



RIPE NCC

RIPE NETWORK COORDINATION CENTRE

Navigating the Peering Landscape of the ME

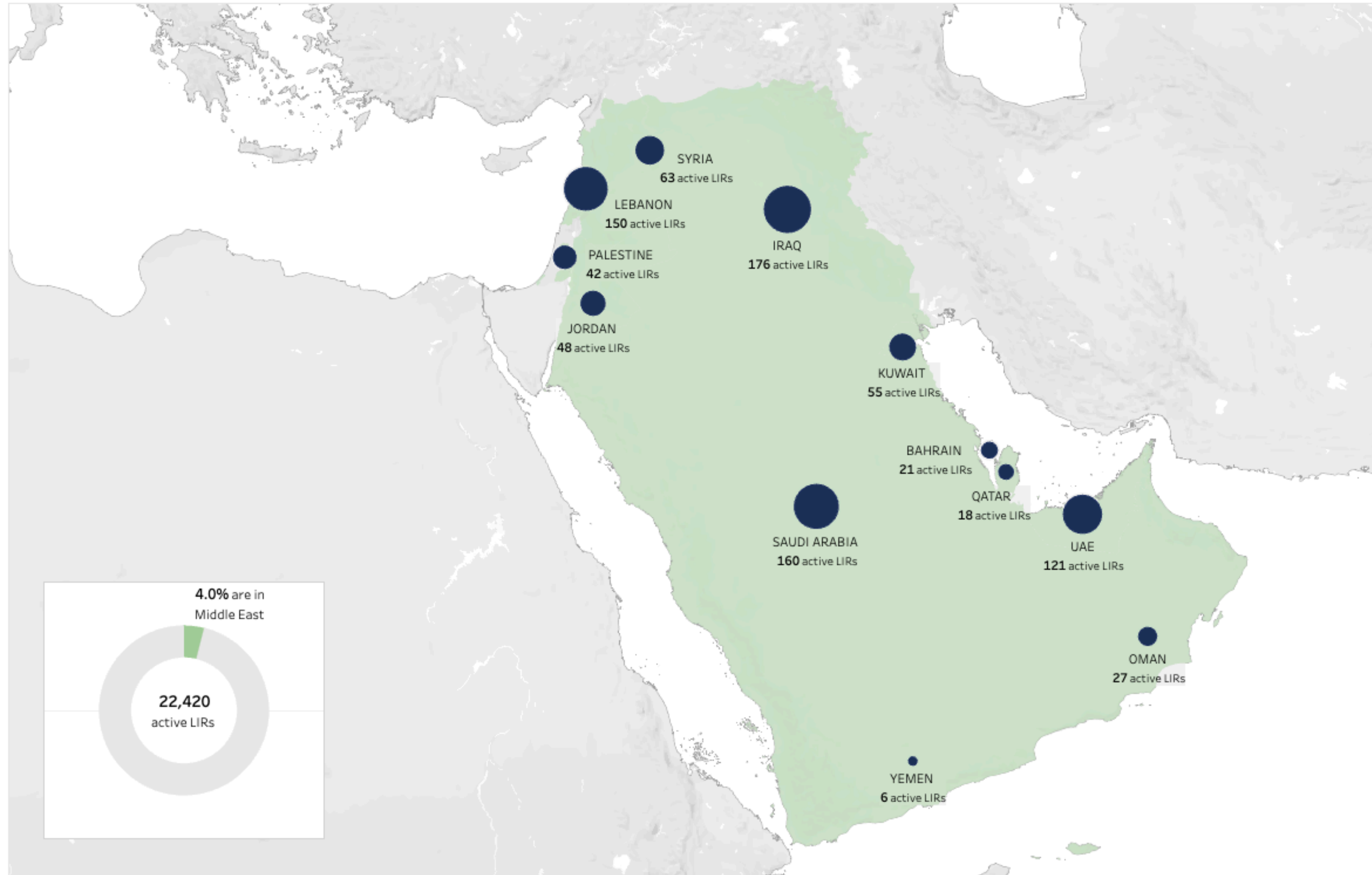
Scalability, Security and Resilience

Jad El Cham | Open House | 18 April 2024

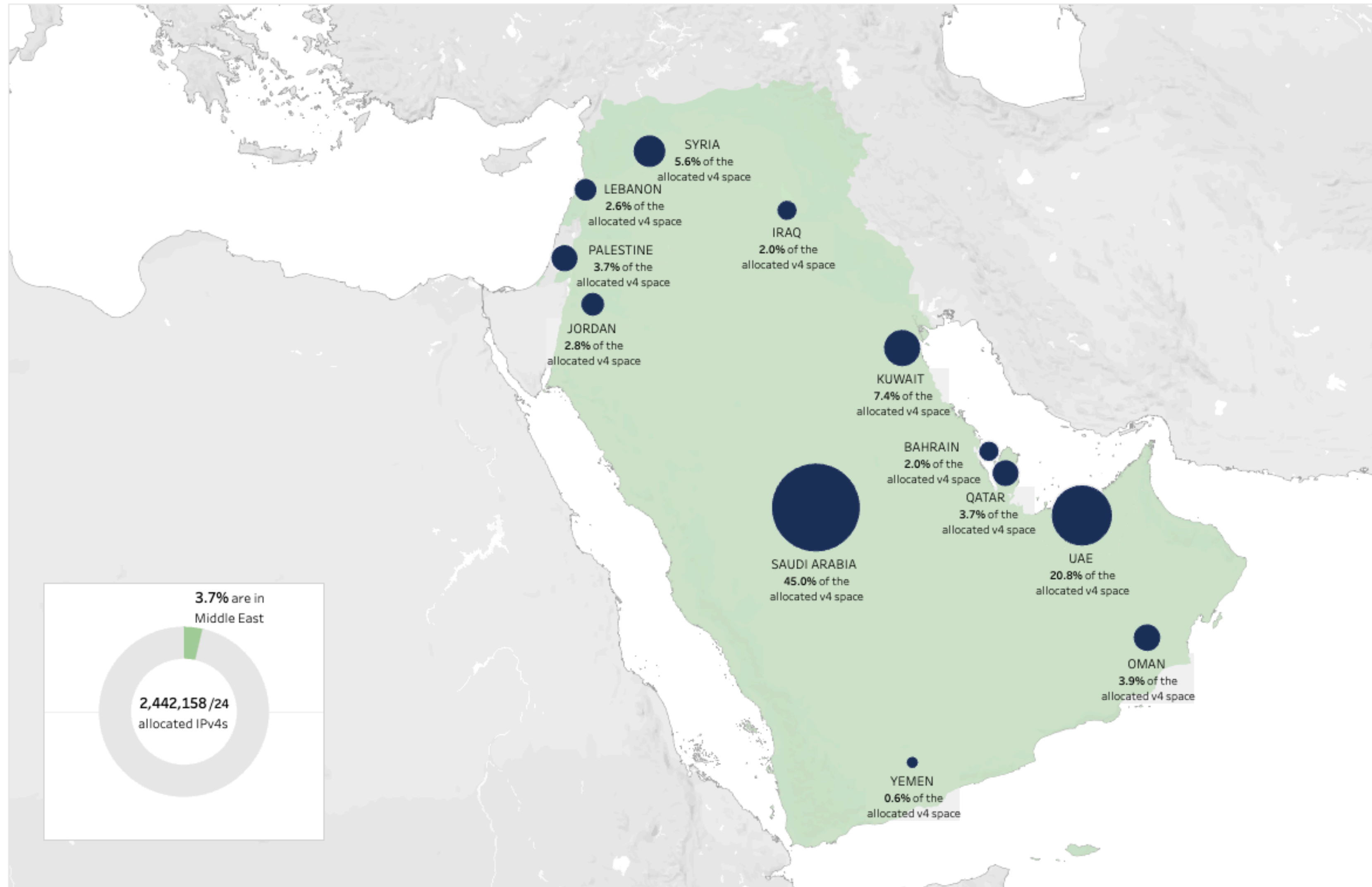


Context

LIRs in the Region



IPv4 in the Region





Scalability

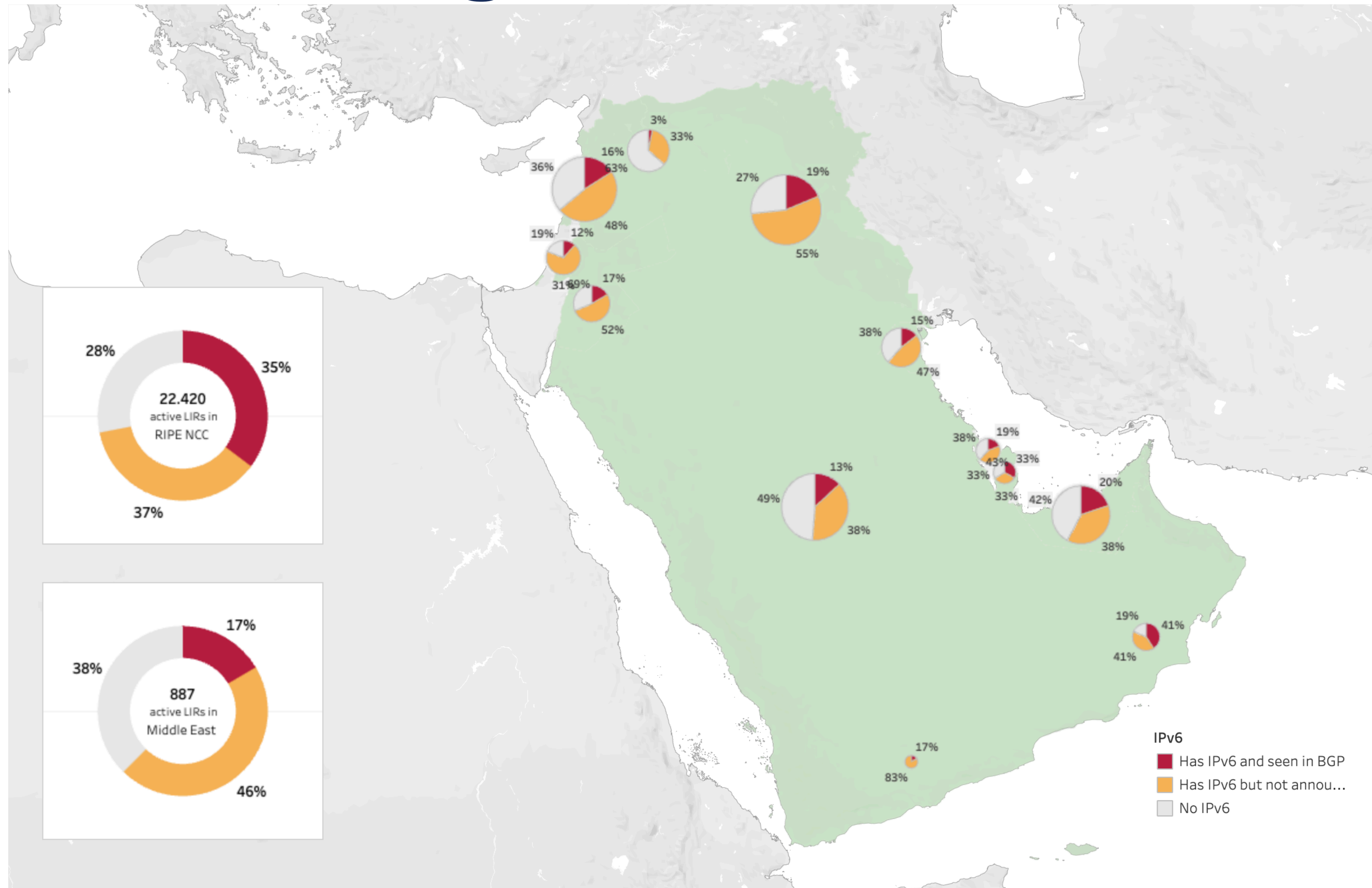
Internet Resources

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**

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

April 2024

Country	% IPv6 capable
KSA	63.76
UAE	53.91
Oman	23.76
Kuwait	23.9
Bahrain	21.03
Jordan	13.48
Qatar	12.04
Syria	0.59
Lebanon	0.49
Iraq	0.3
Yemen	0.12
Palestine	0.07

Source: [APNIC](#)



Security

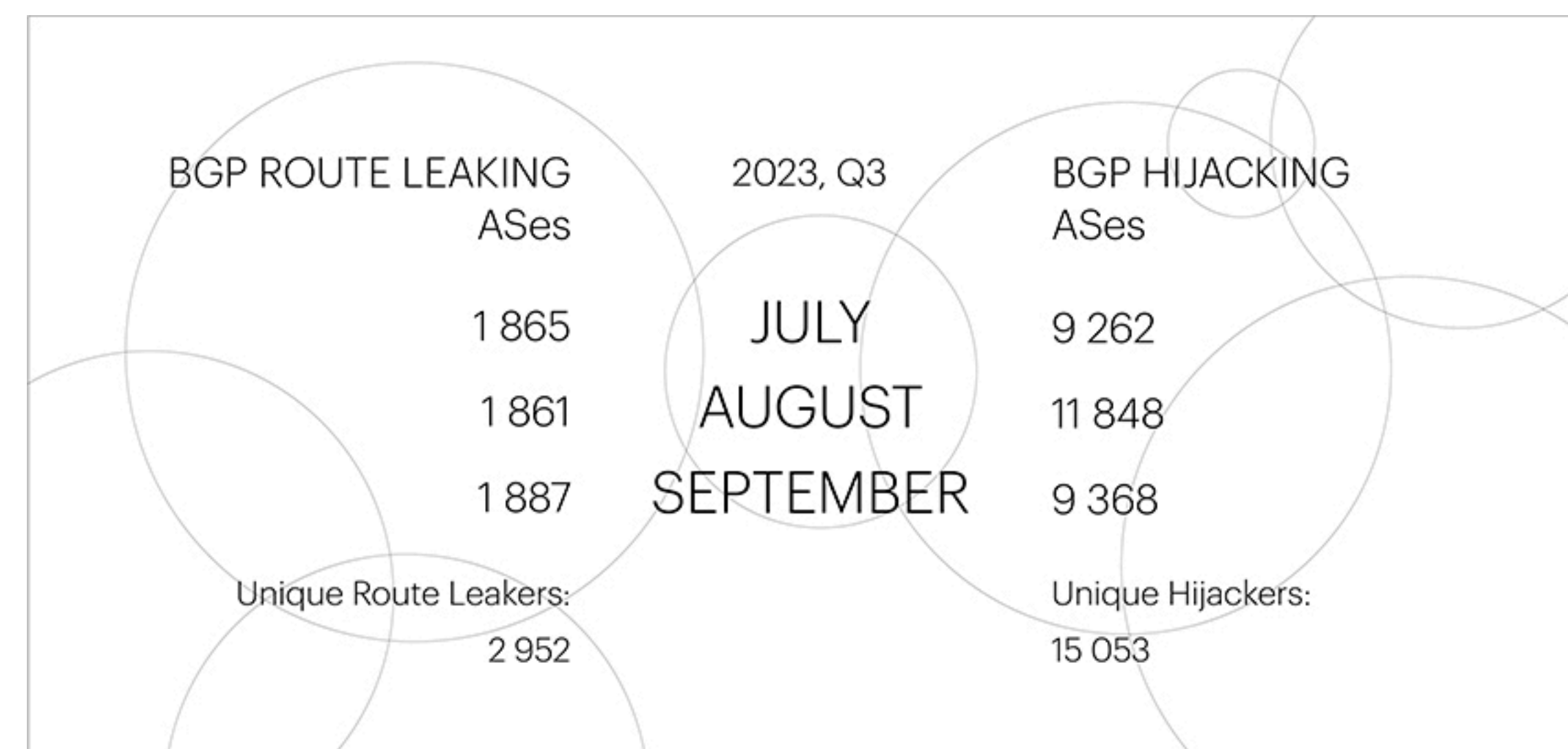
RPKI

Why Should You Care?



- Networks run on BGP, an old **insecure** protocol by default

- Security Incidents by the **thousands** each year!



Source: [QRATOR](#)

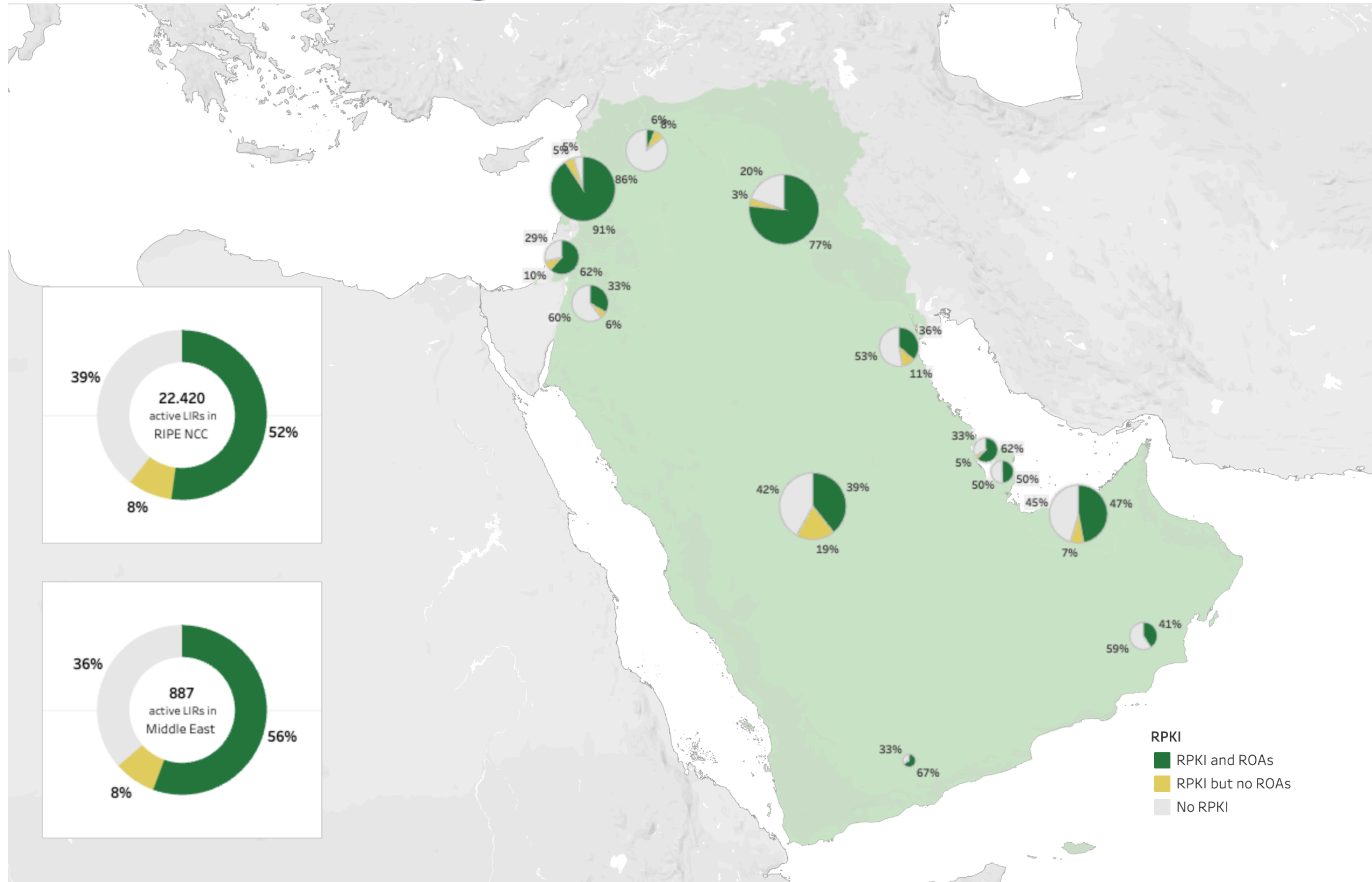
- Loss of Business / Reputation Damage / Downtime

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

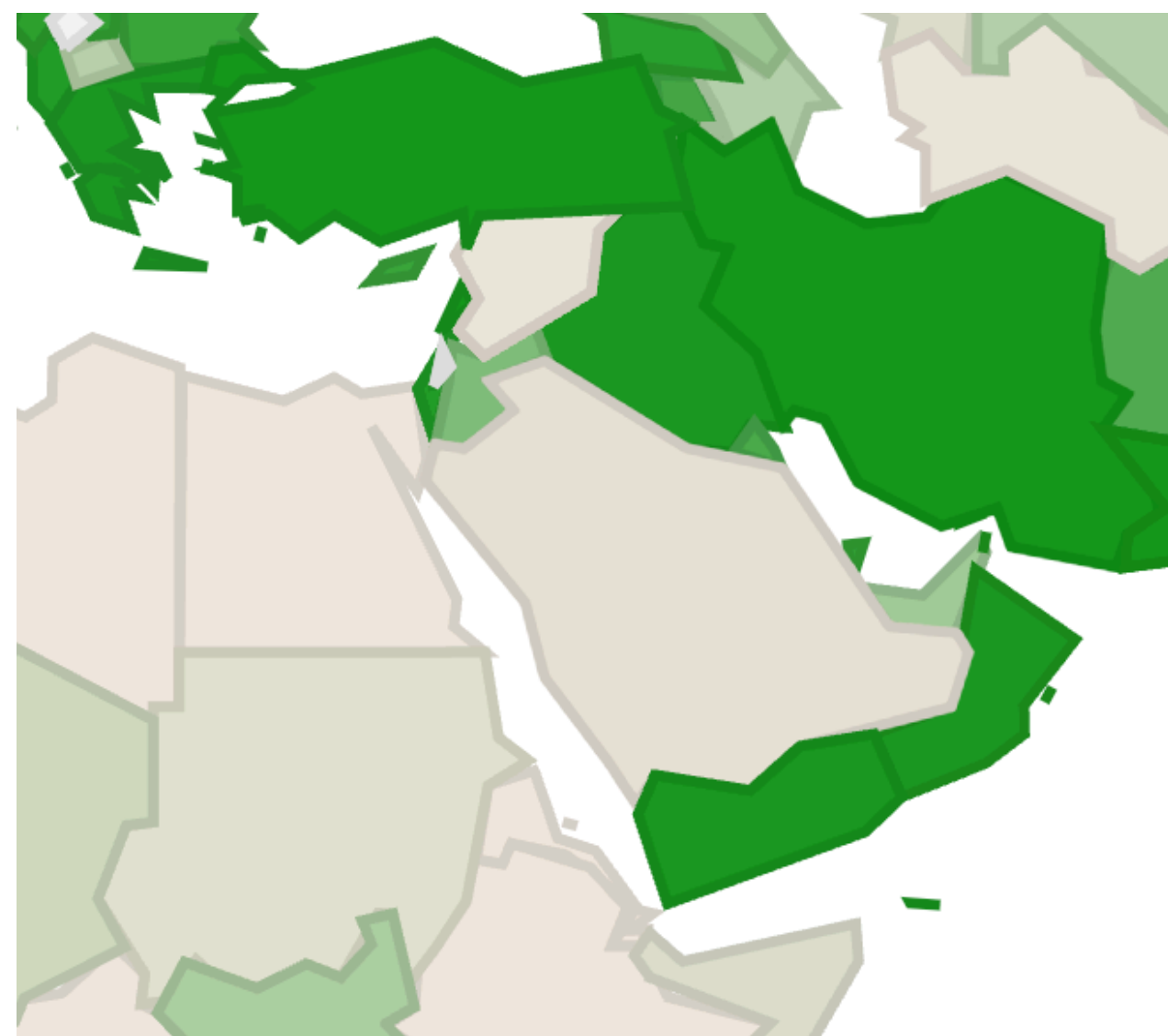
RPKI in the region



A Measurable Impact: Routing Security



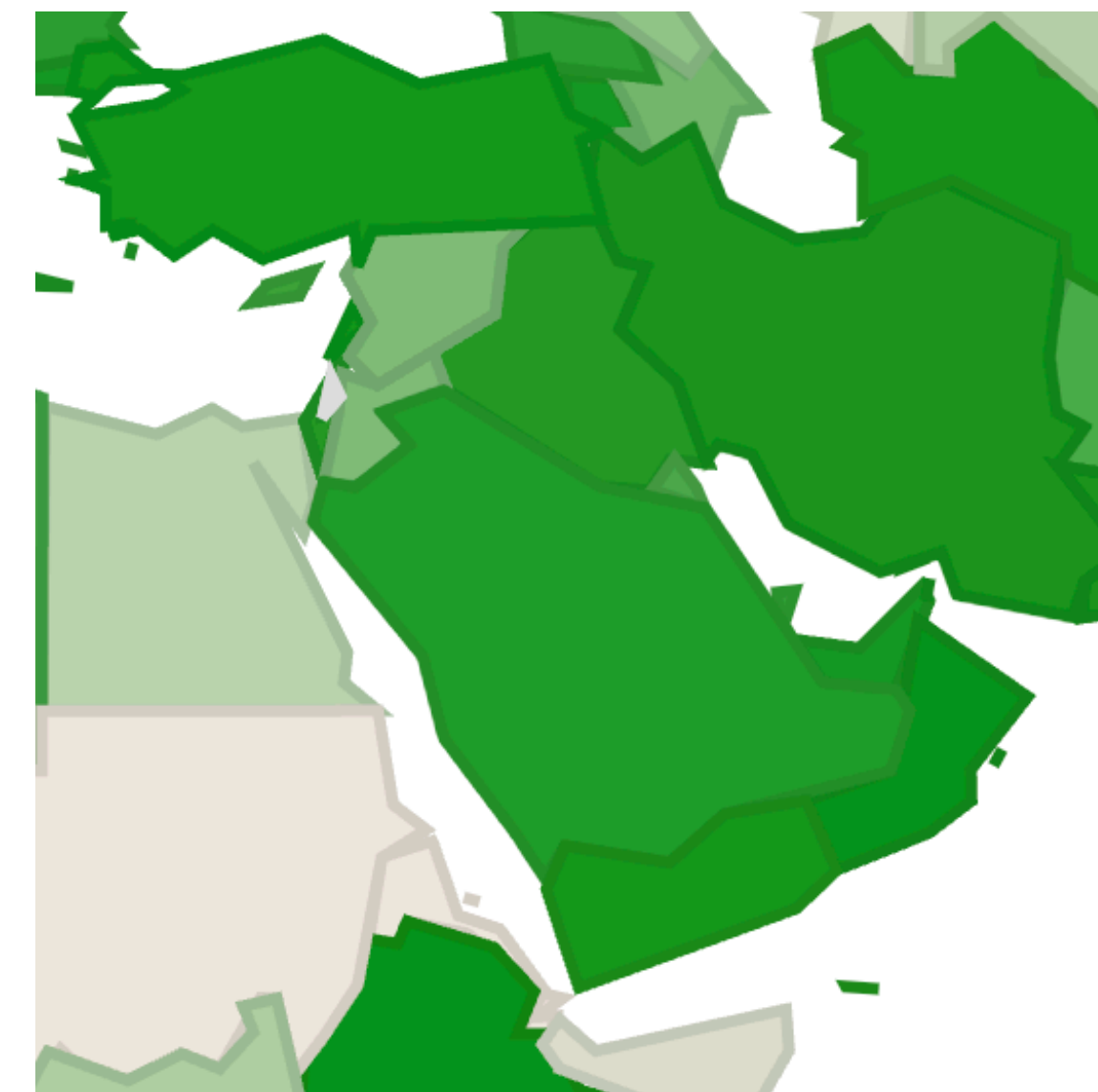
December 2022



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

Source: [RIPE NCC](#)

April 2024



Country	% IPv4 covered
Oman	98.74
Lebanon	97.9
KSA	97.84
Iraq	96.8
Yemen	96.56
UAE	94.58
Palestine	89.61
Qatar	83.89
Bahrain	76.08
Kuwait	73.62
Jordan	51.41
Syria	50.67

Source: [RIPE NCC](#)



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?

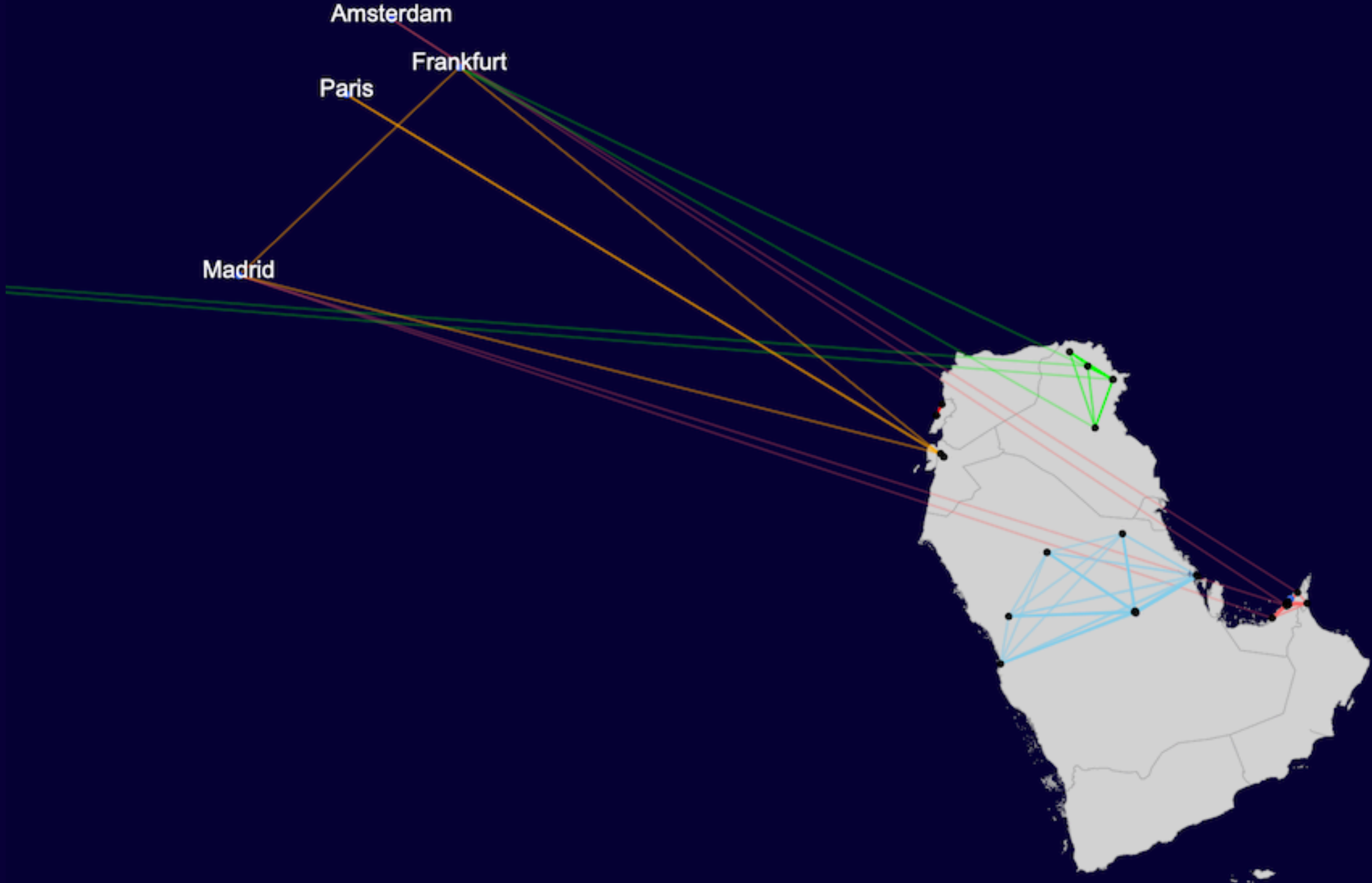


RIPE NCC IXP Report

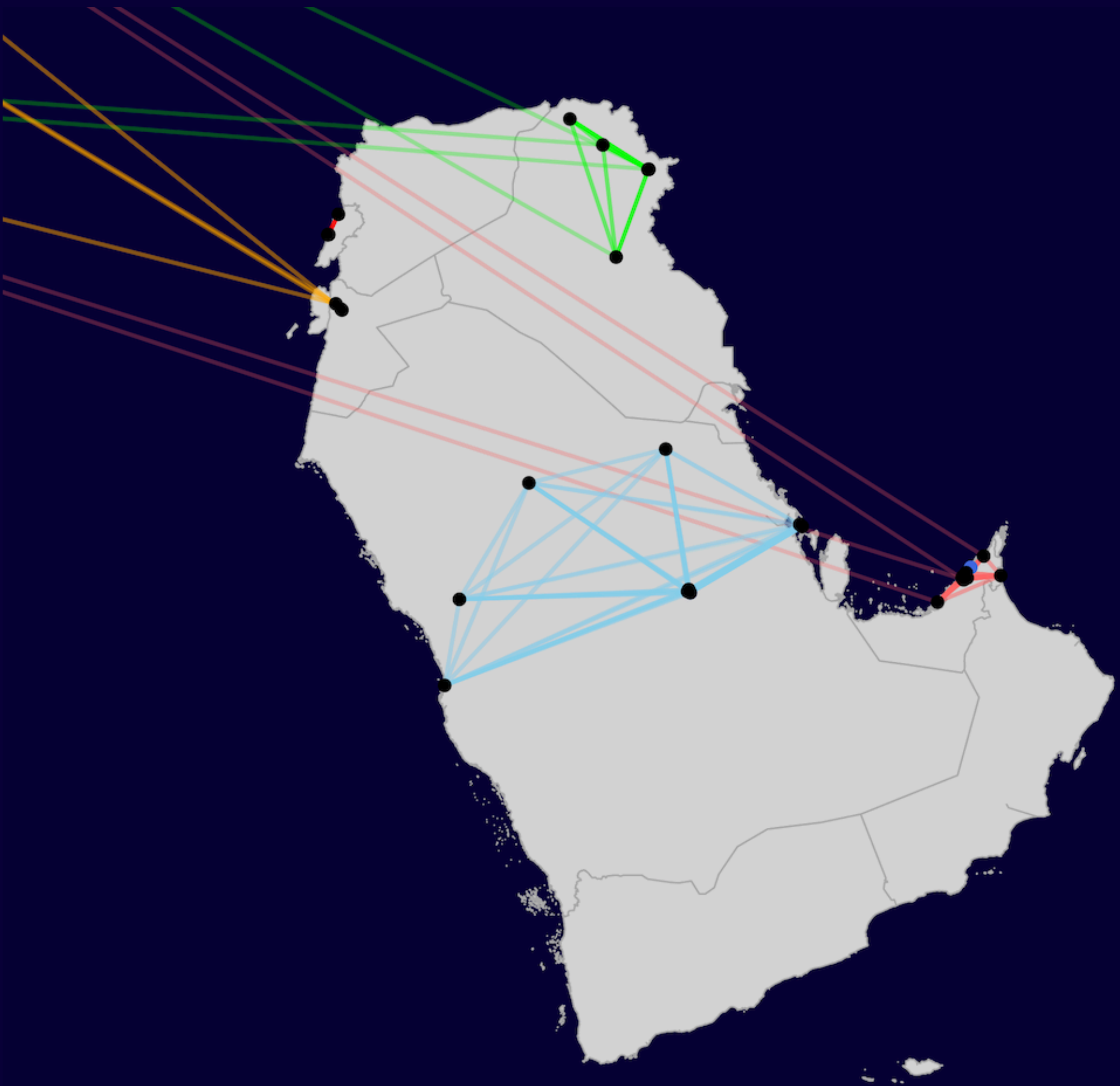


- A successful IXP might fulfil one or more roles:
 - (1) Keep the local traffic... local!
 - (2) Fostering local interconnection for developing a digital economy
 - (3) Attract global Cloud and Content players
 - (4) Becoming a hub for exchanging regional traffic

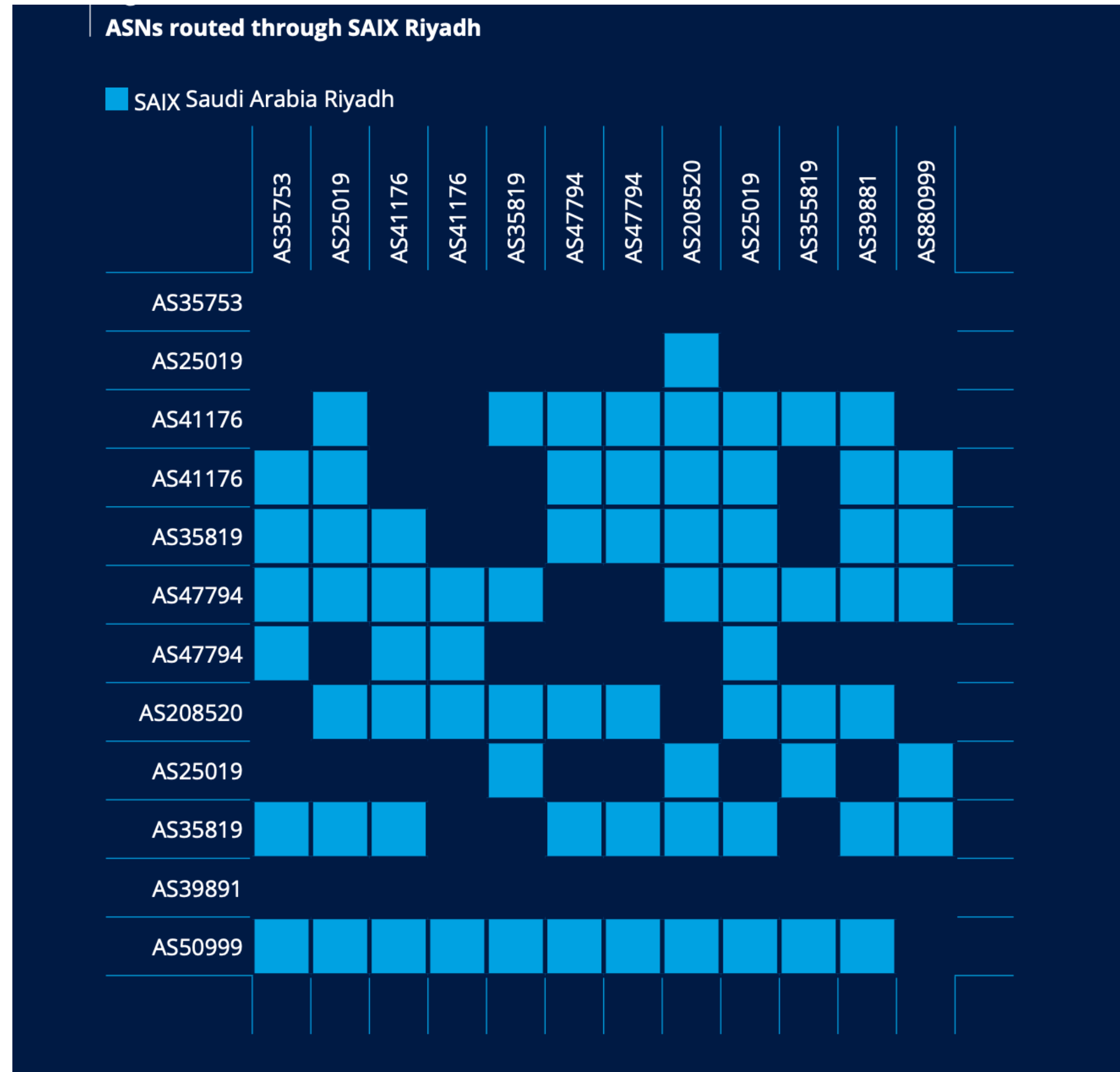
(1) In-Country Connections



(1) In-Country Connections



(1) In-Country Connections



(2) Economy Digitalisation?



(3) Global Players

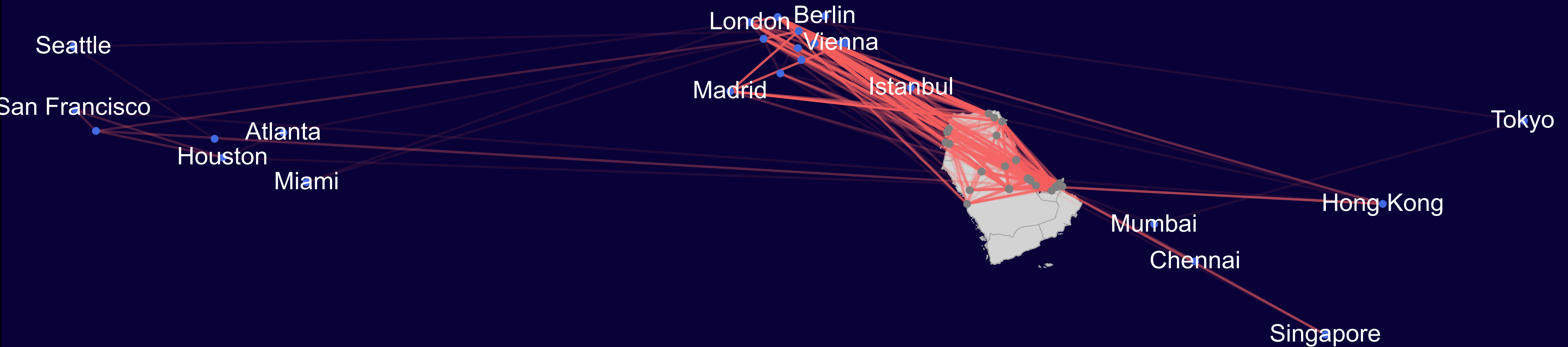


| Cloud, CDN and OTT leaders in IXP participation in the Middle East

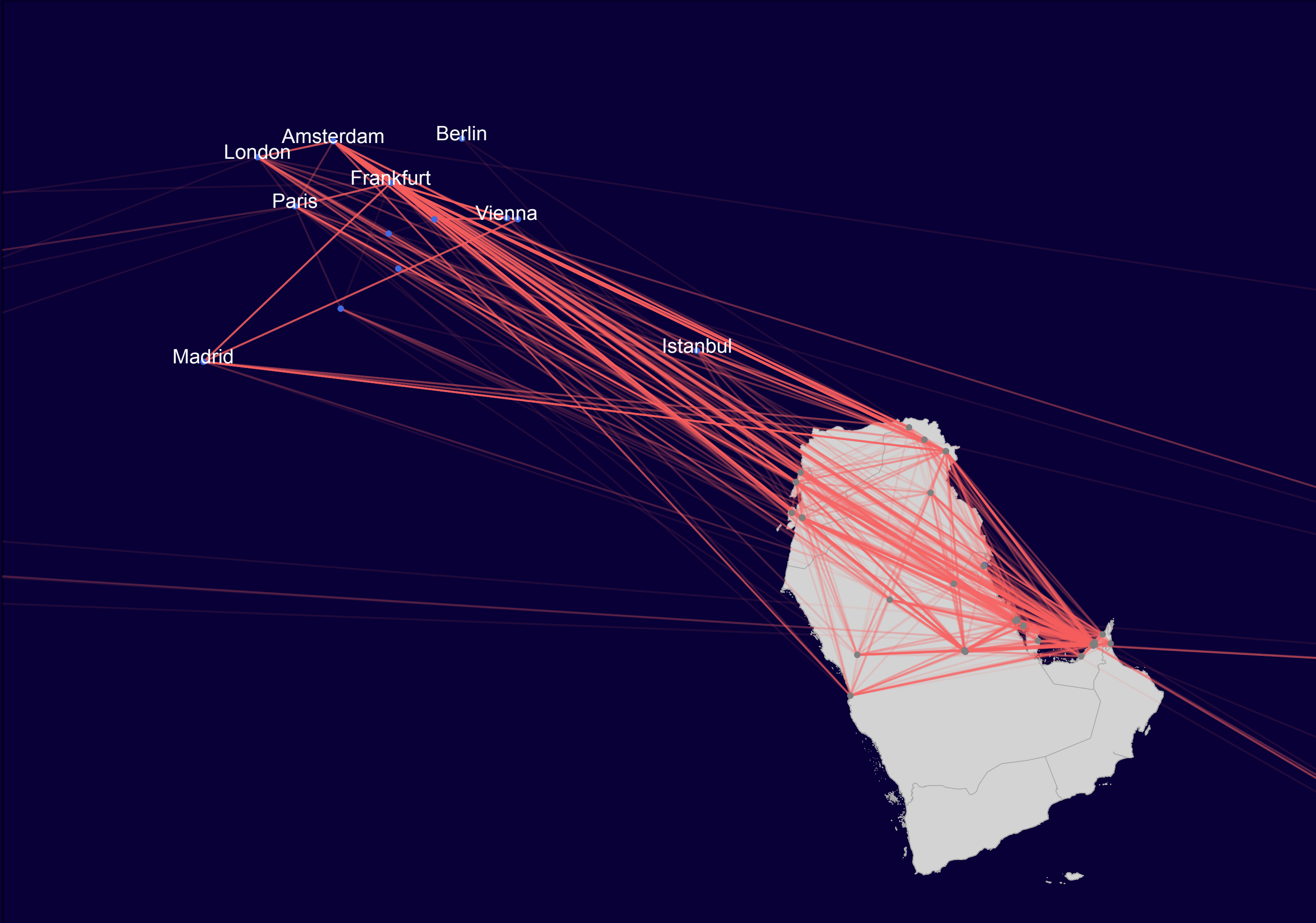
Only 100G ports are counted. This data was retrieved on 3 September 2023.

	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

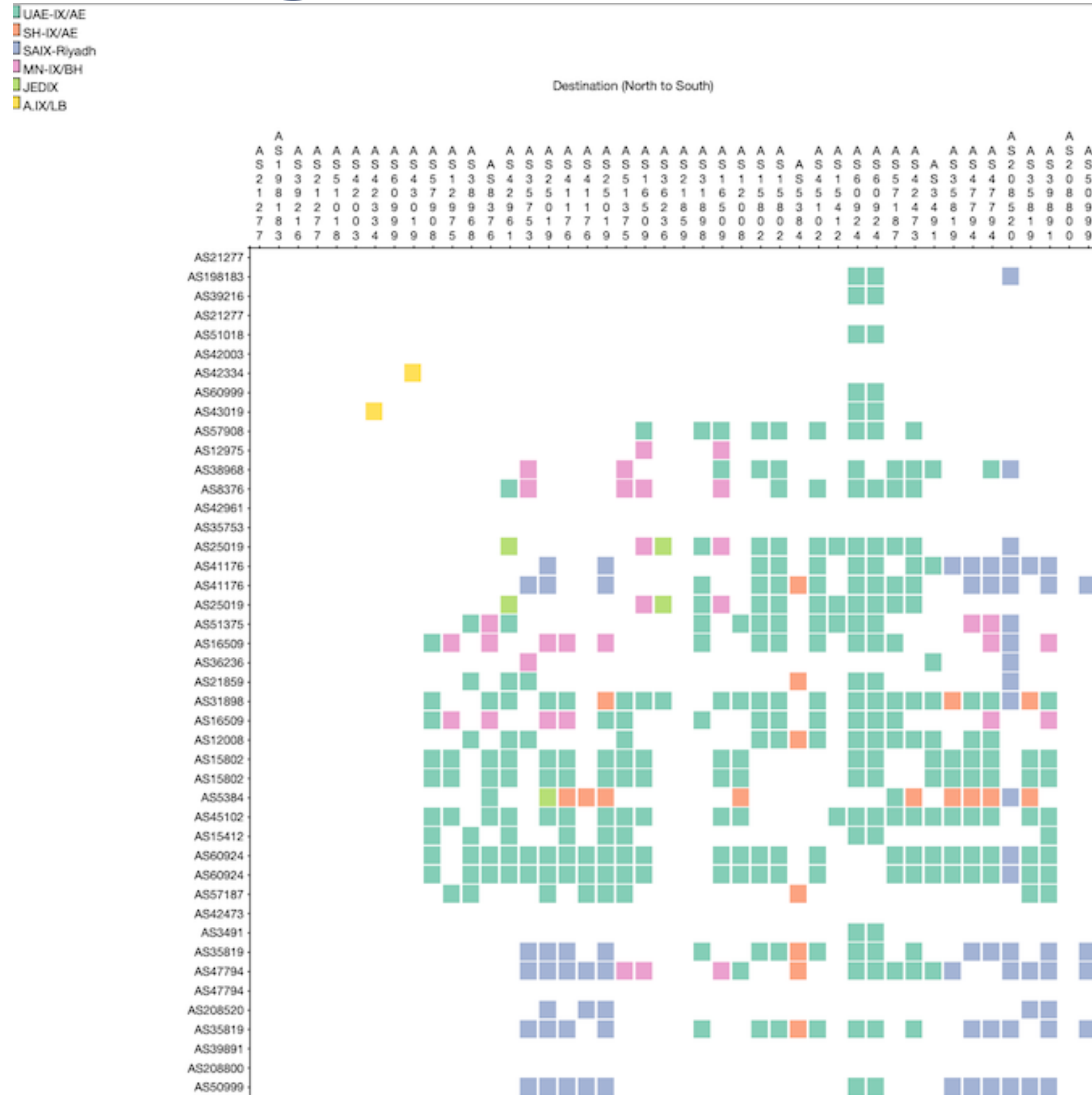
(4) Inter-Region Connections



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(4) Inter-Region Connections



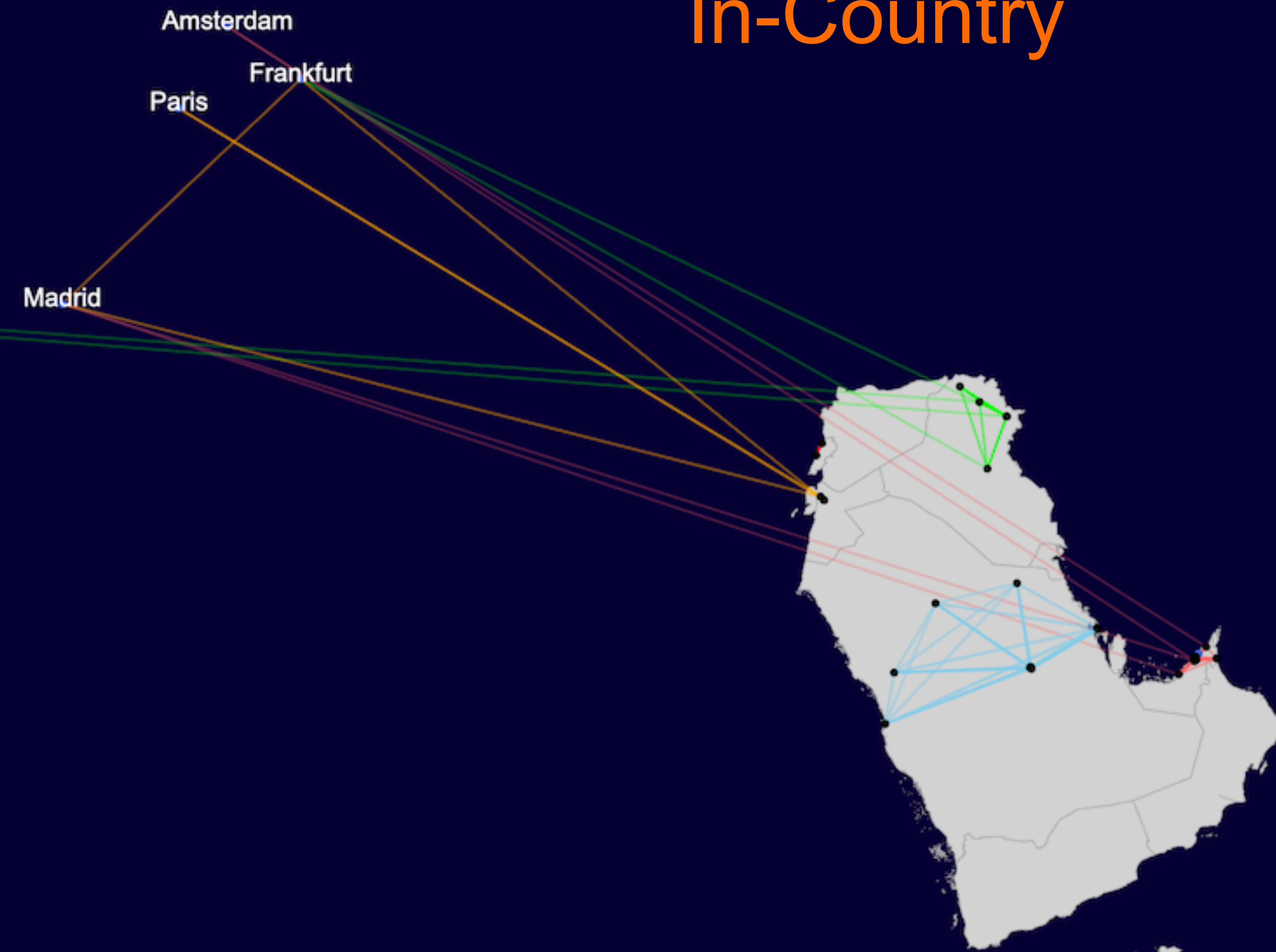
(4) / (1) Differences?



Inter-Region



In-Country



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 \Leftrightarrow **Local** content \Leftrightarrow Develop the **Local Loop**
- We need data!
 - Help provide objective and transparent **Data + Traffic Stats**
 - Deploy more **RIPE Atlas Probes & Anchors** in the region!

Download the IXP Report

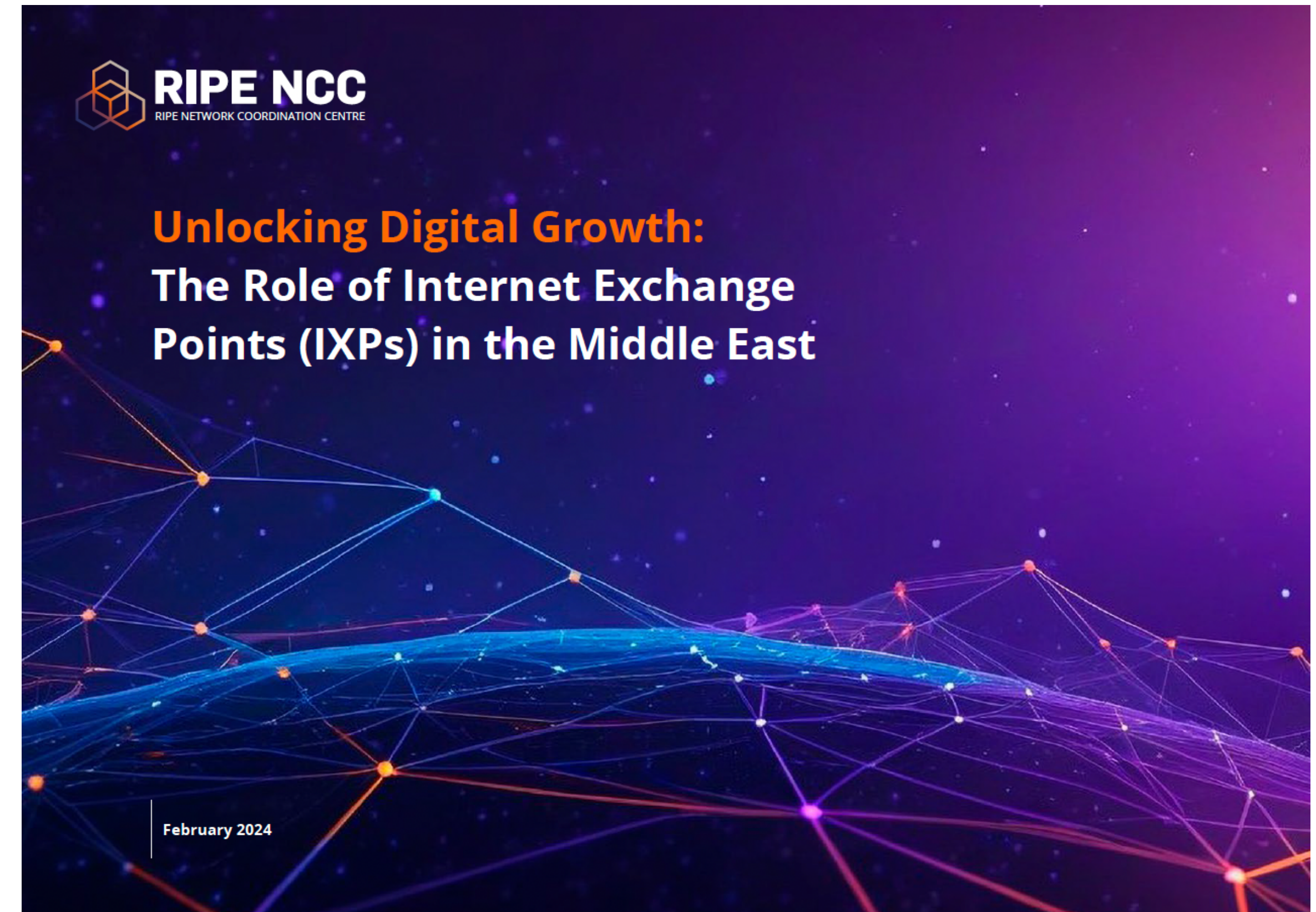


Download the report for free on RIPE Labs:

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



**SCAN TO
DOWNLOAD
THE REPORT**





Questions



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