Internet Society Kolkata
- Anupam Agrawal
Our Mission

• To promote the open development, evolution, and use of the Internet for the benefit of all people throughout the world.
The Internet Society at Work

- Provides leadership in policy issues
- Advocates open Internet Standards
- Promotes Internet technologies that matter
- Develops Internet infrastructure
- Undertakes outreach that changes lives
- Recognizes industry leaders
The Digital Goal for All of Us

Connect More & Grow More
It will only happen through Digital Infrastructure
What do I mean by Digital Infrastructure

<table>
<thead>
<tr>
<th>Layer</th>
<th>Data unit</th>
<th>Function</th>
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<tbody>
<tr>
<td>Host layers</td>
<td></td>
<td></td>
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<tr>
<td>7. Application</td>
<td>Data</td>
<td>High-level APIs, including resource sharing, remote file access, directory services and virtual terminals</td>
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<td>6. Presentation</td>
<td>Data</td>
<td>Translation of data between a networking service and an application; including character encoding, data compression and encryption/decryption</td>
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<td>5. Session</td>
<td>Segments</td>
<td>Managing communication sessions, i.e. continuous exchange of information in the form of multiple back-and-forth transmissions between two nodes</td>
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<tr>
<td>4. Transport</td>
<td>Segments</td>
<td>Reliable transmission of data segments between points on a network, including segmentation, acknowledgement and multiplexing</td>
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<td>Media layers</td>
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<tr>
<td>3. Network</td>
<td>Packet/Datagram</td>
<td>Structuring and managing a multi-node network, including addressing, routing and traffic control</td>
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<td>2. Data link</td>
<td>Bit/Frame</td>
<td>Reliable transmission of data frames between two nodes connected by a physical layer</td>
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<td>1. Physical</td>
<td>Bit</td>
<td>Transmission and reception of raw bit streams over a physical medium</td>
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The Open Systems Interconnection (OSI) model
Indian Internet Infrastructure
• The first networks in India are predominantly service providers and academics
• The newer networks are mostly from corporates
• Core networks are established
• Edge networks are growing
Looking Ahead

- As more organisations interconnect with upstreams, downstreams and peers, the number of advertised ASNs will continue to grow.
- Opportunities to reduce cost, improve resiliency and performance will be available to those with awareness of this rich network ecosystem.
- New technologies such as SDN and network virtualisation will drive innovations and change the way networks are interconnected, so expect to see a more dynamic ecosystem in the future.
Digital Connectivity with a difference

1. Data Centres and Hosting
   - Internet Exchange Points
   - SOC – Security Operations Centre

2. Local Content
   - Content Development Networks
   - Highly Used Services

3. Traffic Engineering
   - Better Bandwidth Management
   - Research & Development
Data Center & Hosting

Internet Exchange Points, Data Centers, Hosting
Salient Features

• Each NOC capable of handling 10G traffic, can be upgraded based on future demands
• Centralized compliance and security management
• Certified and experienced in-house incident response team.
• Agartala can be the next IXP Location
• Host L Root Instance
Local Content

This can be done through Peering & Caching
Peering & Caching

Advantage
Peering and caching will reduce the upstream bandwidth requirement by Approx. 50% to 60%, based on uses.

LCO: Local Cable Operator
Traffic Engineering

Better Bandwidth Management & End User Involvement
End User advantage

**Standards**
- Training at the Root Level
- IICB Program

**Research & Development**
- DNS
- Security – Both Products and Services
  (Example – TLS, IDN,
Every Year 10,00,00,000 users are added in India. How many you can support?
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Your Engagement is important for us