Evolution of Internet: Journey of ISPs and Internet In Pakistan

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Chief Operating Officer
Speaker Profile

- Doctor or an Engineer

- Aspire to do Civil Services, but then witnessed the “start of internet revolution”

- Kick started career from Supernet as a Trainee Network Engineer and then joined DANCOM online to lead ISP business/

- Working in Cybernet since Jan 2006

- CEO of TVNation

- Career spanning over more than twenty years in IT industry

- Board Member of PKIX and PKNOG

- Life's vision of educating masses and improving the society we live in
Pakistan’s Journey to the internet is a Journey from:

9 kbps to 500 Mbps
Evolution of Internet in Pakistan

Internet, the form of international USENET newsgroups, was introduced in Pakistan in 1993.

- It was meant to provide dial up and e-mail service to general public and support to projects related to education and other areas. These store and forward email services were charged by the service providers on bytes size.

- The project received funding for a few more years, and established holds in other cities such as Karachi, Lahore and Peshawar. Eventually the emergence of many more ISPs caused this program to closed down.
Evolution of Internet in Pakistan

First Dialup Email Service was launched by Imran-Net in 1992 – 1993 from Lahore

- First dialup internet service started in Karachi in 1994, by Digicom Pakistan through direct satellite SCPC backbone link of 64 kbps.

- Engineer Nasser Khan Ghazi, was the first engineer who installed and commissioned the first-ever internet link and became the first person in Pakistan to experience online internet browsing.
Evolution of Internet in Pakistan

1992-93 First dialup email service in Pakistan

1995 Paknet started dialup text based internet service

1995 Digicom launched online dialup service using Satellite SCPC

1996 COSMAT launched ISP speed 28.8 kbps

1996 PTA was established

1996 SuperNet also started its services

1997 Cybernet started internet services in Karachi

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2000 First Pak submarine cable landed by PTCL – SMW3

2001 First broadband, DSL launched by Micronet Broadband

2001 Optix, TW home, & other FTTH players

2006 Transworld Associated launched first alt submarine cable linking Karachi to UAE

2006 Nayatel Pvt. Ltd. began offering FTTH (Triple services)

2006 Five Telcos acquired 3G/4G licences from

2006 Cybernet launched StormFiber, FTTH Triple Play Optix, TW Home, & other FTTH players

2009 Cybernet launched FTTH GPON for Enterprise

2009 PAK CHINA OFC Cross border fiber optic cable launched by SCO

2006 Wateen Telecom launched first WiMax services

2016 Wi-tribe signed contract to launch 4.5G LTE

2014 Cybernet Launched StormFiber, FTTH Triple Play Optix, TW Home, & other FTTH players

2018 PAK CHINA OFC Cross border fiber optic cable launched by SCO

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Evolution of Internet in Pakistan

Mobile Broadband
Played a catalyst role in internet penetration

- Mobile service in Pakistan was introduced by Paktel with 1st Generation technology in 1990 followed by Instaphone. The evolution of technology, however, was fast as Mobilink entered the market carrying 2G technology in 1993.

- The 2G market got extended with the entry of other firms in the industry over the years. By 2005, a number of these companies upgraded their infrastructure to the so-called 2.5 G that contained internet connectivity through General Packet Radio Service (GPRS) on mobile phones.
Evolution of Internet in Pakistan

3G & 4G Revolution in Pakistan

• 3G services launched in May 2014 in Pakistan by Ufone and then other telecom operators followed enabling the Mobile subscribers able to get higher bandwidths.

• All of the mobile operators in Pakistan now offers 4G services enabling an enormous ecosystem of mobile applications and content development in Pakistan.
Evolution of Internet in Pakistan

5G horizon is Pakistan

- Pakistani Mobile phone users and service providers are always on the lookout for higher data rates in mobile networks.

- The next generation of technology which is currently in the development phase is the fifth generation of cell phone technology, or simply 5G.

- It is the next major advancement in mobile telecommunication standards which will supersede 4G standards.

- Couple of 4G telco operator in Pakistan are currently working on testing 5G services in Pakistan
## Pakistan Internet Backbone

<table>
<thead>
<tr>
<th>Submarine Cable</th>
<th>Operator</th>
<th>Capacity (Tbps)</th>
</tr>
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<tbody>
<tr>
<td>SEA-ME-WE-3</td>
<td>PTCL</td>
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<tr>
<td>AAE-1</td>
<td>PTCL</td>
<td>40</td>
</tr>
<tr>
<td>PEACE (Pakistan &amp; East Africa Connecting Europe) in progress</td>
<td>Cybernet</td>
<td>96</td>
</tr>
</tbody>
</table>

Bridging three largest continents with the most population of Asia, Africa and Europe

Extracted from publicly available information
So in a Nutshell

- Availability since early 1990's.
- Currently, several undersea telecommunications cables are deployed by Pakistan.
- Pakistan’s existing submarine cables have the ability to provide 60 Tbps capacity, with PEACE expected to add additional 96Tbps capacity.
- Total consumption as of today is around 2.0 Tbps
- FTTH players aggressively targeting consumers with triple play services while mobile broadband offering internet with data caps
Lets look at the global horizon
The world is creating a digital replica of its own faster than we all can imagine!

**Today**
- Smartphones
- Enterprise Applications
- P2P

**Tomorrow**
- Smart Machines
- Internet of Everything
- Wearables
- Automated Composition Engines
Highest Mobile Phone Penetration in South Asia with 90% Geographical Coverage and over 163 Millions Subscribers

The cost of Telco & Internet service is amongst the lowest in the World
Current Snapshot of Telecom In Pakistan

- 163 Million Cellular Subscribers
- 73 Million 3G/4G Subscribers
- 3 Million Basic Telephony Subscribers
- 75 Million Broadband Subscribers

- 77.24% Teledensity
- 34.72% Penetration
- 1.23% Teledensity
- 35.69% Penetration
Mobile Penetration
Broadband subscribers by penetration
Broadband subscribers by penetration

- DSL
- HFC
- WiMax
- FTTH
- EvDO
- Mobile BB
- 3G 4G LTE (Fixed)
- Total
Pakistan Government - MoITT

- Pakistan Telecommunication Authority (PTA)
- National Telecom Corporation
- Pakistan Software Export Board
- National IT Board
- Special Communication Organization
- Telecom Foundation
- Universal Service Fund
- Ignite National Technology Fund
- Virtual University of Pakistan
What is needed

- Advancement in Innovation and R & D
  - Forums like SANOG can help developing the culture
  - Local NOGs/ Community Development
  - Private Public partnership
  - Advancement in curriculum

- Improvement in laws of Intellectual Property Protection
  - Focus groups needs to be created
  - Involvement of industry and academia

- Government regulations & Taxation
  - Complete revamp in Taxation for operators and application service providers
  - Classify telecom as an industry
  - Uniform ROW policies to enable FTTH and MBB

- More technology parks and incubator
  - Need to have more Freezones, tech parks and foreign direct investment to coup up with technology advancements in the world.
  - Promote Internet exchanges (PKIX) for exchange of local traffic and hosting international CDNs.
Taxation – Areas to work upon

- State Bank of Pakistan acknowledged that taxation on ICT industry is heavy.
- Taxation is high compared to region, and also compared to other industries within Pakistan.
- Income tax holiday for Venture Capital companies
- Extension of zero-rated tax regime on IT/ITeS exports till 2025.
- 5% cash reward on IT export remittances.
- Reduction of sales tax to 5% on domestic revenues
- Interbank exchange rate to be regulated for IT industry
- Easy import/export of H/W equipment and technology – reduced import duties on electronics
Today Internet Impacts Everything
Thank You Note ..