Growth of Telecom Sector in India and Challenges Ahead

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Agenda

- The Telecom Scenario
- Exponential Growth of Wireless
- Broadband Penetration
- BSNL's contribution to Growth
- Growth : Way forward
- Challenges Ahead

The Telecom Scenario

- NTP 94 initiated liberalization of telecom sector in India
- Growth fuelled by NTP'99 that provided major thrust for private participation.
- NLD Sector opened up in 2001.
- ILD Sector opened up in 2002.
- Intense competition in both Access and NLD/ILD.

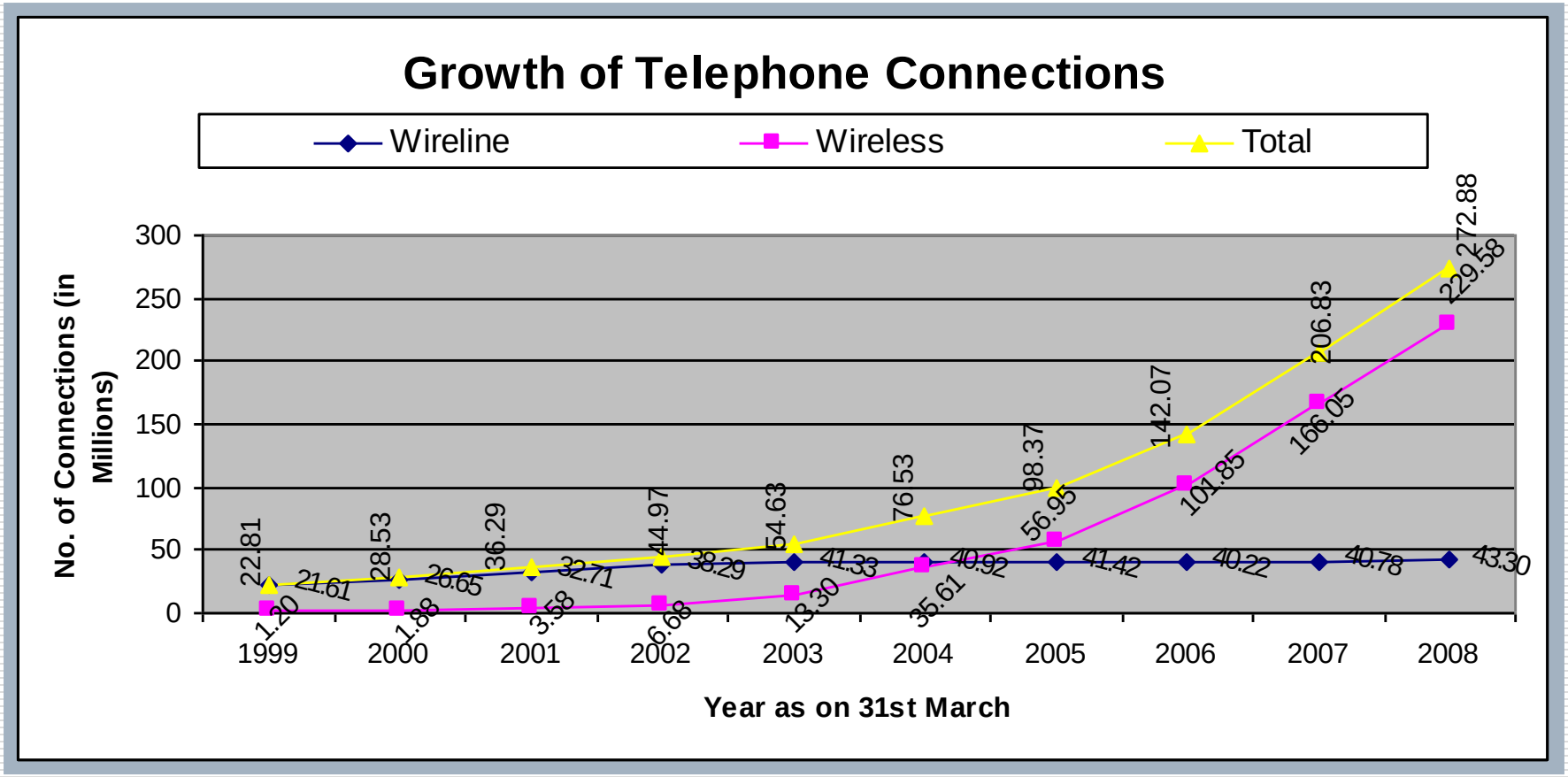
The Telecom Scenario

- Competition getting further intensified with issue of new licenses
- Rapid growth of wireless services
- Growth of Wireline services stagnating
- Broadband penetration not encouraging
- Steep reduction of tariff.
- Diminishing ARPUs

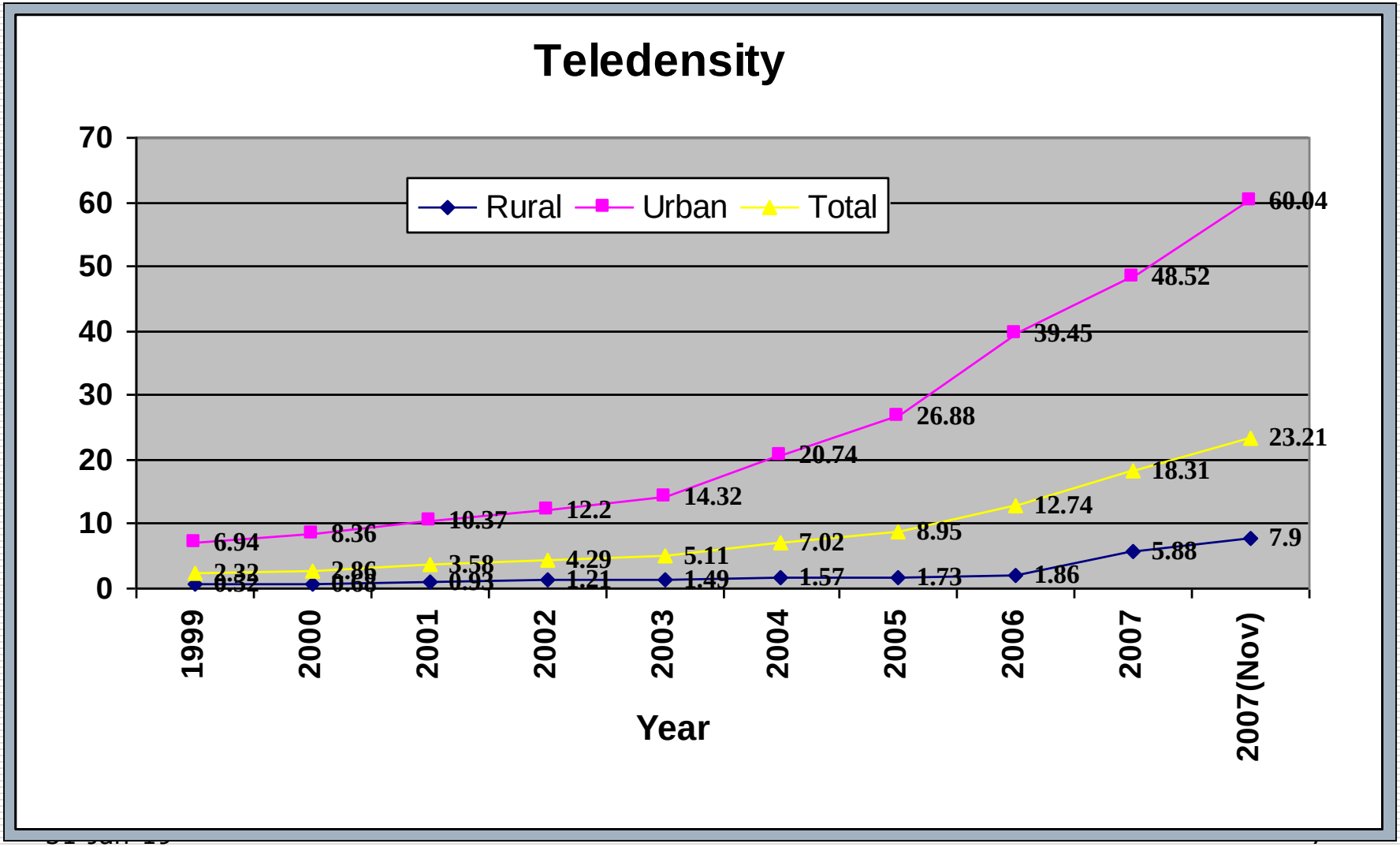
Subscribers (in millions)

Year	Fixed line including WLL(F)	Mobile (GSM+ WLL(M)	Total	Tele density
March-97	14.54	0.34	14.8	1.57
March-00	26.65	1.9	28.55	2.81
March-01	32.71	3.58	36.29	3.52
March-02	38.33	6.54	44.87	4.28
March-03	41.48	13	54.48	5.1
March-04	42.84	33.69	76.53	7.04
March-05	46.19	52.22	98.41	9.11
March-06	50.18	90.14	140.32	12.8
March-07	48.87	157.96	206.83	18.46
Dec- 07	43.30	229.58	272.88	23.89

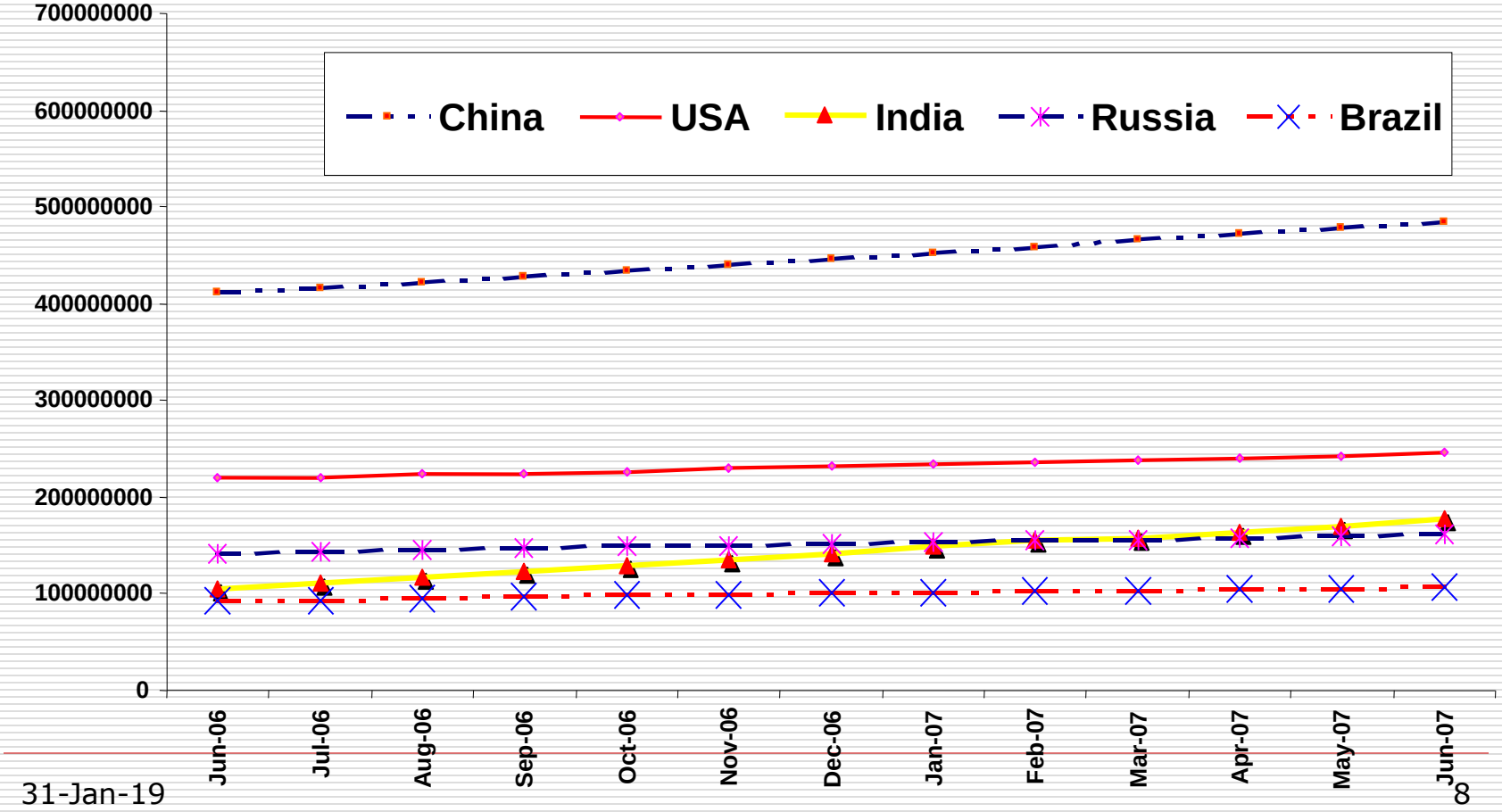
Exponential Growth of Wireless



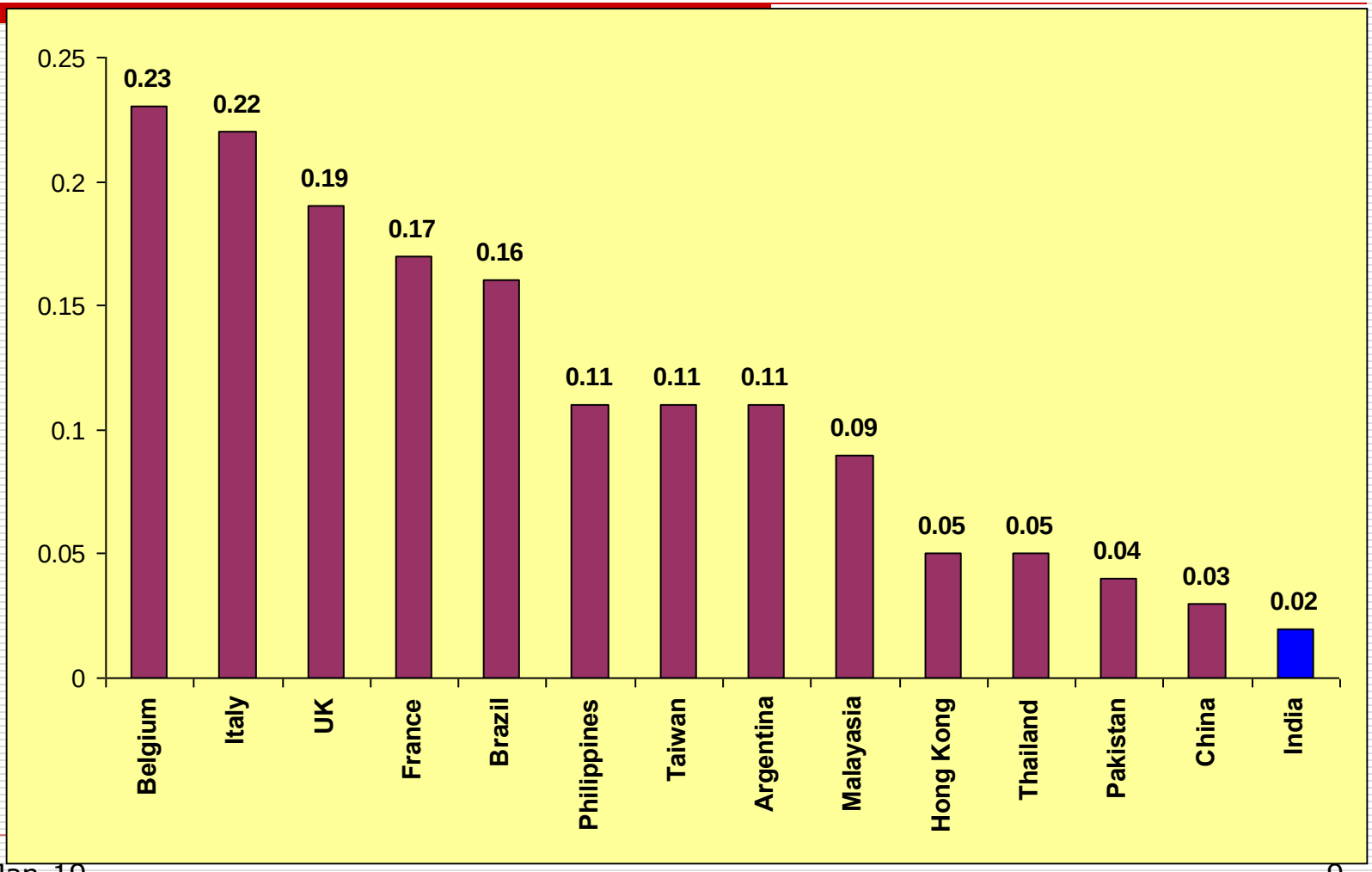
Teledensity – Rural and Urban



Third largest Mobile network in the World



Mobile Tariffs in India one of the lowest



Broadband Penetration

- Total broadband connection as on 31st Dec 2007 were 3.13 million
- Broadband is mainly being provided using wire line networks in line with global trends.
- Broadband penetration is very low
- New entrants not investing in creating wire line infrastructure which is adversely impacting proliferation of the broadband services in the country
- Sustainability of wire line networks of BSNL at risk because of competitive disadvantage

BSNL's Contribution to the Growth of Telecom in India

Telephones Provided by BSNL

Year	Fixed	Mobile	Total
31.03.2001	28.11	0	28.11
31.03.2002	33.4	0.02	33.42
31.03.2003	35.93	2.26	38.19
31.03.2004	36.11	5.54	41.65
31.03.2005	37.04	9.9	46.93
31.03.2006	37.51	17.65	55.16
31.03.2007	36.92	27.8	64.72
31.01.2008	35.84	33.75	66.59

BSNL Customer Base : Status as on 31.01.2008

(In millions)

- Wireline Customers : 31.61
- WLL Customers : 4.23
- GSM Customers : 33.75
- Total Customers : 69.59
- Broadband customers : 1.50
- Internet Customers : 3.35

BSNL major Provider of Universal Services (As on 31.01.2008)

- Village Public Telephones : 5.18 lakhs
- Rural Wire line Connections :116.76 lakhs
- Rural WLL(F) connections : 35.30 lakhs
- Rural GSM Connections : 92.90 lakhs
- Block Headquarters covered: 5921
- Internet Nodes operational at all DHQs.
- All wire line connections enabled for Dial-up Internet Services.

Growth : Way Forward

- Network Expansion
  - 600 million by 2012
- Rural Connectivity
  - 100 million by 2010
  - 200 million by 2012
- Broadband
  - 20 million broadband connections and 40 million internet connections by 2010
  - Broadband connections to be on demand across the country by 2012

Challenges Ahead

Managing Growth : Biggest Challenge

- Fast growth and fierce competition putting pressure on the resources of operators, their Supply Chain and Operational Support
- ARPUs of operators going down thus putting pressure on margins
- Quality of Service a major casualty
- Churn is a cause of concern for operators
- Creation of Infrastructure- A major challenge for operators

Falling ARPUs

- Rapid expansion leading to falling ARPUs
- Margins of the service providers under pressure
- Cost of networks to go up as service providers migrate to rural areas
- Revenues from International calls getting eroded due to regulatory intervention

Multiplicity of Operators

- Multiple operators in LSAs leading to Interconnection challenges and complexities
- Scarcity of Spectrum- A major issue of concern for all operators
- Pricing of Spectrum becoming a bone of contention
- 3G and WiMAX services awaiting resolution of spectrum issues
- Monitoring of multiple networks getting cumbersome

Technological Innovations…

- Technological innovations blurring the geographical boundaries of the networks
- Content based services to dominate the future business and revenues
- The diminishing of network boundaries leading to overlapping of services and may lead to disputes

Technological Innovations

- Fast convergence of PSTN and IP networks taking place
- VoIP challenging the traditional voice telephony
- Internet and Data Networks have started churning the traditional traffic
- Managing evolution of IP networks a big challenge

Content Management Challenges

- Content Generation and Aggregation is key for delivery of services
- Content Delivery across the networks is a challenge
- Content ownership/sharing leading to disputes
- Non-availability of content in local language is a challenge

ICT Infrastructure

- Proliferation of ICT infrastructure required for a knowledge based society- A major challenge
- Broadband penetration is very low as compared to other developing economies
- Delay in WiMAX and 3G rollouts is severely affecting the penetration
- Wireline broadband can give very limited penetration as further growth of wireline networks is doubtful.
- Cost of PC an entry barrier
- High cost of International bandwidth and poor power situation are other bottlenecks.

Reliability and Security of Networks

- Reliability of converged networks yet to be proven
- Interconnection boundaries of converged IP networks not definable
- Security of such networks a major concern and issue for licensor and regulator
- Technical and legal frameworks need to be upgraded to manage the Security issues for emerging networks and services.

Thank You