Pakistan Telecommunication Authority

Pakistan Internet Exchange Point (IXP)
Role of Stakeholders

23-30 January 2017
SANOG 29
ISLAMABAD, PAKISTAN

WASI ULLAH KHAN
DG (ICT / COORD)
PAKISTAN TELECOM AUTHORITY

Existing Peering Infrastructure

- PIE
- Peering between PIE and TWA
- Peering at Cybernet Karachi
- Peering at Nayatel Islamabad
- Peering at Brain Tel Lahore

Introductory Session by APNIC and ISOC, at PTA H/Qs Islamabad

- IXP Introductory session by Mr. Srinivas Chendi APNIC
- Remote participation from Ms Jane Coffin, Director ISOC
- Confirmation of support for Pakistan IXP by ISOC
- Commitment from Chairman PTA to support Pakistan IXP

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Initial Stakeholders in Pakistan

- All ISPs
- Cellular Mobile Phone Operators
- Regulator (PTA) / Government
- Bandwidth Providers (PTCL + TWA)
- Academia

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Follow up Meeting with Stakeholders

- Participation from all stakeholders
- Consensus to establish Pakistan IXP
- Five Working Groups formed
- Call for Volunteers

Volunteer Working Groups

S. No.	Working Group	Title	Headed by
1.	WG-1	**Assessment of establishing IXP and way forward for establishing IXP**	Dr. Amir Qayyum (MAJU)
2.	WG-2	**Identifying the benefits of IXP, and making recommendations for the respective public/private organizations to achieve these benefits**	Dr. Ihsan Qazi (LUMS)
3.	WG-3	**Analyze commercial aspects of small and large ISPs**	Dr. Saad Qaiser (NUST)
4.	WG-4	**Selection of acceptable venue**	Mr. Wasi Ullah Khan DG(Coord) PTA
5.	WG-5	**Relevant data collection through concerned organizations**	Dr. Zartash Uzmi (LUMS)

Recommendations by Working Groups

- Independent Board of governors
- HEC as neutral venue for IXP
- IXP at Islamabad, Karachi and Lahore
- Fee charging mechanism
- Mirrors of Pakistani popular sites at Pakistan

Benefits of IXP

- Cost Savings
- Lower Latency and Better User Experience
- Local Content Hosting and Content Generation
- Improved Security
- Availability of Services in case of Disruption in International bandwidth

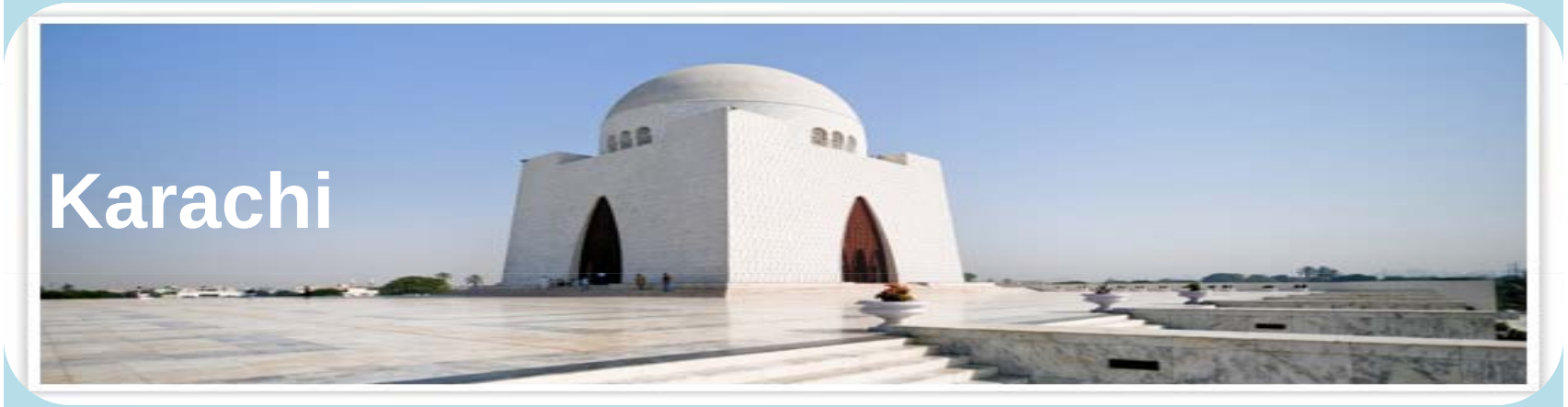
Interim Board Of Governors

ISPs	-	Mr. Maroof Shahani	-	Cybernet
Bandwidth Providers	-	Mr. Amer Tufail	-	PTCL
Regulator	-	Mr. Wasi Ullah Khan	-	PTA
Academia	-	Dr. Zartash Uzmi	-	LUMS
Hosting Site	-	Dr. Arshad Ali	-	HEC
Cellular Mobile Operators	-	Mr. Rehan Siddiq	-	Zong
ISOC Islamabad Chapter	-	Dr. Amir Qayyum	-	CUST/ MAJU

Selection of venue for Pakistan IXP

- Higher Education Commission (HEC)
- Neutral
- Convenient
- Acceptable
- Vast experience of managing PERN

Pakistan IXP: Proposed Locations



Information Sharing with Stakeholders at all steps

- Global IXP Toolkit by ISOC, including case studies
- IXP Business models by ISOC
- Presentations by ISOC and APNIC
- Minutes of meetings
- Report by Working Groups

Supporting Organizations

- ISOC
- APNIC
- Cisco Pakistan
- Huawei Pakistan

Pakistan IXP Workshop 2016

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Ms Jane Coffin - ISOC

Mr. Philip Smith - NSRC

Pakistan Telecom Authority (PTA)

Summary of Kenya and Nigeria IXP

Benefit	KIXP	IXPN	Summary
Latency	Reduced from 200-600 ms to 2-10 ms	Reduced from 200-400 ms to 2-10 ms	Noticeable increase in performance for end users
Local traffic exchange	1 Gbit/s peak	300 Mbit/s peak	Savings on international transit of over $1 million per year in each country
Content	Google network present locally, along with rehoming of domestic content	Same as in Kenya	Increase in usage and corresponding revenues for mobile data traffic
E-government	Kenya Revenue Authority gathers taxes online	Usage by education and research networks	Social benefits from e-government access to IXPs
Other benefits	An increasing amount of regional traffic exchanged at KIXP	Financial platforms hosted locally	Further economic benefits resulting from IXPs

Source: Analysis Mason 2012

IXPs in Region

S. No.	Country	No. of IXP	No. of participants	Average Traffic	Year of operation
1.	India	7	100	44 Gbps	2003
2.	Bangaldesh	1, planning for 2nd	65	5.2 Gbps	2004
3.	Nepal	1	26	600 Mbps	2002
4.	UAE	1	30	30 Gbps	2013
5.	Sri Lanka	-	-	-	Work under progress

Source: http://www.internetexchangemap.com/

Current Status of traffic

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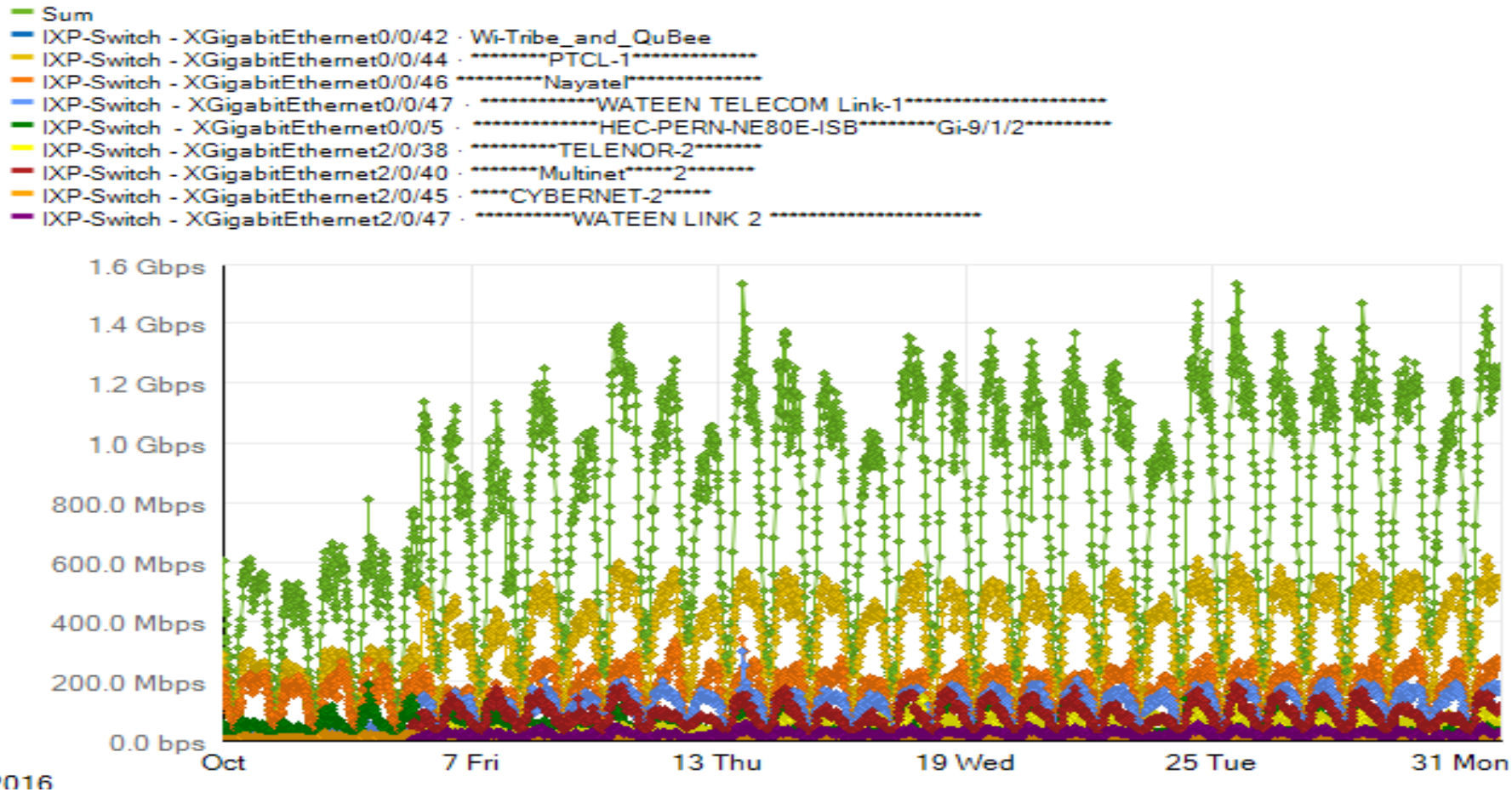
Custom Chart - Multiple Object Chart

Interface Aggregate Chart – Average bps InOut

Last Month



Current Status of Volume of traffic per day

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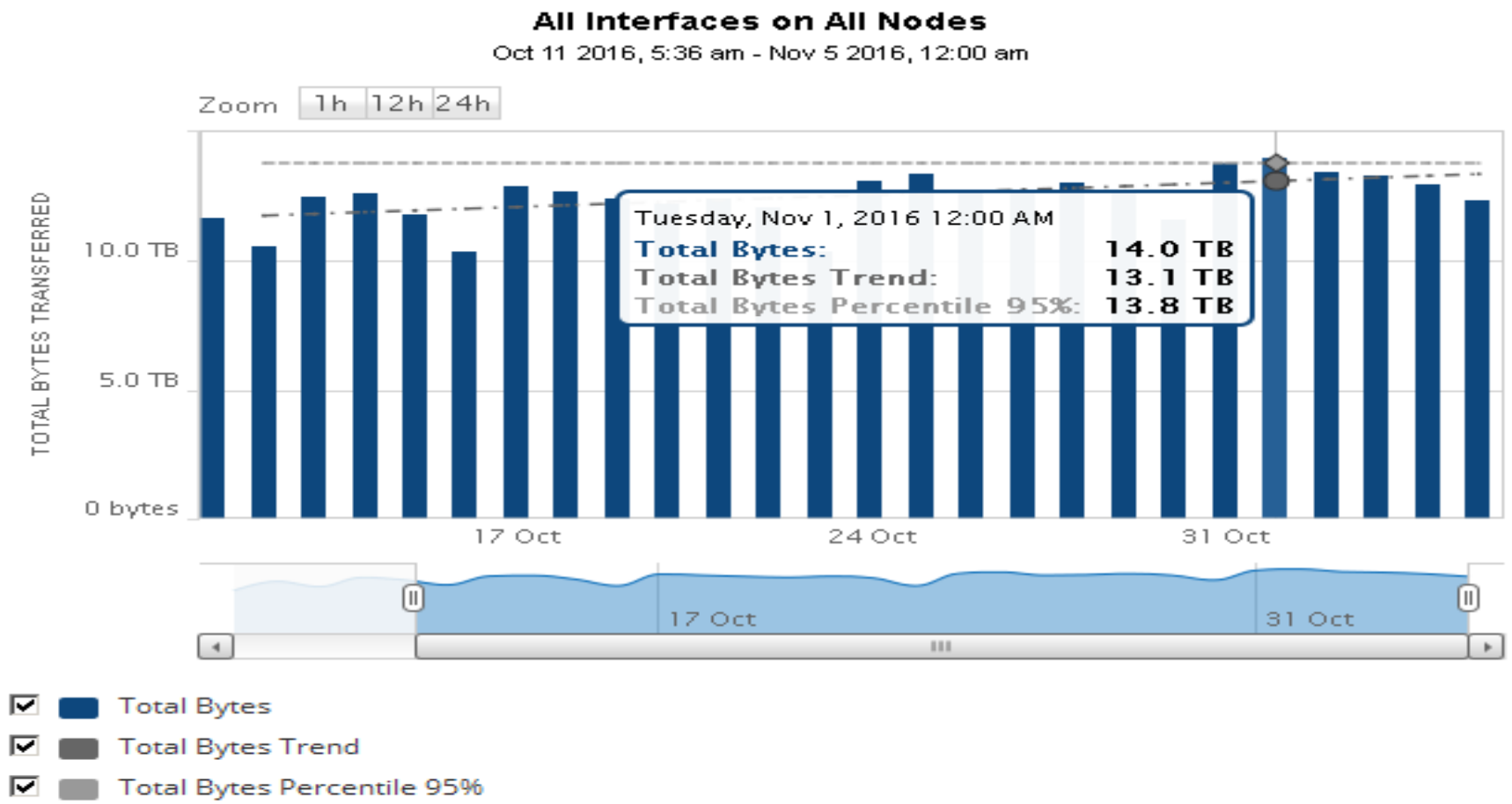
Custom Chart - Network Wide Total Bytes Transferred



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