

Convergence of Telecom & Broadcasting Sectors



By

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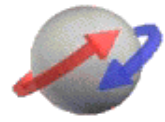
Bharat Sanchar Nigam Limited

TDSAT Seminar, Pune

17th January, 2009

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- Overview of Indian Economy.
- Indian Telecom Market – Size & opportunity.
- Aspirations of Customers, Operators & Vendors.
- Need for Convergence & future business strategy
- Telecom Next Generation Networks (NGN).
- Broadcasting & Cable Services.
- Advantages of Convergence.



BSNL

Connecting India

INDIAN ECONOMY- OVERVIEW

- Estimated GDP Growth is about 7 to 8% during current year.
- Growth led by 9.6 % rise in Services Sector.
- Services Sector has emerged as most significant sector – contributing nearly 55% to GDP.

INDIAN TELECOM MARKET



- Second Largest Mobile Telecom Country with >340 Million Mobile Customer Base
- Fastest Growing Telecom Nation in the world – growing @ 9-10 million connections per month.
- Compounded customer growth of around 36.6 % p.a. for the last 5 years.

INDIAN TELECOM MARKET.. contd



- Rising Mobility, Declining fixed line.
- VAS emerging as major Revenue Earner.
- Growing popularity of Internet and Broadband.
 - 100.51 million internet customers (including wireless subscribers) at the end of September 2008.
 - 5.5 million Broadband Customers at the end of December 2008.

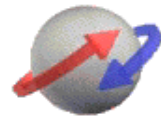
INDIAN TELECOM MARKET



- Population - Approx. 1.15 Billion
- Teledensity
 - Overall - 32.31%
 - Urban - 75%
 - Rural - 13.5%
- Expected Telephone subs. Base - 500 mn by 2010
- Expected Broadband Base - 20 mn by 2010
- Expected annual Revenue - \$45 billion by 2010

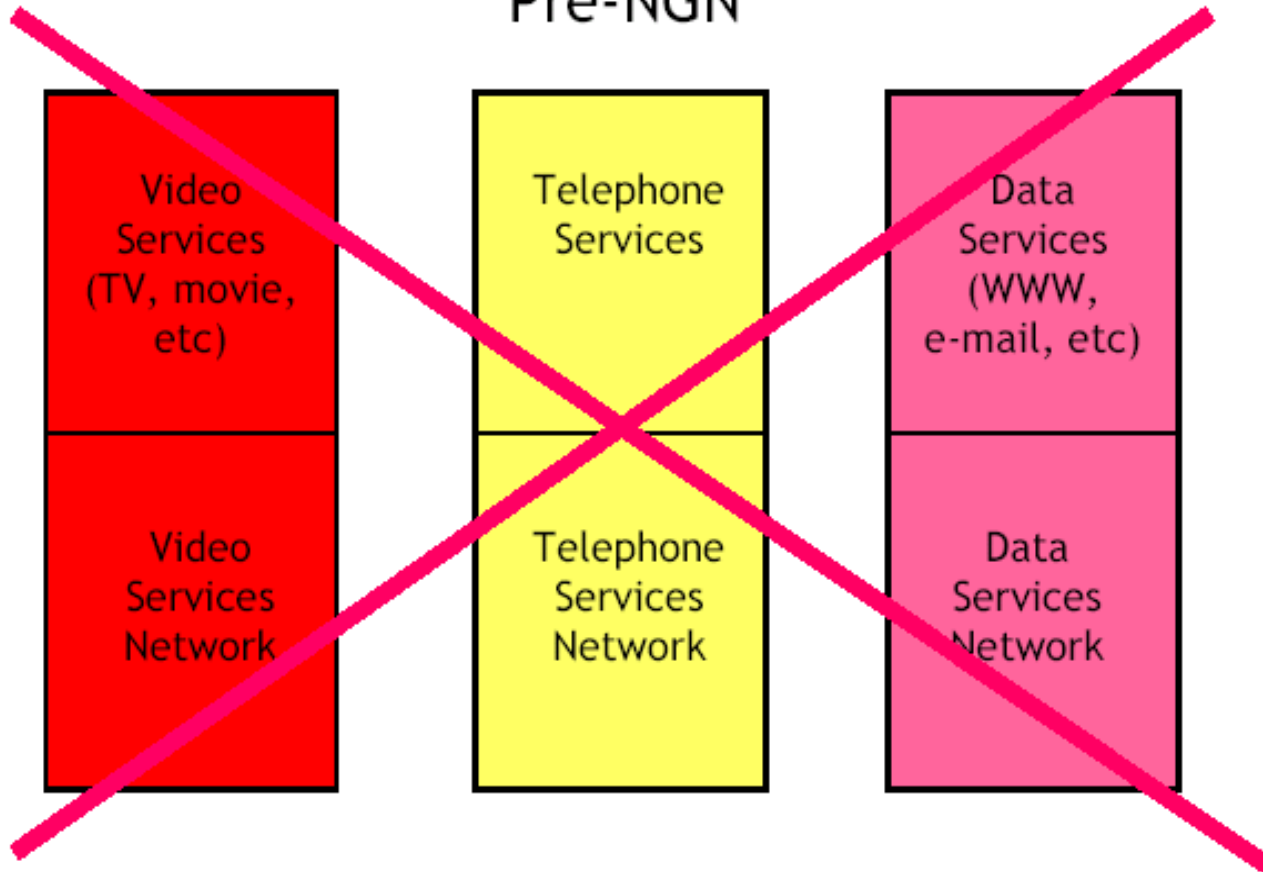
LEGACY TELECOM NETWORKS

- Separate Network for each service
- TDM Switches : Local & Long Distance
- PDH / SDH Transmission links.
- Not designed to handle DATA.



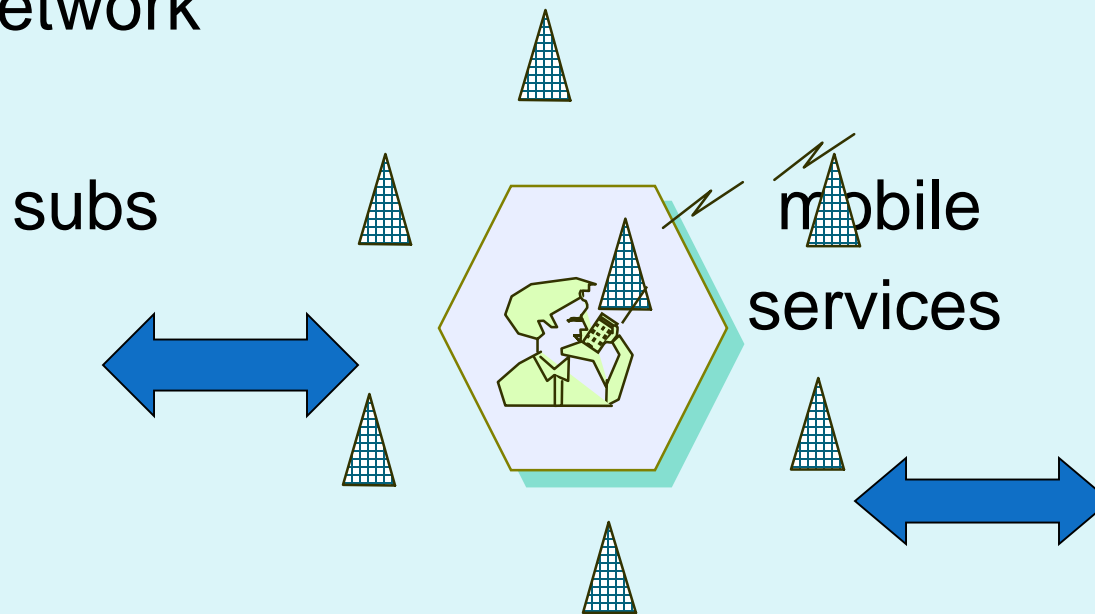
What's Old: Vertically-Integrated Networks

Pre-NGN

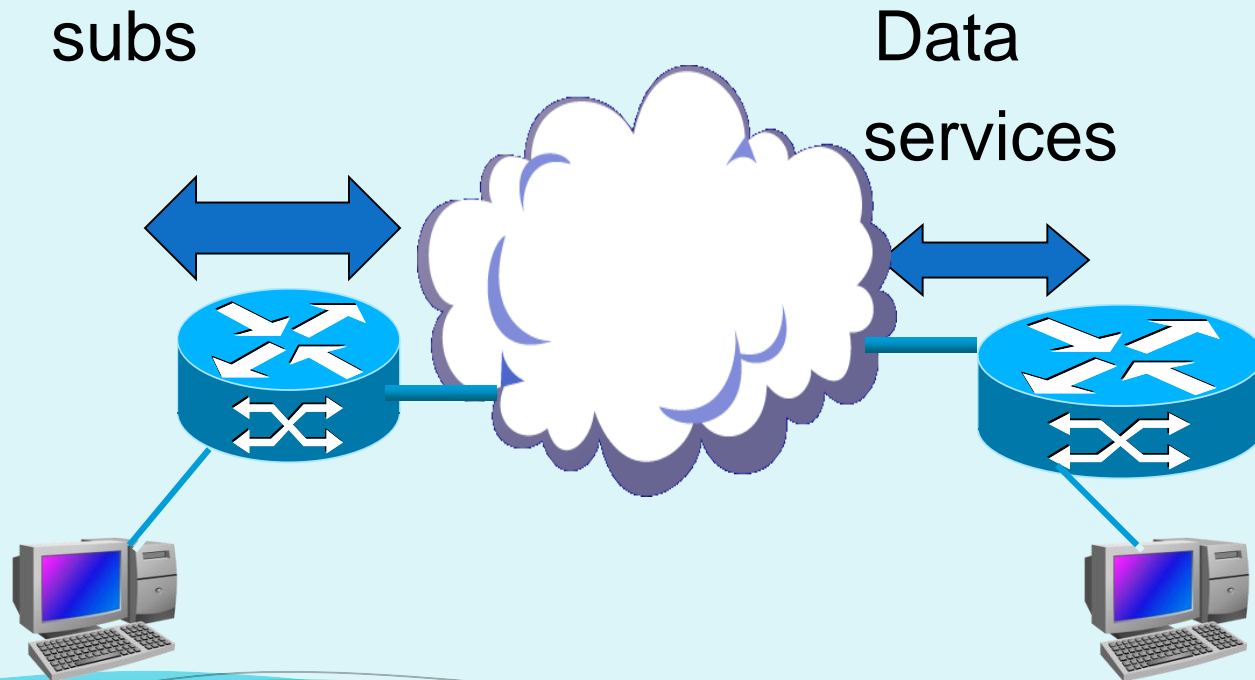


Separate slots for each service...

Mobile Network

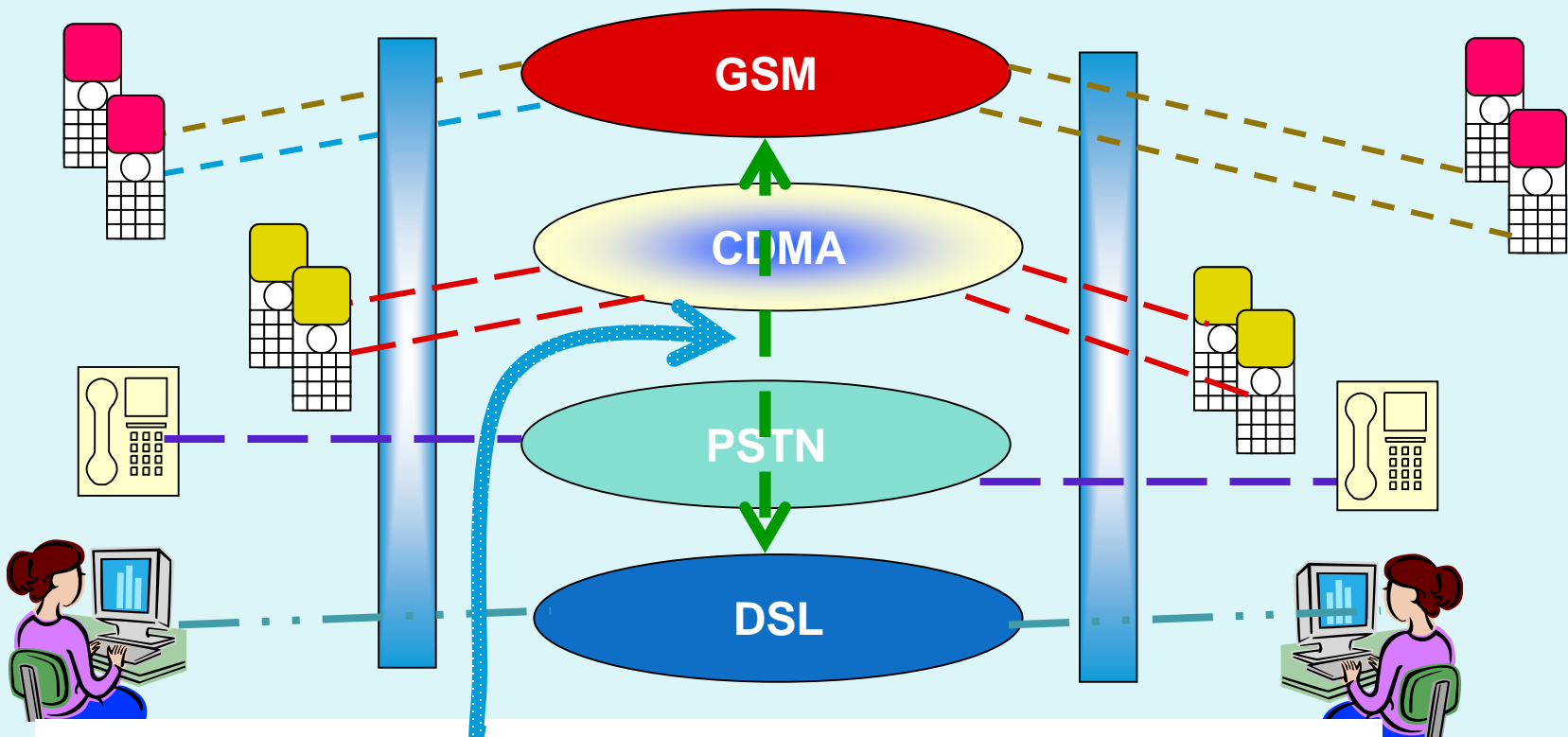


Data Network



How we do multiple services now?

We have a separate network (access / aggregation / core, AAA, Provisioning) for each service vertical. Opex is very high. The network has to track user for his *Presence/Location* and preference for terminals. Doing this through vertical *silos* does not make the business case anymore.



USER WANTS SEAMLESS CONNECTIVITY ON THE MOVE.

Problems of Existing Network for Telcos

- Slow to develop new features and capabilities.
- Expensive upgrades and operating expenses.
- Proprietary vendor troubles.
- Large power and cooling requirements.
- Limited migration strategy to New tech.
- Product/model obsolescence.

Operators Want

**MORE
CUSTOMERS**

**INCREASED
REVENUE**

**REDUCED
COST**

**HARMONIZED
NETWORKS**

**NEW
SERVICES**

**FAST TO
MARKET**

Vendors Want

**MORE
CUSTOMERS**

**INCREASED
REVENUE**

**REDUCED
COST**

**HARMONIZED
EQUIPMENT**

**NEW
PRODUCTS**

**BRAND
RECOGNITION**

Customers Want

**New
Services**

VALUE FOR MONEY
or at **LESS COST**

PERSONALIZATION

SIMPLICITY

MOBILITY

FREEDOM



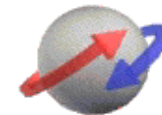
AND MOST IMPORTANTLY
A CUSTOMER WANTS

ONE BILL

- In other words **CONVERGENCE** is the need of the hour.



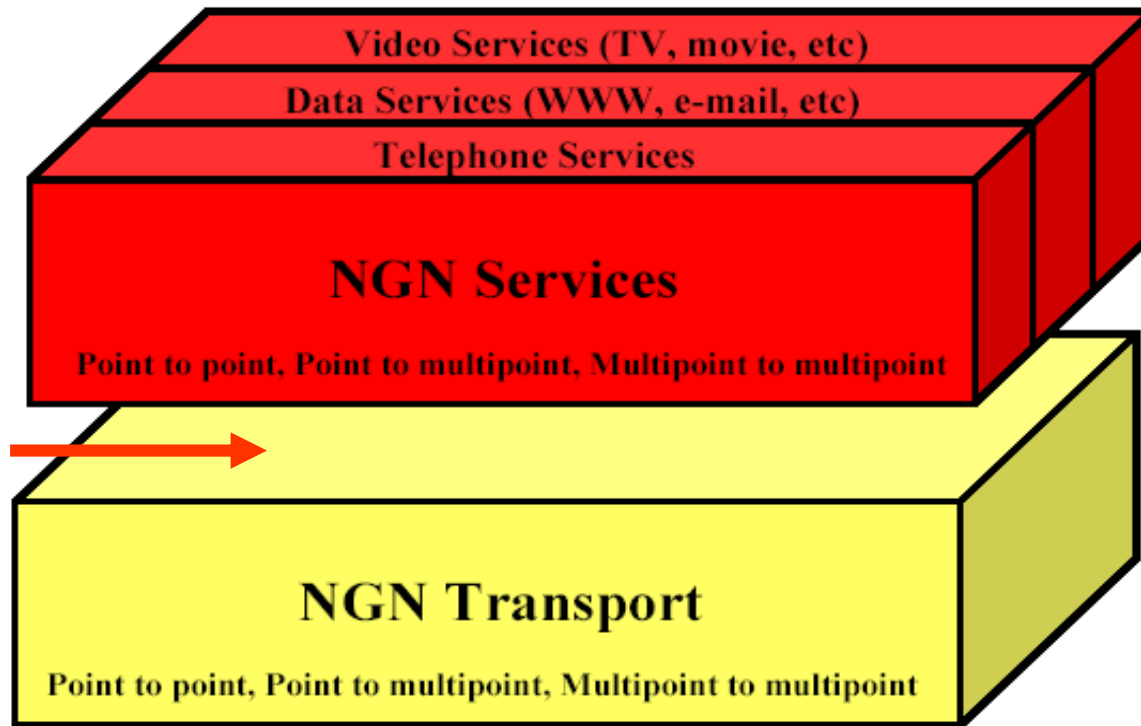
The solution is here ...



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A Horizontally-integrated Network

Single
Packet
Bearer
Network for
all services



ITU-T Recommendation Y.2011

VERTICALS BROKEN INTO HORIZONTALS AND INTEGRATED TOGETHER IN HORIZONTAL STRATA. ONE COMMON IP BASED IMPLEMENTATION !!!

Convergence – Core of future business strategy for telecom sector



This Convergence and need of fast deployment
of new services gives birth to

NEXT GENERATION NETWORKS (NGN)

So.... What is NGN?

(From Common man's point of view)



- Next Generation Services – Converged (quad-play, voice, data, video, mobile)
- Next Generation Access – High speed (Broadband) IP based connectivity (ADSL, VDSL, Wi-Max, Cable TV, FTTH, Entertainment).
- Next Generation Transport – Ethernet, IP-MPLS
- Next Generation Architecture – Service oriented, layered (transport, control, application)
- Next Generation Mobile – 3G+
- Next Generation Internet – IPv6
- Next Generation Interconnect – Capacity and Quality based
- Next Generation Licensing – Unified

What is NGN?

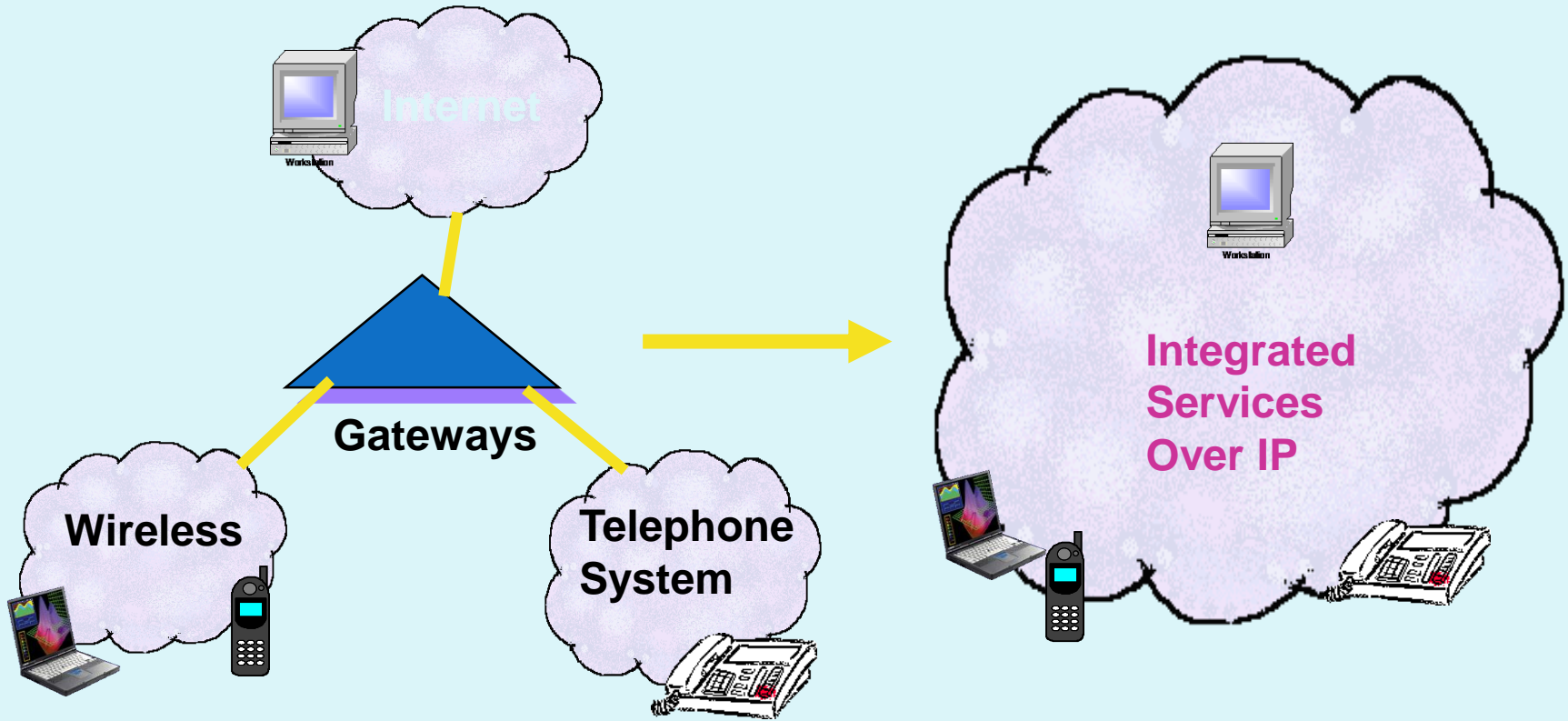
Key characteristics in brief

- **Key Characteristics of NGN**
 - ✓ Packet-based network (generally IP).
 - ✓ Interworking with legacy networks via open interfaces.
 - ✓ Generalized mobility (User/Terminal/Access)
 - ✓ Independence of service-related functions from underlying transport technologies i.e. no separate vertical for each service
 - ✓ Multiple parallel sessions from same user for various services

Next generation networks

Present Day Networks

Next Generation Networks (NGN)



Evolving towards IP Communications

Mobility and Convergence Vision

- anywhere, anytime, anyplace



CONVERGENCE IS ABOUT SERVING A CUSTOMER SEAMLESSLY THROUGH DIFFERENT ACCESS NETWORKS

Broadcasting & Cable Services

- Like Telecom Sector, Broadcasting & Cable Services have been opened for Private participation.
- Broadcast & Cable services being provided through All India Radio, FM Channels, Community Radio Stations, Cable TV, Satellite TV Channels, DTH & IPTV.
- Multi System Operators (MSOs) across the country providing Cable TV services.

Broadcasting & Cable Services



- BSNL & MTNL are providing IPTV service through Broadband Cable in 19 Cities with a total of 15000 customers.
- BSNL plans to extend IPTV service to a total of 100 cities by March 2009.
- Airtel & Reliance have recently started DTH Services.
- Vodafone plans to launch DTH shortly.
- India is on the threshold of Mobile, TV, DATA & Video convergence.

Advantages of Convergence

- One infrastructure is required.
- One backbone for voice and data services instead of two parallel ones.
- No maintenance of proprietary switching systems.
- Fewer call controlling entities in the network so less capital and operating cost.
- Easier configuration of equipment.
- Fast advanced and new services deployment is possible.



THANK YOU