

Converged Services and a New Generation of Networking

... for discussions only ...

Dr. Bhumip Khasnabish, DMTS-Verizon, IEEE-DL

B.Khasnabish@IEEE.Org

NAR DLT #9, Eastern Canada, July, 2009



Overall Presentation Outline

- Convergence of Communications
 - VoIP, IPTV, Streaming media, etc.
- Architecture for New Generation of Networking
- Wireline and Wireless Broadband Access
- Multimedia Traffic Transmission Techniques
- Revenue Model and Research Topics
- Q&A and Open Discussions



Outline of this Section

- Emerging Communications Services
- Emerging NGN Architecture

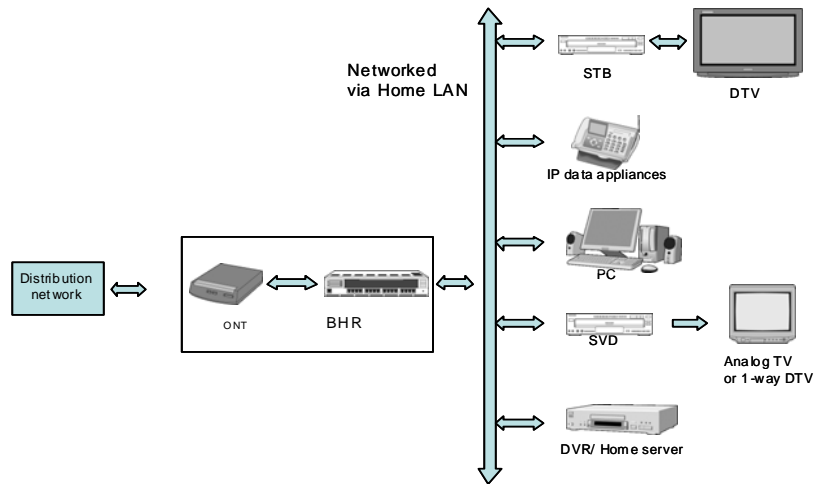
Emerging Communications Services

- Streaming NG/3D Media Service
- Blended/Converged Services
- Multi-Screen Mobile Culture
- Evolved Social Networking Services
- Open Sourcing & Global Development
- Consumers are the KINGS / QUEENS
- Resiliency through Distribution
- COTS & Virtualization
- Broadband Digital Pipes



Multi-Core Multi-GHz Processor
 16 GB or more RAM
 Multi-TB Disk
 Wearable/Embedded PC
 Asymmetric Bandwidth (CGC)

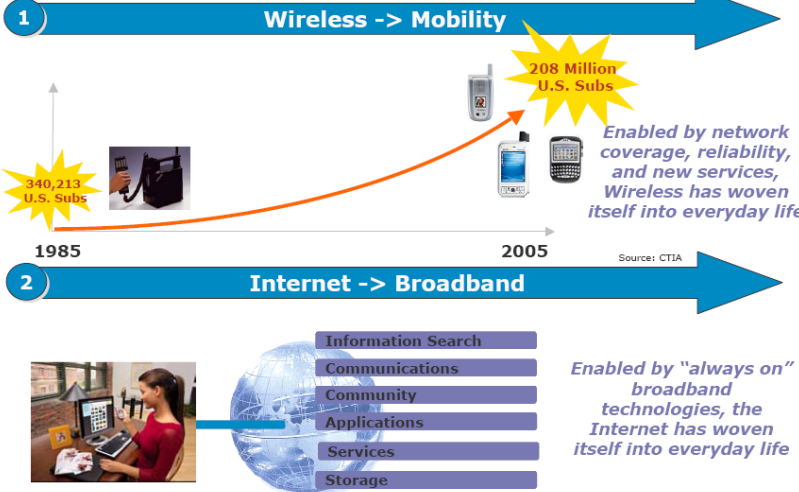
Complexity of Home Networks



What Will be Happening in Future ?!

- Apps for Any Services in Any Device from Any Provider (Globally)
- More Machine-to-Machine and Mobile-to-Mobile Communications (in *embedded* fashion)
- Remote and Automated Health Care Initiatives
- Green Initiatives (Environmental Awareness)

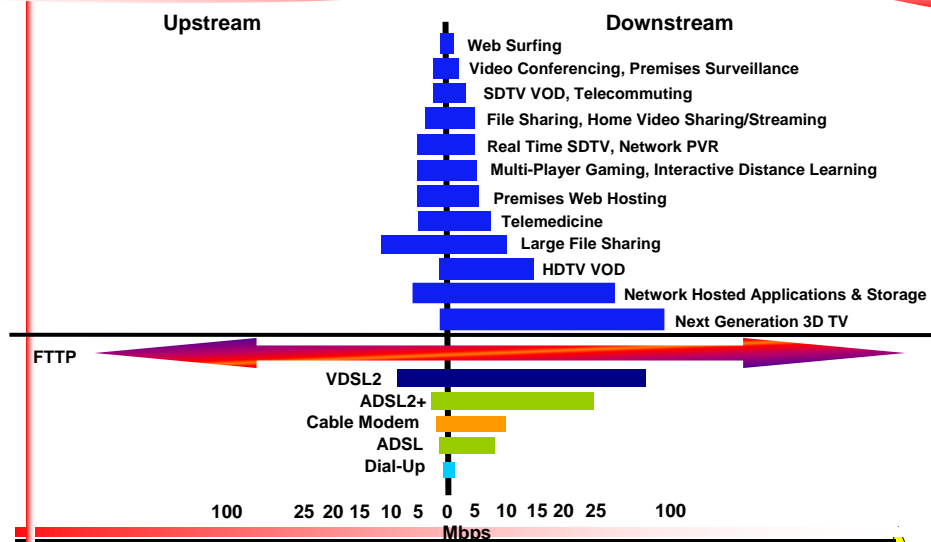
Dynamics and Trends (as seen by BT)



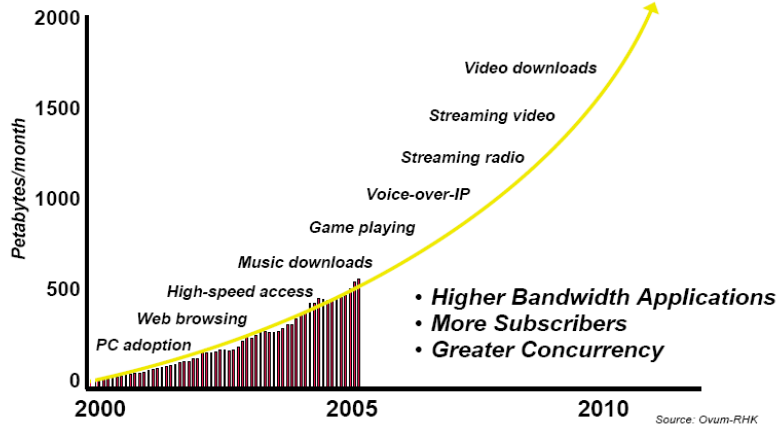
Mega Trends of Mobility & Internet Have Become Pervasive



Applications and Media Bandwidth



Traffic Growth Prediction



Emerging NGN Architecture

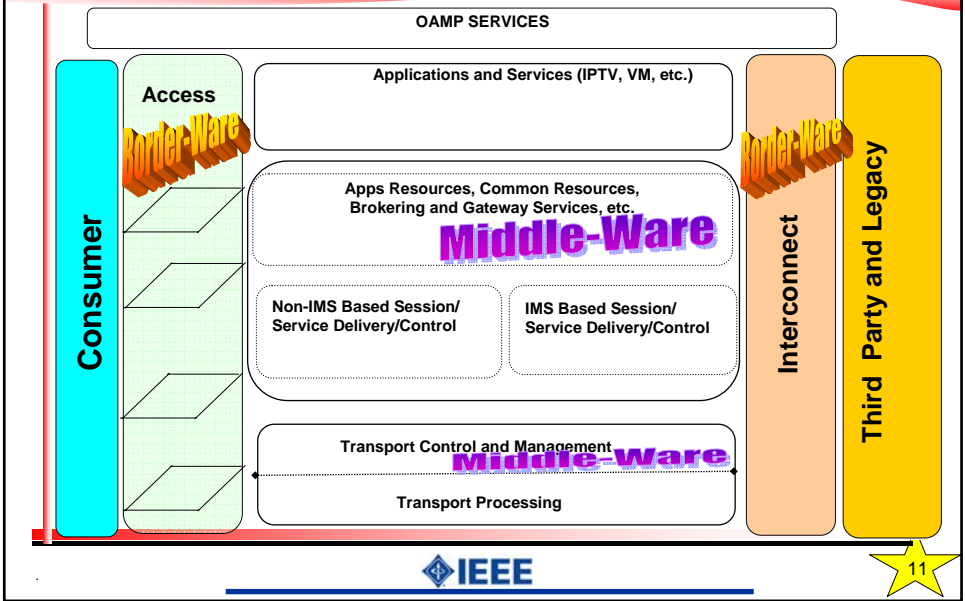
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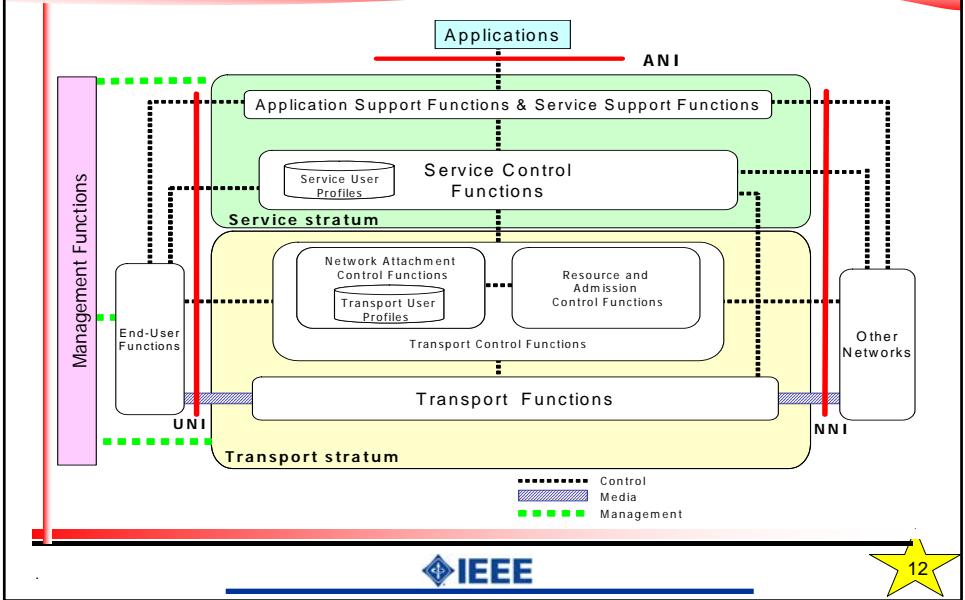
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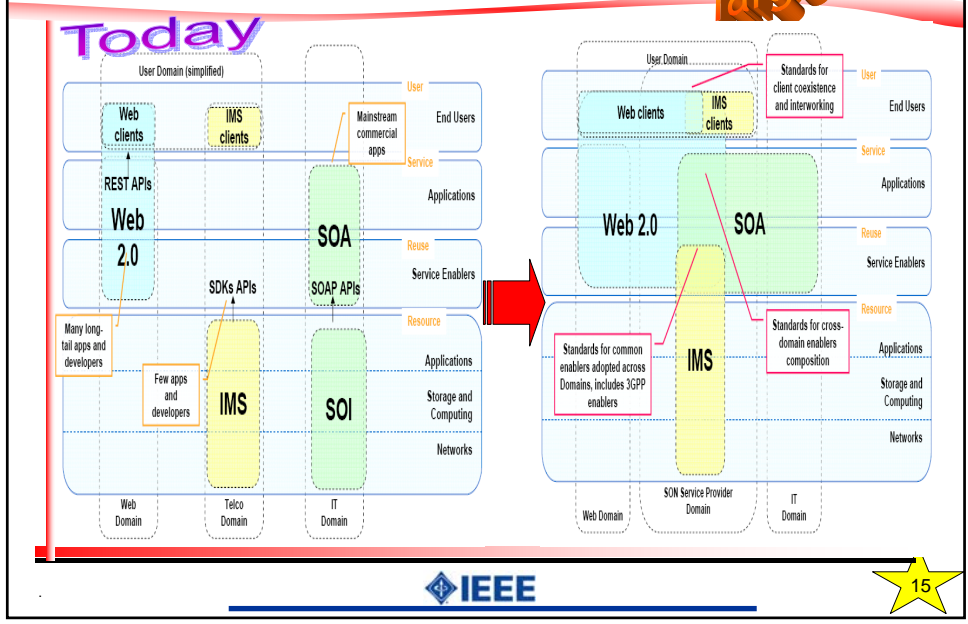
MSF Rel.4 Architecture Template



ITU-T NGN Architecture (Y.2012)



ATIS Service Oriented Network (SON) FG Architecture



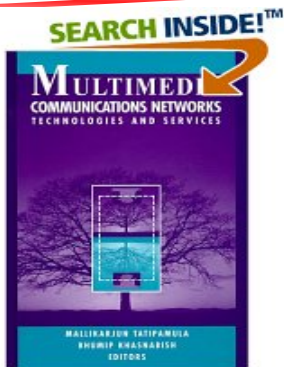
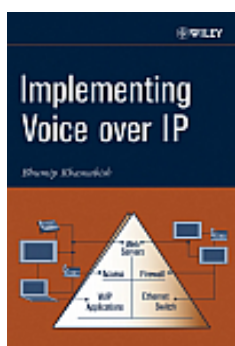
ATIS SON FG Current Work Items

- **Service Delivery Creation and Enablers (SDSC)**
 - Common Product Data Catalog Repository (AT&T)
 - Common Service Enabler Description (HP)
 - Consistency of 3rd Party Interfaces (AT&T)
 - Standardization of WS-* Specifications (HP)
- **Policy and Data Model (PDM)**
 - Common Policy Reference Model , Syntax, and Semantics (US Cellular)
 - Common Data Model Requirements (Network Cadence)
 - Common Name Space Requirements (Qwest)
- **OSS/BSS and Virtualization (OBV)**
 - Packaging of OSS/BSS Components as Service Enablers (Cisco)
 - IT Infrastructure Virtualization (Cisco)

Common Elements of all NGN Architectures

- Common Theme
 - *Support Grand-Separation for Pay-Per-Use Service*
 - **Separation** among access, transport, application, services, networked-resources (CPU, storage, etc.), networked-contents (generated and managed by anyone), security services, content subscription and exchange, transaction capability, etc. **using** well-defined **open interfaces**
 - Drive users and developers alike to **continuously build and market innovative services** to improve the lifestyle of human beings for both work and play
- Ultimate Objectives
 - SEAMLESS offering of Any Service to Any Device using Any Network, Anywhere in the World,

A Few Useful Books



[1] Chapter 2 & Appendix-C of "*Implementing Voice over IP*," by Bhupip Khasnabish, Published by Wiley-IEEE, 2003, ISBN 0471216666, 9780471216667, 208 pages.

[2] Chapter 3, 4, and 6 of "*Multimedia Communications Networks: Technologies and Services*," Edited by by Mallikarjun Tatipamula, and Bhupip Khasnabish, Artech House, 1998, ISBN 0890069360, 9780890069363, 631 pages.

Thanks for Your Attention and Participation!



Bhumip Khasnabish, PhD
DMTS - Technology, Verizon, Waltham, MA, USA
Tel: +1-781-466-2080

Multimedia Comm. Networks, ISBN: 0890069360
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B.Khasnabish@IEEE.Org