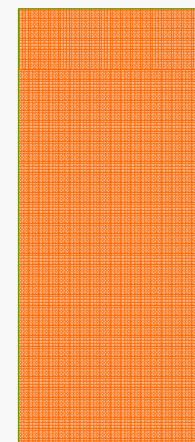


Next Steps for Telecom

Post 3G / BWA auctions in India



19-11-2010

CII Conference: Multi-Dimensional Telecom Growth
Building & Enabling Information Infrastructure

India has done well

- Expanding the telecom Network to every nook and corner of the nation
 - Making telephony highly affordable using 2G mobile
 - Hiving out tower infrastructure
 - Adding 15 to 20 million subscribers per month
 - Enabling people with very low ARPU to have telephony
 - SMS is highly affordable
 - Also used increasingly for business
 - VAS story just taking off
- 3G / 4G spectrum auctions were highly delayed
 - But now ready to roll
 - Auctions have given huge amount of funds to nation

But there are challenges

- Broadband in India is still in its infancy
- Too much competition
 - While it has brought down tariffs, operators have become unviable
 - VAS revenue is still small
- Recent Spectrum Auction price have been too high
 - Price of shortage rather than that makes business-sense
 - Have made operations unviable: will hurt roll out in villages
- Indian telecom imports second only to oil
 - Indian Product industry (not CKD/ SKD manuf.) never nurtured
- India owns very little of IPRs
 - CeWIT and TCOE has made a beginning with 4G IPRs
- State-owned Telecom Operators struggling

Enabling Broadband using 3G / 4G

- Take Fibre to each tower immediately
 - Use USO fund to do this
 - Build and operate based on lowest bid
 - Will enable operators to provide true broadband quickly and at low costs to all villages
 - In absence of wired infrastructure
- Not enough spectrum yet for true Broadband
 - Find and auction at least four more 20 MHz 4G wireless spectrum in 2011 itself
 - Will provide spectrum to provide basic broadband widely
 - Even this will require a lot of R&D to provide quality service

Make Telecom Operators more viable

- Enable partnerships amongst operators and unlimited spectrum sharing at **no additional costs**
 - Government has already earned significant revenue through auctions
 - Now focus on industry viability
- Enable Mergers and Acquisitions easy and at **no additional costs**

Value added Services have not been leveraged yet

- SMS is widely used
 - Wide use of **bulk SMS for businesses, banks, cards**
 - Use of bulk SMS even for rural services (also automated voice systems used)
 - Regulate to enable usage for registered businesses even in tense environment: **SMS interconnect**
 - Support **local language SMS**
- Mobile Data Space (GPRS / Broadband) to be similarly used
 - **Enable entrepreneurs** to leverage usage
 - Some very creative innovations in the space
 - Mobile Banking and **mobile to mobile payments** can transform the nation

Promote Indian Product

- Indian Product: Control and Ownership of R&D, IPR brand, proprietary software, source code and hardware design with the Indian company
 - Indian company gets revenues and commercial value derived from the global sales of such Products
- Product value:
 - Only **marginally in manufacturing** (4 to 7%)
 - Mostly in IPR, design, choice of components
- So India needs a focus on R&D and **acquiring IPR**
 - CeWIT and TCOE has made some beginning: own considerable IPRs in 802.16m and LTE-A
 - Needs enhanced support
 - **True Broadband (on 100 MHz) without wired infra needs lots of innovations**
 - Needs a Indian **Telecom Standards Development Organization**: academia - industry – government partnership (lead by Indian academia)
- Needs Entrepreneurship Support
 - To enable and promote Technology Entrepreneurs
 - About ₹1000 Crores per year

Security

- Every electronic product could have a malware in it
 - in IC, in Hardware, in drivers, in OS, in middleware, in application
 - Virtually **impossible to detect**
 - For example: a few hundred gates in millions
 - Deposit of source code is of little use
- The only way out is trust-based equipment and network
 - Diversification helps: not dependent on one vendor
 - And as much possible, **Indian made / designed product**
 - At least the critical elements

Revitalizing State owned Operators

- National Resources are Bleeding
 - Large manpower (35% of total expenditure)
 - Revenue stagnant
- Steps needed:
 - **Hive off towers** in a separate company
 - Transfer some of the employees to the company
 - Get some private investment
 - Sharing would make this as highly profitable venture
 - Similarly **Hive off its national Backbone network** in a separate company
 - Transfer people and Get investment
 - Also **Hive off Copper Local Loop** in a company
 - Along with large sections of employees and get investment
- Parent company will have three strong profitable subsidiaries and **lean company** which can compete
 - Need to have **strong board and Managing Director**

To Sum Up

- Indian telecom has done very well in last decade
 - But operators are **now struggling** a bit
- Government has gained a lot
 - Excellent **service** to its citizens
 - Large **revenue**: license fee, spectrum charges, USO charges, taxes
 - Now need to focus on
 - Making Broadband available to all its people (villages)
 - Keeping Industry healthy
 - Promoting Indian Products and Product industry
 - Security