RIPE NCC
RIPE NETWORK COORDINATION CENTRE

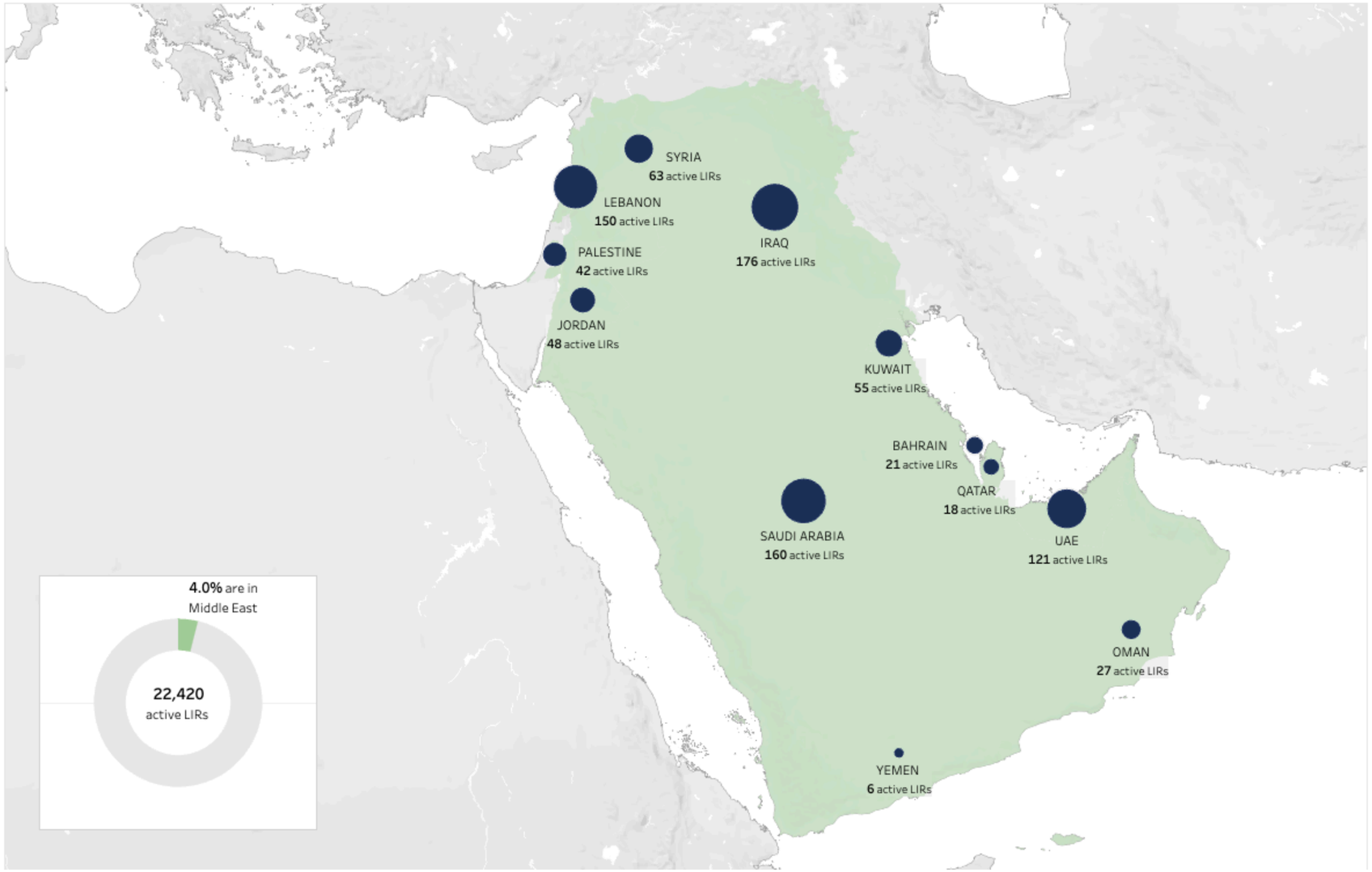
Navigating the Peering Landscape of the ME

Scalability, Security and Resilience

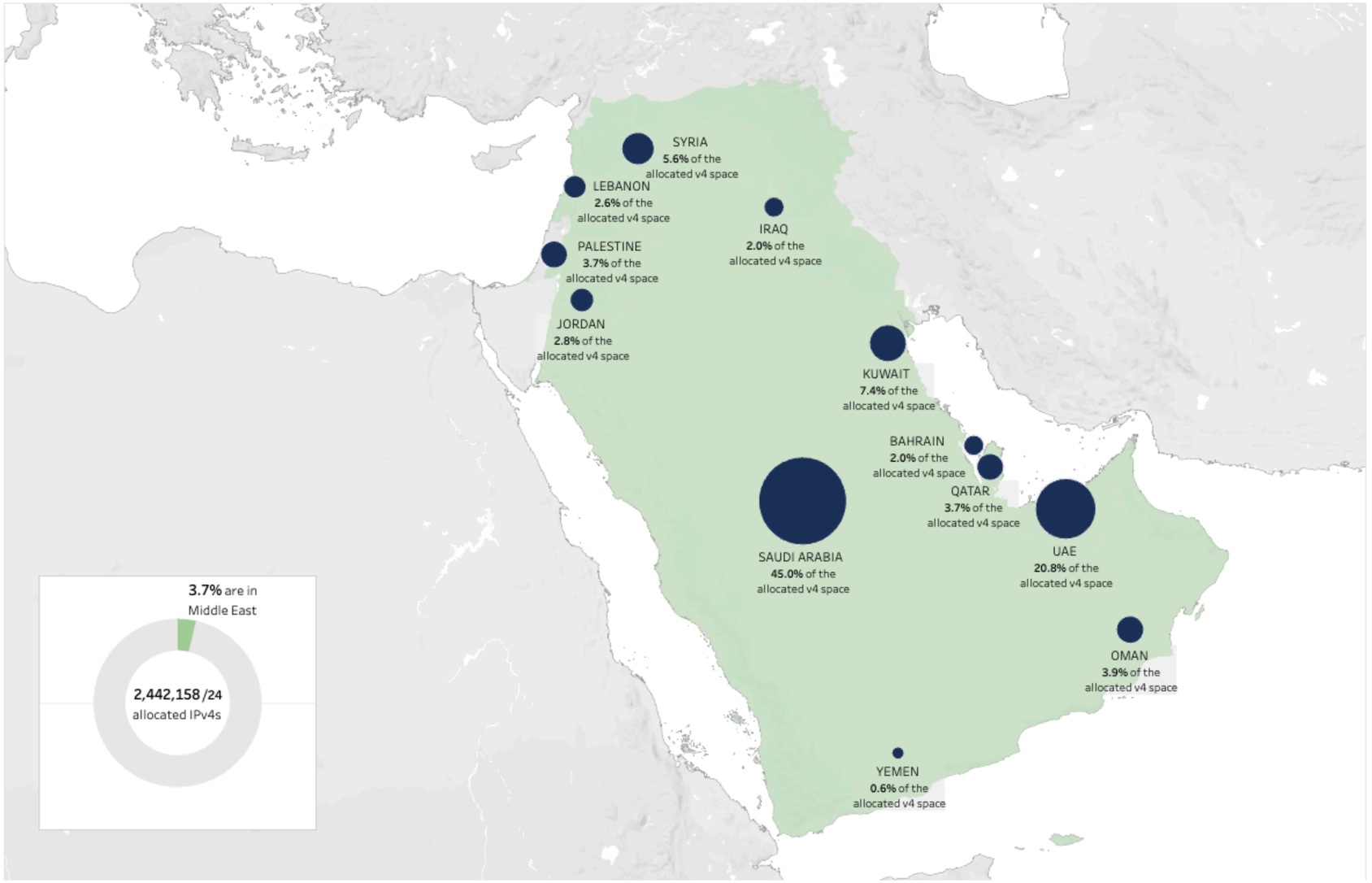
Jad El Cham | Peering Days EU | 7 March 2024

Context

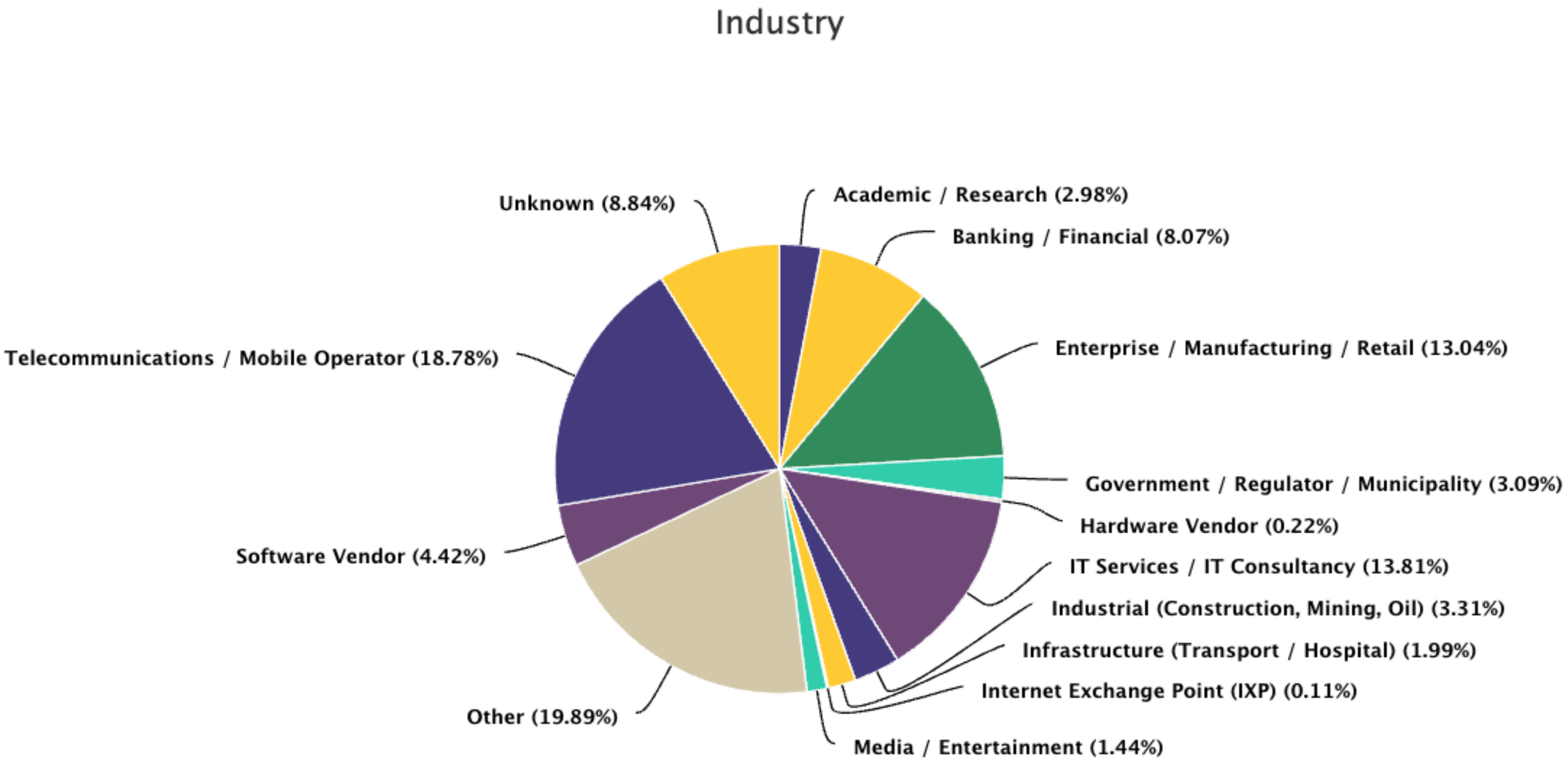
LIRs in the Region



IPv4 in the Region



LIRs in the Region by Industry



Scalability

Internet Resources

Internet Scalability

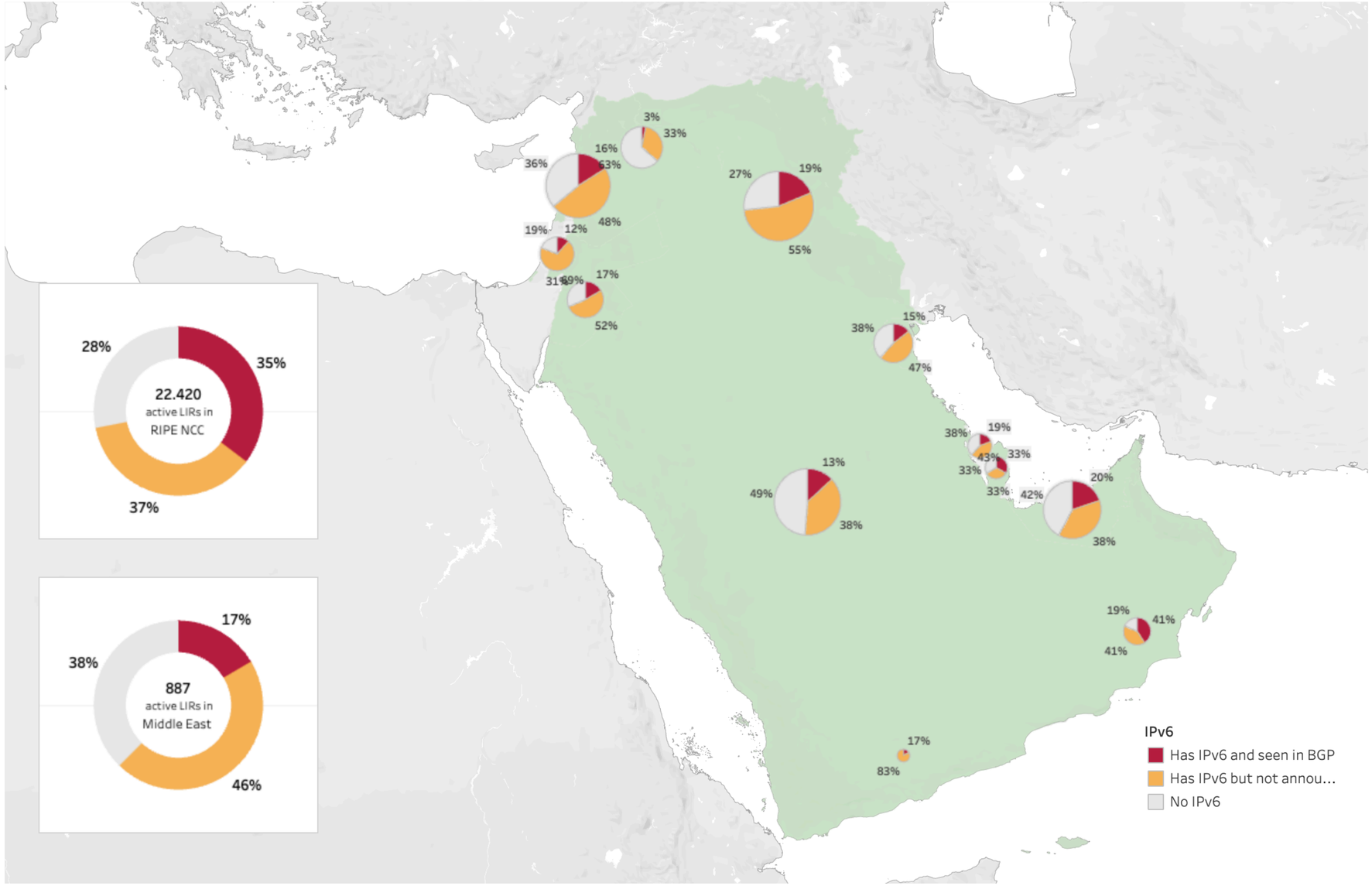
- Hardware and Software scale easily these days
- Internet resources (IPv4) are the real choke points in today’s network
- Acquiring new IPv4 space is **increasingly costly** and **limits growth**
- Deploying IPv6 became a strategic and operational **necessity**

Why Should You Care?

- New ecosystems are mostly IPv6-only (IoT, SRv6, etc.)
- IPv6 is a must for 5G URLLC and mMTC Use cases
- ± **45%** of global connections are on IPv6 today. Missed market?
- Regulatory compliance

Region	IPv6 Preferred
Southern Asia	66.67 %
Western Europe	62.5 %
Northern America	53.5 %

IPv6 in the Region



IPv6 in the Region

December 2022

Country	% IPv6 capable
KSA	**61.64**
UAE	**47.35**
Kuwait	18.61
Oman	16.88
Jordan	16.65
Lebanon	1.13
Syria	0.67
Qatar	0.24
Iraq	0.12
Palestine	0.11
Bahrain	0.09
Yemen	0.08

November 2023

Country	% IPv6 capable
KSA	**62.24**
UAE	**49.31**
Kuwait	22.39
Oman	22.26
Jordan	14.97
Qatar	3.36
Syria	0.7
Lebanon	0.66
Iraq	0.33
Bahrain	0.17
Yemen	0.13
Palestine	0.07

February 2024

Country	% IPv6 capable
KSA	**64.01**
UAE	**51.61**
Oman	23.08
Kuwait	22.07
Jordan	14.97
Qatar	**10.02**
Bahrain	**5.04**
Syria	0.63
Lebanon	0.49
Iraq	0.27
Yemen	0.07
Palestine	0.07

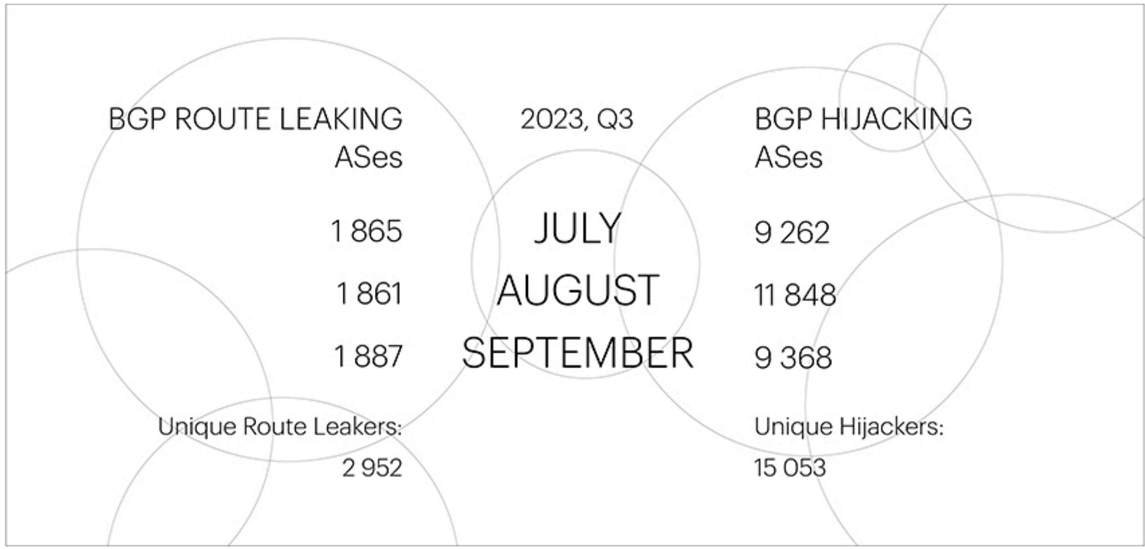
Source: APNIC

Security

RPKI

Why Should You Care?

- Networks run on BGP, an old **insecure** protocol by default
- Security Incidents by the **thousands** each year!



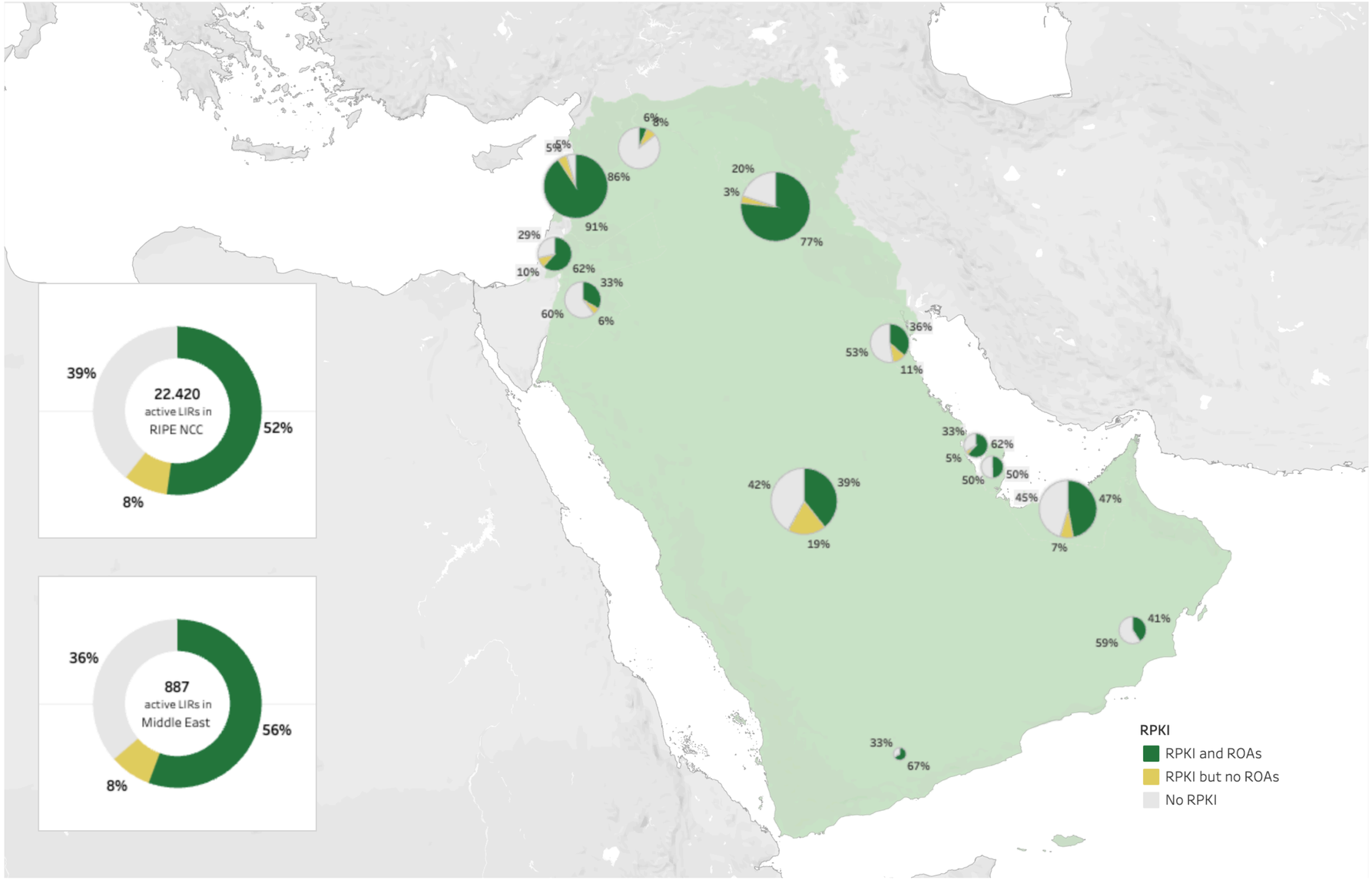
Source: QRATOR

- Loss of Business / Reputation Damage / Downtime

RPKI Fixes Things

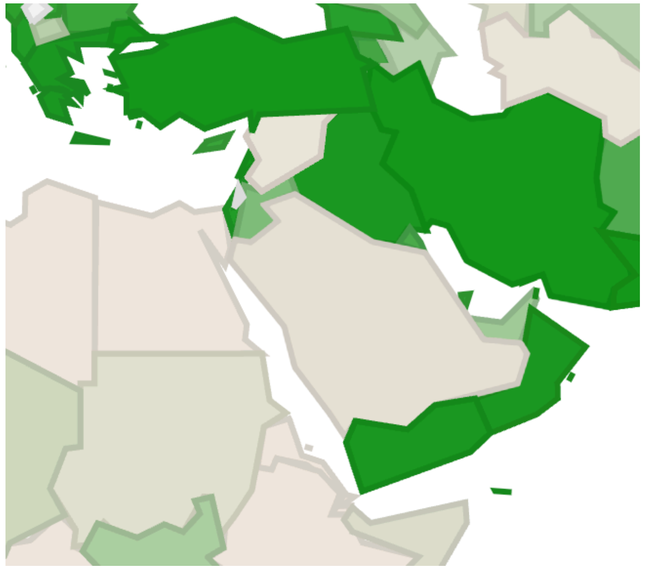
- RPKI is a security framework to secure routing on the Internet
- RPKI prevents hijacking, route leaks, misoriginations
- Protects your IP space
- Free*, Fast to deploy and Globally used

RPKI in the region



A Measurable Impact: Routing Security

December 2022



Source: RIPE NCC

Country	% IPv4 covered
Lebanon	97.28
Yemen	95.66
Iraq	94.86
Oman	94.02
Qatar	83.82
Kuwait	73.9
Bahrain	71.78
Jordan	50.17
Palestine	**50.08**
UAE	**35**
KSA	**3.13**
Syria	**0.87**

February 2024

Source: RIPE NCC

Country	% IPv4 covered
Oman	98.71
Lebanon	97.9
KSA	**97.82**
Yemen	96.57
Iraq	96.56
UAE	**94.58**
Palestine	**89.61**
Qatar	83.89
Bahrain	76.08
Kuwait	73.62
Jordan	51.03
Syria	**50.67**

Resiliency

Internet Exchange Points

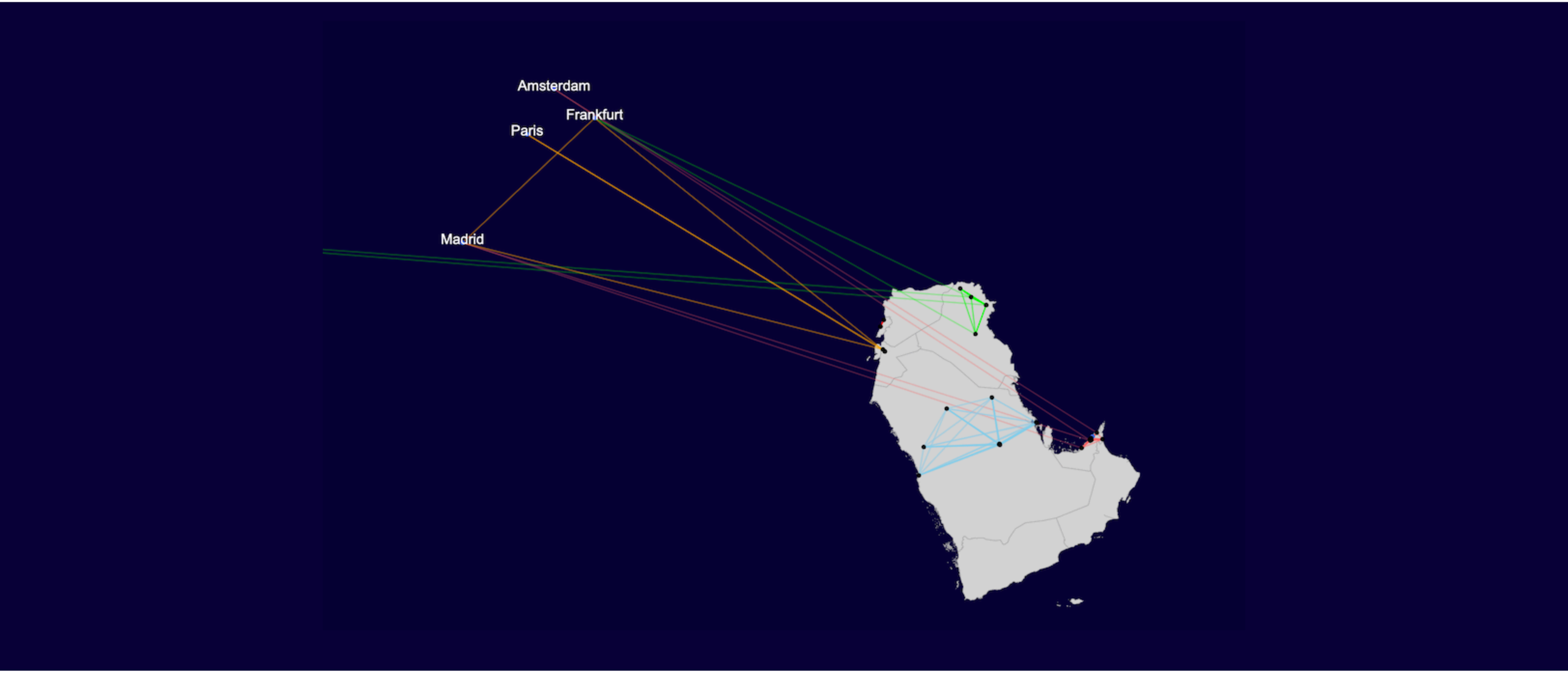
RIPE NCC IXP Report: Initial Findings

- Considerable growth in the number of IXPs in the region
- Multiple governance structures
- Challenges on several fronts (Regulatory, cross-border connections, addressable market, etc.)
- When can an IXP be considered a success?

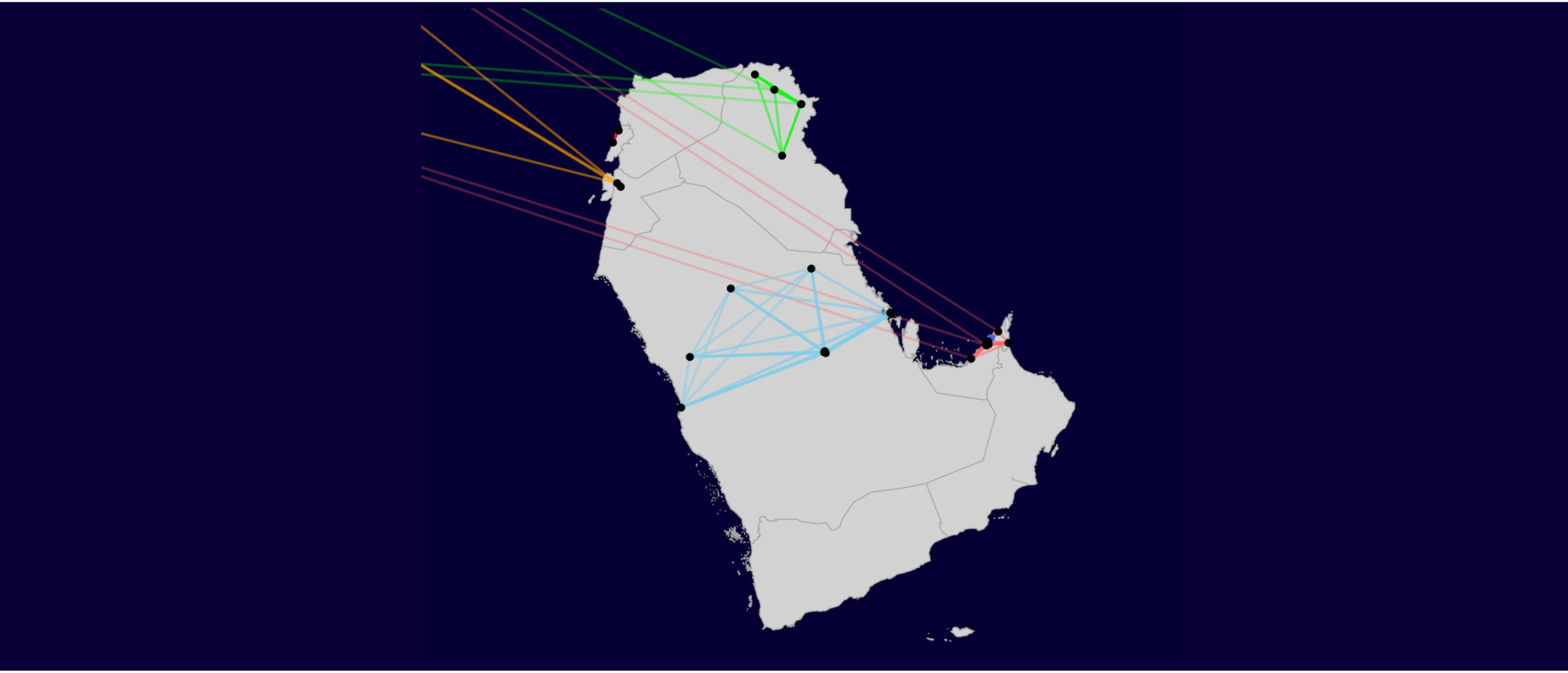
RIPE NCC IXP Report

- A successful IXP might fulfil one or more roles:
  - (1) Keep the local traffic… local!
  - (2) Fostering local interconnection for developing a digital economy
  - (3) Attract global Cloud and Content players
  - (4) Becoming a hub for exchanging regional traffic

(1) In-Country Connections

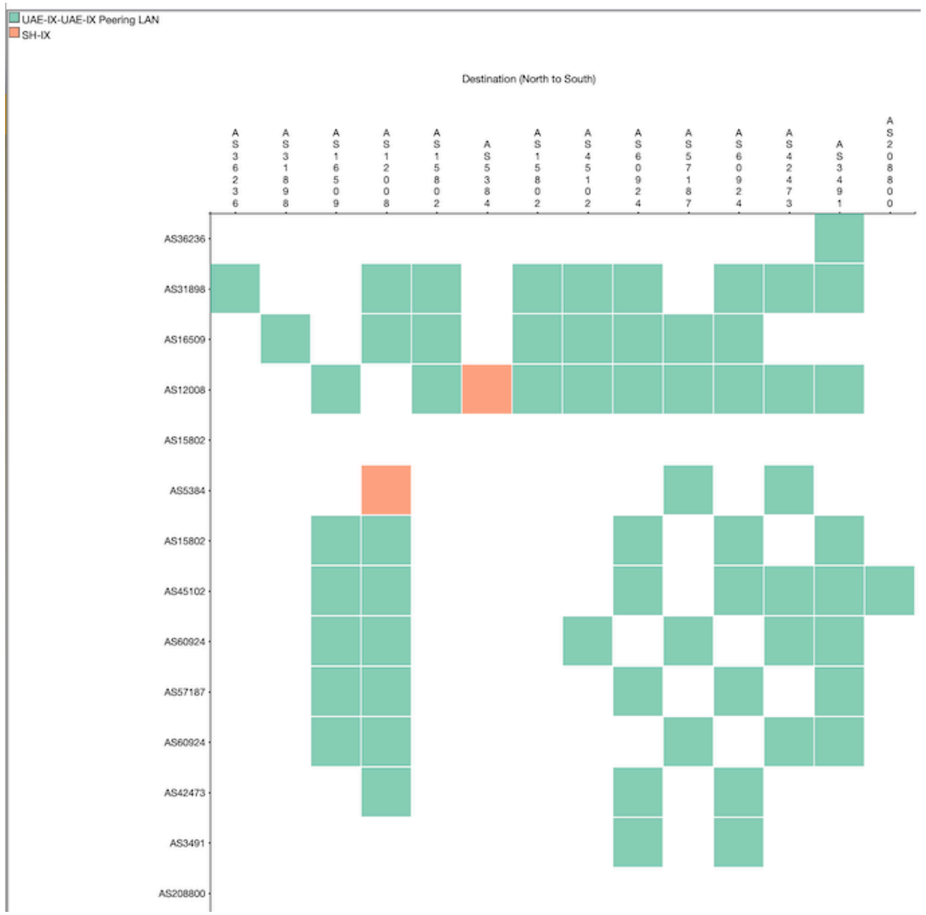


(1) In-Country Connections

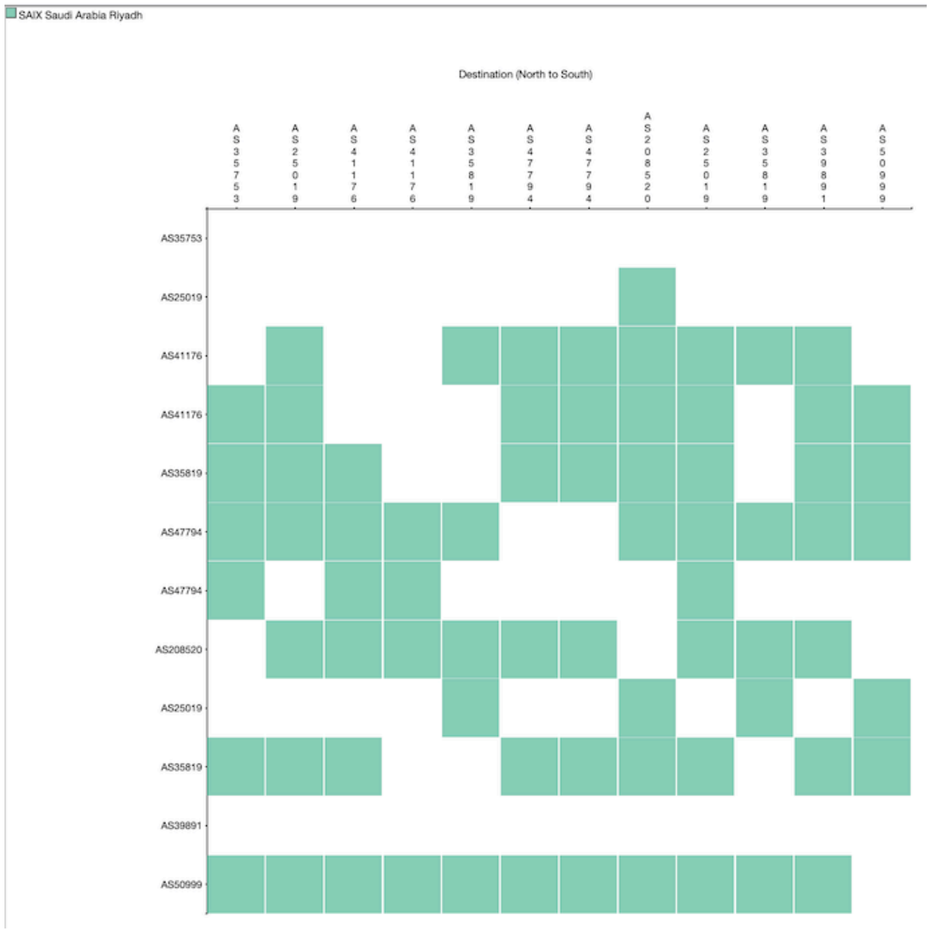


(1) In-Country Connections

UAE



KSA



(2) Economy Digitalisation?

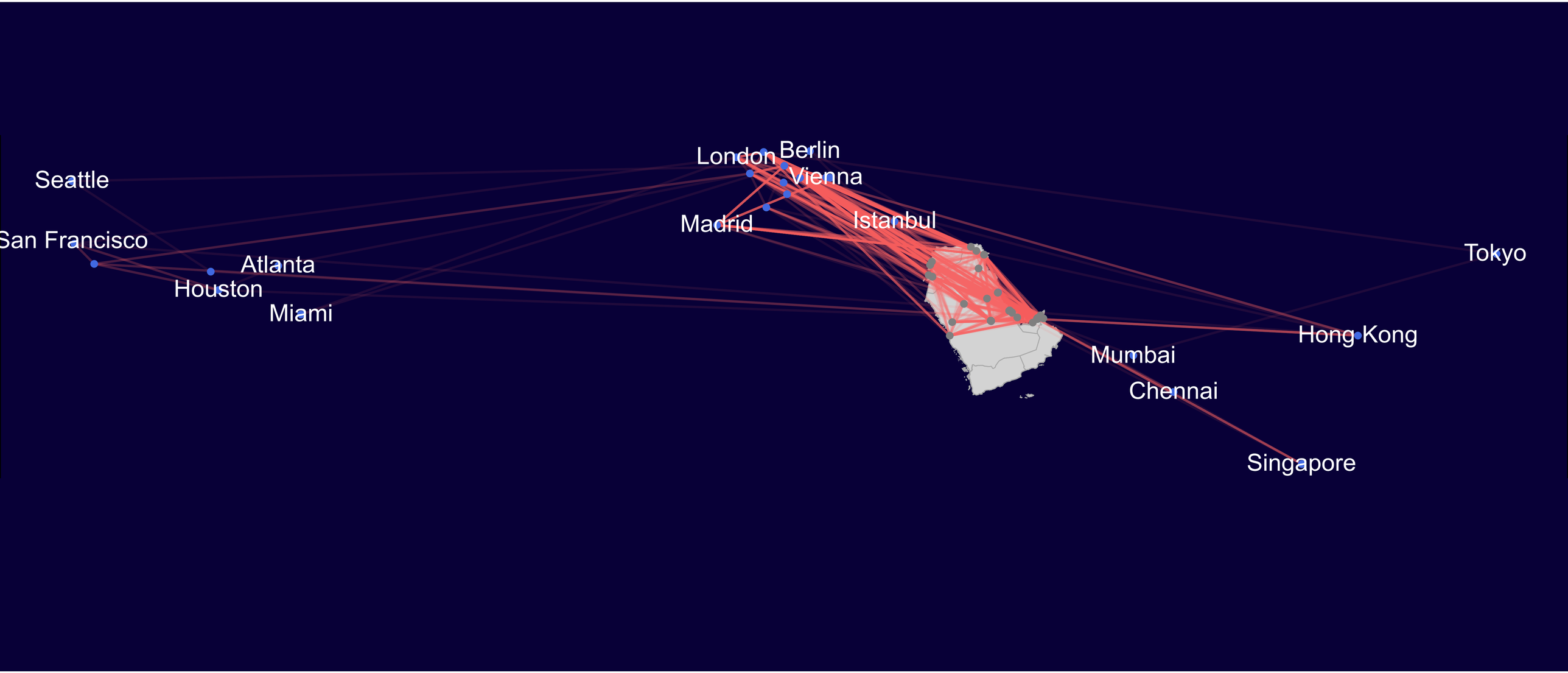
(3) Global Players

Cloud, CDN and OTT leaders in IXP participation in the Middle East

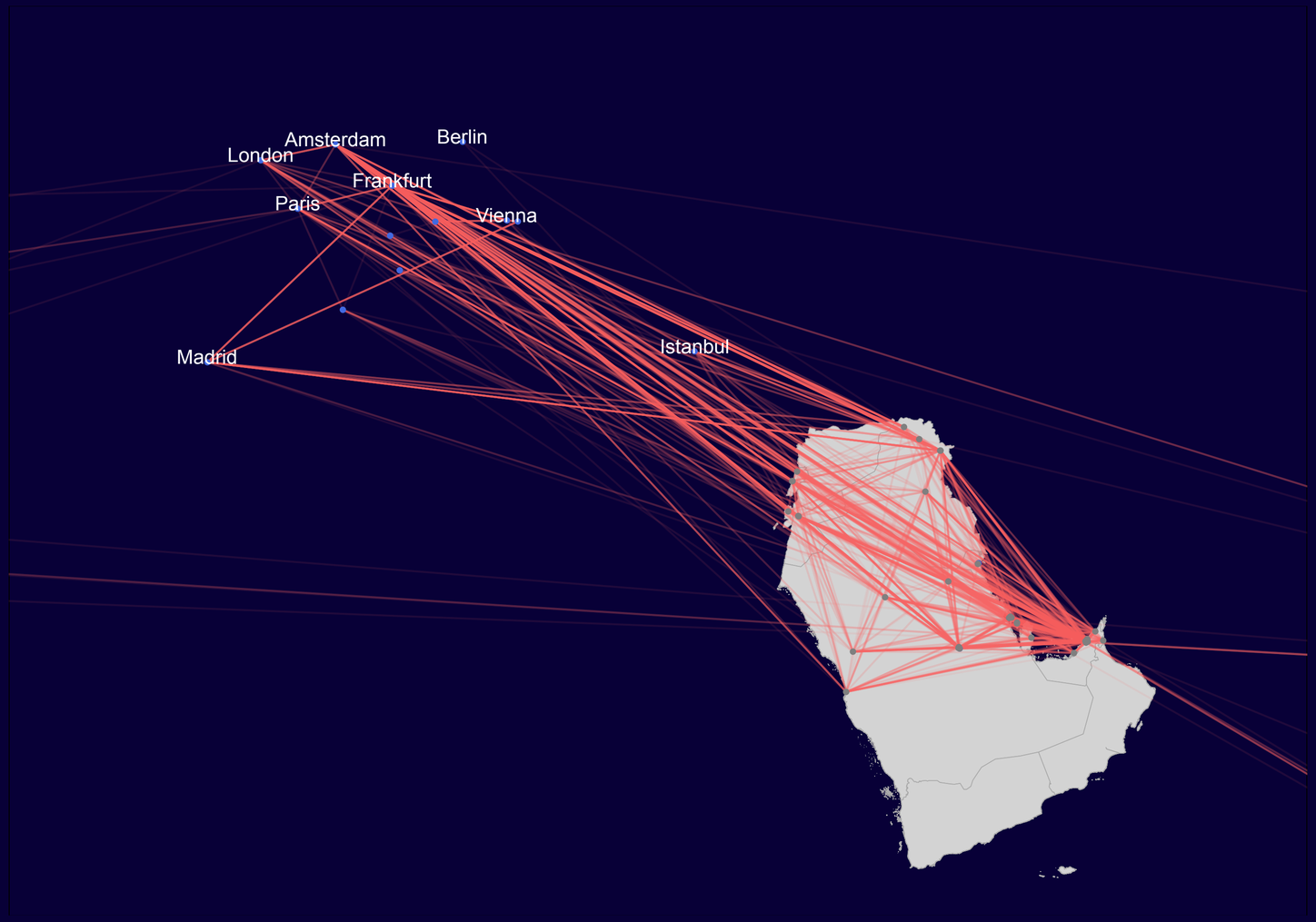
Only 100G ports are counted. This data was retrieved on 3 September 2023.

	SAIX RU	JEDIX	Equinix Jeddah	Equinix Muscat	UAE-IX	MN-IX	Number of IXPs	Total Port Capacity
Facebook/Meta				200		100	2	300
Google	200				200	100	3	500
Kaopu Cloud	100	100	100				3	300
Medianova	100	200			100		3	400
Zenlayer	100	100			100		3	300
Edgio		100		100	100		3	300
Amazon					200	400	2	600
Baishan	100	100					2	200
Microsoft					200		1	200
Fastly					100		1	100
Edgeuno	100						1	100
Meteversecloud	100						1	100
ACE CDN		200					1	200
Bigo		100					1	100
Akamai					100		1	100
MBC					100		1	100
Oracle					100		1	100

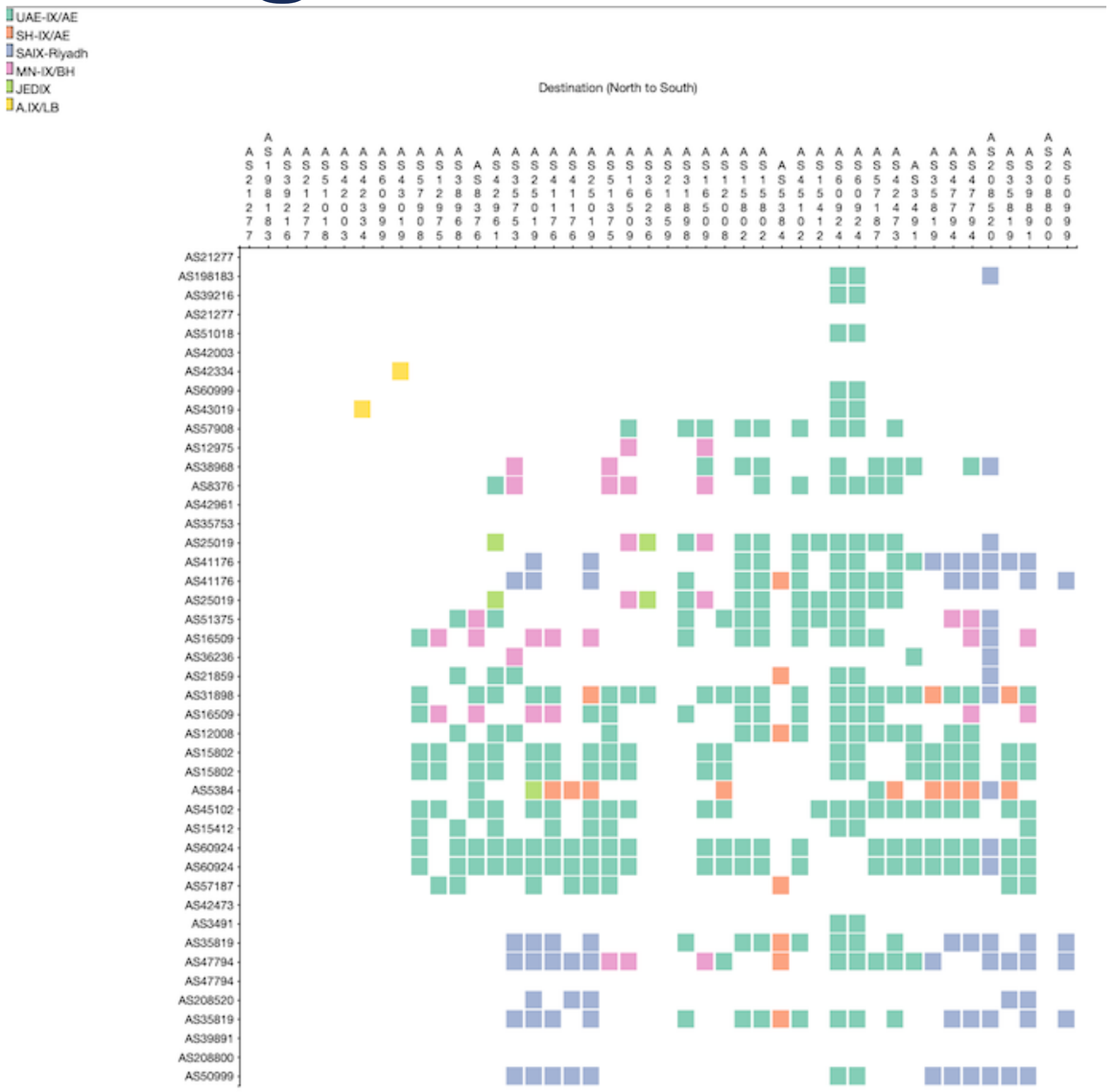
(4) Inter-Region Connections



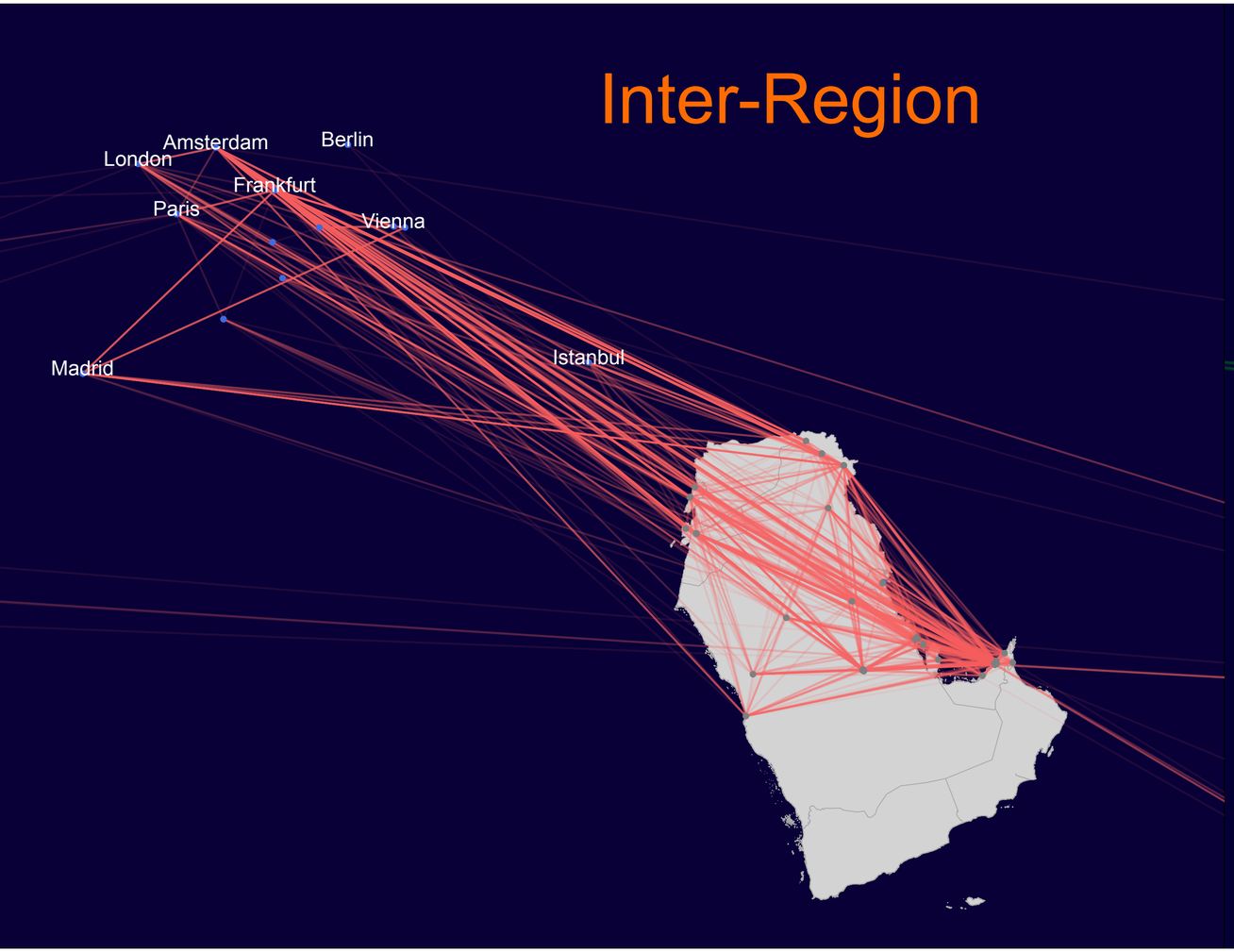
(4) Inter-Region Connections

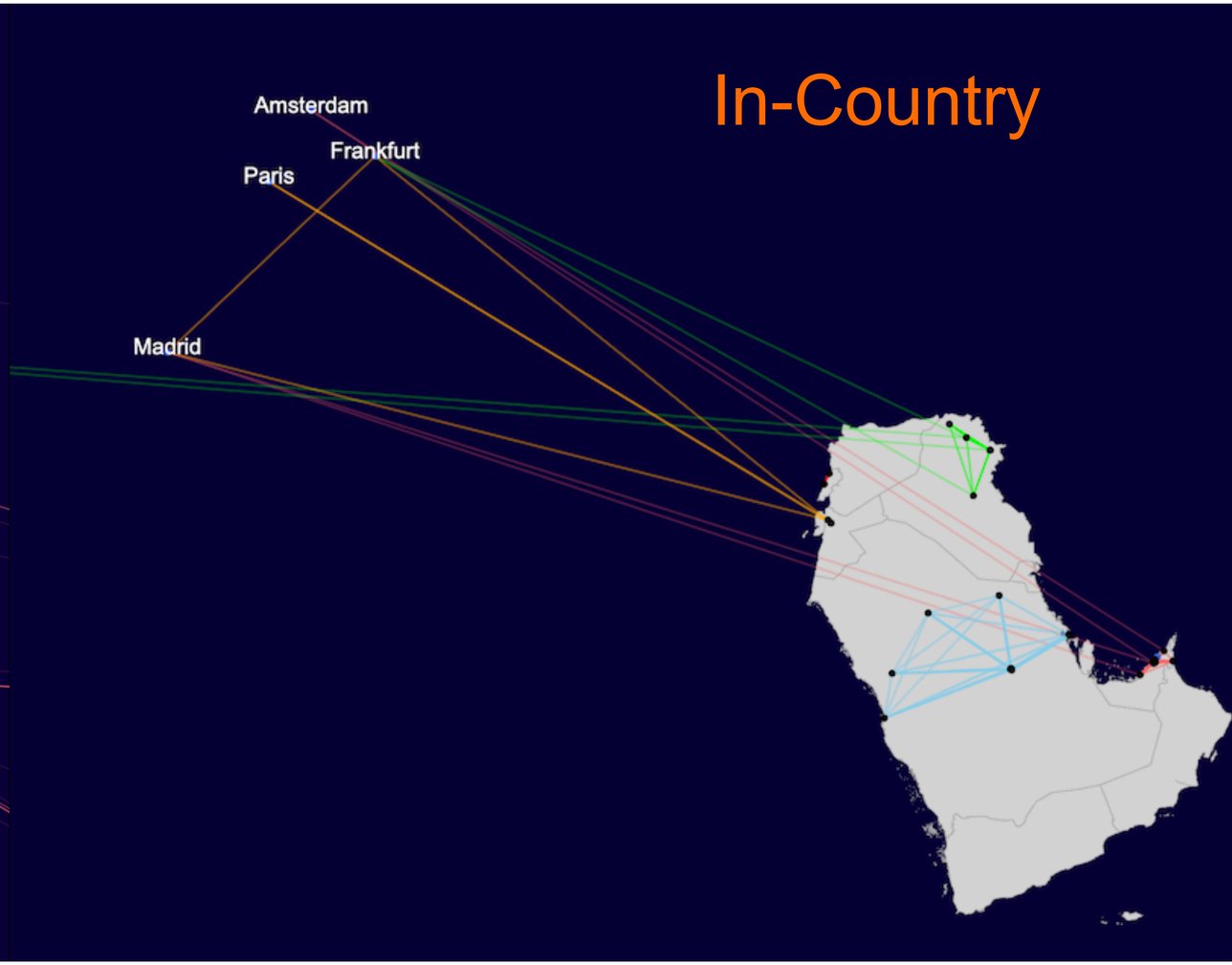


(4) Inter-Region Connections



(4) / (1) Differences?





Call for Action

- On the regulatory level
  - **Standalone IXP Licenses** are a good way forward
  - ***De-regulate*** the market as much as possible
  - Reduce regional cross-border connections' **prices** and **monopolies**
  - Push for the **digitisation** of the economy <==> **Local** content <==> Develop the **Local Loop**

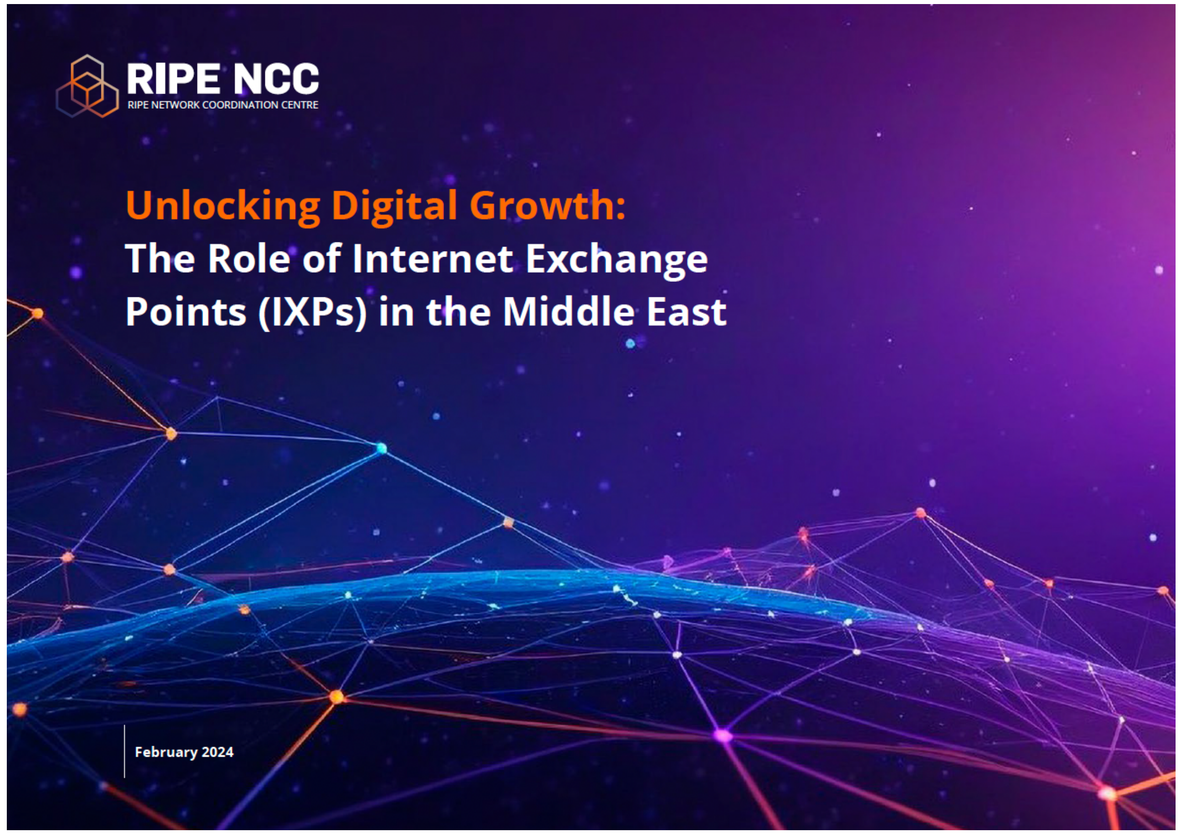
- We need data!
  - Help provide objective and transparent **Data** + **Traffic Stats**
  - Deploy more **RIPE Atlas Probes & Anchors** in the region!
  - Enhancing **RIPE RIS** for better granular BGP visibility

Download the IXP Report

Download the report for free on RIPE Labs:

https://labs.ripe.net/author/jadelcham/unlocking-digital-growth-the-role-of-ixps-in-the-middle-east/

SCAN TO DOWNLOAD THE REPORT



Questions

jelcham@ripe.net