

Towards 50 million Broadband in India

How much have we progressed: Scorecard

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Bottlenecks: Progress over last year

- International Network
 - Rs 100,000 per month per Mbps (one way to/from USA)
 - if one uses a 100 kbps connection to continuously pull traffic from a US based server, the international network alone will cost Rs 10K per month !!
 - Some cost reduction: Much more to come

 - Backbone Network cost in India
 - Rs 20,000 per month per Mbps (one way, farthest distance)
 - TRAI recommended drastic cuts; huge fibre build-ups : Much more to happen
 - NIXI is established: Yet to fully function

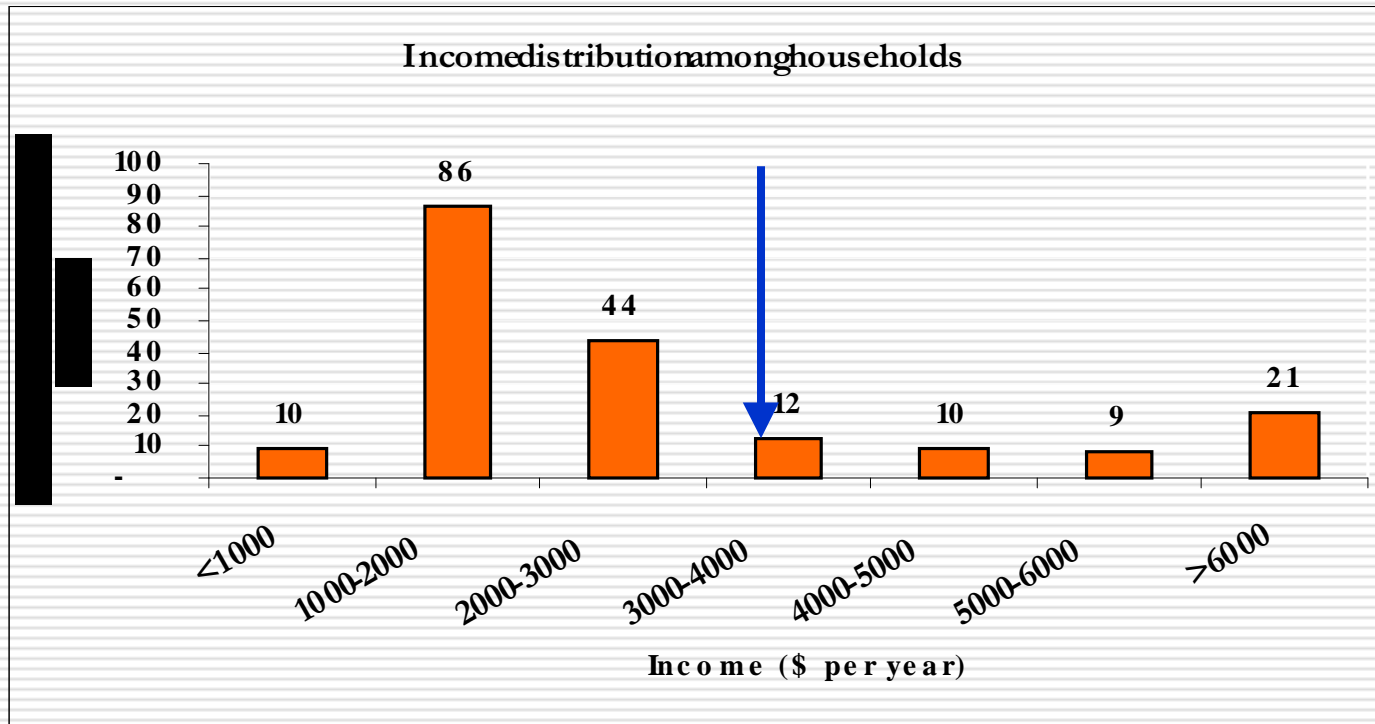
 - Access Network: connecting from PoP to home/office
 - The challenge continues
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Bottlenecks: Progress over last year

- The Access Device / PC: Rs 20 – 30K is too expensive
 - New Access Devices coming up
 - TV based / monitor based / Thin Client

 - Content: Entertainment, Education, Services, Transaction
 - No major progress in last one year

 - Affordability: Rs 1000 for Broadband too expensive
 - Total Cost of Ownership needs to be affordable
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- 53 million households have incomes more than \$ 3000 plus per year
 - Can afford **Rs 750 per month (total cost of ownership)**
 - Internet: Rs 300 pm
 - Computer / access terminal: Rs 7000 -> Rs 300 pm
 - How? Require disruptive technologies
 - Software: Rs 100 pm

Bridging the Last mile on Broadband

- Fiber to Home / Copper (Ethernet) in last meters / 802.11 in 100m
 - Slow build-up

 - DSL
 - Ideal solution for incumbent (BSNL/MTNL)
 - Others do not have Copper?

 - Wireless
 - Still far away: 802.16 / WiMax is **three years** away / will it have BW?

 - Two way Cable
 - Existing cable infrastructure too poor for this to scale up

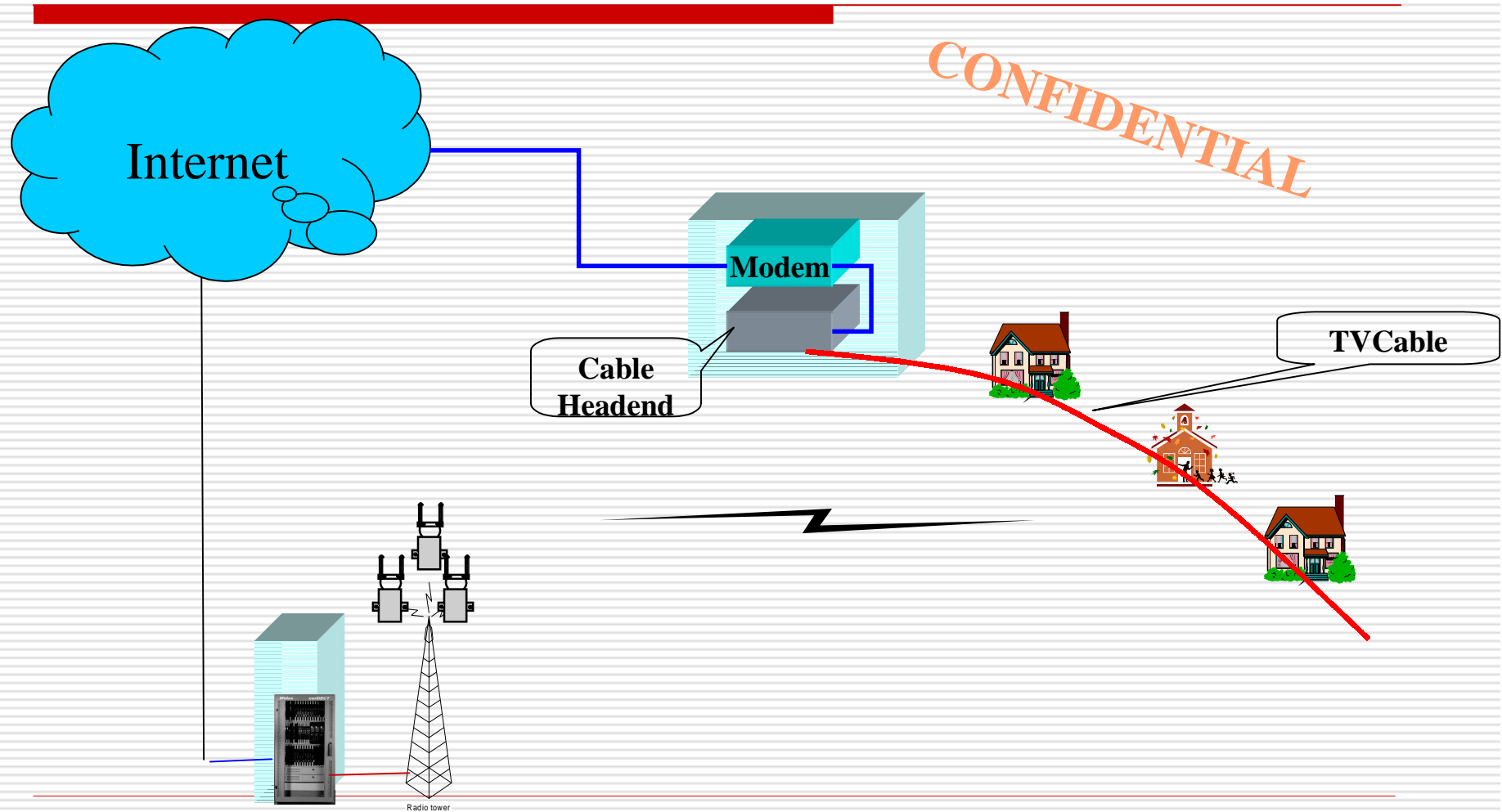
 - Ethernet
 - What Quality ?
 - Non Robust and Non Scaleable

 - **Non- incumbents require some disruptive Access Technologies**
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Cable Wireless :

Down Stream on Cable Upstream on Wireless

IITMMidas



Is thin client answer for Access Device?

- Thin Access Device
 - Connected to a Server on Broadband
 - Multi-media thin client functions just like a PC
 - All storage at Servers
 - No virus, no back-up required
 - Target price: Rs 4000 plus monitor

