

# OFC 2014 Marketwatch Panel:

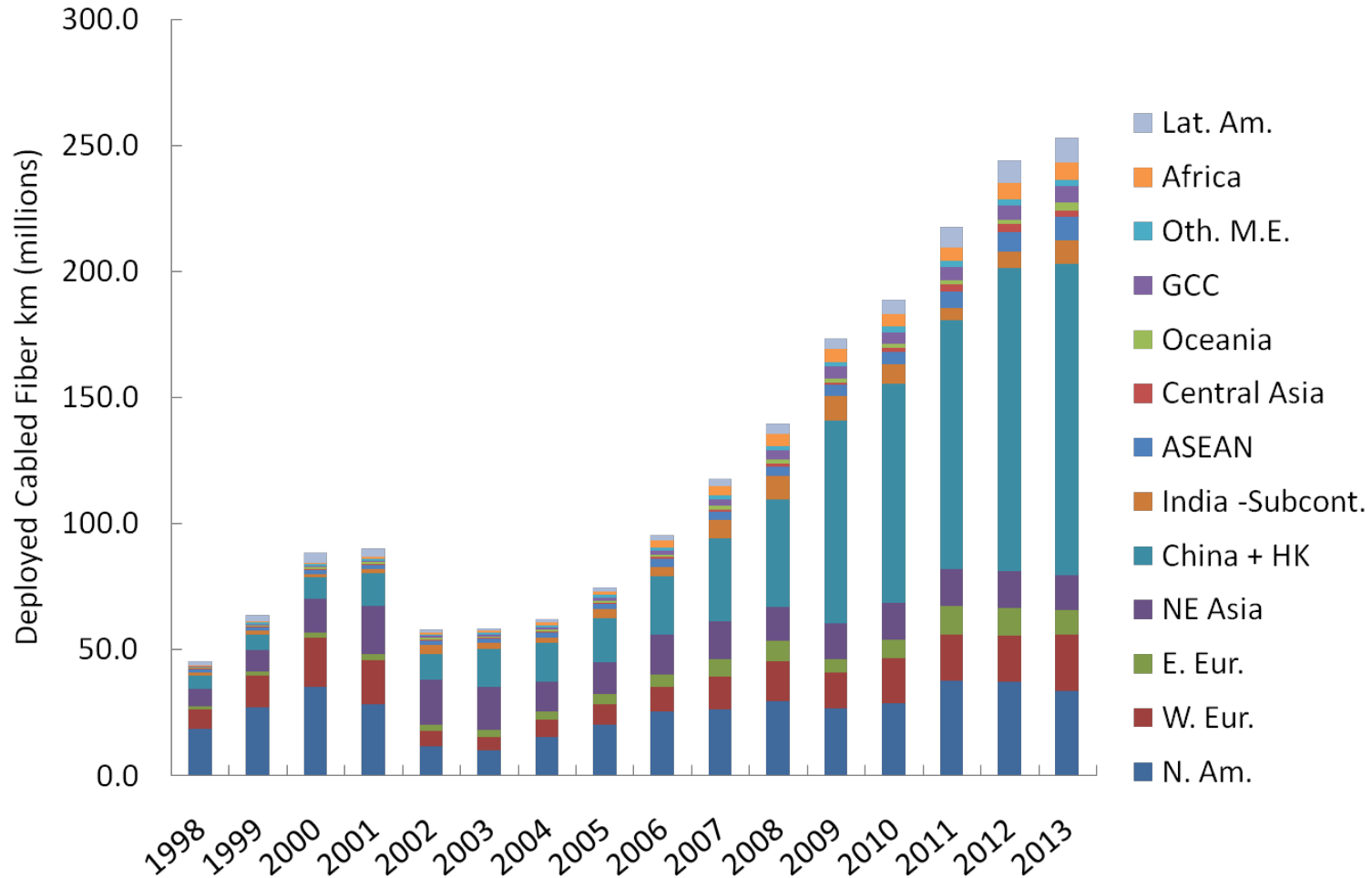
State of The Industry:

Optical Communications Infrastructure,  
Investment and Emerging Markets

Badri Gomatam  
CTO, Telecom Business  
Sterlite Technologies Ltd.

- Infrastructure: looking through glass
  - Demand: the story so far
  - Where optical growth is expected
    - Emerging versus “the emerged”
- India: then and now
  - Demand, capacity and infrastructure
- Discussion and Q&A

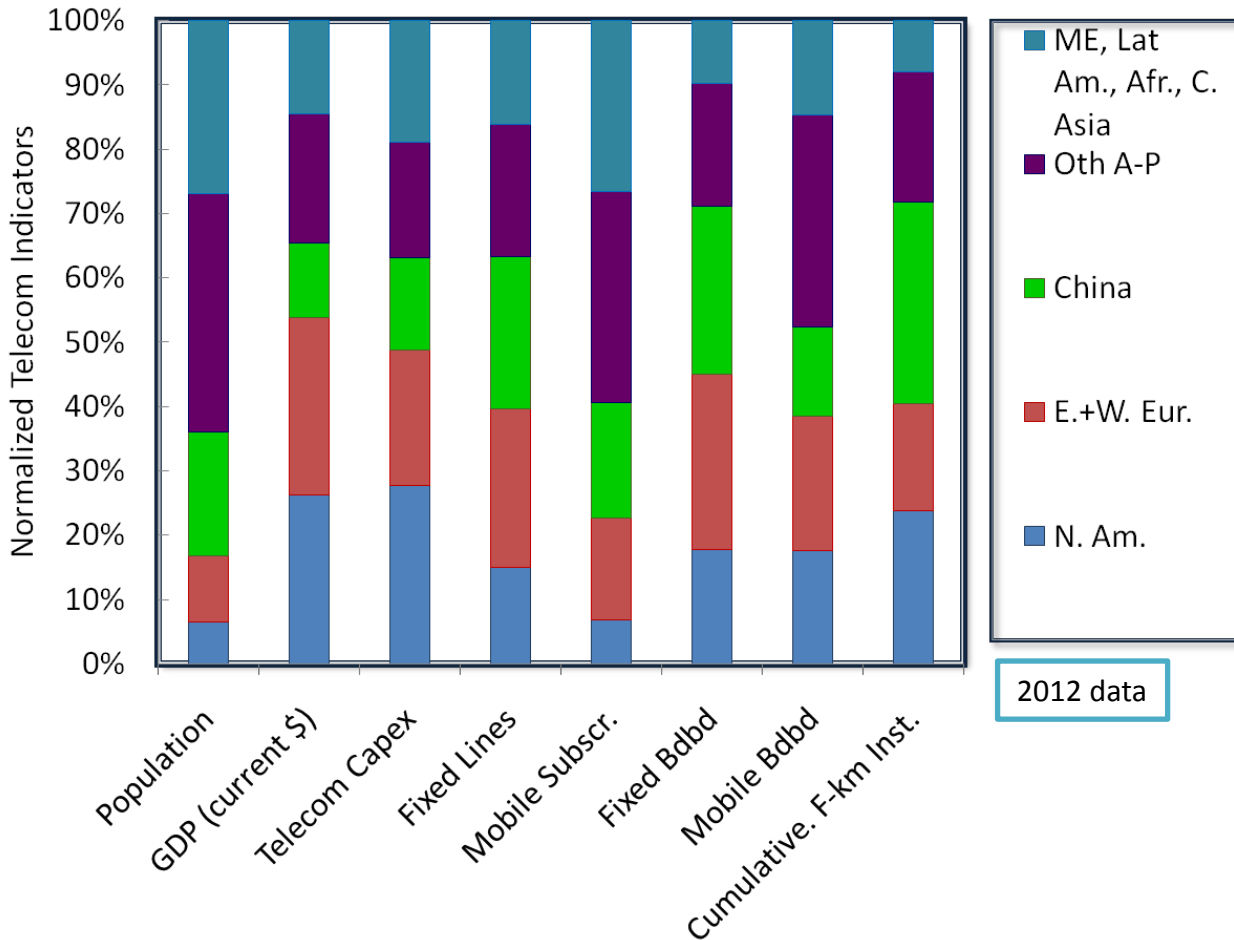
# The story so far: cabled "fiber-km"



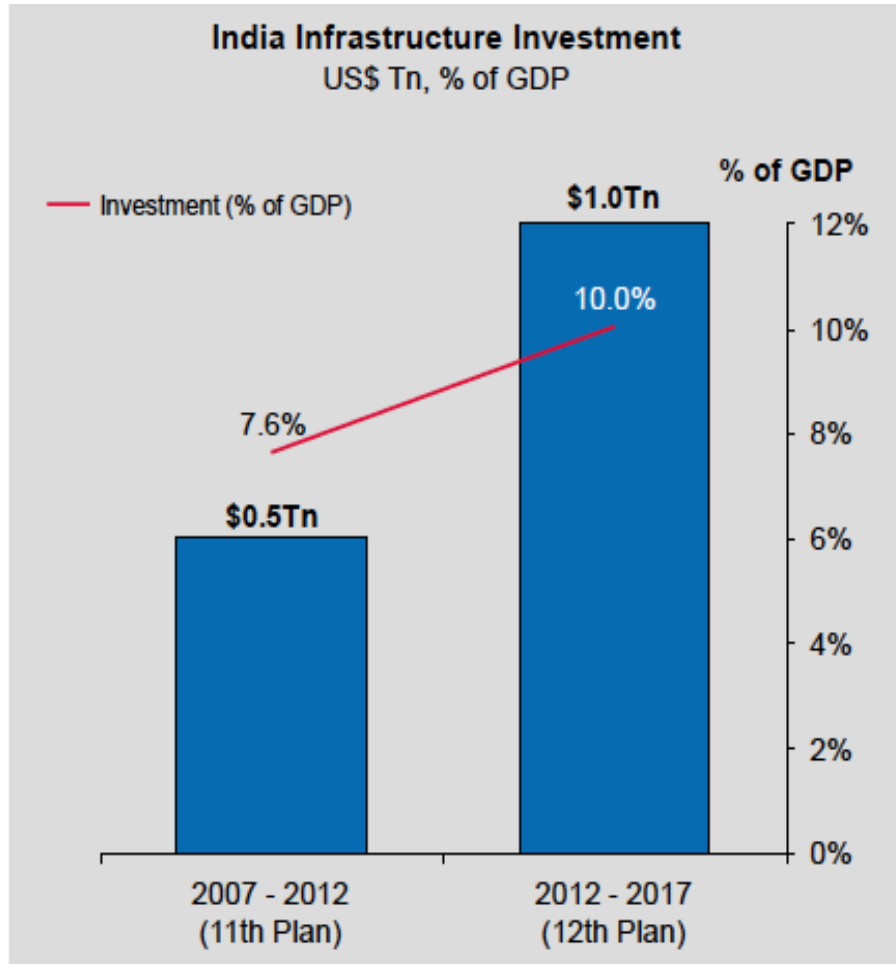
The 2<sup>nd</sup> billion km was installed in 6 years, while the 1<sup>st</sup> started in the 1970s

Source: CRU International, [www.crugroup.com](http://www.crugroup.com)

# Optical Growth: Emerging vs "Emerged"



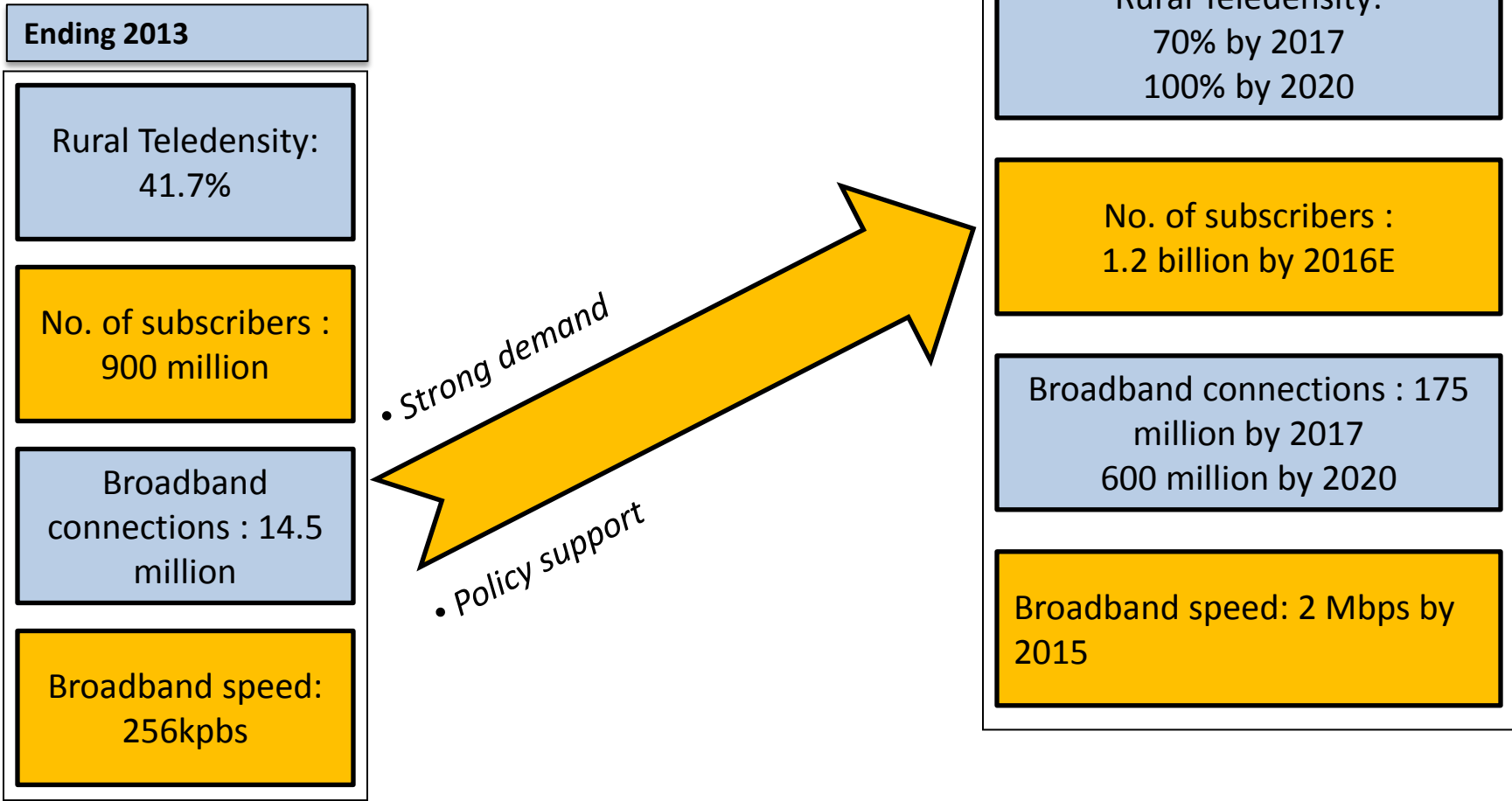
- **Developed markets**
  - Demand is flat or decreasing, with some exceptions
- **High-growth markets:**
  - Mexico, ASEAN, Lat AM, Mid East
- **Other developing markets**
  - moving at reasonably high levels, may have growth up to 10 %.
- **China – interesting**
  - Big demand this year
  - FTTH is continuing.
  - Fiber and cable makers (and OEMs) have stepped up capacity
- **India – changing rapidly**



Source: Booz & Co. Analysis, prepared for Sterlite

- Nearly US \$1 Trillion investment expected between 2012 – 2017
  - 12<sup>th</sup> Five year plan
- Of which about 35% investment is expected in the Power and Telecom sector
- Strong latent demand in the Telecom sector
  - Other key sectors driving investment
    - Power
    - Water/Sanitation
    - Highways

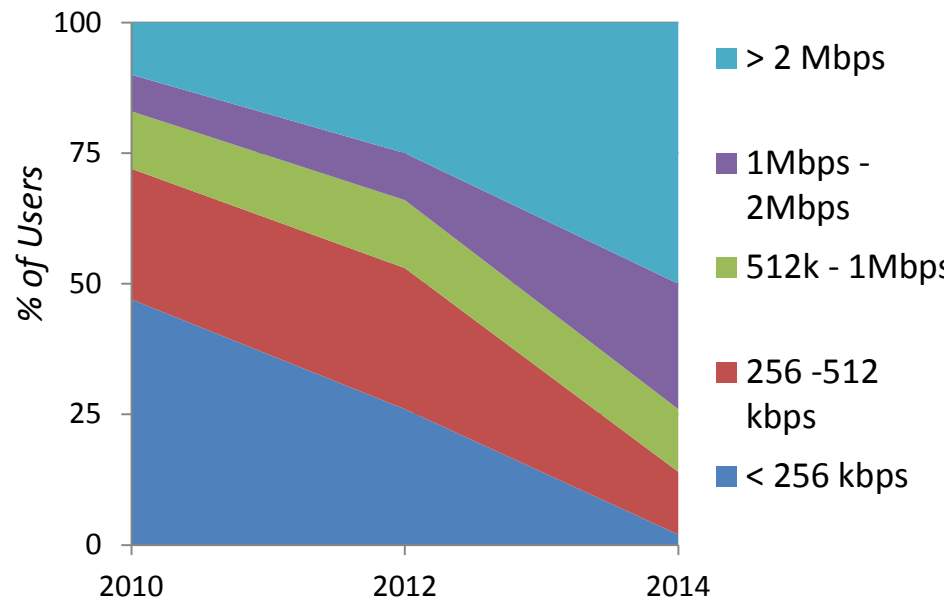
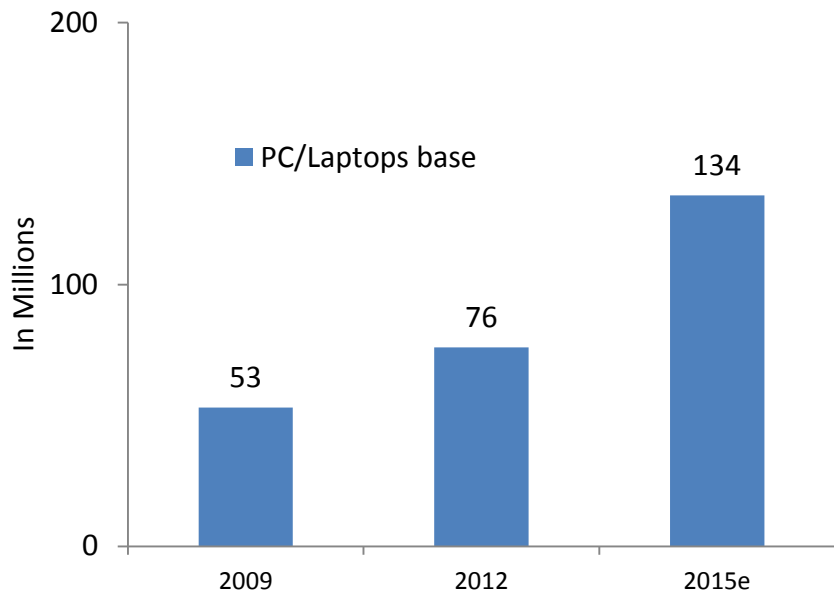
# Indian Telecom Market Scenario Today



39.5% rural subscribers vs 60.5% urban

# Growing Demand for 'High speed' Wireline Internet in India

- Data usage is driven by niche segments such as video, gaming etc. which demand high speed connectivity
- Consumers are buying devices which enable high data consumption



Source: Industry reports

- Wireless Infrastructure: Initially attractive
  - Faster rollout
  - Shorter time to market
    - And revenue
- Optical Infrastructure
  - Capex higher, initially
  - Slower rollout
- Realization: available spectrum not enough
  - < 30% BTS connectivity on fiber
  - 3G call experience is poor



- Demand now *much greater* supply
- Leading to expensive spectrum auction
  - Operators now need a lot more capital than anticipated
    - and consequently increased debt on the balance sheet
    - with severe competitive and pricing pressure
- Evolution towards a “fiber rich” infrastructure
  - Future proof fiber infrastructure is now essential
  - Support a rich mix of mobile data and services

# Upcoming Optical Connectivity Drivers

NOFN – National Broadband Network  
(Gov't funded broadband as a utility)  
NFS – Defense Optical Fiber Network

Serving 250,000 village councils (1 million villages)  
> 10M km

Private Sector Deployment  
Reliance Jio  
Airtel, Vodafone

Core transport, mobile backhaul  
and residential wireline networks

Shared Last Mile  
FTTx

High-end residential and business customers  
on GPON platform



- A long term view is critical for success in emerging markets
- Opportunities in Wired Connectivity driven by
  - structural shifts in society and the economy
- The India growth story is here to stay, though short term concerns exist
  - renewed Government focus on Infrastructure