



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

The RIPE NCC and The Arab Governments and Regulatory Authorities

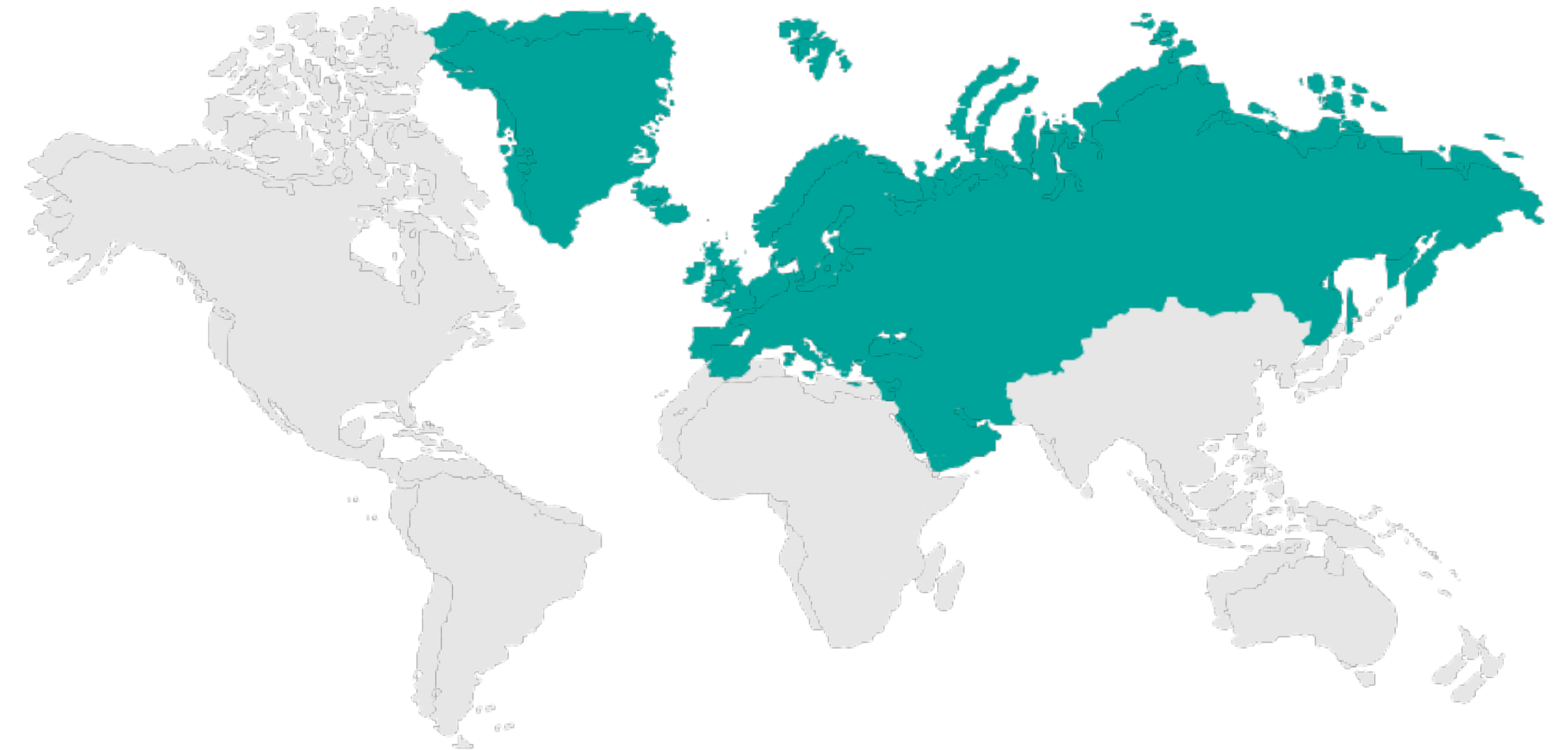
A Productive Partnership

Chafic Chaya | LAS Meeting | 5 December 2023

About the RIPE NCC



- Established in 1992 as the secretariat to the RIPE community
 - Not-for-profit membership association
 - Based in Amsterdam, the Netherlands
 - Regional offices in Dubai and Moscow
- 20,000 members
- Service region of 76 countries across Europe, Middle East and parts of Central Asia



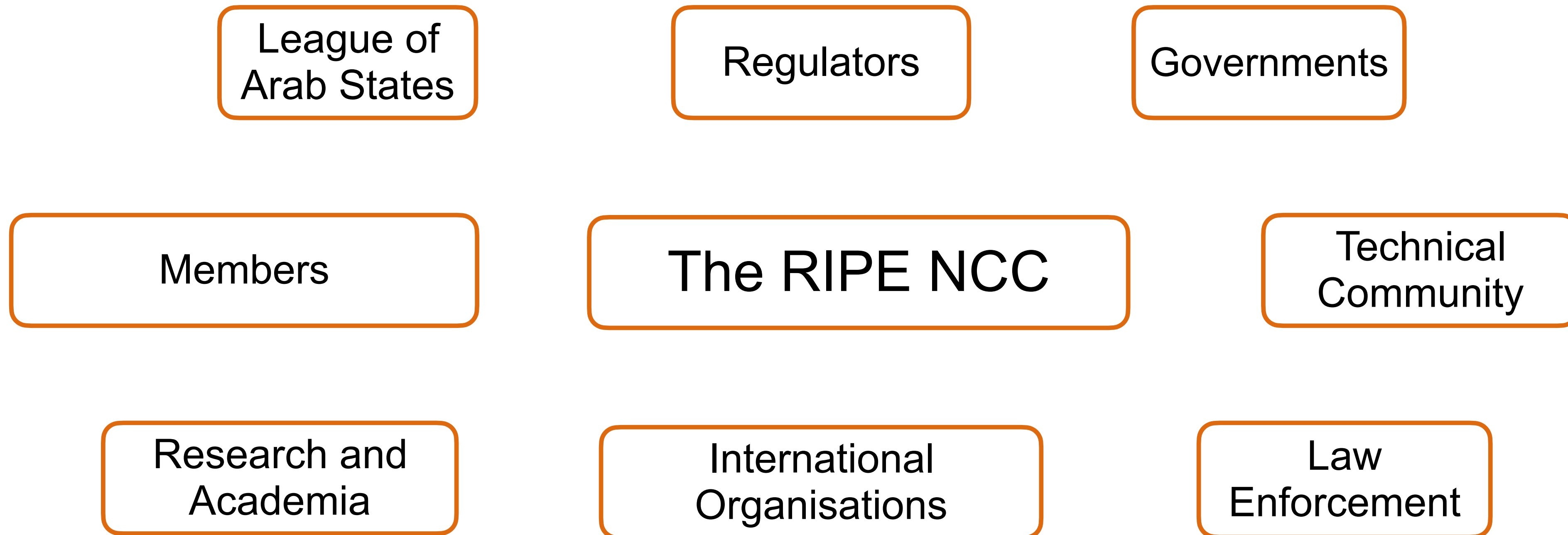
Responsibilities



- Distribute Internet Protocol Addresses (IPv4 & IPv6) and Network Numbers (AS)
- Implement IP address policies set by the RIPE community
- Support the infrastructure of the Internet through technical coordination



The Wider Ecosystem



Our Engagements



- **Countries:**

- United Arab Emirates
- Saudi Arabia
- Bahrain
- Jordan
- Qatar
- Lebanon
- Iraq
- Syria
- Yemen
- Oman
- Kuwait
- Palestine

- **Who do we work with?**

- Members (Mobile Operators, ISPs,)
- Governments, regulators and policymakers
- Academia and Researchers
- Financial Organisations
- Law Enforcement Agencies
- Internet Exchange Points (IXPs)
- Technical Community (ICANN, ISOC, RIRs)
- League of Arab States
- ITU Arab Regional Office
- Regional organisations (ESCWA, SAMENA, GSMA)
- Arab organisations (AICTO and ARISPA)

- **Engagements**

- Meetings, training and workshops
- Joint Capacity Building Initiatives
- Government roundtable
- Reports and Statistics
- Professional Certification
- Arab Digital Agenda
- Arab IPv6 Council
- Arab Cybersecurity Strategy
- ITU Partner2Connect Initiative
- Public policy Internet-related issues
- Arab IGF and Arab high-level WSIS
- Internet Governance School

RIPE NCC and the League of Arab States



الأمانة العامة
القطاع الاقتصادي
إدارة تنمية الاتصالات وتقنية المعلومات
الأمانة الفنية لمجلس الوزراء العرب
للاتصالات والمعلومات

ج 15/25(12/21)01-ت(0002)

تقرير وقرارات

الدورة (25)

لمجلس الوزراء العرب للاتصالات والمعلومات

(عن بعد: 2021/12/26)

- ✓ The 25th meeting of the Arab ICT Ministers Council held on 26 December 2021 welcomed cooperation with the RIPE NCC and put forth resolution #645, applauding and calling the appropriate Arab working groups to collaborate with the RIPE NCC for the development of the Internet in Arab countries

MoU with the Arab ICT Organisation (AICTO)



- The RIPE NCC and the Arab ICT Organisation (AICTO) signed an MoU on 28 September 2022 in Bucharest, alongside PP22 meetings.
- One of the achievements was creating the IPv6 Arab Council on May 2023



MoUs with TDRA and CST





RIPE NCC

RIPE NETWORK COORDINATION CENTRE

TDRA

هيئة تنظيم الاتصالات والحكومة الرقمية
TELECOMMUNICATIONS AND DIGITAL
GOVERNMENT REGULATORY AUTHORITY

The Seventh RIPE NCC Government Roundtable for Arab Countries in the Middle East Region

Cooperation for Digital Infrastructures and Sustainable Internet Policies in the Arab Countries

الطاولة المستديرة السابعة للحكومات والهيئات الناظمة العربية

التعاون من أجل بنى تحتية رقمية وسياسات عامة مستدامة للإنترنت في الدول العربية

The Ritz-Carlton, DIFC
21 November 2023
Dubai, United Arab Emirates

الطاولة المستديرة السابعة للحكومات والهيئات النازمة العربية في منطقة الشرق الاوسط

"التعاون من أجل بنى تحتية رقمية وسياسات عامة مستدامة للإنترنت في الدول العربية "
٢١ نوفمبر/تشرين الثاني 2023 - دبي، الامارات العربية المتحدة

توصيات الاجتماع:

- بالرغم من النتائج الإيجابية والتقدم الملموس في تطوير البنى التحتية الرقمية لشبكات الاتصالات والإنترنت، الحث على مواصلة الجهود لتعزيز أمن التوجيه وحماية الشبكات، ونشر الإصدار السادس لبروتوكول الإنترنت، وبناء القدرات البشرية.
- دعم مبادرات هيئة تنظيم الاتصالات والحكومة الرقمية في دولة الامارات العربية المتحدة وجامعة الدول العربية ومنظمة رايب ان سي سي لمساعدة ودعم الدول العربية الأقل نمواً في تطوير البنى التحتية للإنترنت ونشر الإصدار السادس لبروتوكول الإنترنت.
- مراجعة سياسات التشبيك والتوجيه وتحسين بيئة عمل نقاط تبادل الإنترنت (IXP) وتذليل العوائق التي تعترض الربط الإقليمي لزيادة المرونة وتحسين زمن الوصول وتقليل التكاليف واستضافة المزيد من الخدمات والتطبيقات لدعم نمو الاقتصاد الرقمي العربي حيث لا تزال المنطقة متأخرة في مواكبة التطورات ضمن هذه المجالات.
- متابعة التعاون والتنسيق في قضايا السياسات العامة المتعلقة بالإنترنت وخاصة في المحافل الدولية.
- دعم نشر أدوات القياس مثل (RIPE Atlas) للتمكن من تقييم أداء الإنترنت وفق مؤشرات ومقاييس دقيقة.
- قبول الدعوة الكريمة من هيئة تنظيم الاتصالات في الأردن لاستضافة النسخة الثامنة من اجتماع الطاولة المستديرة الحكومية في ٢٥ نوفمبر ٢٠٢٤ في عمان، الأردن.



IPv6

Current and Future Efforts - IPv6

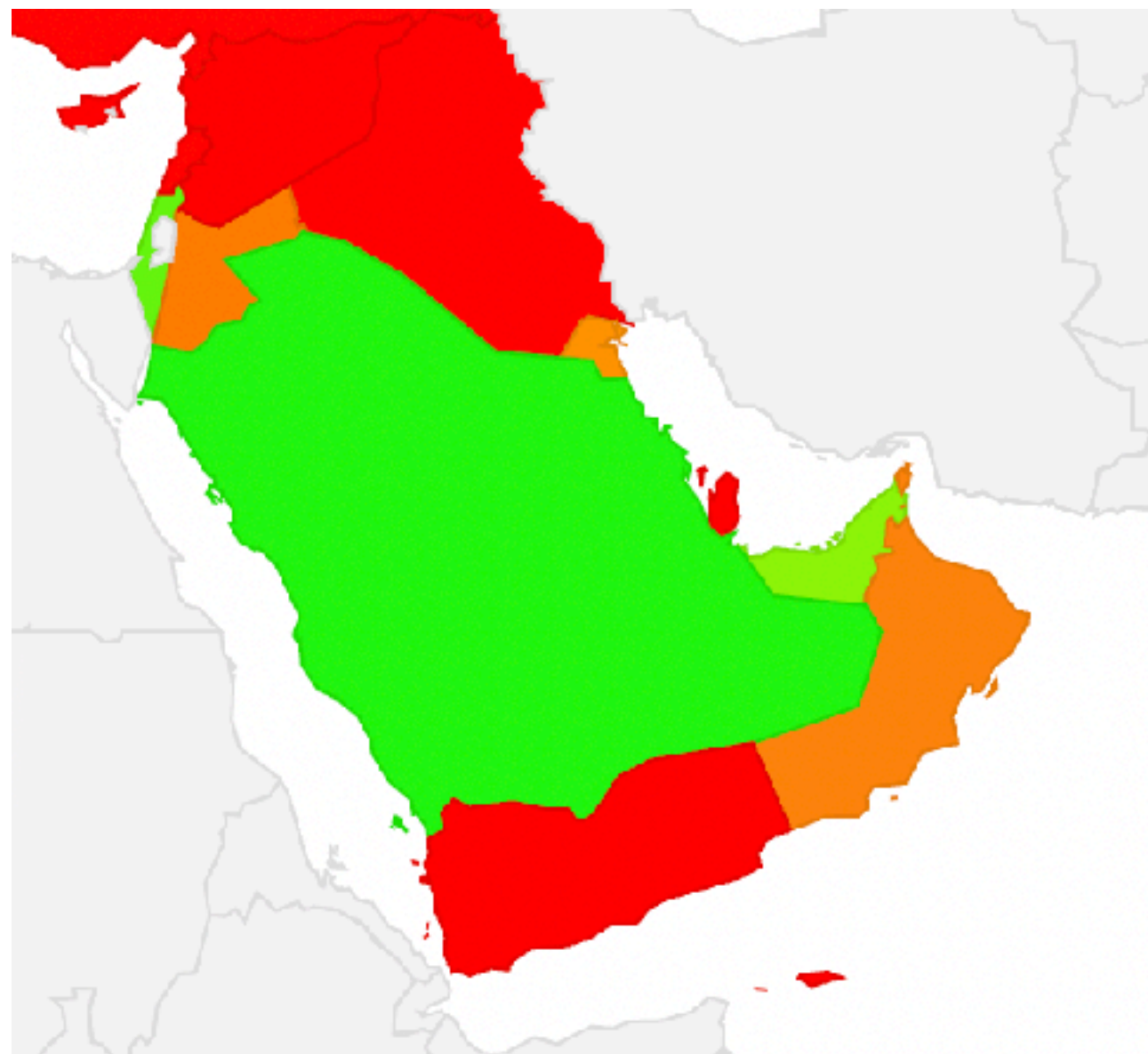


- IPv6 Adoption and Security
 - Concurrent efforts in many countries
 - Ranging from needs assessment, traffic analysis, troubleshooting, knowledge transfer, liaising with industry players
- Operational and Technical transfer of knowledge
 - Telcos: Large Operator group operating in 5 countries, Syrian Operator, Lebanese Operator
 - Governments and Regulators: Jordan, Lebanon, Syria, Iraq, Qatar, Bahrain, Oman and Palestine
- IPv6 National Deployment Assessments
 - Conducted a survey in Jordan followed by tailored workshops with major Operators + Jordan IPv6 National Day
 - Initiated a national survey in Lebanon and Bahrain in collaboration with MoT and TRA Bahrain
 - IPv6 Workshop in Iraq in collaboration with ITU (Postponed)

IPv6 in the region



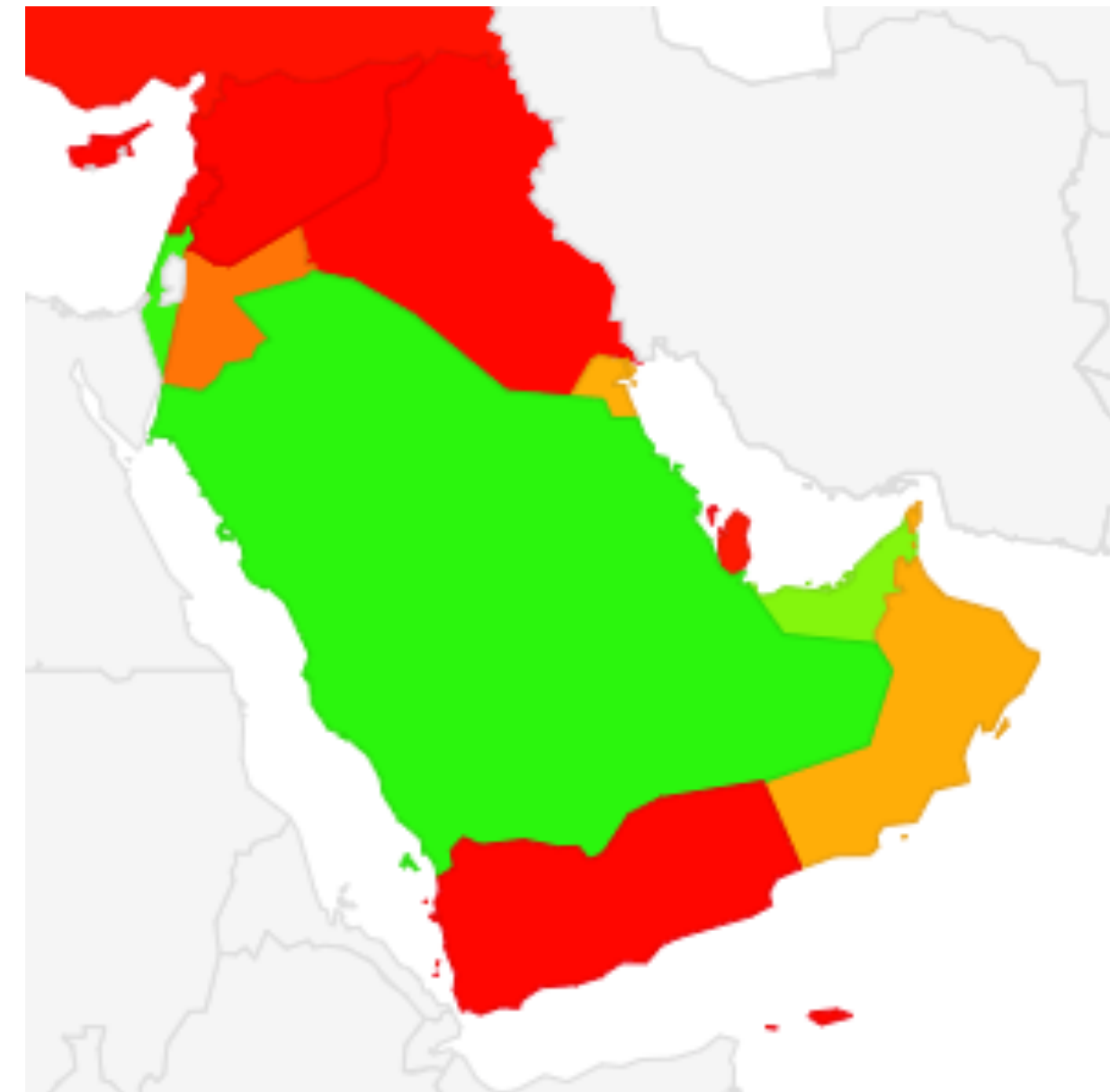
December 2022



Source: [APNIC](#)

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



Source: [APNIC](#)

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



Routing Security

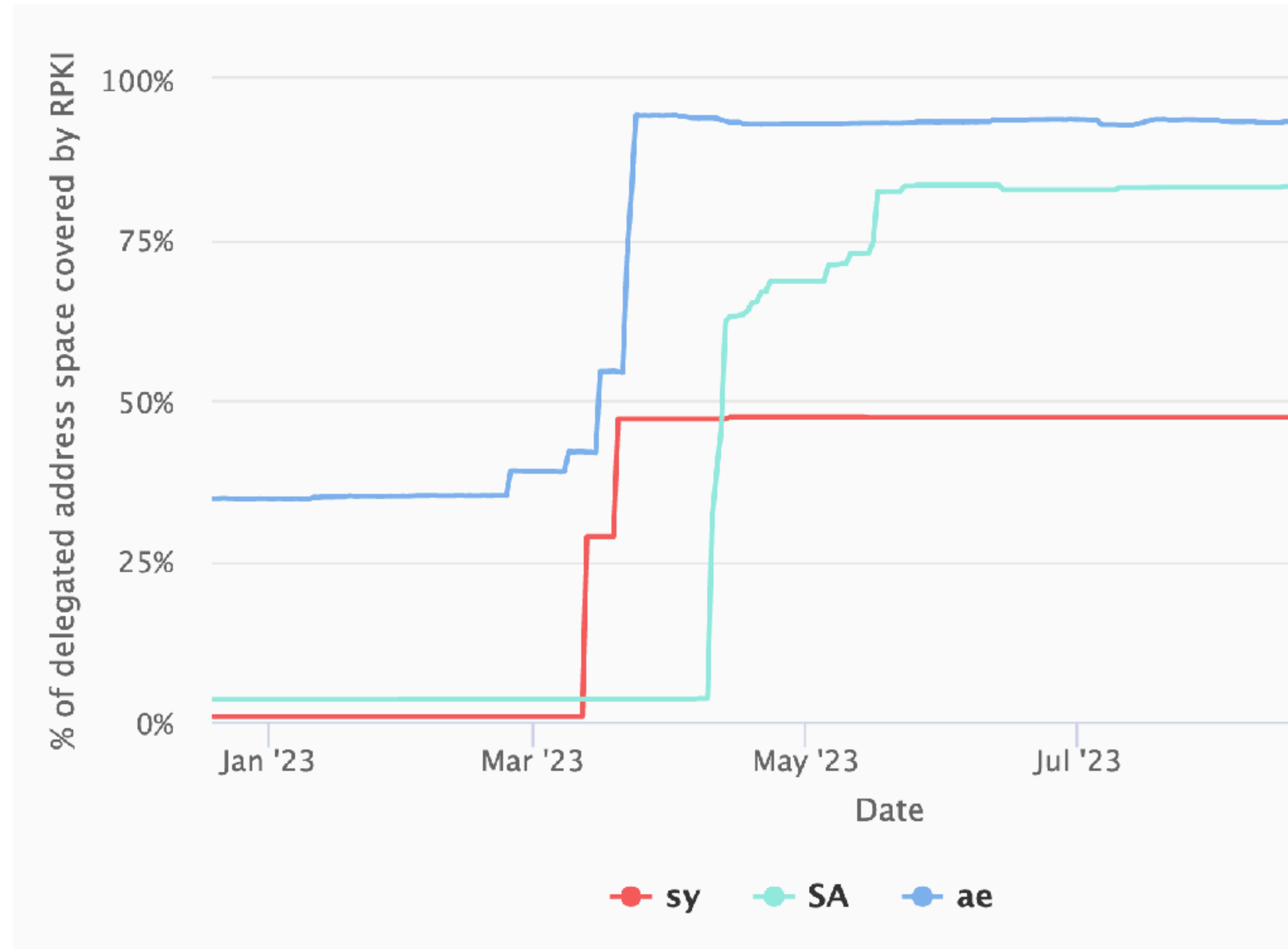
Resource Public Key Infrastructure (RPKI)

Current and Future Efforts



- Route Origin Authorisation (ROA)
 - Increase % of covered space in IPv4 in some countries
 - Increase % of covered space in IPv6
- Route Origin Validation (ROV)
 - Push for RPKI Validation & Proper BGP Filtering
 - Advocate for best practices and assist where needed
- Stakeholders
 - Regulators
 - Telcos
 - Private Sector LIRs

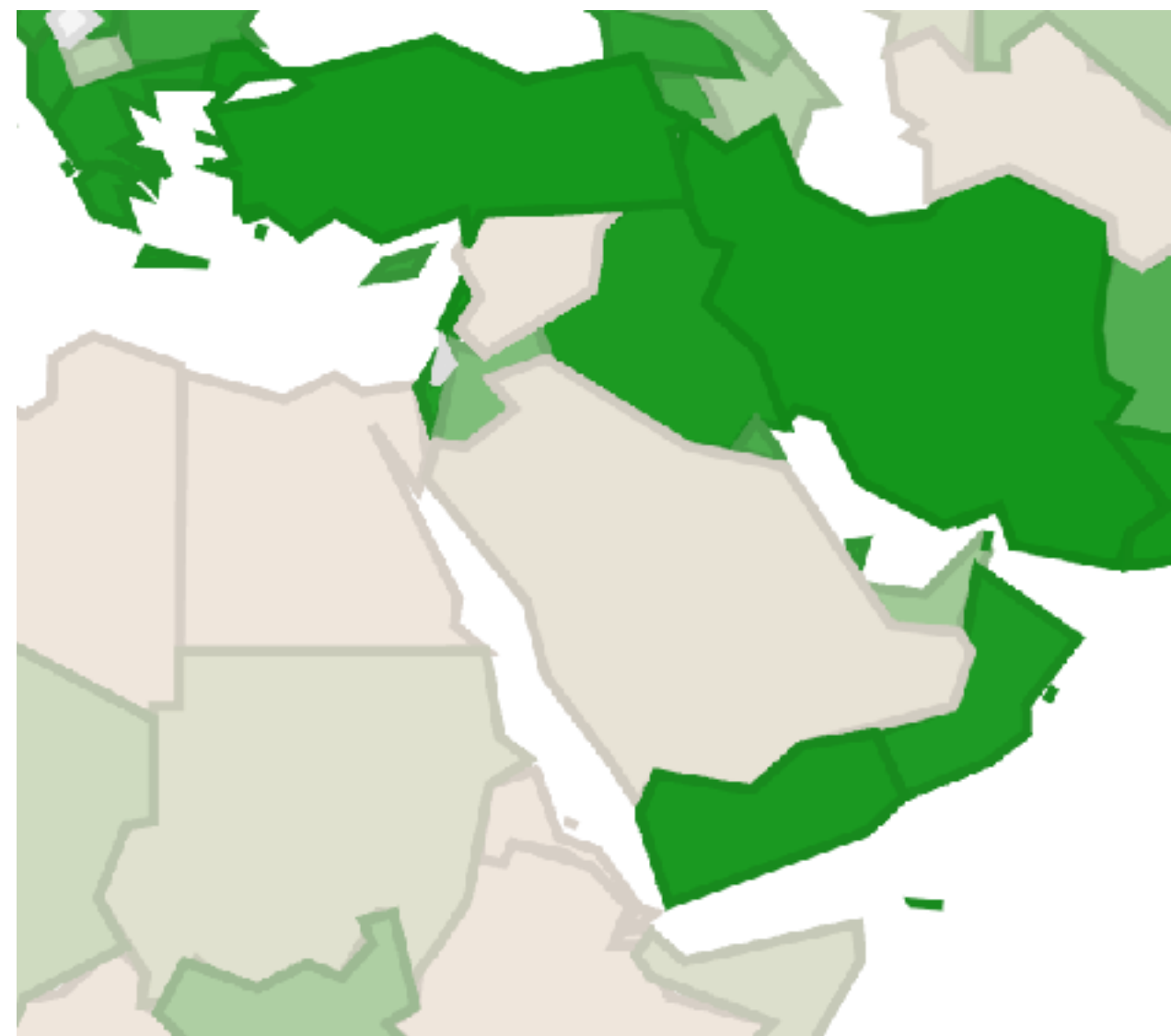
A Measurable Impact: NCC Workshops



A Measurable Impact: Routing Security



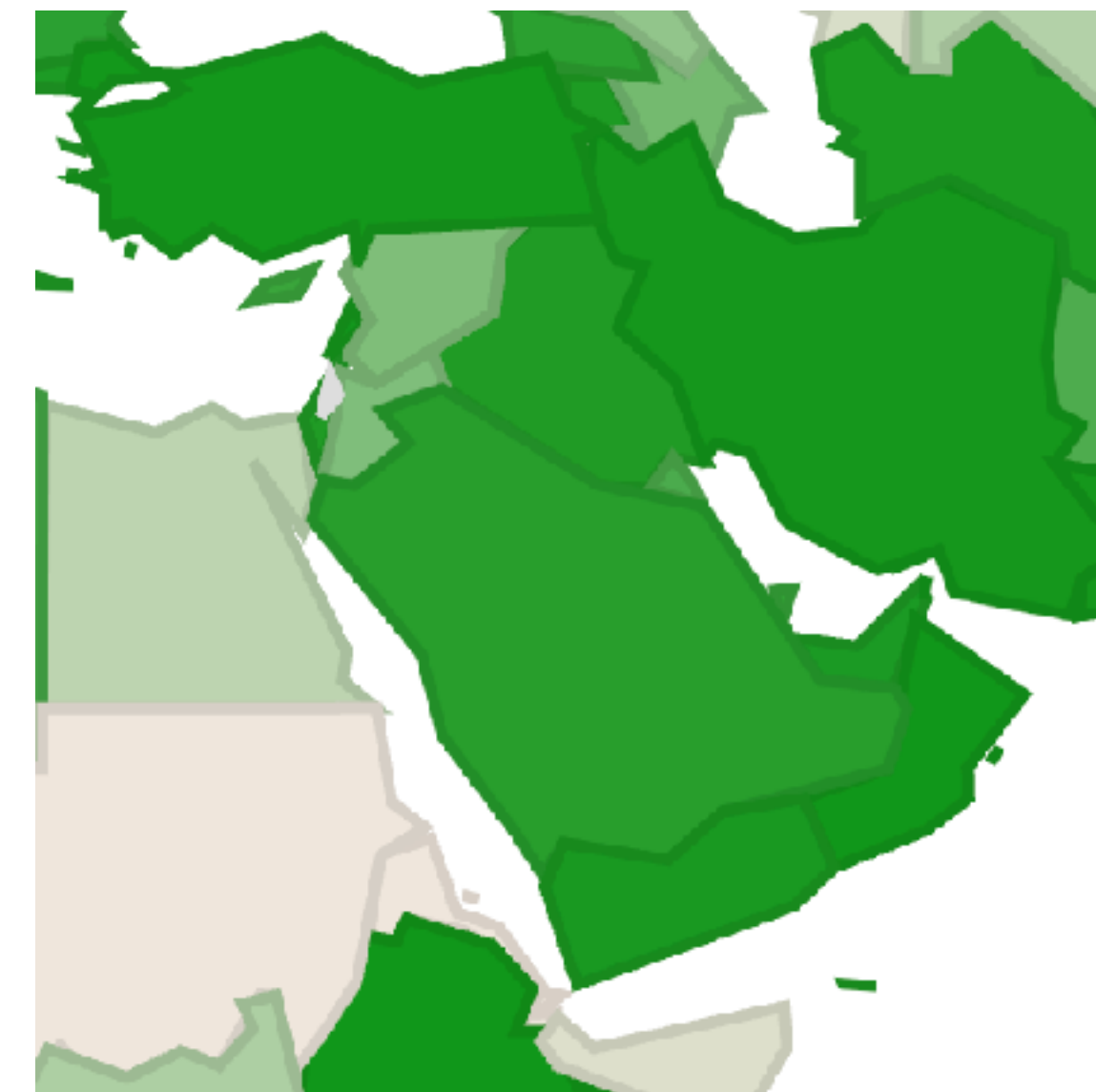
December 2022



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](#)

September 2023



Country	% IPv4 covered
Oman	98.71
Lebanon	97.85
Yemen	96.57
UAE	94.58
Iraq	93.89
KSA	91.81
Palestine	90.1
Qatar	83.76
Kuwait	73.62
Bahrain	71.78
Jordan	50.88
Syria	50.6

Source: [RIPE NCC](#)



RIPE NCC Report

ME Internet Exchange Points

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.)
- What can be considered a successful IXP?

IXPs in the Arab Countries in the Middle East



Country	IXP	Governance
UAE	UAE-IX	Operator-owned, managed and run by external parties
Bahrain	Manama IX	//
KSA	JEDIX	//
Oman	Oman IX	//
Kuwait	IX.KW	Regulator Oversight
Palestine	PSIX	//
Qatar	QIX	//
Lebanon	Beirut IX	Member-based Governance
KSA	SAIX Riyadh	Multistakeholder Governance
Jordan	Aqaba IX	Hybrid Governance
UAE	SH-IX	Operator-owned

Source: [HE](#)

Source: [PeeringDB](#)

IXP Report



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

(1) Global Players



Leaders in IXP Participation in the Region | Content

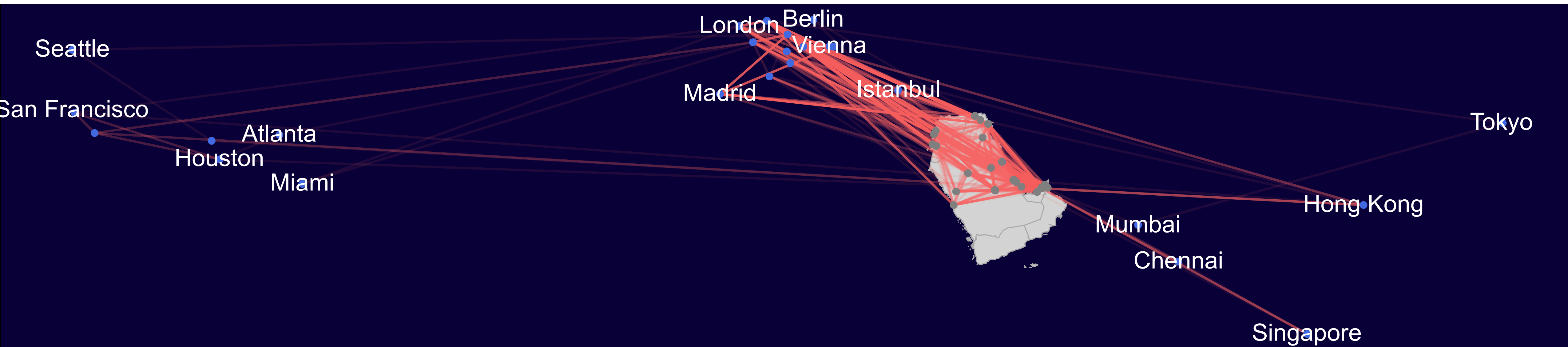
Only 100 Gig
are counted
(3.9.2023)

	EG-IX	SAIX RUH	JEDIX	Equinix Jeddah	Equinix Muscat	UAE-IX	MN-IX	Count	Sum
Facebook/Meta	100				200		100	3	400
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
cdn77	100							1	100
Edgeuno		100						1	100
Metaversecloud		100						1	100
ACE CDN			200					1	200
Bigo			100					1	100
Akamai						100		1	100
MBC						100		1	100
Oracle						100		1	100

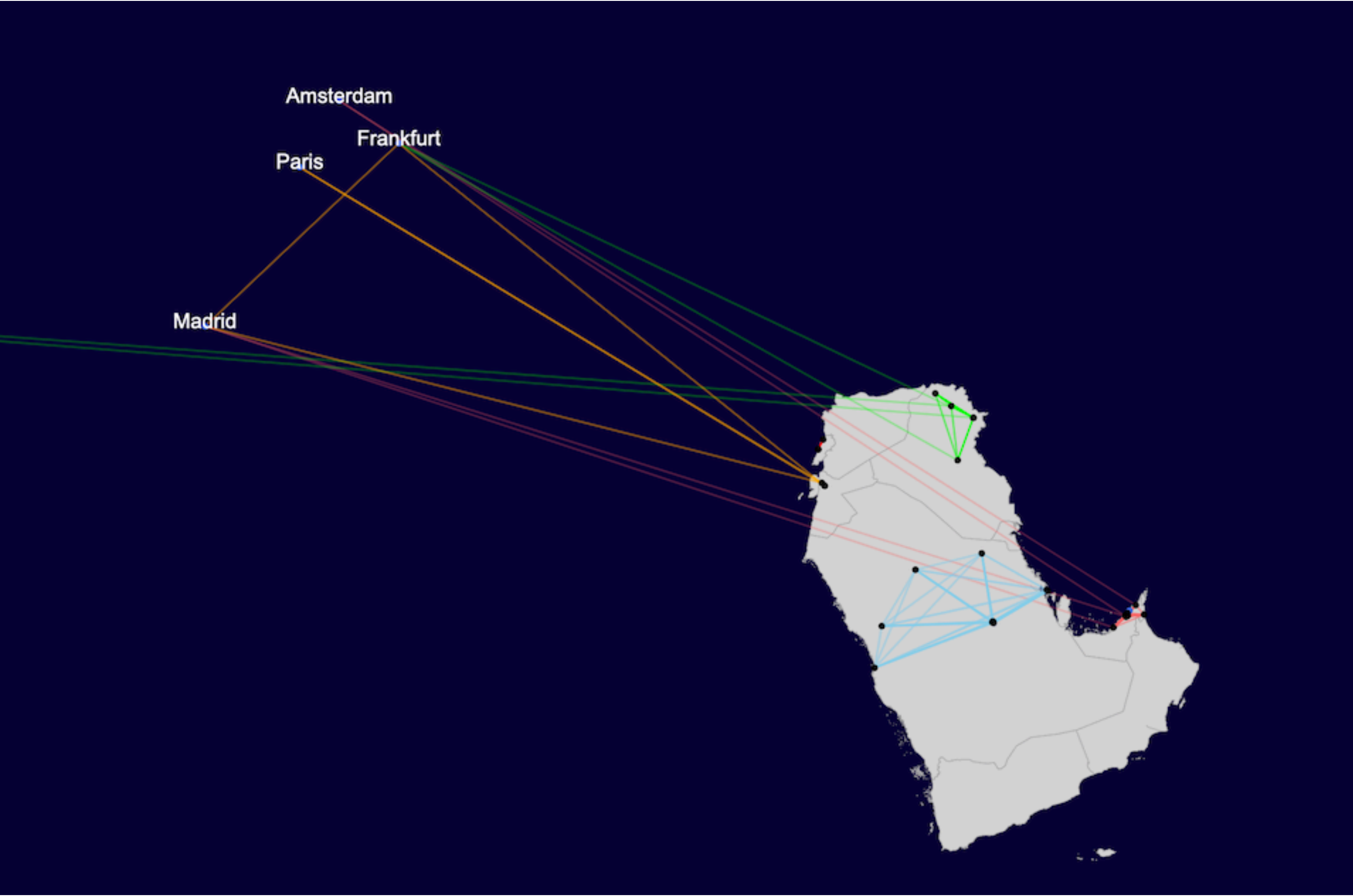
+100



(2) Inter-Region Connections



(3) In-Country Connections

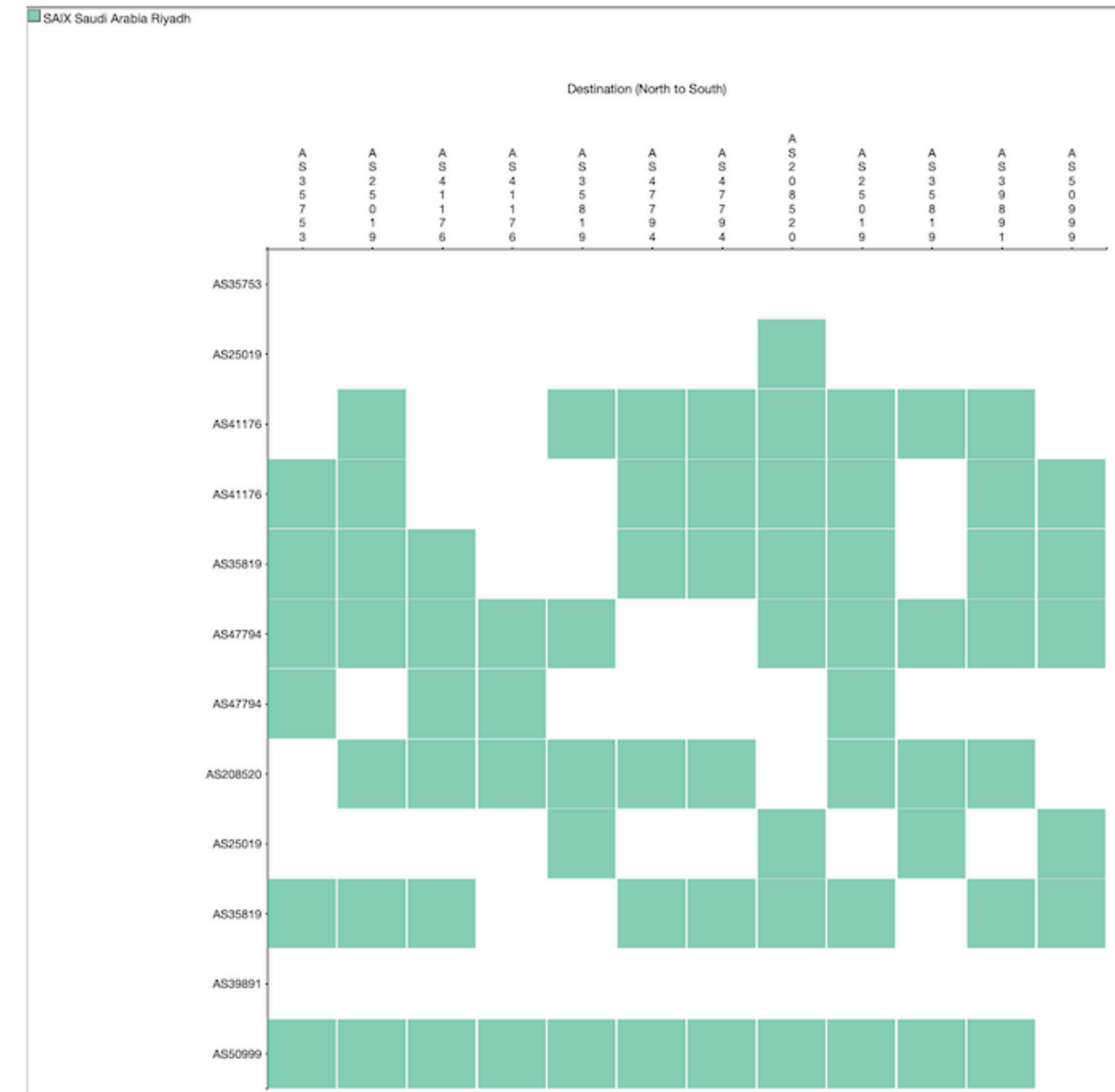
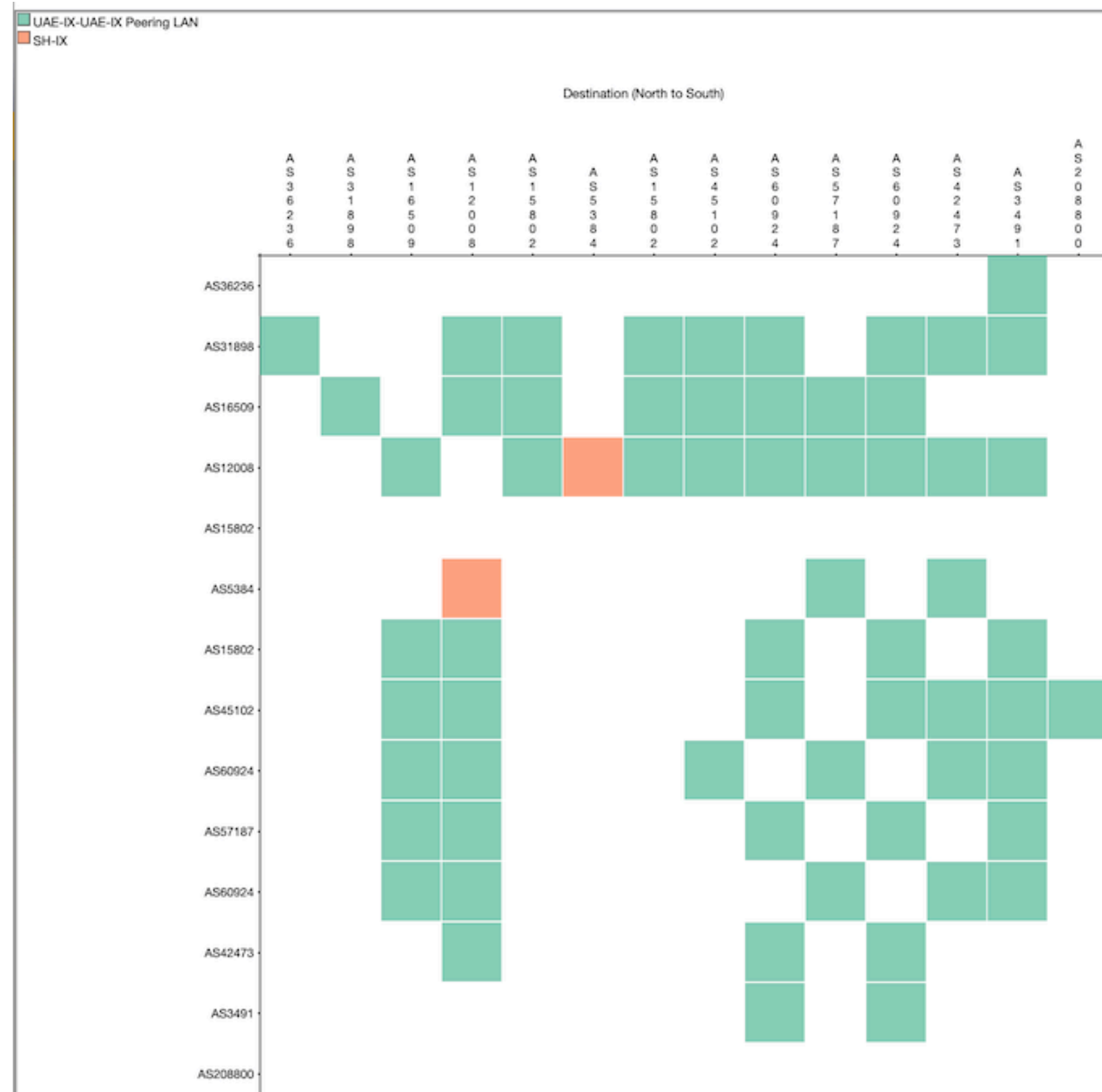


(3) In-Country Connections



UAE

KSA



(4) Economy digitisation?



Country	# Local ASNs	IXP	# of Total Peers	# of Local Peers
UAE	91	UAE-IX	89	7
UAE	91	SH-IX	35	2
Bahrain	20	Manama IX	27	6
KSA	148	SAIX Riyadh	25	8
KSA	148	JEDIX	22	3
Palestine	38	PSIX	21	16
Jordan	45	Aqaba IX	18	5
Lebanon	146	Beirut IX	17	11
Kuwait	71	IX.KW	16	9
Qatar	14	QIX	12	9
Oman	19	Equinix Muscat	8	2

Source: [HE](#)

Source: [PeeringDB](#)

Call for Action



- On the regulatory level
 - **Standalone IXP Licenses** are a good way forward
 - 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!



Questions



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