ITU-D Regional Development Forum for the Asia Pacific Region
“NGN and Broadband, Opportunities and Challenges”
Yogyakarta, Indonesia, 27 – 29 July 2009

INFRASTRUCTURE SHARING
An Indian Experience

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AGENDA

- Current Status
- Telecom Infrastructure
- Government initiatives
- Future Concerns and Way Forward

Yogyakarta, Indonesia, 27-29 July 2009
### Present ICT Status
(As on 31st March, 09)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population of India</td>
<td>1.2 Billion</td>
</tr>
<tr>
<td>Geographical Area</td>
<td>3,287,000 Sq. Km</td>
</tr>
<tr>
<td>Fixed Line Subscriber</td>
<td>37.96 Million</td>
</tr>
<tr>
<td>Mobile Subscriber</td>
<td>391.76 Million</td>
</tr>
<tr>
<td>Internet subscribers</td>
<td>13.54 Million</td>
</tr>
<tr>
<td>Broadband subscribers</td>
<td>6.22 Million</td>
</tr>
<tr>
<td>Tele Density</td>
<td>36.98</td>
</tr>
<tr>
<td>English Speaking Population</td>
<td>&gt; 350 Million</td>
</tr>
</tbody>
</table>
**Broadband Potential**

**Target & Forecast**

### Government Target

<table>
<thead>
<tr>
<th>Year</th>
<th>Target of Broadband</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>09 Million</td>
<td>2.34</td>
</tr>
<tr>
<td>2010</td>
<td>20 Million</td>
<td>6.40*</td>
</tr>
</tbody>
</table>

*status as on 31st May 09

### Desirable Target

<table>
<thead>
<tr>
<th>Year</th>
<th>No of Households</th>
<th>% of Households to be covered for broadband</th>
<th>Number of Broadband Subscribers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>236 Million</td>
<td>10%</td>
<td>23 Million</td>
</tr>
<tr>
<td>2012</td>
<td>241 Million</td>
<td>20%</td>
<td>48 Million</td>
</tr>
<tr>
<td>2015</td>
<td>250 Million</td>
<td>30%</td>
<td>75 Million</td>
</tr>
</tbody>
</table>

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Targets & Requirement (by 2010)

500 Million telephones &
20 Million Broadband
Towers required to reach
the target are
3,30,000
Required investment only
to setup towers is US$ 25 Billion.

Infrastructure Sharing becomes vital at such juncture.

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Licensing Framework

In order to develop an independent business model to encourage creation of towers, Department of Telecommunication (DoT) introduced a new class of service providers called Infrastructure Provider Category – I on 13.08.2000.

The salient features of this scheme:
- Permission through simple registration
- 100% Foreign Direct Investment (FDI) permitted
- No license fee
- They can create/ lease/ outright sale towers etc.
In spite of all this, willingness of the service providers to share tower was initially low.
- Apprehensions were that sharing of towers with their competitors would result in huge churn as later will have almost same coverage area and QoS
- Some service providers Ironically assumed that denying sharing may give them advantage over competitor by delaying competitor's service rollout in that area
In order to encourage tower sharing among the operators, Govt. of India initiated project “Mobile Operator Shared Tower (MOST)”

- Various advantages of tower sharing were highlighted
  - Saving in CAPEX and OPEX
  - Faster rollout of services
  - Better city aesthetics
  - More co-operation
  - Huge savings hence more flexibility to reduce cost to customer and hence effective competition
  - First shared tower under project MOST was installed in March 2006

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identification of sites</td>
</tr>
<tr>
<td>2</td>
<td>Finalization of Technical Specifications</td>
</tr>
<tr>
<td>3</td>
<td>Finalization of Commercial Proposals</td>
</tr>
<tr>
<td>4</td>
<td>Finalization of SLAs</td>
</tr>
<tr>
<td>5</td>
<td>Contract awarded to IP-1s</td>
</tr>
<tr>
<td>6</td>
<td>Clearances from Authorities</td>
</tr>
</tbody>
</table>

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PROJECT MOST (contd.)

FLAGSHIP SITE – DELHI HIGH COURT

- 2 Roof-top Towers of 15 Meter height
- First Tower – 3 Operator Sharing (GSM)
  - Single tower supporting 3x3 GSM & 3 Microwave Antennas
- Second Tower – 3 Operators Sharing
  - 1 GSM + 2 CDMA

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PROJECT MOST (contd.)

<table>
<thead>
<tr>
<th>FLAGSHIP SITE - DHANDSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Ground Based Towers of 40 Meter height</td>
</tr>
<tr>
<td>✓ Six operators sharing (4GSM+2 CDMA)</td>
</tr>
<tr>
<td>✓ Single tower supporting 4x3 GSM, 2x3 CDMA &amp; 6 Microwave Antennas</td>
</tr>
<tr>
<td>✓ Tower design certified by IIT Delhi, a premier Technical Institute of India</td>
</tr>
</tbody>
</table>

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Sharing of Towers

Total towers : 0.37 Million
(as on 31.03.2009)

Enabling environment and appropriate regulatory framework has helped to encourage Infrastructure Sharing

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Government Initiatives
International Telecommunication Union

TRAI’s INITIATIVES

Consultation process in November 2006

Emphasis

- Developing mutual cooperation among service providers
- Pursuing Mobile Operators to adopt infrastructure sharing and avoid mandating
- Facilitate active infrastructure sharing also
- Provide incentive to develop towers and infrastructure to roll out mobile services in rural and far flung areas.
- Encourage use of non conventional energy sources by telecom operators where power supply is erratic.

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TRAI’s INITIATIVES

TRAI recommendation on Infrastructure sharing were sent to Govt. on 11.04.07

Salient features of recommendations are:

- Encourage passive infrastructure sharing among service providers on mutual agreement basis.
- To bring in transparency, reasonability and well defined time frame to facilitate infrastructure sharing.
- To facilitate infrastructure sharing in critical areas (where possibility to erect towers is limited).
- Facilitate active infrastructure sharing by modifying restrictive clauses in the existing license.
- Financial support for creation of infrastructure in rural and far flung areas.
- Encourage use of non conventional energy sources in areas where electric power supply is erratic.
Broadband Growth

Projects for Network Creation

• Projects under Department of Telecom (DoT) through USO fund

• Projects under Department of Information Technology (under National e-Governance Plan (NeGP))
  • Common Service Centers (CSCs)
  • State Wide Area Network (SWAN) Project
USOF Measures

- 10000 towers are being established with USO fund assistance, for provisioning of mobile services.
  - Three service providers have already been identified to ride in 81 selected clusters to provide 2G services.
  - Same towers can be employed for expansion of Broadband services.

- Second phase is being initiated to support creation of 11000 more towers in rural and far-flung areas.
  - Three service providers will share the tower.
  - Service rollout possible in one year time.

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USOF Measures (contd.)

Increasing Broadband Penetration

Government has planned to provide wireless broadband connectivity in 5,00,000 villages through USOF. Broadband coverage to all secondary and higher secondary schools, public health care centers and Village Panchayats in a phased manner.

Broadband connectivity would be provided

- 100,000 Community Service Centers (CSC) covering 20000 CSCs by ADSL
- 1000 blocks by wireless broadband
- Remaining 5000 blocks by wireless broadband with USO support

Presently 1035 towns covered by broadband coverage

Incumbent has planned to deploy 1.8 Million DSL ports spanning over 20000 Exchanges in rural areas connected through optical fiber

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Increasing Broadband Penetration

- Incumbent will provide 8,61,459 wire-line Broadband connections to individual users and Government Institutions from 27,789 DSLAMs, installed at existing rural and remote exchanges over a period of 5-years, i.e., by 2014.

- A proposal is also under consideration of the Government to provide subsidy support for Broadband connectivity in rural and remote areas of the country in a phased manner by utilizing the existing passive and core infrastructure available with the Service Providers. It is proposed to provide broadband connectivity to Gram Panchayats, Higher secondary schools and primary health centers in order to provide e-governance and data services to the rural areas.
National e-Governance Plan (NeGP)

- **Common Service Centers (CSCs)**
  - 40750 CSCs has been setup by March 09 out of total planned 104881 CSCs.

**State Wide Area Network (SWAN)**

- The SWAN Scheme for 29 States & 6 Union Territories was approved by Govt. of India, in March 2005 to set up State Wide Area Networks (SWAN), interconnecting each State / UT Head Quarter with District Head Quarter and below each District Head Quarter with the Block Head Quarters with minimum 2 Mbps leased line.
- The objective of the Scheme is to create a secure close user group (CUG) government network for the purpose of delivering G2G and G2C services. The duration of project is 5 years.
- SWAN has been Implemented in 7 states. Implementation is at advanced stage in 19 States.
## Other Stakeholders

### Projects for Application Development

- Various state governments has started projects like e-seva, bhoomi, Akshaya, CARD, GramSampark, Gyandoot etc.

- State Data Centers (SDCs)
  - initiated in 10 states

- Ministry of Health
  - e-health,
  - tele medicine

- Ministry of Human Resource Development (HRD)
  - e-education,
  - sarv siksha abhiyaan
Looking Ahead
# WiMax Broadband Solution

## An estimation

<table>
<thead>
<tr>
<th>Particular</th>
<th></th>
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<tbody>
<tr>
<td>Coverage of Base station (approx 10km radius)</td>
<td>300 Sq km</td>
</tr>
<tr>
<td>Area of India</td>
<td>3,287,000 Sq. Kms</td>
</tr>
<tr>
<td>Total number of BS required to cover the country (approx)</td>
<td><strong>11000</strong></td>
</tr>
</tbody>
</table>

This indicates that sufficient number of towers are being created to cater the broadband demand/ requirement.

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Future concerns

- Ensuring reasonable pricing for sharing of infrastructure on non-discriminatory terms and conditions to all access service providers
- Identification of Critical Infrastructure and Efficient use of resources for infrastructure sharing
- Ensure that tower may not become bottleneck facilities to rollout wireless services in view of increasing restriction by local bodies
- Ensure guaranteed SLA by Infrastructure Providers Category-I
Way Forward

- Telecom Infrastructure sharing will become important for speedy growth and rollout of telecom services especially in developing countries.
- Governments has to take initiatives to facilitate proper framework for infrastructure sharing.
- Proper regulatory and policy framework for infrastructure sharing is important to boost this sector.
Thank you

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Yogyakarta, Indonesia, 27-29 July 2009