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GLOBAL FORUM
Shaping the Future

ICT and the Future of the Internet: Regulatory Challenges – Network Neutrality

Industry Revolution

- Consumer demand for anytime, anywhere access to content from any device and rapidly changing technology is driving a series of trends…
  - **Broadband** is becoming **ubiquitous** (wired or mobile)
  - Shift from **mobile voice to data**
  - **Mobile broadband** speeds growing (HSPA/HSPA 7.2/LTE)
  - Services **migrating to IP**
  - Cloud computing or infrastructure/platform/software as a service continues to emerge
  - **"Web Services"**/social networks continue to grow
  - Networks are becoming personal with **presence/location management** enabling a range of new applications
  - Wireless and wireline are **converging**
  - **Sensory networks (RFID)** will be commonplace
  - Cyber **security/identity management/privacy** rising in importance
  - Increasing demand for **"open"** application development platforms
- Raising a series of challenges for policymakers: Broadband Adoption/Deployment, Network Neutrality, Privacy, Online Safety, Information Security, Internet Governance, Mobility Regulation etc.

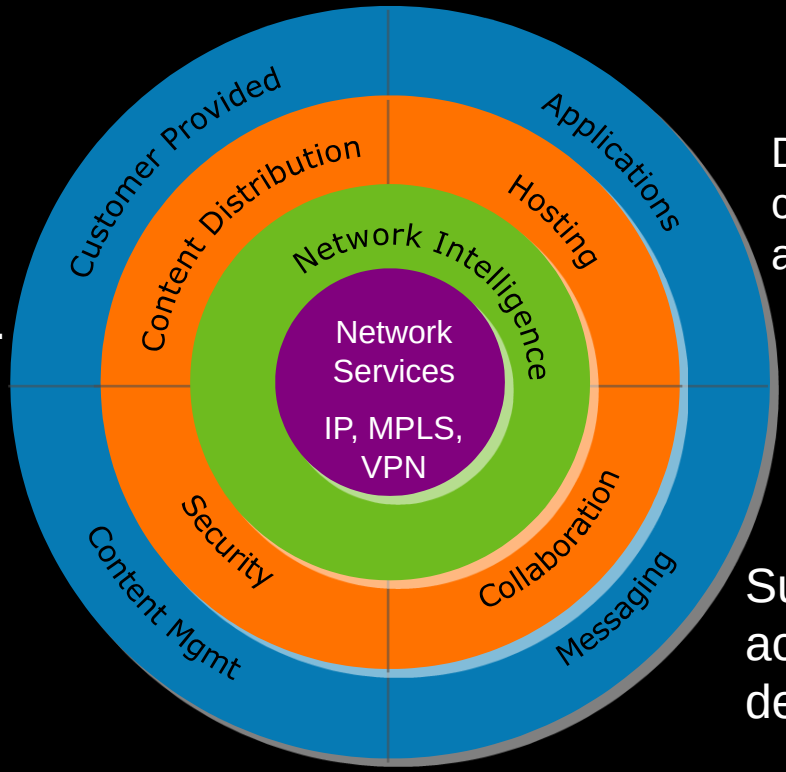
The Network is a Critical Enabler - Services Over IP Layered Architecture

Applications

Applications enabling anywhere, anytime access, across multiple platforms, mobile, fixed, over a range of devices.

Application Infrastructure

Support web and other applications via Content Delivery Networks, hosting and security.



Network Intelligence

Deliver advanced routing capabilities that optimize the availability and performance

The Network

Supporting a wide range access technologies and devices; fixed, mobile etc.

Broadband infrastructure and smart networks are required for ICT to reach its full potential in solving social policy issues AND meeting consumer demand

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Network Management

- Network providers have to be able to manage their networks to ensure economical and efficient use of bandwidth and provide affordable broadband services
- Internet as initially conceived not designed to carry the volume or diversity of content, applications and services provided today.
- Network management enables network operators to adjust to congestion and strike the balance between affordability and quality
- Provides means to adapt to demand insulating the broadest possible base of customers from experiencing adverse impacts of congestion.
- Can serve as application enabler in the event of congestion resulting in delay, jitter and packet loss.

Advocates' Principles of Network Neutrality

- No blocking, degradation, prioritization or preference for some packets over others
  - All packets should be given identical "best-effort" treatment
  - Any need for improved service quality should be met only through increased bandwidth
- No network management unless its sole purpose is to protect network security or to relieve temporary network congestion
  - Must be targeted to impact only the users or applications creating the congestion and should impact all of these identically
- Regulatory policy should prefer edge-provided services over services supported from within the network
- No upstream charges for packet delivery or any fees for improved performance
- High degree of transparency of network management practices

Impact of Reported Net Neutrality Provisions

- "Net neutrality" rules as reported have the potential to undermine the ability to manage networks:
  - All packets given identical "best-effort" treatment –
  - Any need for improved service quality should be met only through increased bandwidth
  - Network management only permitted to protect network security or relieve temporary congestion
  - For a network management practice to be considered reasonable and permissible, it must be surgically "perfect"
- Limits ability for broadband operators to offer differentiated services
- End users will bear all costs of these "open" minimally-managed networks

Recap

- Consumers want the Internet to do more for them
  - Enabling anytime, anywhere access
  - Improved network security and reliability
- Moreover policymakers are looking to ICT to solve a myraid of social challenges including e-government, sustainability etc.
- Network neutrality regulations could undermine these goals
  - Ability to manage networks efficiently would be impeded
  - Cost of using a fat dumb network for services would be prohibitive
  - Security and reliability of the Internet would be harder to maintain
- Policymakers need to ensure that a climate favorable to investment exists for infrastructure providers to invest in smart networks enabling the next generation of ICT services.