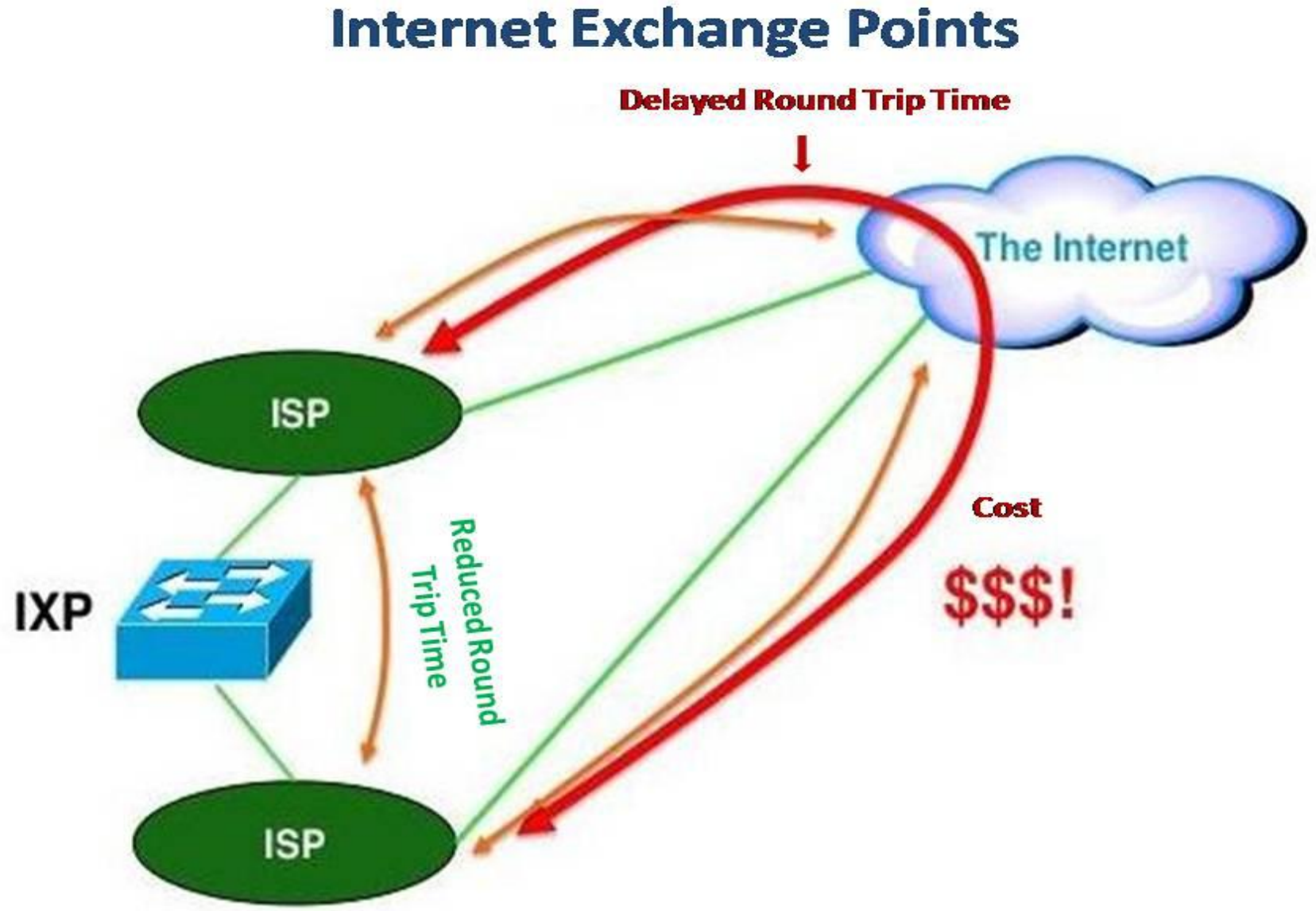
Pakistan Telecommunication Authority

INTERNET EXCHANGE POINT IN PAKISTAN

Presentation by: Ahmed Bakht Masood Deputy Director (Cyber Security)

Internet Exchange Point



Peering Infrastructure in Pakistan

- 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 ISOC and APNIC

Confirmation of support for Pakistan IXP by ISOC

Commitment from Chairman PTA to support Pakistan IXP

Initial Stakeholders in Pakistan

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

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

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	-	Currently Vacant	-	HEC
Cellular Mobile Operators	-	Currently Vacant	-	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

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

Comparison of traffic for locally hosted website

S. No.	Test From	Round Trip time for locally hosted websites								
		International Route	Through IXP							
			Cybernet	Multinet	Nayatel	PERN	PTCL	Telenor	Wateen	Wi-Tribe
1	Cybernet	104 ms	--	20 ms	1 ms		24 ms	1 ms	4 ms	1 ms
2	Multinet	130 ms	2 ms	--	2 ms	1 ms	2 ms	1 ms	6 ms	3 ms
3	Nayatel	102 ms	4 ms	20 ms	--	1 ms	4 ms	2 ms	5 ms	1 ms
4	PERN	107 ms	4 ms	20 ms	1 ms	--	6 ms	1 ms	7 ms	3 ms
5	PTCL	103 ms	4 ms	22 ms	2 ms	3 ms	--	1 ms	5ms	1 ms
6	Telenor	107 ms	4 ms	22 ms	2 ms	3 ms	4 ms	--	9 ms	8 ms
7	Wateen	144 ms	15 ms	25 ms	6 ms	6 ms	7 ms	7 ms	--	31 ms
8	Wi-Tribe	107 ms	4 ms	24 ms	4 ms	29 ms	4 ms	27 ms	29 ms	--

IXPs in the region

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

Supporting Organizations

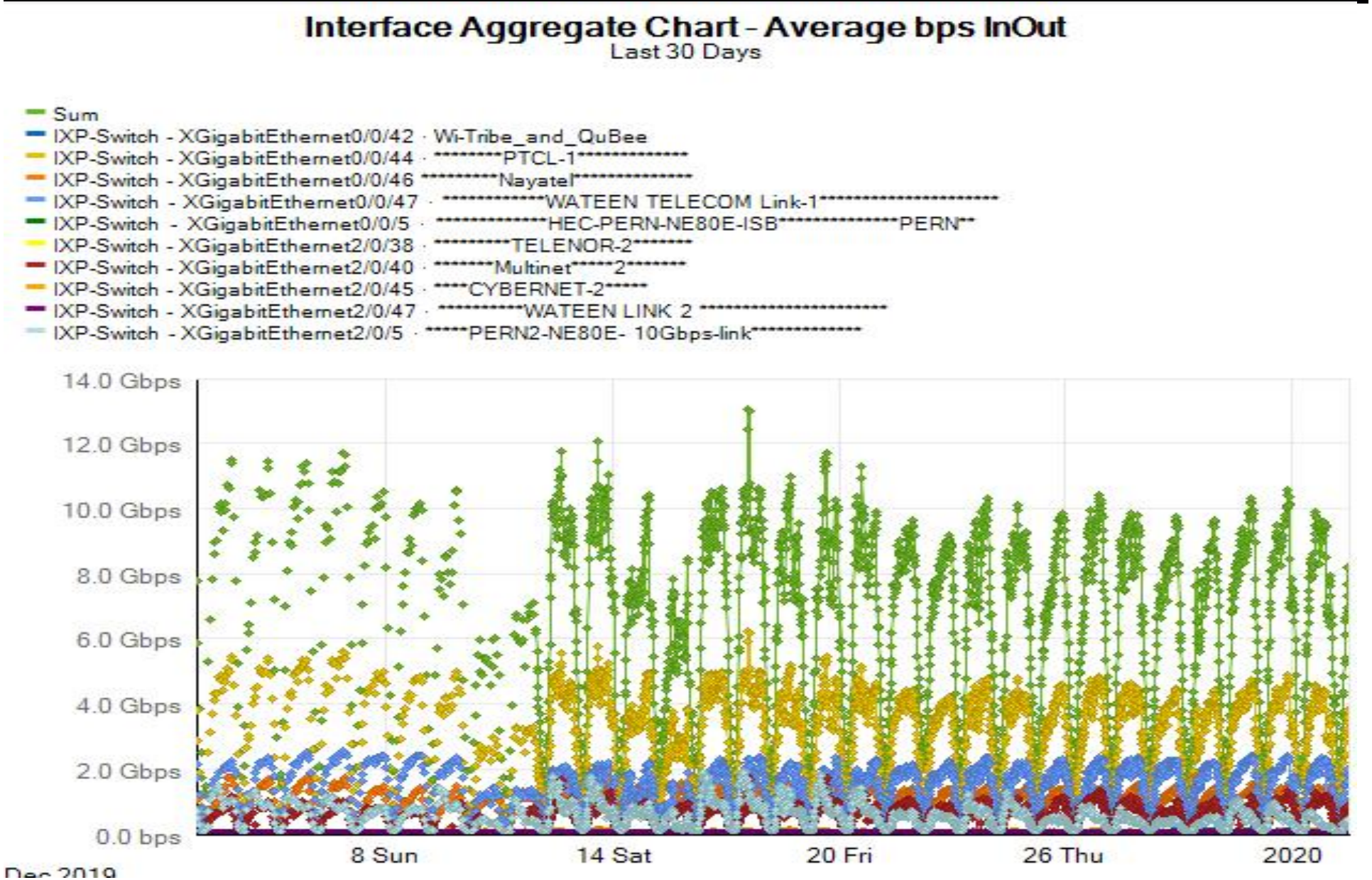
- ISOC (Capacity Building and Technical Support for Islamabad)
- NSRC (Capacity Building)
- Huawei Pakistan (Equipment for Islamabad)
- ISOC (Capacity Building, Technical Support and Equipment for Karachi IXP)

IXP Participants at Islamabad and Karaachi

- PTCL
- Telenor
- Nayatel
- Wateen
- PERN
- Worldcall
- Cybernet
- Multinet
- WiTribe

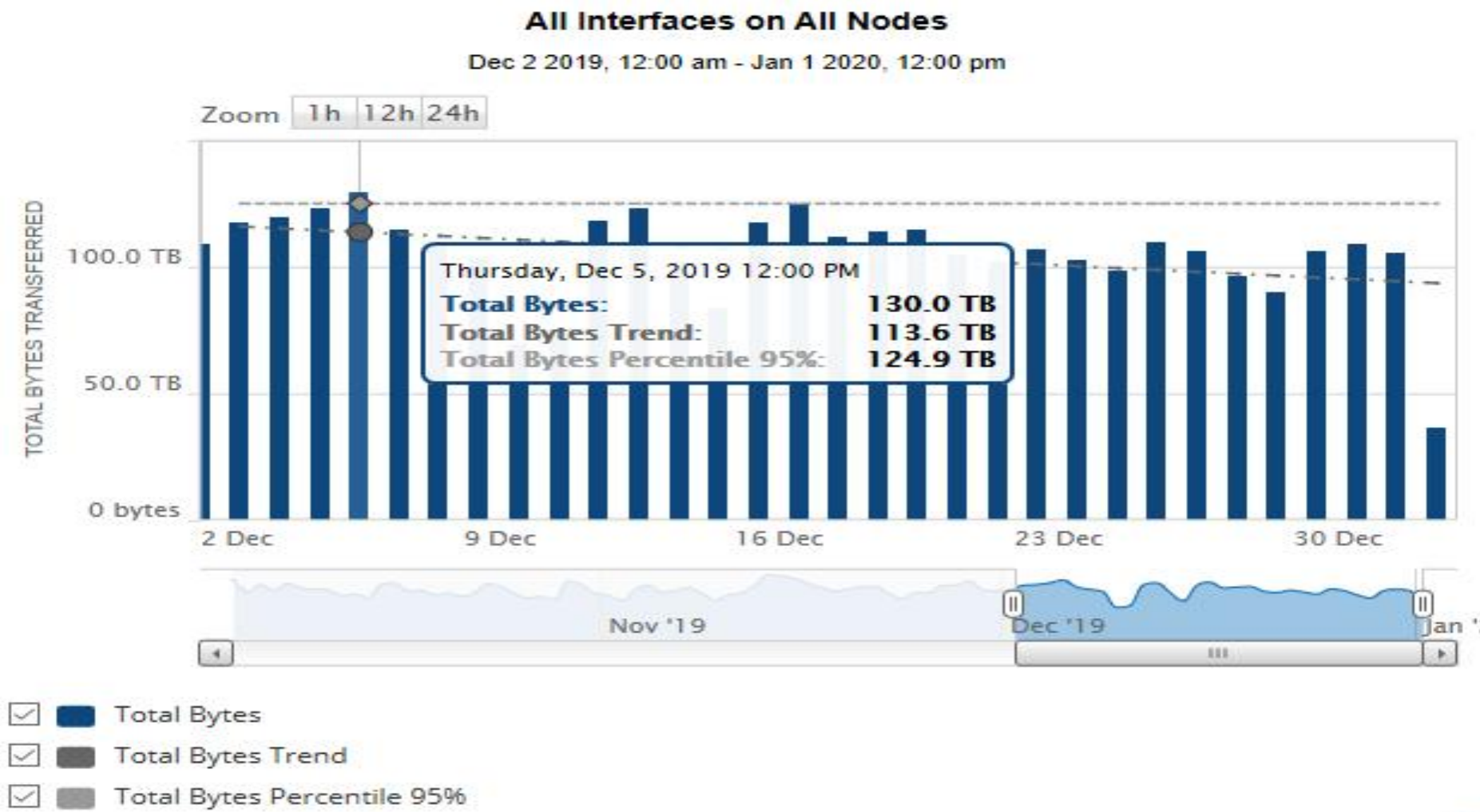
- Cybernet
- Multinet
- Wateen
- Connect
- PERN
- GCS
- Satcom
- Telenor

Status of traffic, Islamabad



Volume of traffic per day, Islamabad

Custom Chart - Network Wide Total Bytes Transferred



solarwinds

IXP Participant	Peak Traffic in Gbps		Maximum Volume of data exchanged during one day	
	2018	2019	2018	2019
PTCL	3.5	6.5	18500	30200
NAYATEL	0.883	1	7800	9700
WI-TRIBE & QUBEE	0.0246	0.541	137.6	668.4
Telenor	0.621	1.12	6700	11726
CYBERNET	0.1013	0.4926	321.3	2300
WATEEN	1.8468	1.9993	9900	14300
MULTINET	0.8784	2.2	2200	8700
PERN	2.3	2.5	11200	9200
WORLD CALL	0.0075	0.5274	0.8844	2100

Volume of traffic per day, Karachi

Custom Chart - Network Wide Total Bytes Transferred