbps	Gbps	Gbps	Gbps	Gbps
<input checked="" type="checkbox"/> ae:...	Port Group	core3-tch		195.66.:	F6:CC:5...	LON1	200 Gbps	Gbps	Gbps	Gbps	Gbps	Gbps	Gbps
ae:...	Port Group	edge1-imm-nva1		206.55.:	F6:CC:...	NVA1	10 Gbps	Gbps	Gbps	Gbps	Gbps	Gbps	Gbps
po:...	Port Group	edge8-tcw-man1		195.66.:	84:B5:...	MAN1	100 Gbps	Gbps	Gbps	Gbps	Gbps	Gbps	Gbps
po:...	Port Group	edge3-eq4-lon2		195.66.:	84:B5:...	LON2	100 Gbps	Gbps	Gbps	Gbps	Mbps	Gbps	Gbps

# New LINX Portal – Port and Peers Stats

## Port services

Select from list below to add port based services to visualisation



(showing 6 of 6)

Name	Service type	IPv4	IPv6
<input type="checkbox"/> po	Regular port	195.66.	2001:7f8:
<input type="checkbox"/> ae2	Regular port	195.66.	2001:7f8:
<input type="checkbox"/> ae2	Regular port	195.66.	2001:7f8:
<input type="checkbox"/> ae2	Regular port	206.55.	2001:504:
<input type="checkbox"/> po	Regular port	195.66.	2001:7f8:
<input type="checkbox"/> po	Regular port	195.66.	2001:7f8:

## Peers

Select from list below to add peers to visualisation

Make a selection from the port services to see peers

# New LINX Portal – Port and Peers Stats

## Port services

Select from list below to add port based services to visualisation



(showing 6 of 6)

Name	Service type	IPv4	IPv6
<input type="checkbox"/> po	Regular port	195.66.226.190	2001:7f8:4::63e9:1
<input type="checkbox"/> ae	Regular port	195.66.226.2	2001:7f8:4::ed96:1
<input type="checkbox"/> ae	Regular port	195.66.226.152	2001:7f8:4::ed96:1
<input type="checkbox"/> ae	Regular port	206.51.200.10	2001:50:1:1::1
<input type="checkbox"/> po	Regular port	195.66.226.190	2001:7f8:4::63e9:1
<input type="checkbox"/> po	Regular port	195.66.226.190	2001:7f8:4::63e9:1

## Peers

Select from list below to add peers to visualisation



(showing 10 of 834)

Member/ASN	IP address	Avg Out flow	Avg In flow	Avg Total (In + Out)	Current Out flow	Current In flow	Current Total (In + Out)
<input type="checkbox"/> Zscaler Inc 62044	IPv4: 195.66.226.190 IPv6: -						
<input type="checkbox"/> IDE Group Connect Limited 25577	IPv4: 195.66.224.201 IPv6: 2001:7f8:4::63e9:1						
<input type="checkbox"/> Wispone SRL 60822	IPv4: 195.66.226.2 IPv6: 2001:7f8:4::ed96:1						
<input type="checkbox"/> Netnod 8674	IPv4: 195.66.225.152 IPv6:						

# New LINX Portal – Port and Peers Stats

## Port services

Select from list below to add port based services to visualisation

Search

(showing 6 of 6)

Name	Service type	IPv4	IPv6
<input type="checkbox"/> po	Regular port	195.66.225.239	2001:7f8:4::f10:1
<input checked="" type="checkbox"/> ae	Regular port	195.66.225.238	2001:7f8:4::2a:1
<input type="checkbox"/> ae	Regular port	195.66.225.239	2001:7f8:4::f10:1
<input type="checkbox"/> ae	Regular port	206.51.200.100	2001:7f8:4::f10:1
<input type="checkbox"/> pc	Regular port	195.66.225.238	2001:7f8:4::2a:1
<input type="checkbox"/> pc	Regular port	195.66.225.239	2001:7f8:4::f10:1

## Peers

Select from list below to add peers to visualisation

Search pch

(showing 2 of 834)

Member/ASN	IP address	Avg Out flow	Avg In flow	Avg Total (In + Out)	Current Out flow	Current In flow	Current Total (In + Out)
<input type="checkbox"/> Packet Clearing House (PCH) 3856	IPv4: 195.66.225.239 IPv6: 2001:7f8:4::f10:1						
<input checked="" type="checkbox"/> Packet Clearing House (PCH) 42	IPv4: 195.66.225.238 IPv6: 2001:7f8:4::2a:1						

# New LINX Portal – Port and Peers Stats

## Port services

Select from list below to add port based services to visualisation




(showing 6 of 6)

Name	Service type	IPv4	IPv6
<input type="checkbox"/> po	Regular port	195.6	2001:7fe
<input checked="" type="checkbox"/> ae	Regular port	195.6	2001:7fe
<input type="checkbox"/> ae	Regular port	195.6	2001:7fe
<input type="checkbox"/> ae	Regular port	206.55	2001:5c
<input type="checkbox"/> po	Regular port	195.6	2001:7
<input type="checkbox"/> po	Regular port	195.6	2001:7f

## Peers

Select from list below to add peers to visualisation




(showing 10 of 94)

Member/ASN	IP address	Avg Out flow	Avg In flow	Avg Total (In + Out)	Current Out flow	Current In flow	Current Total (In Out)
<input type="checkbox"/> Spectrum	IPv4:						
<input type="checkbox"/> Internet Ltd 48294	IPv4: 195.66.244.197 IPv6: -						
<input type="checkbox"/> Connexin Ltd 199775	IPv4: 195.66.244.16 IPv6: -						
<input type="checkbox"/> 34SP.com Ltd 41357	IPv4: 195.66.244.35 IPv6: 2001:7f8:4:2::a18d:1						
<input type="checkbox"/> Itility Limited 5587	IPv4: 195.66.244.63 IPv6: 2001:7f8:4:2::15d3:1						
<input type="checkbox"/> Exascale	IPv4: 195.66.244.58						

# New LINX Portal – Port and Peers Stats

## Port services

Select from list below to add port based services to visualisation

Search

(showing 6 of 6)

Name	Service type	IPv4	IPv6
<input type="checkbox"/> po	Regular port	195.66.244.57	2001:7f8:4:2::2a:1
<input checked="" type="checkbox"/> ae2	Regular port	195.66.244.56	2001:7f8:4:2::2a:1
<input type="checkbox"/> ae	Regular port	195.66.244.56	2001:7f8:4:2::2a:1
<input type="checkbox"/> ae	Regular port	206.51.244.56	2001:7f8:4:2::2a:1
<input checked="" type="checkbox"/> po	Regular port	195.66.244.56	2001:7f8:4:2::2a:1
<input type="checkbox"/> po	Regular port	195.66.244.56	2001:7f8:4:2::2a:1

## Peers

Select from list below to add peers to visualisation

Search pch

(showing 2 of 94)

Member/ASN	IP address	Avg Out flow	Avg In flow	Avg Total (In + Out)	Current Out flow	Current In flow	Current Total (In Out)
<input type="checkbox"/> Packet Clearing House (PCH) 42	IPv4: 195.66.244.57 IPv6: 2001:7f8:4:2::2a:1						
<input checked="" type="checkbox"/> Packet Clearing House (PCH) 3856	IPv4: 195.66.244.56 IPv6: 2001:7f8:4:2::f10:1						



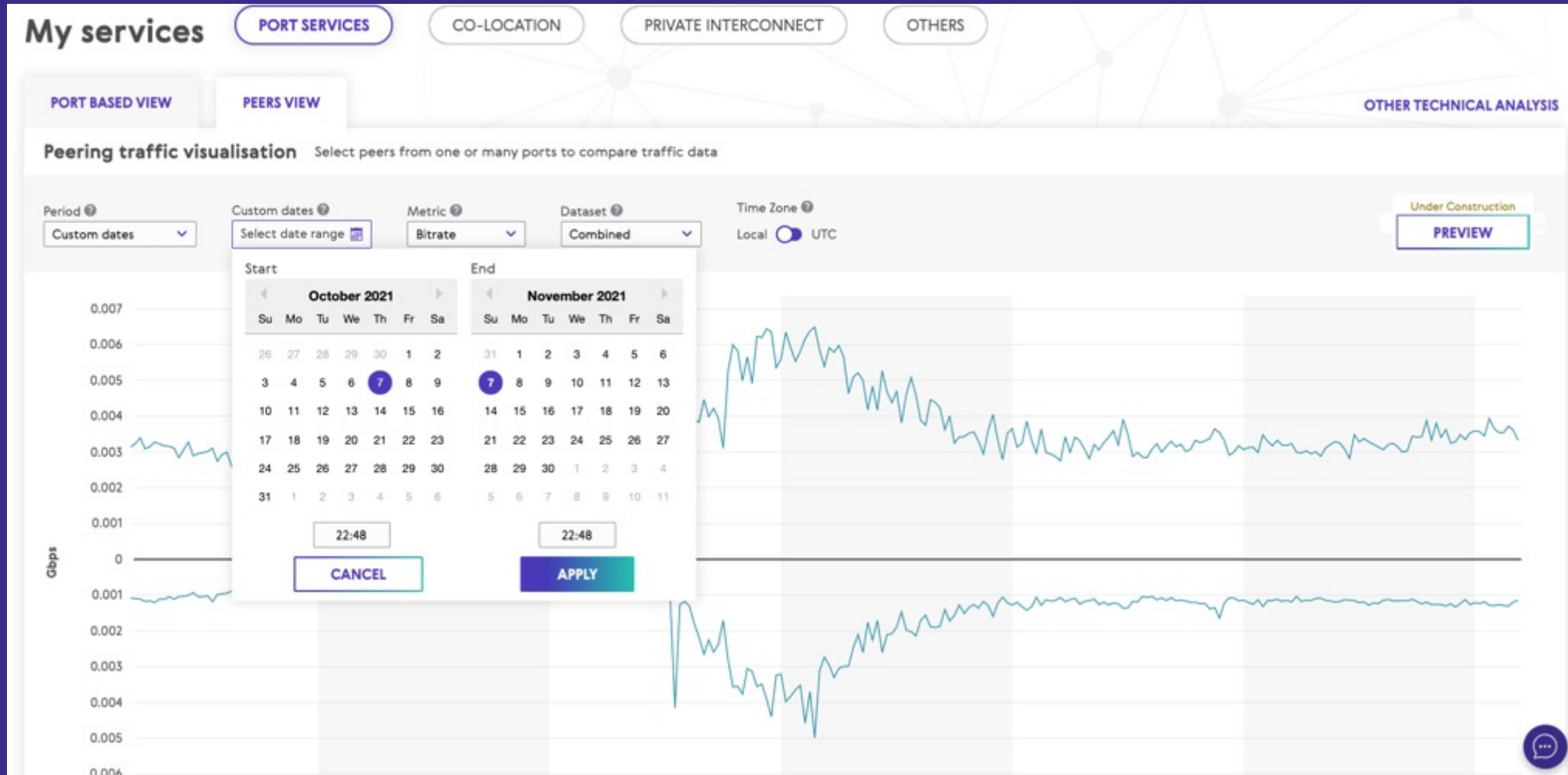
# New LINX Portal – Port and Peers Stats



# New LINX Portal – Port and Peers Stats



# New LINX Portal – Port and Peers Stats



## New LINX Portal – Order Forms

- Launch version is a sneak peak and the foundation for much more to come
- Design goal is to provide a much more guided order process, allowing to also combine multiple services together into a single order.

# New LINX Portal – Order Forms

**linx** Home Services **Orders** Members Events

SEARCH Under Construction ACCOUNT ABOUT **HELP CENTRE**

Home > Orders > New service

## Order new service

Select service and add details below to order a new service

- Peering Service**  
LINX Peering Service enables you to connect with multitude of networks directly. Take control of your network traffic and establish low-latency connections to 900+ networks.
- Private Interconnect**  
A secure and cost-effective solution to interconnect directly with your peers, customers, suppliers or business partners.
- Cloud Connect**  
A private, secure, and direct access to the cloud service providers.
- Microsoft Azure Peering Service**  
Directly connect to Azure services through Microsoft's peering service using LINX infrastructure.
- Closed User Group**  
With LINX Closed User Group solution, you can connect to two or more sites, suppliers, partners or customers at the same time – all on private connections that put you in control.
- Private VLAN**  
Establish a simple, private connection between you and another LINX member on the same port you use to connect to our peering infrastructure.
- Colocation**  
To help members connect to as many of our exchanges as possible LINX are able to provide space within the exchange data centre.
- Reseller Cabling**  
Reseller cabling is only available to members who take colocation services from LINX.

# New LINX Portal – Order Forms

linx Home Services **Orders** Members Events

SEARCH Under Construction ACCOUNT ABOUT HELP CENTRE

Home > Orders > New service > Peering Service

## Order new service

Select service and add details below to order a new service

### Organisation details

Organisation [Redacted]  
Order request by Mike Hellers  
Membership number [Redacted]  
ASN [Redacted]  
Email mike.hellers@gmail.com  
Work number -

### Location

Peering LAN LINX LON1  
Building -  
Floor / Building [Redacted]

### Order 12345678

Monthly cost breakdown Example

Under Construction

Current monthly cost **PREVIEW** £600  
Additional monthly cost £600  
Total Monthly Cost £900

# New LINX Portal – Order Forms

linx Home Services **Orders** Members Events

SEARCH Under Construction ACCOUNT 3 ABOUT ? HELP CENTRE

Home > Orders > New service > Peering Service

## Order new service

Select service and add details below to order a new service

**Organisation details**

Organisation [redacted]  
Order request by Mike Hellers  
Membership number [redacted]  
ASN [redacted]  
Email mike.hellers@gmail.com  
Work number -

**Location**

Peering LAN LINX LON1  
Building -  
Floor / Building [redacted]

**Order 12345678**

Monthly cost breakdown Example

Current monthly cost	£600
Additional monthly cost	£600
<b>Total Monthly Cost</b>	<b>£900</b>

## New LINX Portal – MAC Address Change

- Changing of your MAC addresses is the first self-service feature available on the portal
- Immediate deployment of the change, without the need for NOC intervention
- Automated tests performed to validate new MAC address (ping test, quarantine test for prohibited packets)
- Direct user feedback throughout the process



# New LINX Portal – Order Forms

Peering LAN	LON2 Lab
Current Building	Digital Realty, Cloud House West, Millharbour
Building	<input type="text" value="-"/>

**MAC address**

Current MAC address	3C:EC:EF:6C:ED:7D
New MAC address	<input type="text" value="3C:EC:EF:6C:ED:7E"/>

**i** MAC address update will happen on demand immediately after submitting the order.

# New LINX Portal – Order Forms

Peering LAN      LON2 Lab

Current Building      Digital Realty, Cloud House West, Millharbour

Bl

**Your port will now be tested in quarantine to ensure that your port configuration is compliant with the LINX MoU for prohibited traffic. Please ensure that ICMP is enabled.**

N

Cl

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[RETURN TO SERVICE](#)   [CONFIRM](#)

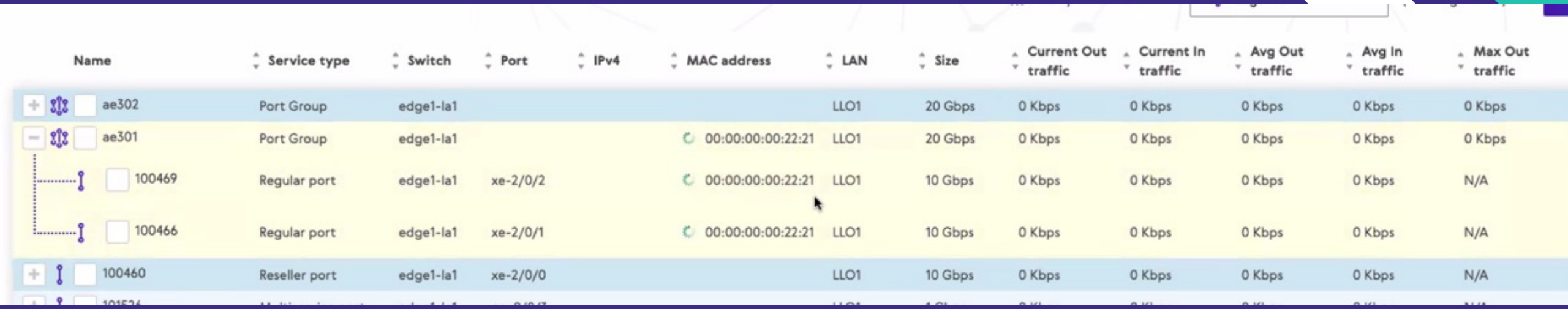
**i** MAC address update will happen on demand immediately after submitting the order.

# New LINX Portal – Order Forms

The screenshot shows a table of network ports. A tooltip is displayed over the row for port ce10/1, indicating a failed ping to the assigned IP address 172.22.252.204. The tooltip text reads: "We have tried to ping your assigned IP address 172.22.252.204, but the ping was unsuccessful. Please confirm that your peering LAN port has the MAC address 3c:ec:ef:6c:ed:7e and 172.22.252.204 is reachable from the peering LAN." The table columns are Port, LAN, Size, and Capacity. The row for ce10/1 is highlighted in orange, and a red warning icon is next to the IP address.

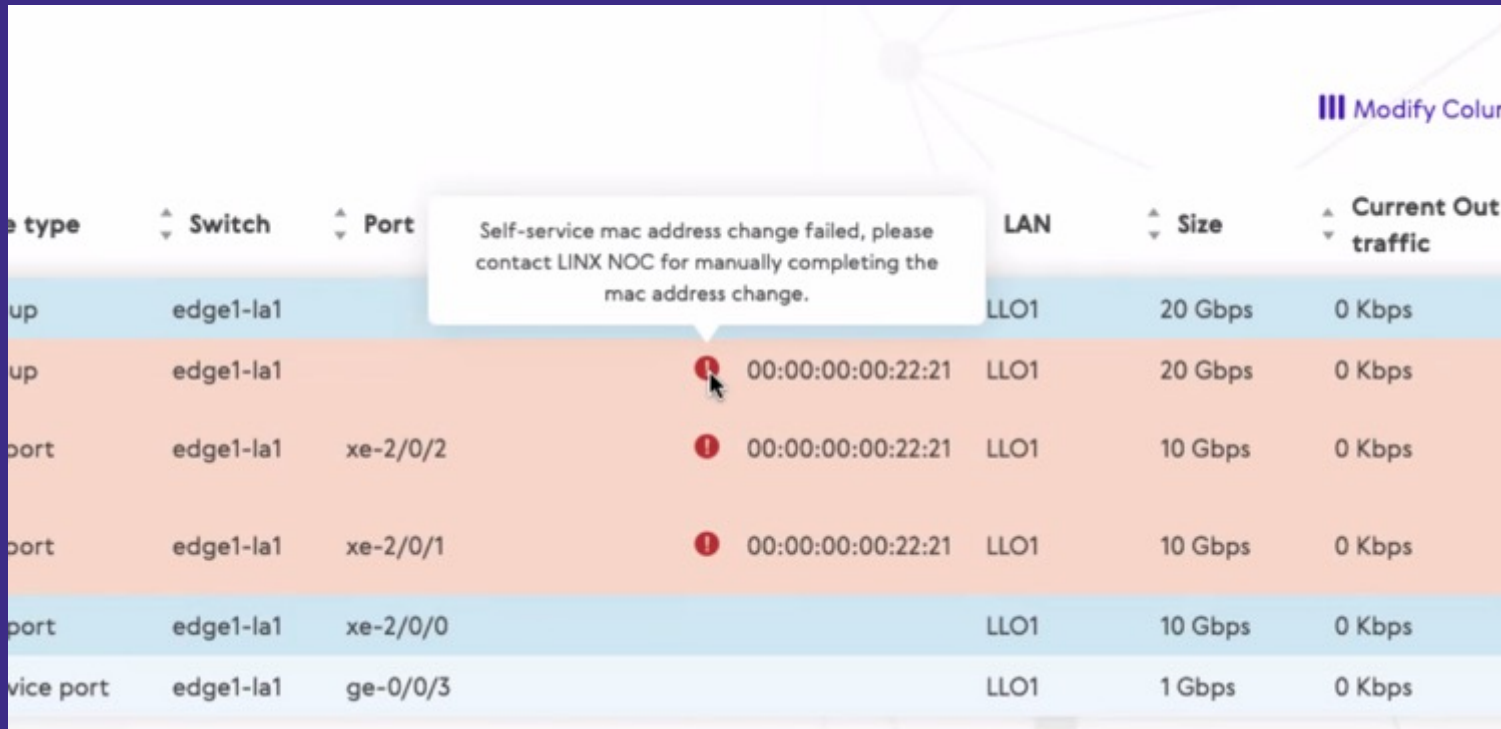
Port	LAN	Size	Capacity
ce1/1	LLO2	10 Gbps	0 K
ce10/1	LLO2	10 Gbps	0 K
ce7/1	LLO2	100 Gbps	0 K

# New LINX Portal – Order Forms



Name	Service type	Switch	Port	IPv4	MAC address	LAN	Size	Current Out traffic	Current In traffic	Avg Out traffic	Avg In traffic	Max Out traffic
ae302	Port Group	edge1-la1				LLO1	20 Gbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps
ae301	Port Group	edge1-la1			00:00:00:00:22:21	LLO1	20 Gbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps
100469	Regular port	edge1-la1	xe-2/0/2		00:00:00:00:22:21	LLO1	10 Gbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	N/A
100466	Regular port	edge1-la1	xe-2/0/1		00:00:00:00:22:21	LLO1	10 Gbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	N/A
100460	Reseller port	edge1-la1	xe-2/0/0			LLO1	10 Gbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	N/A
101524	Multi-homed port	edge1-la1	xe-2/0/7			LLO1	10 Gbps	0 Kbps	0 Kbps	0 Kbps	0 Kbps	N/A

# New LINX Portal – Order Forms



The screenshot displays a table of network ports in the LINX portal. A tooltip is shown over the MAC address column, indicating a failed self-service mac address change. The table columns include Port type, Switch, Port, LAN, Size, and Current Out traffic.

Port type	Switch	Port	MAC Address	LAN	Size	Current Out traffic
up	edge1-la1			LLO1	20 Gbps	0 Kbps
up	edge1-la1		00:00:00:00:22:21	LLO1	20 Gbps	0 Kbps
port	edge1-la1	xe-2/0/2	00:00:00:00:22:21	LLO1	10 Gbps	0 Kbps
port	edge1-la1	xe-2/0/1	00:00:00:00:22:21	LLO1	10 Gbps	0 Kbps
port	edge1-la1	xe-2/0/0		LLO1	10 Gbps	0 Kbps
service port	edge1-la1	ge-0/0/3		LLO1	1 Gbps	0 Kbps

## New LINX Portal – Service order automation

- Service orders for logical services will become fully automated
- First phase will cover ConneXions Services, including new services and changes to existing services delivered through ConneXions members
- Order validation within the portal, and immediate network configuration completed through NCA platform
- Next phases will include PVLAN and Cloud services

## New LINX Portal

- Continuous improvement throughout 2022
  - Migration of remaining pages from the old portal
  - New Events page
  - Further improvements around stats view
  - And much more
- Launch: Next week! (15<sup>th</sup> November)

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## LINX Marketplace



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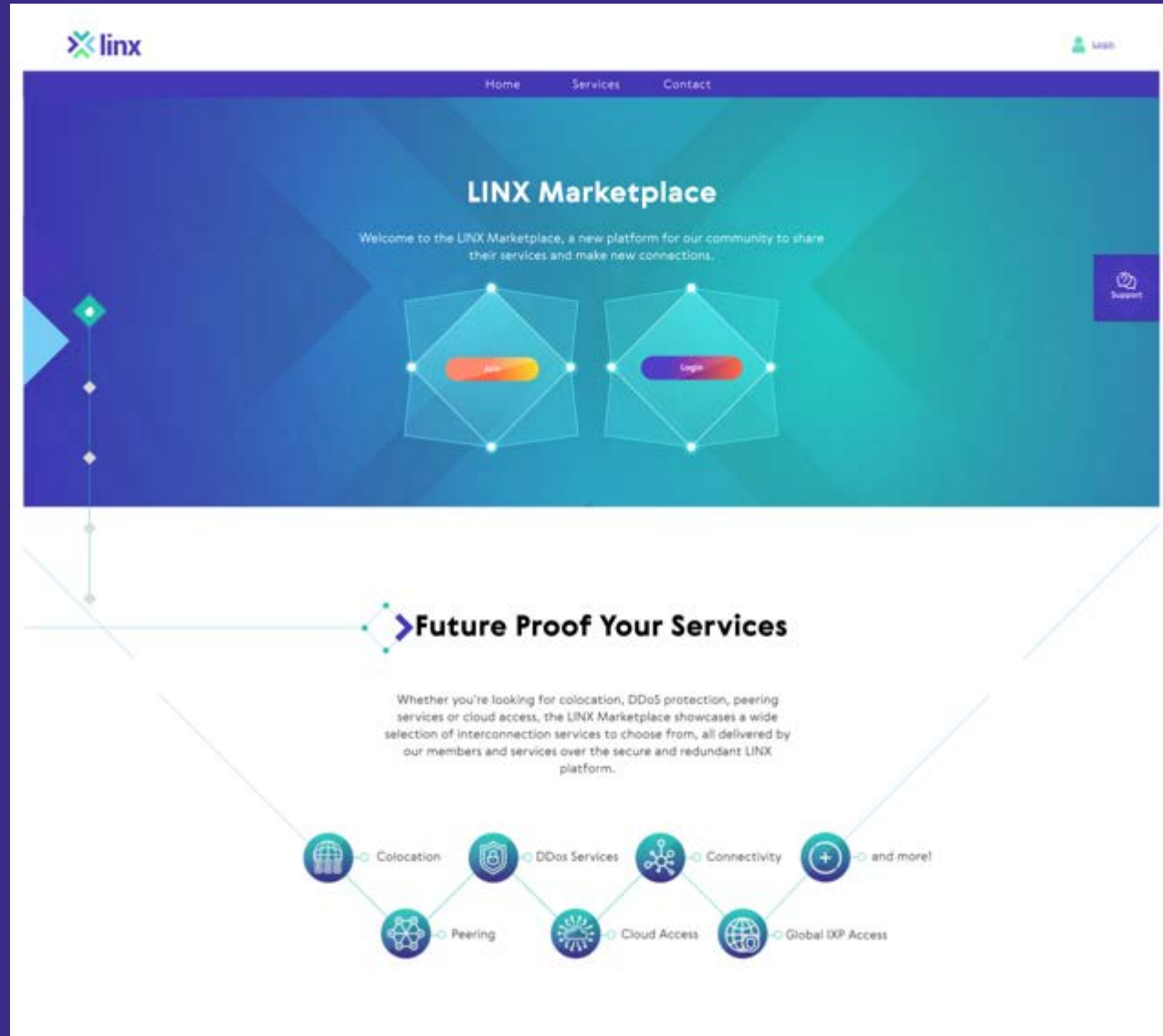
## LINX Marketplace

- Allow members and partners to offer their own services to other LINX members
- Driven by requests from members and partners
- Expand range of services across your existing ports

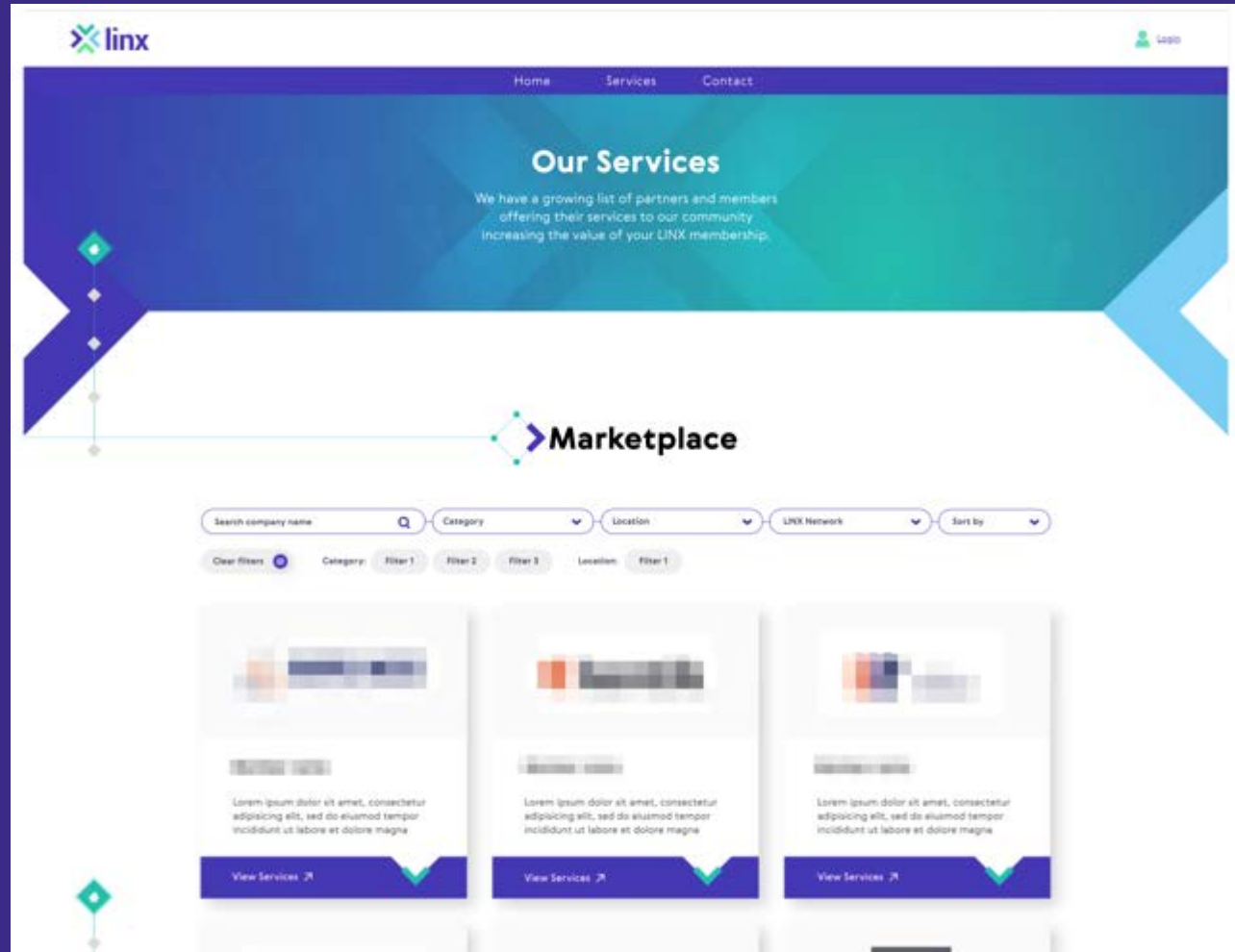
# LINX Marketplace

- Phase 1:
  - Standalone platform
  - No integration into backend systems with the exception of authentication
- Phase 2:
  - Integration into Portal frontend and backend systems
  - Implement order process integration

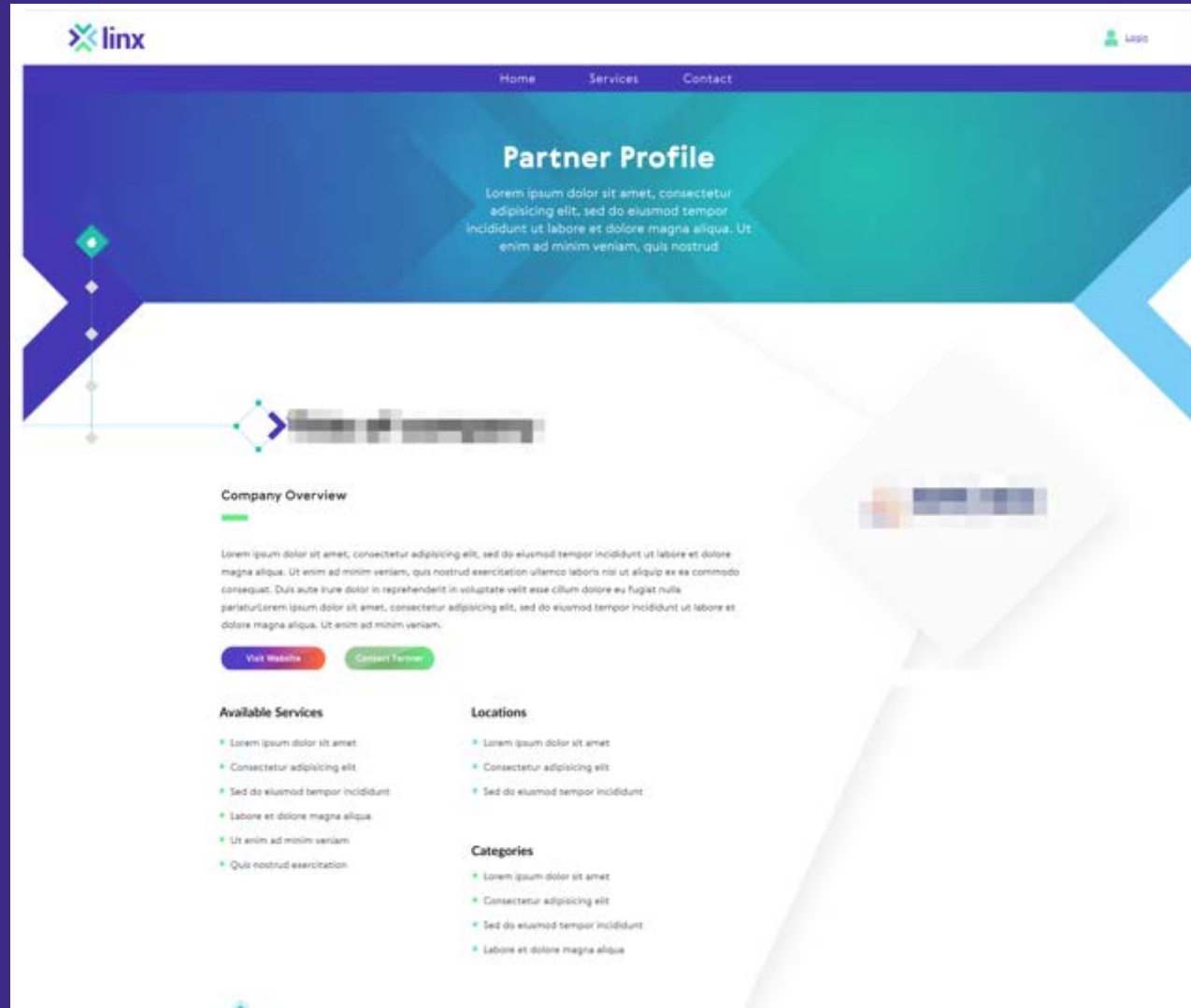
# LINX Marketplace



# LINX Marketplace



# LINX Marketplace



## LINX Marketplace - Roadmap

- UI/UX prototype completed
- Implementation of platform in progress
- Phase 1: Launch expected before end of year



Thank you



[mikeh@linx.net](mailto:mikeh@linx.net)