Myanmar Internet Exchange

Update

Presenter :Thein Myint Khine

Version : 0.0

Update : 14 March 2024

MMIX Brief

- Since Sept 2017.
- Total 33 Members
  - 30 Peering Members
    - 24 Principal Members
    - 6 Affiliate Members
  - 3 Associate Members
- Date Center
  - Yangon IXP- True IDC, MICT Park
  - Mandalay IXP – Ocean Wave IDC
  - Naypyitaw POP – IT Spectrum DC-2
- Major Contents – 4 x CDNs + Local Content
- Aggregate Traffic Peak – 140 Gbps

➢MMIX Structure

Structure

1. Members - the governing body;
2. the Executive Council - acts on behalf of MMIX;
3. the Secretariat – daily operations and MMIX functions;
4. Sub-Committees – for specific functions;
5. Advisory Board – who shall advise MMIX;

1. Members

1. Principal Member
2. Institutional Member
3. Affiliate Member
4. Associate Member

Member Lists

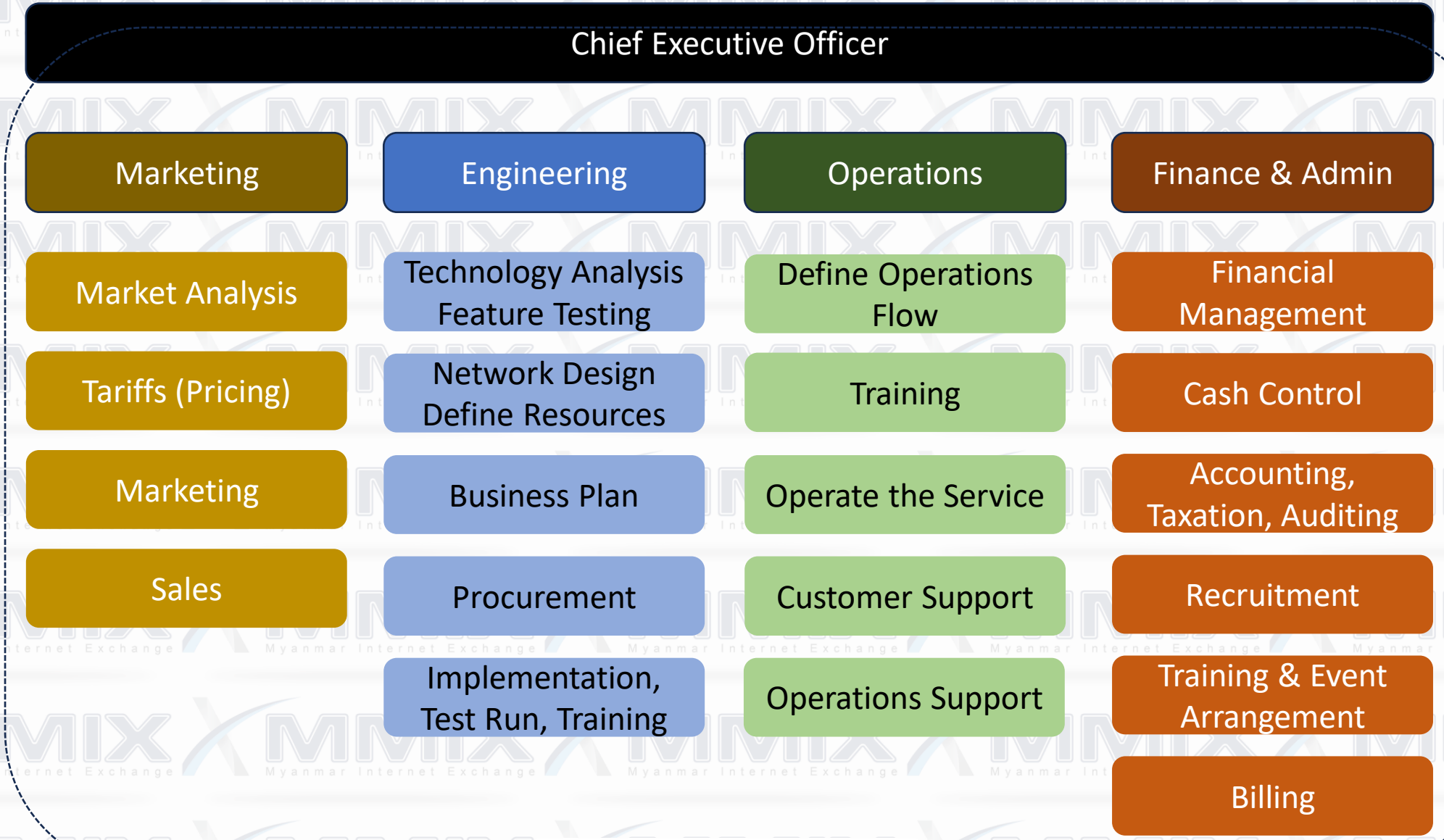
Sr.	Member Name	Member Type	POP
1	AGB Communication Co., Ltd.	Principal	YGN
2	Southeastasianet Technologies Myanmar Co., Ltd	Principal	YGN
3	Kinetic Myanmar Technology Co., Ltd.	Principal	YGN
4	Yatanarpon Teleport Public Co., Ltd	Principal	YGN
5	Fortune Telecom Co., Ltd.	Principal	YGN
6	Horizon Telecom International Co., Ltd.	Principal	YGN
7	KBZ Gateway Co., Ltd.	Associate	-
8	Myanmar Unilink Communication Co., Ltd.	Principal	YGN
9	Myanmar Information Highway Limited	Principal	YGN
10	Telecom International Myanmar Co., Ltd.	Principal	YGN
11	Golden Myanmar United Telecom Co., Ltd	Principal	YGN
12	Marga Global Technology	Principal	YGN
13	True IDC Myanmar Co., Ltd	Associate	-
14	RIPE NCC	Affiliate	YGN,MDY
15	WANGSU (Quantil Networks)	Affiliate	YGN,MDY
16	Akamai Technologies	Affiliate	YGN,MDY
17	Myanmar Technology Gateway Co., Ltd	Associate	-

Member Lists

Sr.	Member Name	Member Type	POP
18	Myanmar Light Global Co., Ltd	Affiliate	YGN,MDY
19	Myanmar Country Co., Ltd.	Principal	YGN,MDY
20	Ocean Wave Communication Co., Ltd	Principal	YGN
21	Campana Mythic Co., Ltd.	Principal	YGN
22	Myanmar Broadband Telecom Co., Ltd.	Principal	YGN
23	Packet Clearing House	Affiliate	YGN,MDY
24	TelecoSpeed Communications Co., Ltd.	Principal	MDY
25	IT Spectrum Myanmar Co., Ltd.	Principal	YGN(NPT)
26	Kaopu Cloud	Affiliate	YGN,MDY
27	AyarNet Co.,Ltd.	Principal	YGN
28	Zoom Plus Co., Ltd	Principal	MDY
29	Treasure Chindwin Land Co., Ltd	Principal	YGN
30	Golden Dragon 2000 Co., Ltd	Principal	YGN
31	Horizon Telecom International Co., Ltd.	Principal	MDY
32	StreamNet Co., Ltd	Principal	MDY
33	Yar Chang Co.,Ltd	Principal	MDY(TCL)

2. Executive Council

Sr.	Name	Orgnization	Address	Title
1	Arkar Zwe	Ocean Wave Communication	Kachin	EC Member
2	Chan Mya Oo	Horizon Telecom International	Bago	Chairperson
3	Min Maung Soe	Myanmar Internet Exchange	Yangon	Treasurer
4	Naing Win	Southeastasianet Technologies Myanmar	Mandalay	EC Member
5	Nilar Aye	Telecom International Myanmar	Nay Pyi Taw	EC Member
6	Sai Nyan Lynn Swe	Myanmar Internet Exchange	Shan	Secretary
7	Su Yee Nandar Aung	Marga Global Telecom Limited	Taninthayi	EC Member
8	Thein Myint Khine	Myanmar Internet Exchange	Yangon	CEO
9	Zarni Maung	Fortune Telecom	Yangon	EC Member

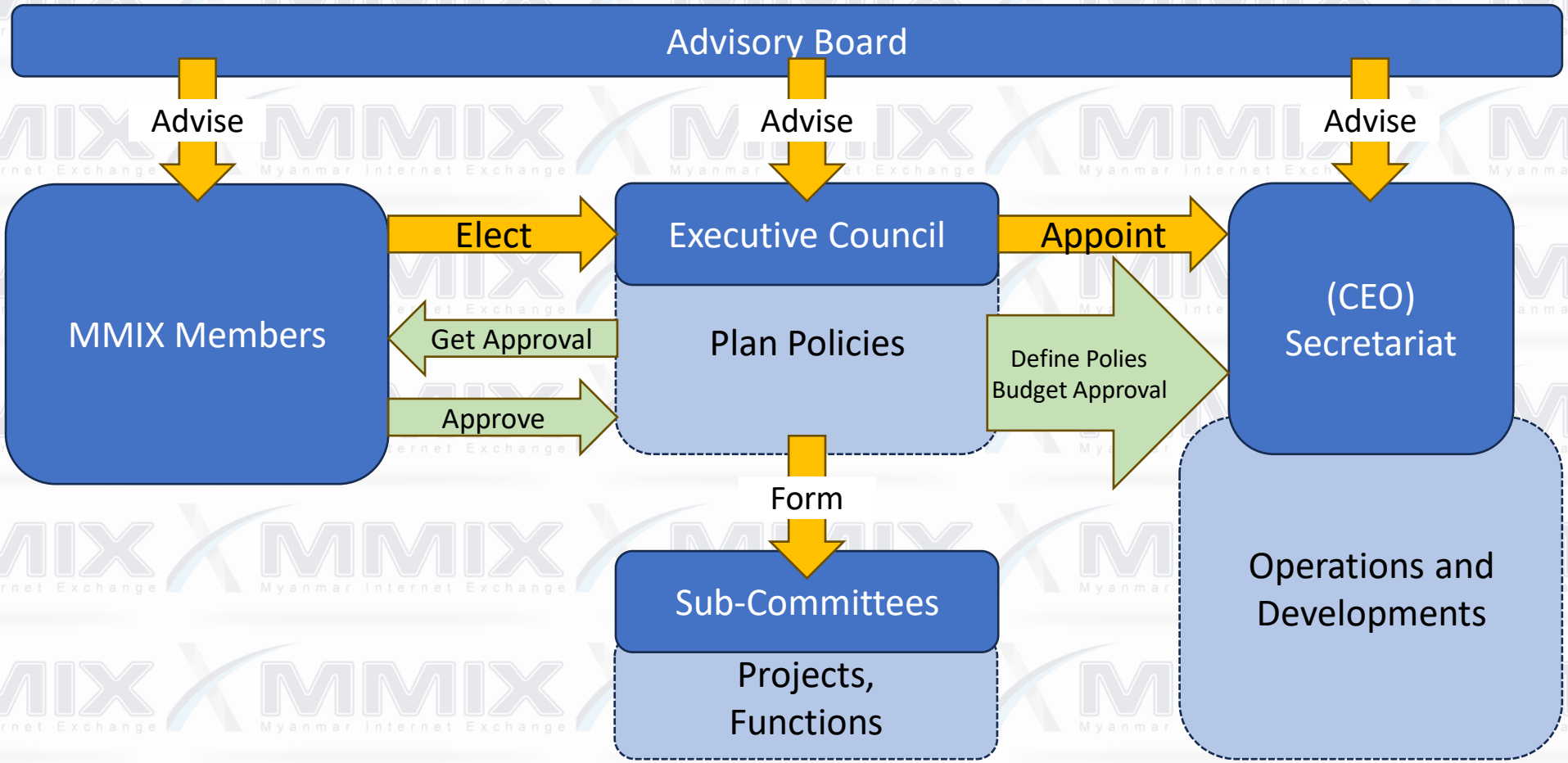


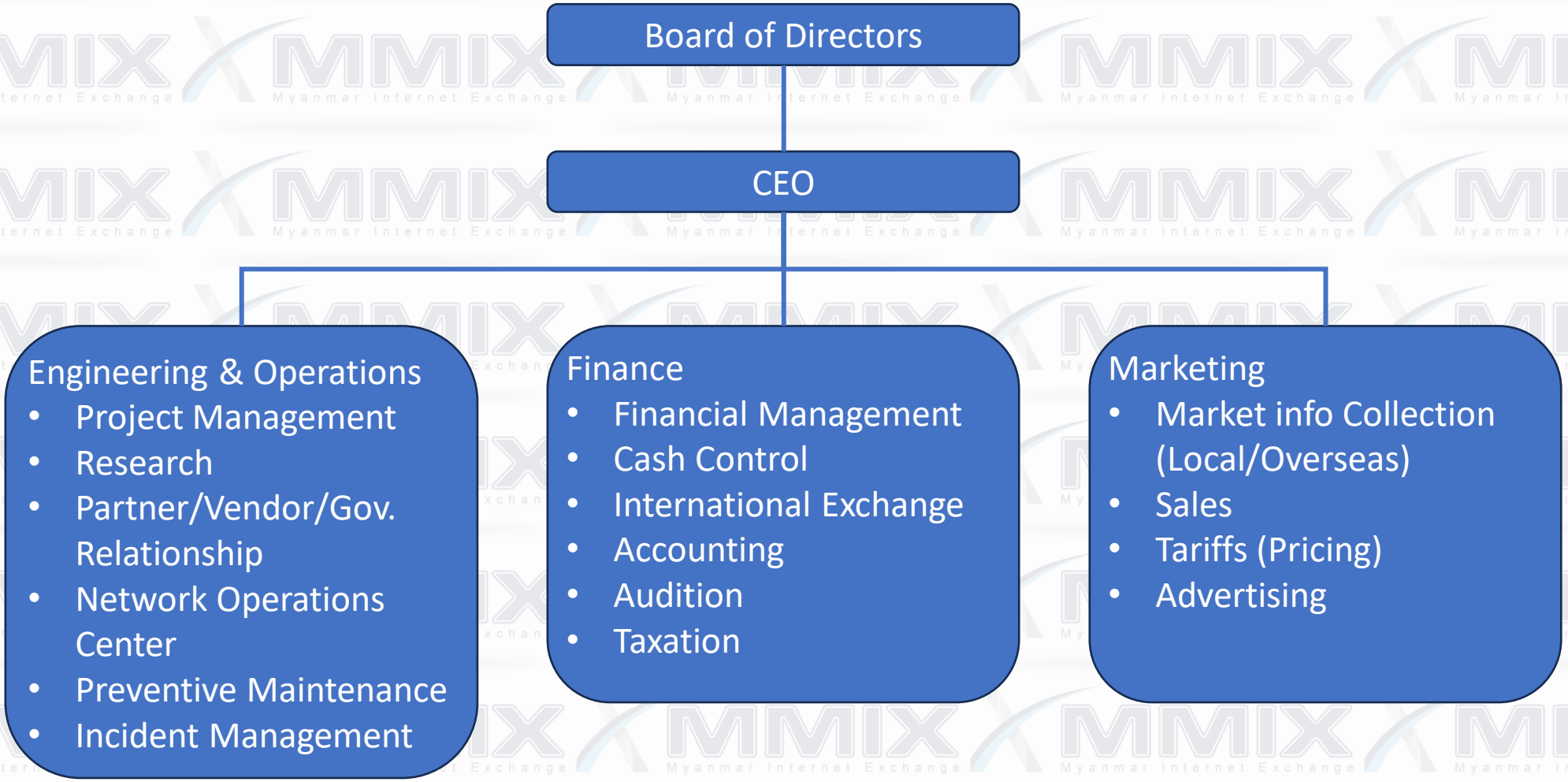
3. The Secretariat

5. Advisory board

1. Posts and Telecommunications Department, Ministry of Transport and Communications

2. Information Technology and Cyber Security Department, Ministry of Transport and Communications


Advisory Board
Advise
Advise
Advise
MMIX Members
Elect
Executive Council
Appoint
(CEO)
Secretariat
Get Approval
Plan Policies
Define Polies
Budget Approval
Approve
Form
Sub-Committees
Projects,
Functions
Operations and
Developments


Board of Directors
CEO
Engineering & Operations
• Project Management
• Research
• Partner/Vendor/Gov. Relationship
• Network Operations Center
• Preventive Maintenance
• Incident Management
Finance
• Financial Management
• Cash Control
• International Exchange
• Accounting
• Audition
• Taxation
Marketing
• Market info Collection (Local/Overseas)
• Sales
• Tariffs (Pricing)
• Advertising

➢Current

True IDC, MICT Park, Yangon

OceanWave IDC, Mandalay

IT Spectrum IDC, Naypyidaw

Current

Currently

- 2 x IXP
- Service available in Yangon, Mandalay, Naypyitaw
- Aggregated traffic - 140 Gbps
- Total Connecting ASNs – 31
- Major Content - Akamai, Google GGC, Wangsu, Netflix, Mobile Legend
- DNS – K-root, PCH (ccTLD), MMIX owned DNS

Major Contents

CDNs

- Google GGC – 17.5 G peak, Capacity Limited (waiting for new node)
- WangSu CDN – 12.55 G peak
- Akamai – 130.48 G peak (YGN -74.64 G & MDY- 55.84 G)
- Netflix – 1.46 G peak

DNS Servers

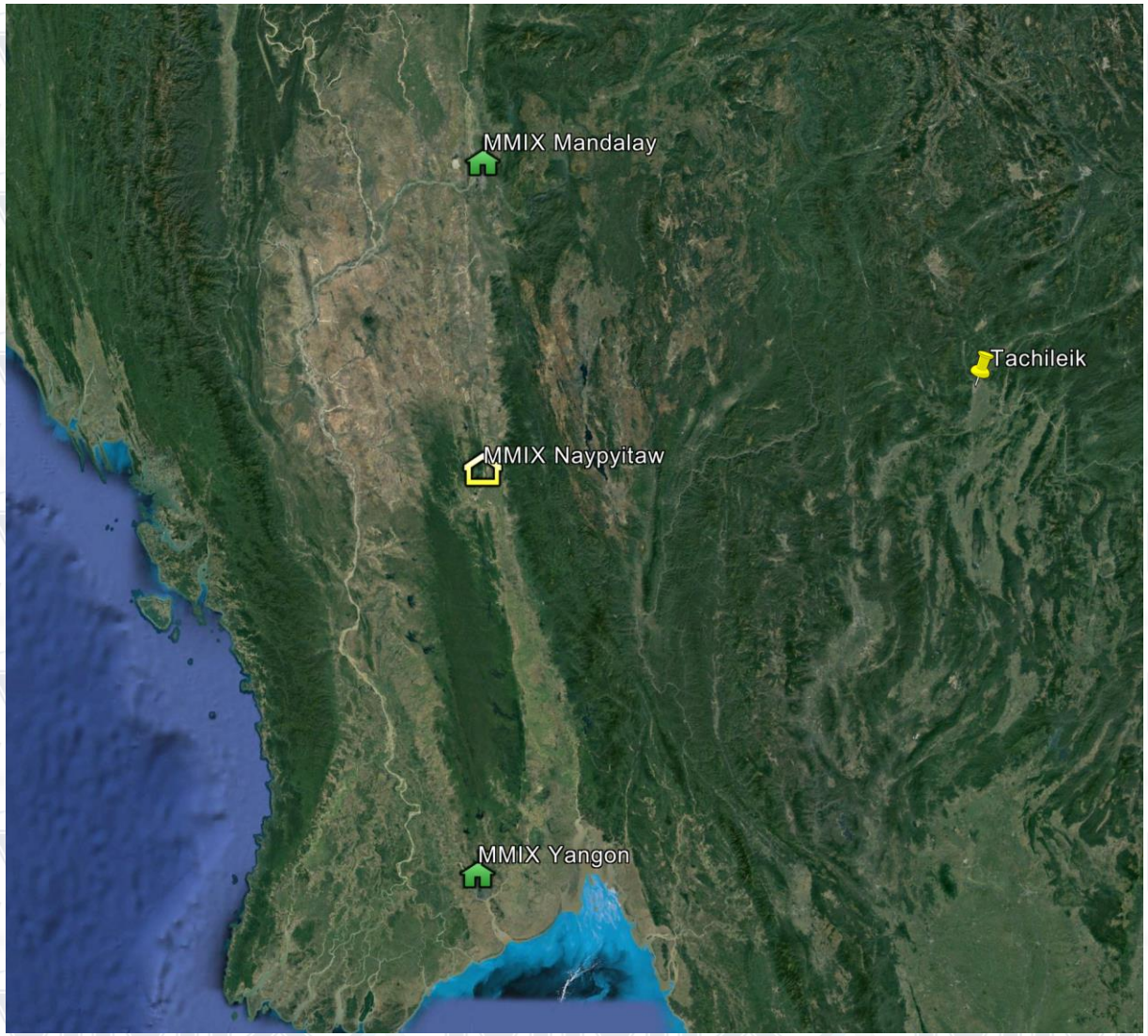
- K-Root
- PCH (Country level root and various)
- MMIX DNS

Well-known Peering Contents

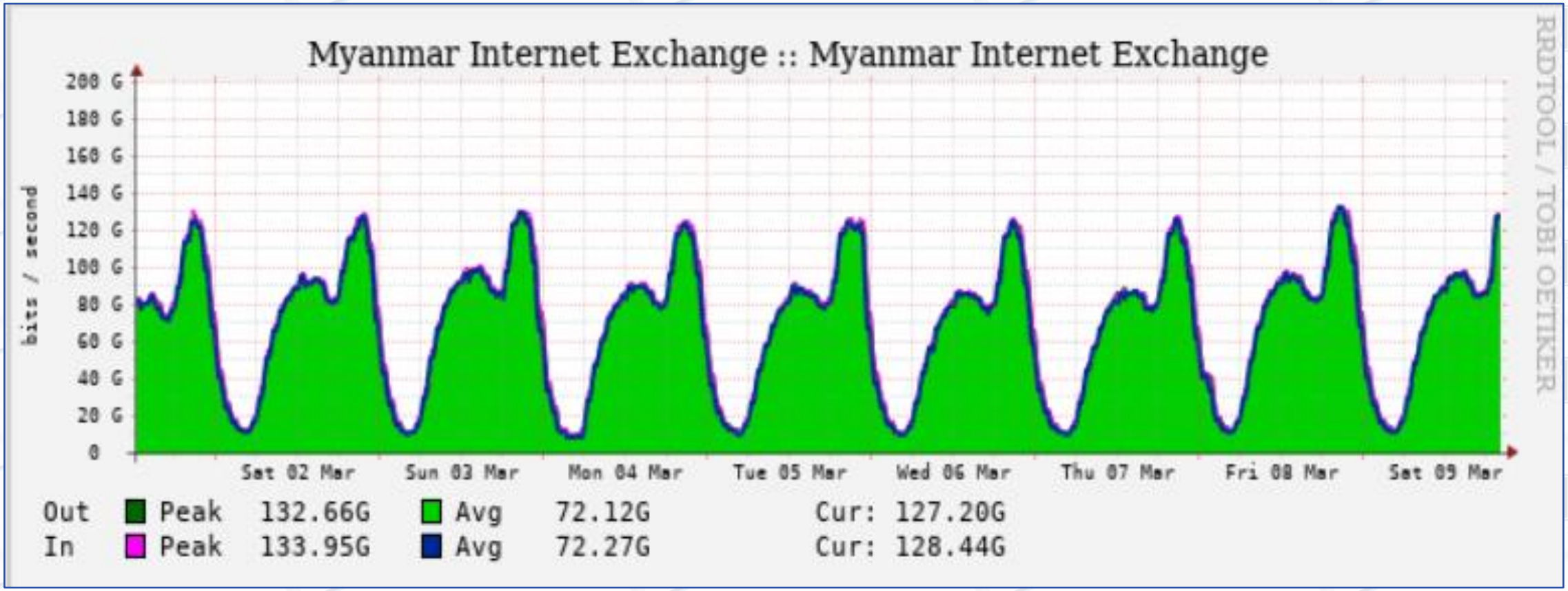
- Mobile Legend (MLG)
- Kaopu Cloud – not in service yet..

MMIX POPs

- **Yangon IXP**
  - in Sept 2017
- **Mandalay IXP**
  - in June 2023
- **Naypyitaw**
  - in June 2023
- **Tachileik**
  - In March 2024



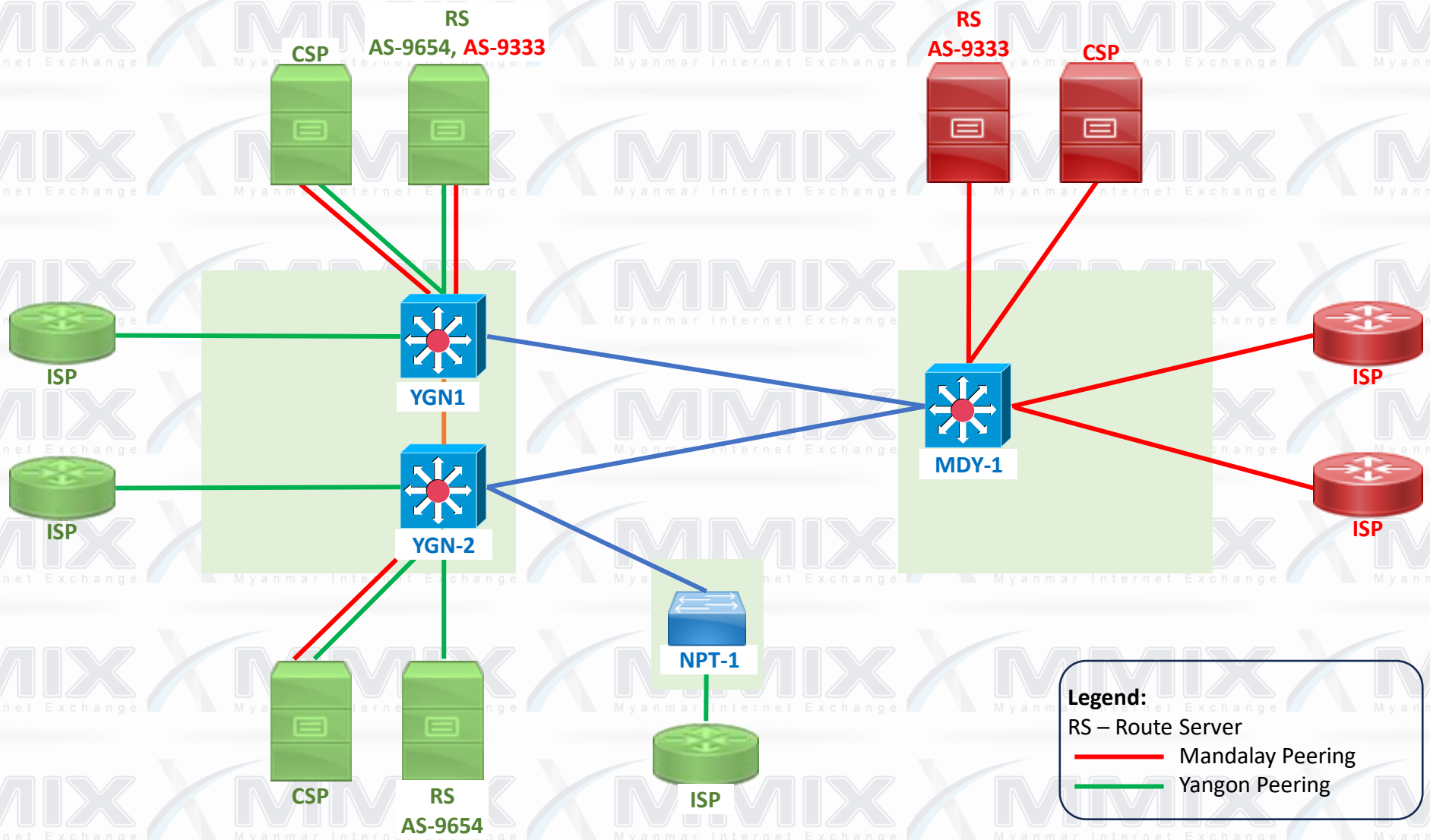
Current Traffic – Updated on 9 March 2024



Peer Ports

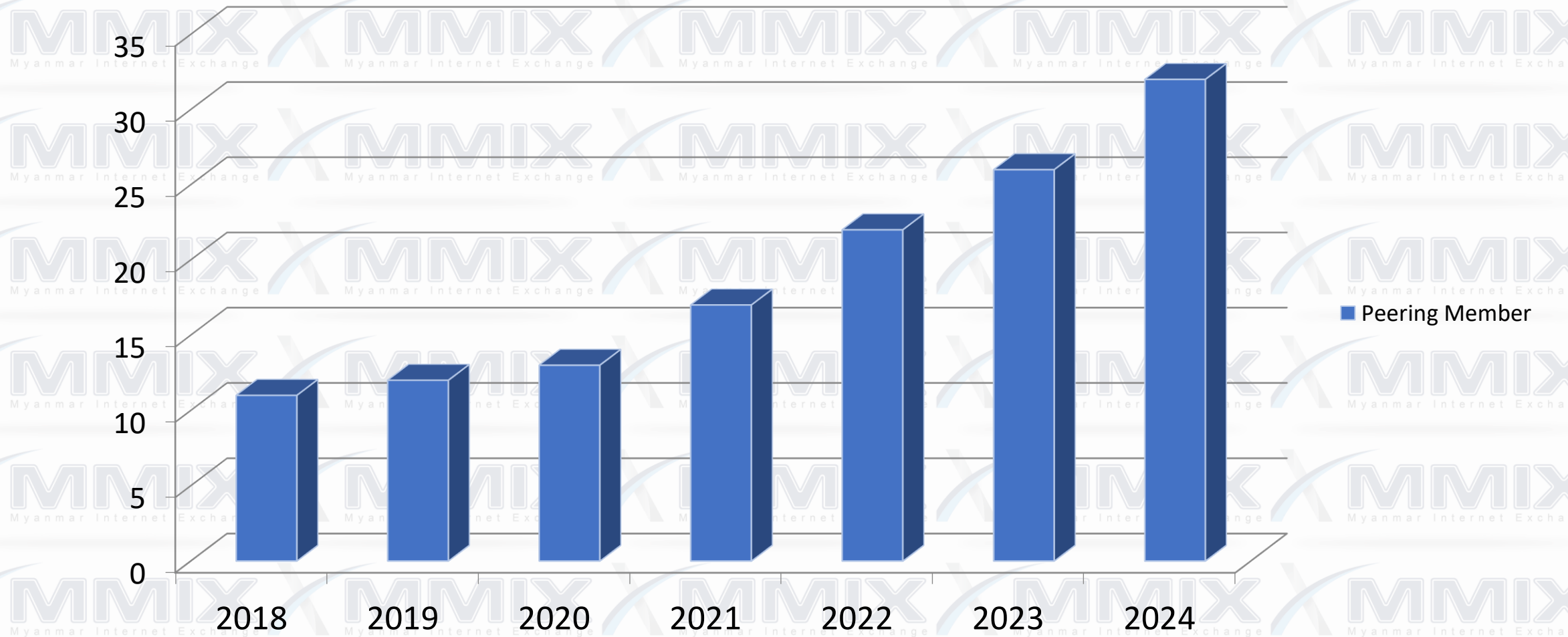
Port	Peering YGN	Peering MDY	Both
1G	2	1	3
10G	14	4	18
20G	6		6
40G	2		2
100G	2	2	4
Total Peering			33
CDN behind MMIX (GGC,NTFL)			2

Network Connectivity's

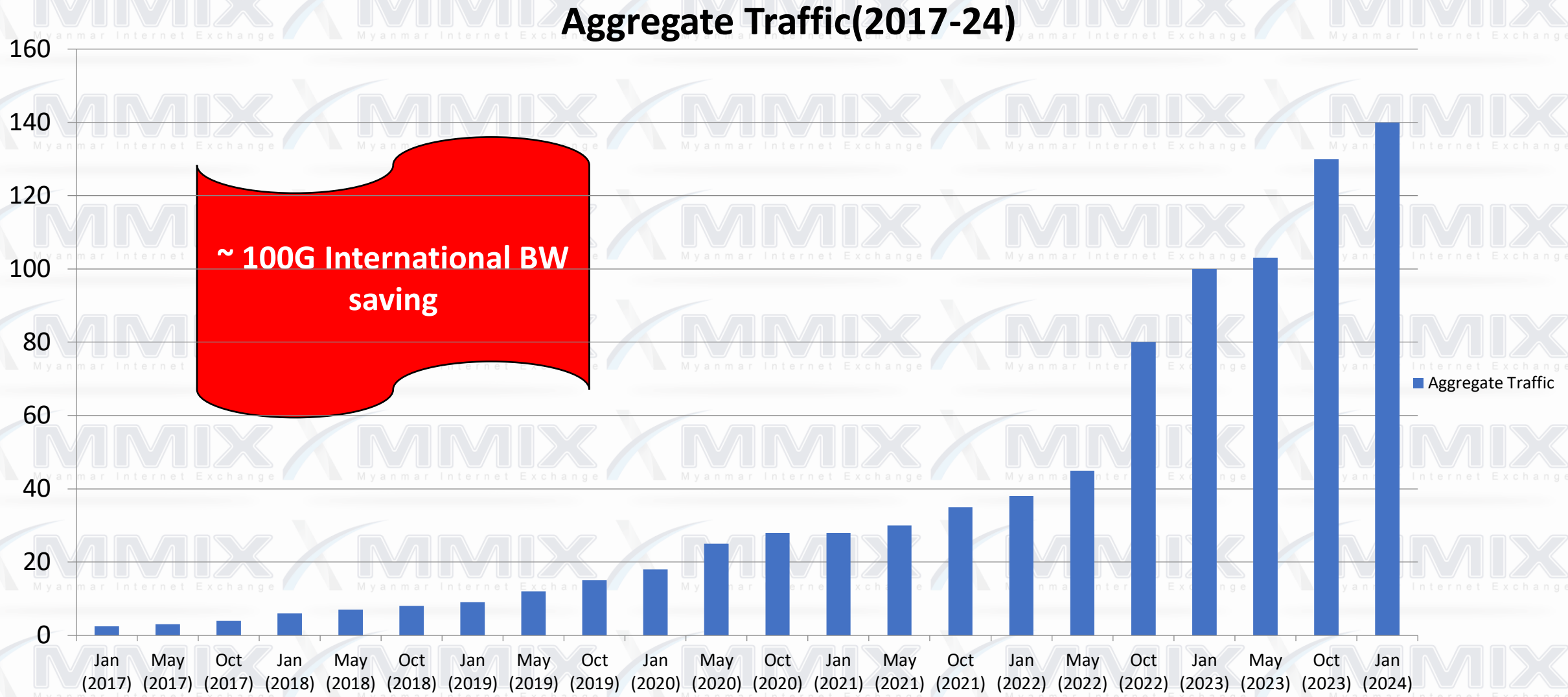


➢Growth

MMIX's Members Growth

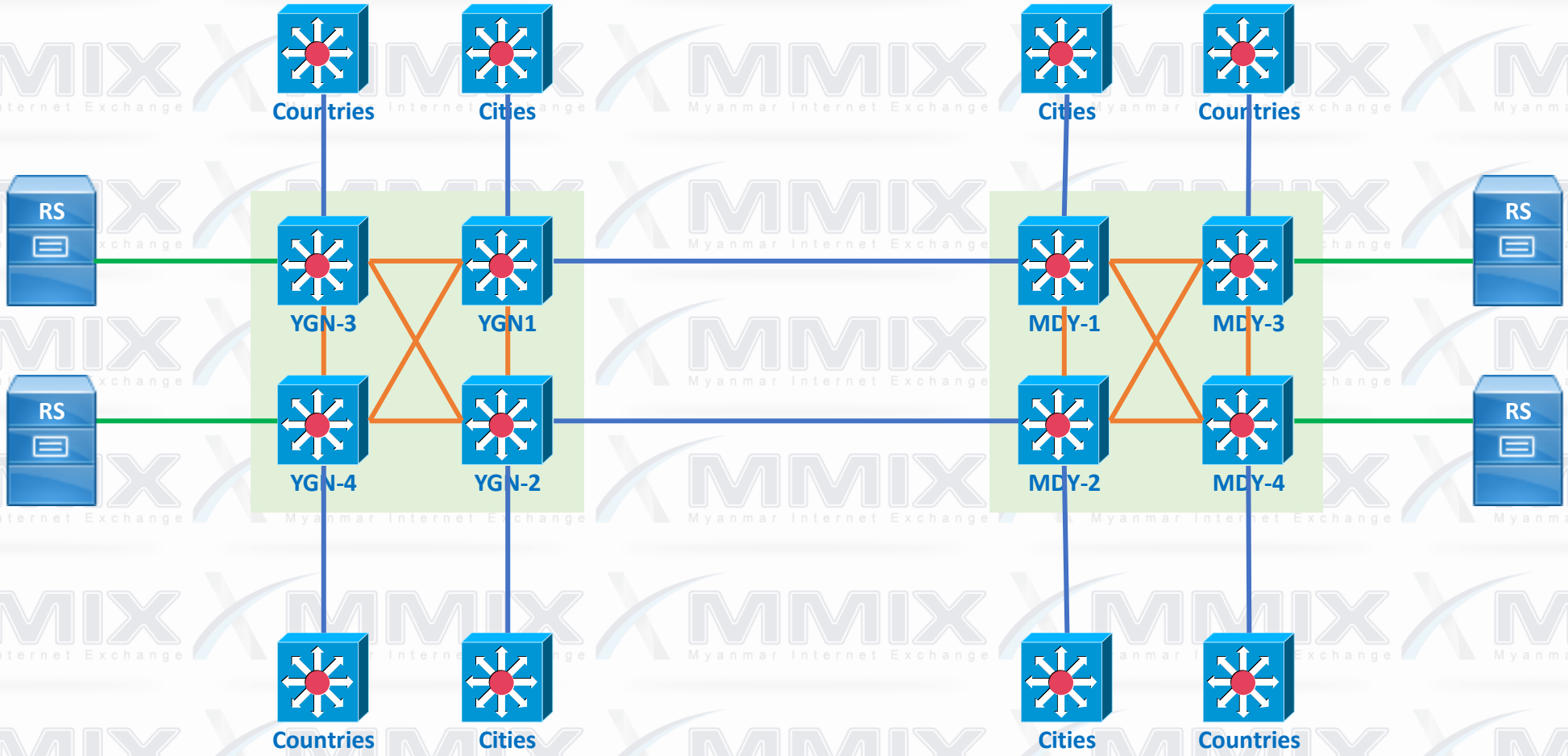


MMIX's Traffic Improvement



➢Future

Future Network Topology



Contents

CDNs

- Google GGC Node for Mandalay IXP – Waiting for Equipment delivery
- Netflix OCA Node for Mandalay IXP – Waiting for import license
- Akamai CDN upgrade – Equipment arrived
- Wangsu CDN upgrade – Waiting for Equipment delivery
- Tencent CDN – Waiting for Equipment delivery

DNS Servers

- M-Root Server – waiting for Equipment Delivery

Hosting

- Free Hosting for Education - planning

IPv6 Deployment Plan

MMIX & Apnic

will setup

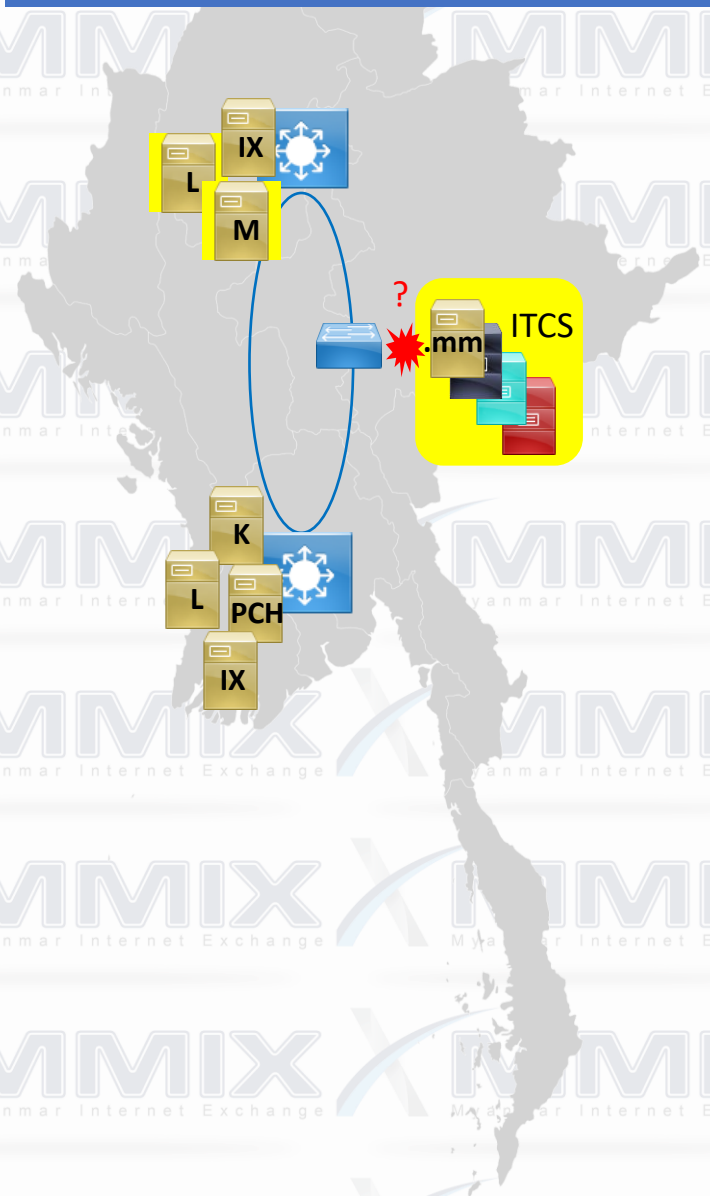
IPv6 deployment.

Pilot project for

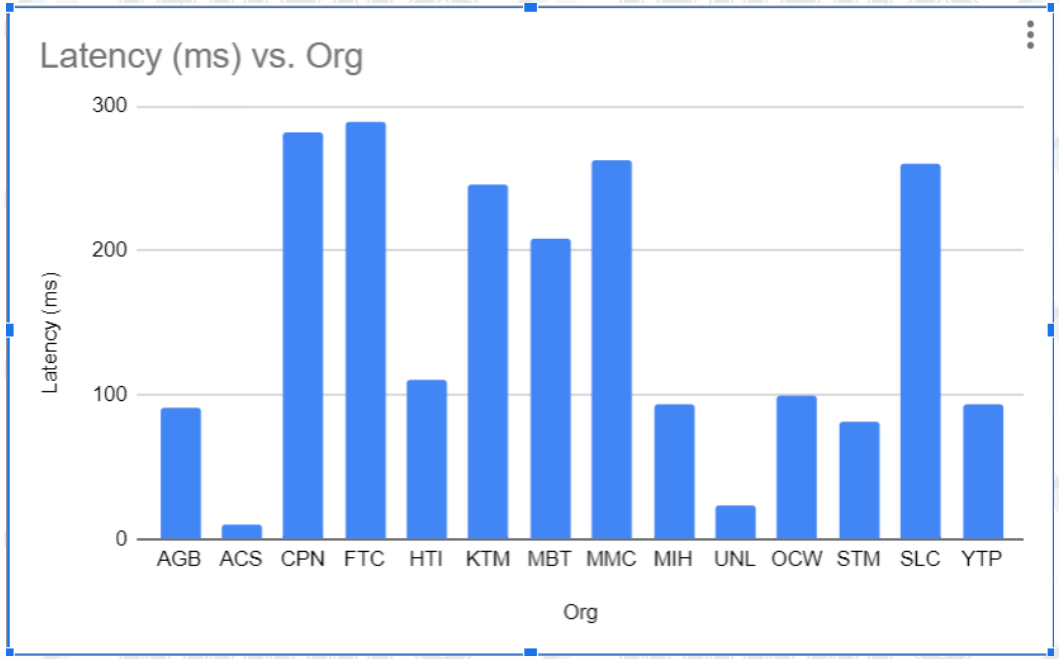
selected ISP(s).

- Training to the Engineers
- Network Analysis for V6 readiness
- Advise Network modification for V6 setup
- Deployment support

.mm & Government Servers reachability from MMIX



Latency result from the networks of the MMIX members to the Gateway IP 103.89.48.1 of ITCSD. *<Mar-2023 data>*

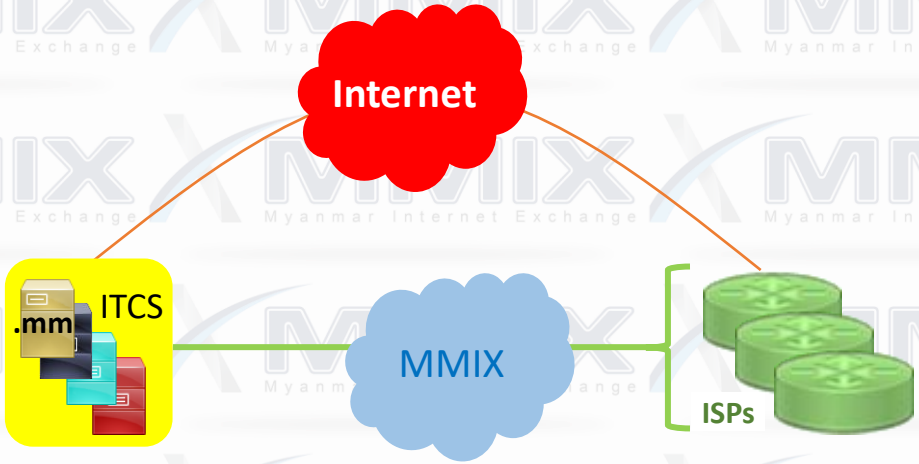


Latency >10ms, < 289ms. Average is 153.5 ms

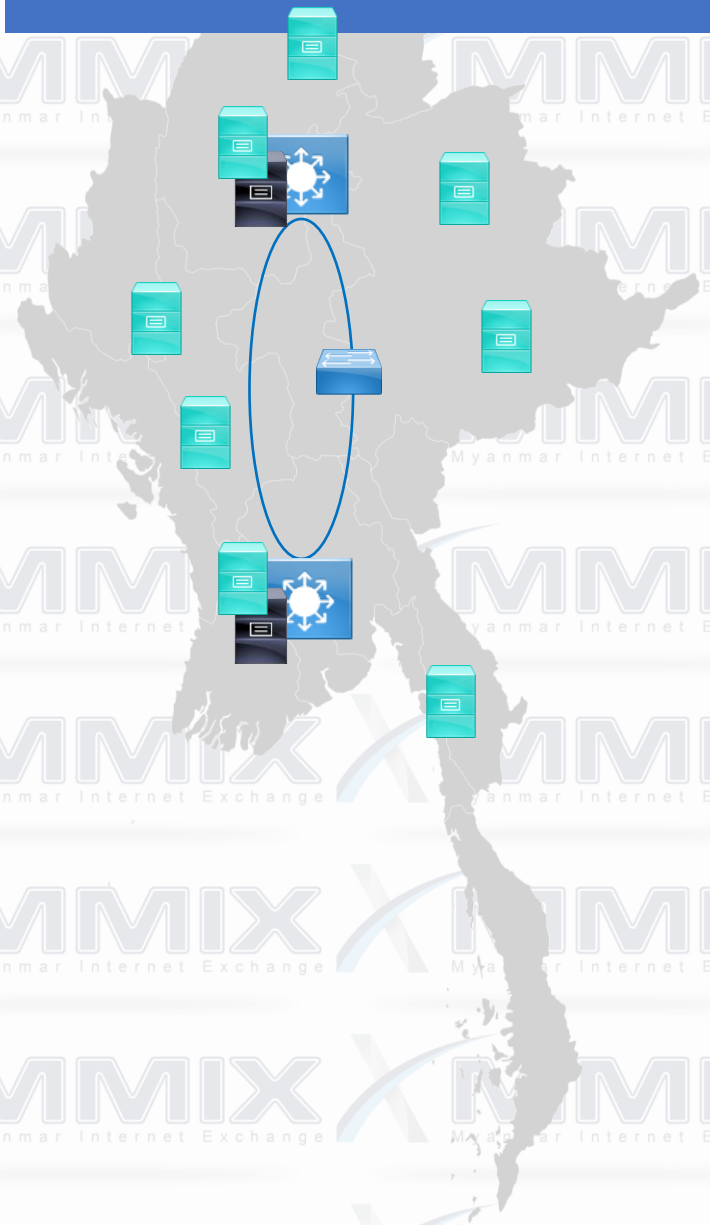
Apparently, latency high as no peering. Only peering can solve the problem.

Benefit after Gov. Networks connect to MMIX

Benefit	Conditions
Low Latency	Accessible smoothly from the networks of the members of MMIX
Internet Lost, still ok.	Still active locally when International links are cut off.
Internet Congest, still ok.	Accessible smoothly in local when International links are contested.
DDOS Attack, still ok	Accessible smoothly in local when there is DDOS attack from oversea.
Flexible security control	As direct connection with each ISPs, can control routing and security directly.



Local CDN and Local Cloud



Local CDN

- Setup distributed CDN for local content with affordable cost for content providers.
- Partnership with technical group or persons or organization for setup, manage and operate CDN Infrastructure.
- Invite content providers for hosting at MMIX CDN.

Local Cloud

- Setup non-commercial cloud for education society.
- Partnership with technical group or persons or organization for setup, manage and operate the cloud.
- Invite Universities and Institution for free access to MMIX Cloud.

➢Others

Mandalay IXP launched at June 2023

“CEO of Myanmar Internet Exchange (MMIX) Honored at IGF-2023 for Improving Internet Exchange Points in the Asia Pacific."

Setting up MMIX's second IXP (APNIC blog)

We shared the story of MMIX's progress, specifically the technical details of MMIX's second POP and how that benefited capacity, growth in traffic, and user experience, along with any difficulties, small or large, and how we were overcome.

https://blog.apnic.net/2024/01/24/setting-up-mmixs-second-ixp/

Thank you

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MMIX

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