



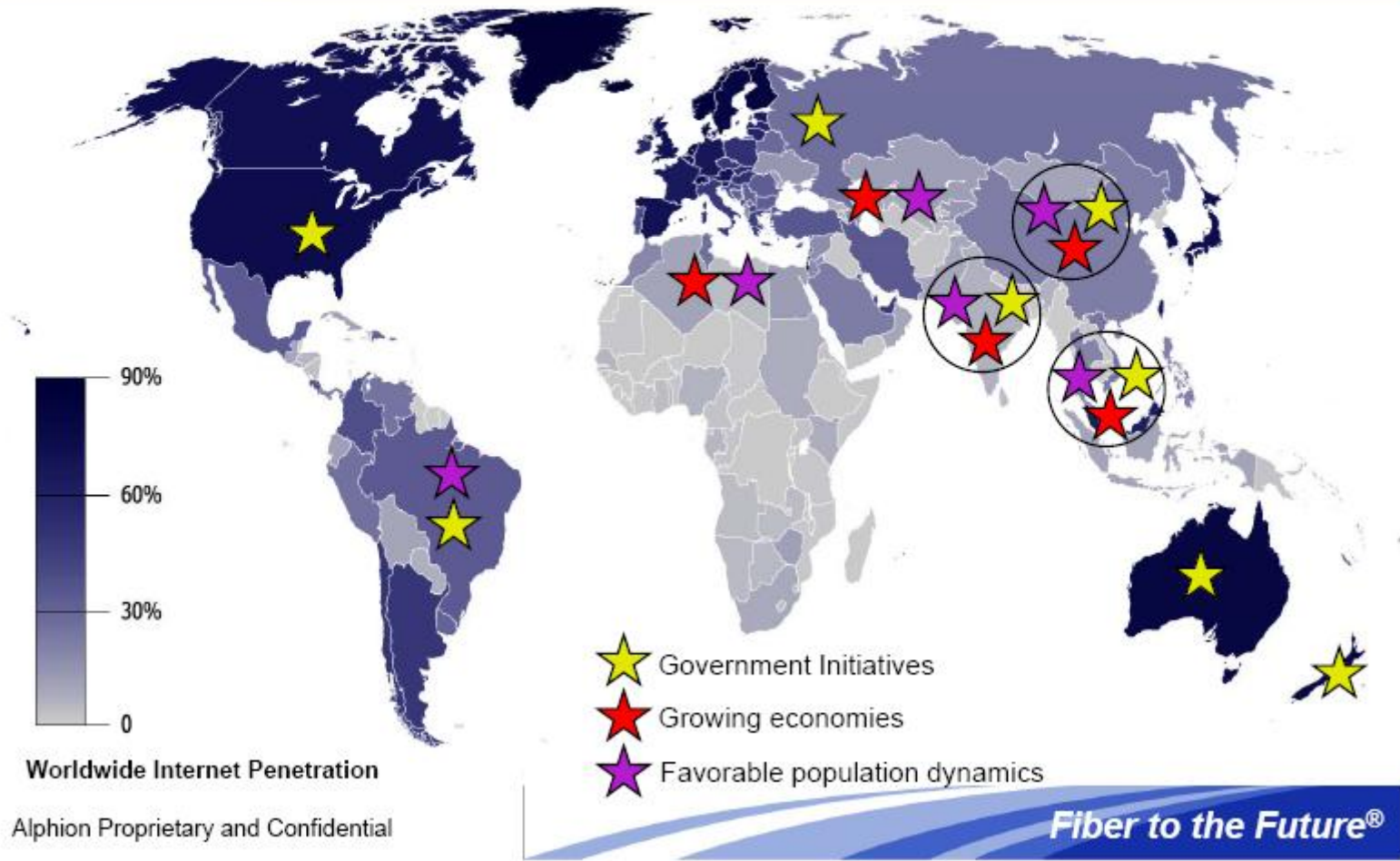
## GPON Deployments in Emerging Markets

Paresh Shah

Director Sales and Marketing, India and SEA



# FTTx Deployment Momentum



# Alphion<sup>®</sup> FTTx: Demographic Considerations in the Emerging Market



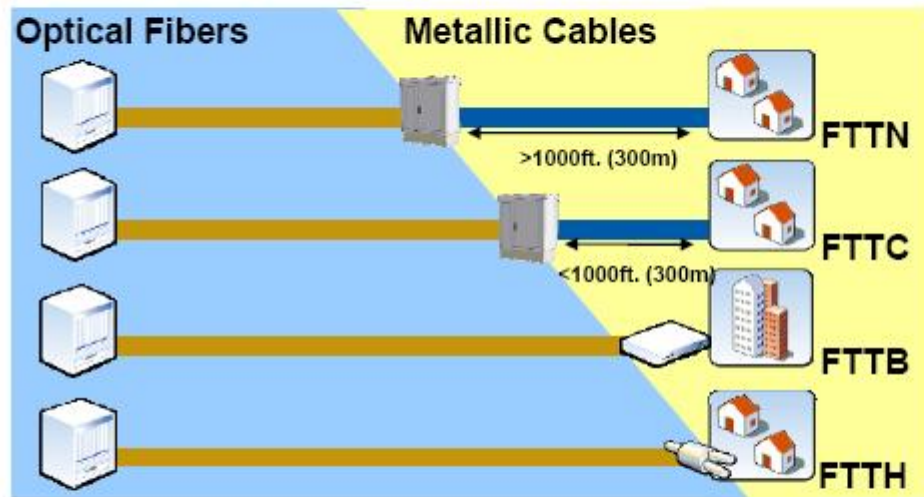
- ◆ High urban population density
- ◆ Booming high-rise real estate market in metro cities
- ◆ A large young, educated population base

- ◆ A committed desire to be among the developed economies in the next decade
- ◆ Leapfrog to the technology forefront

- ◆ Vastly underserved rural areas
- ◆ Poor or non-existent rural infrastructure



# Alphion<sup>®</sup> FTTx - Opportunities and Challenges in the Emerging Market



- ◆ Poor and aged copper infrastructure
- ◆ Greenfield construction boom
- ◆ Lower Labor Costs
- ◆ Higher comparable purchasing power parity
- ◆ Favorable Public Policy

- ◆ Lower ARPU
- ◆ More CAPEX outlays for Wireless technologies for faster rollout and wider reach

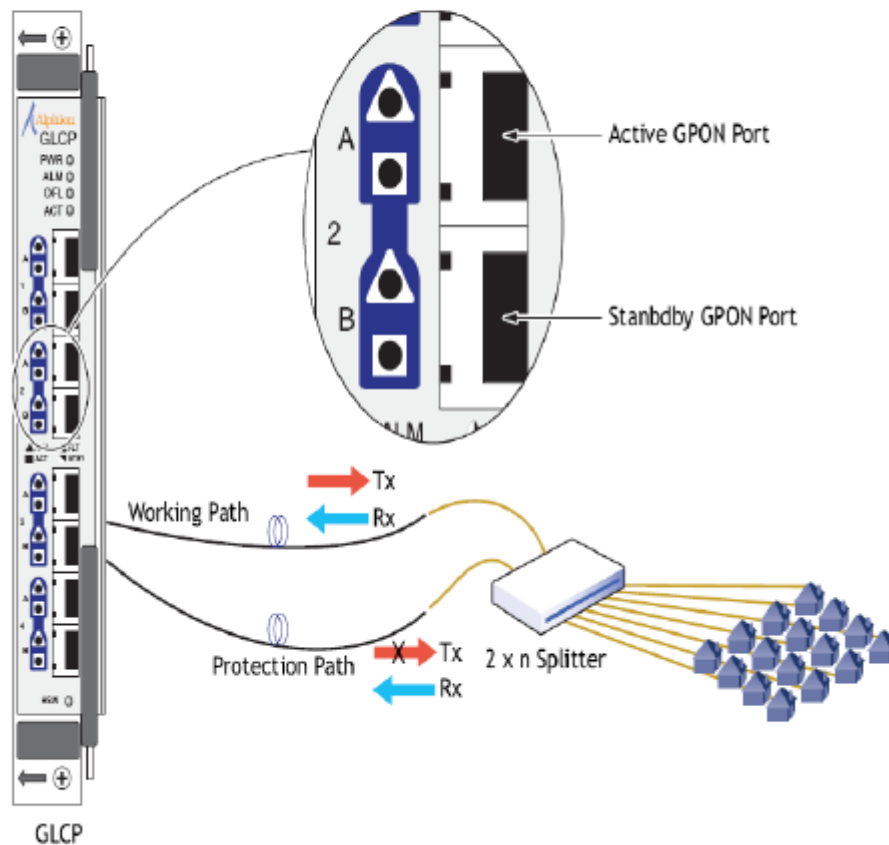


# Alphion<sup>®</sup> Key Requirements for Success in Emerging Markets

- ◆ Low Cost Deployment Models
  - ◇ Cost per home connected is the key metric
- ◆ Reliability of network components
  - ◇ Watch out for the construction crew !
  - ◇ And the constant power cycling !!
- ◆ Capacity Utilization is important in a world of CAPEX Conservation paradigms
  - ◇ If you build it, they will come – just not that fast



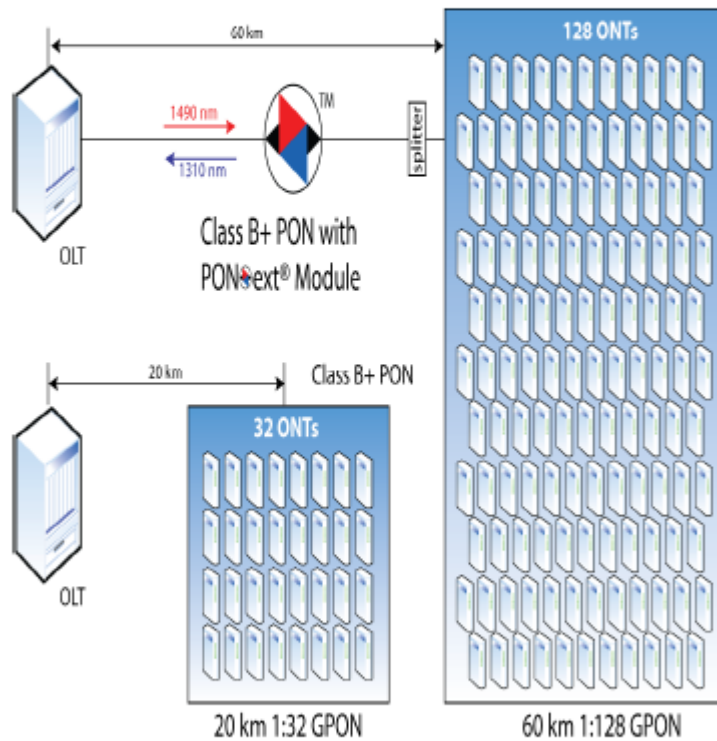
# Alphion® Reliability



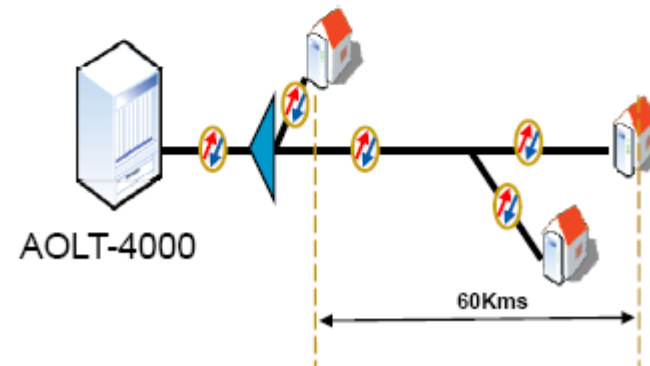
- ◆ Redundant fiber paths in subscriber access reduce down times
- ◆ Critical components need redundancy
- ◆ Higher network reliability at lowest incremental CAPEX and OPEX



# Better Capacity Utilization



- ◆ PON Extension techniques to increase the reach of existing OLT deployments
- ◆ Increased differential reach helps to improve take rate on each port

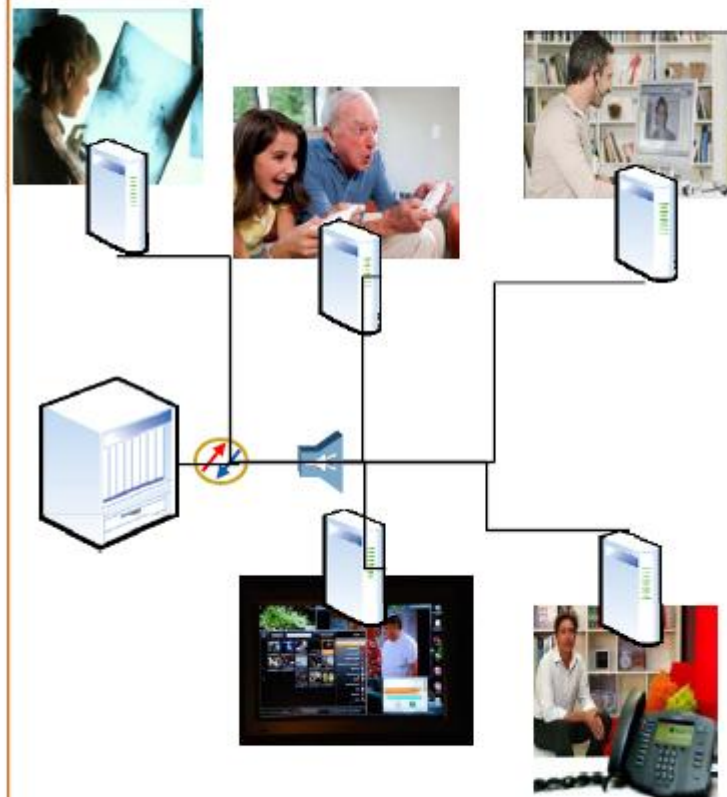






## Applications Drive Uptake

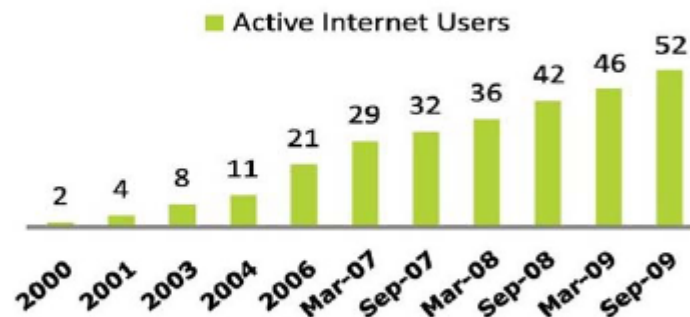
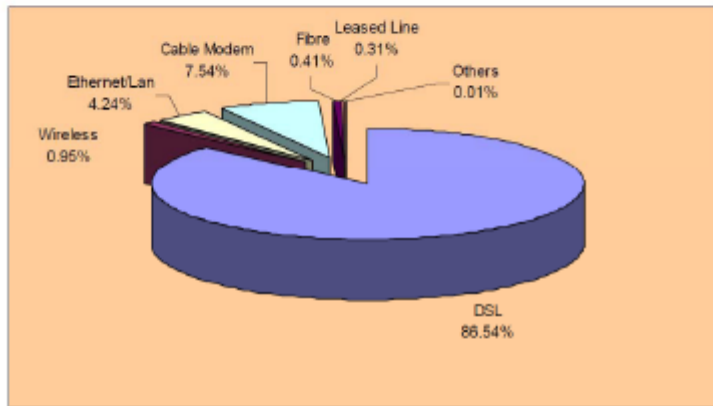
- ◆ GPON Access Equipment not be positioned as “Broadband Pipes” but rather as “Application Enablers”
- ◆ Don’t go at it alone, take your partners along and share the rewards





# India – Broadband Opportunity

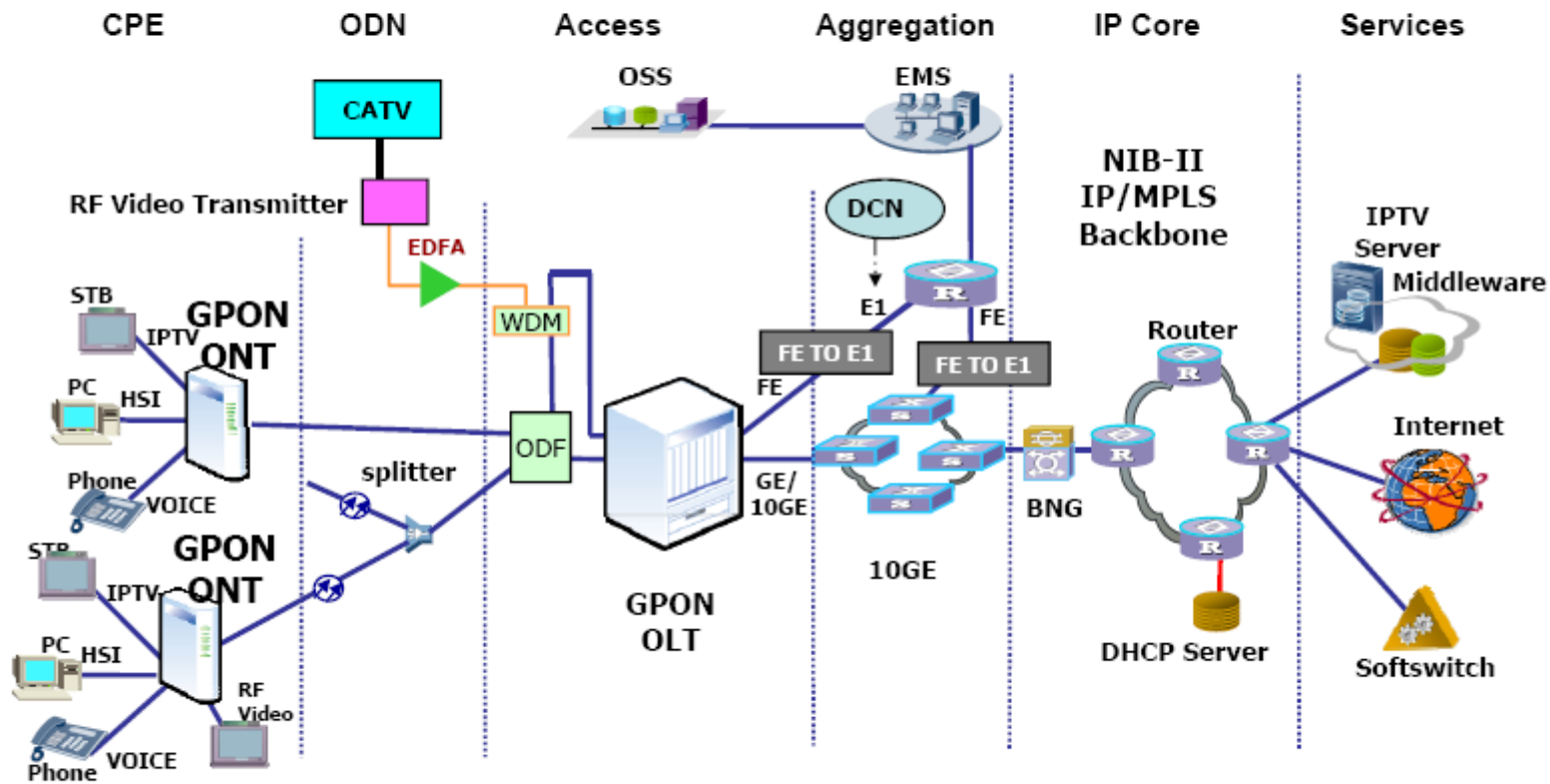
## 9 Million Broadband Subscribers



- ◆ 60 Cities with more than a million people by 2011
- ◆ 22 Million Home Shortage for middle class in 2010
- ◆ 110,000 new Hotel rooms approved in 2009
- ◆ 220 million square feet of new Retail Space requirement forecasted by 2011
- ◆ 183 million square feet of new office space requirement forecasted by 2011

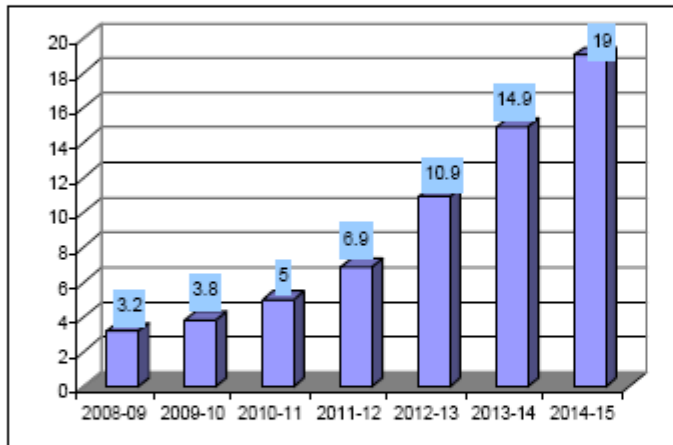
**75 Million Estimated New BB Connections**

# BSNL FTTH Network Architecture



# Alphion BNSL Multi-play: Application Driven Subscriber Growth

BNSL Plans for FTTx Fiber Plant (M-Km)



- ◆ BSNL Growth Strategy for FTTX Networks Driven by Applications
- ◆ Rural Subscriber Growth can be achieved by offering basic applications like access to the Internet
- ◆ Urban subscriber growth requires innovative applications and is executed with partners



## ◆ India

- ◆ Population 1.2B (2010E)
- ◆ 71% rural (820M)
- ◆ #133 for BB penetration (0.02%)
- ◆ 13M Facebook users (1.1%)

Unique IP Addresses	Avg. Connection Speed (Kbps)	Max. Connection Speed (Kbps)
3,966,687	796	4672



- ◆ 3.9B from USO Funds made available for extending broadband networks to rural areas
- ◆ 250,000 Panchayats and 600,000 villages to be connected by GPON
- ◆ (Gram) Panchayat
  - ◆ Local self-government unit at the village level (300+)
  - ◆ Center for planning, learning, medicine
  - ◆ 265,000 as of 2002





# Market Tectonics

