



# Evolution of Access Technologies

FCC Technology Transitions Policy Task Force Workshop

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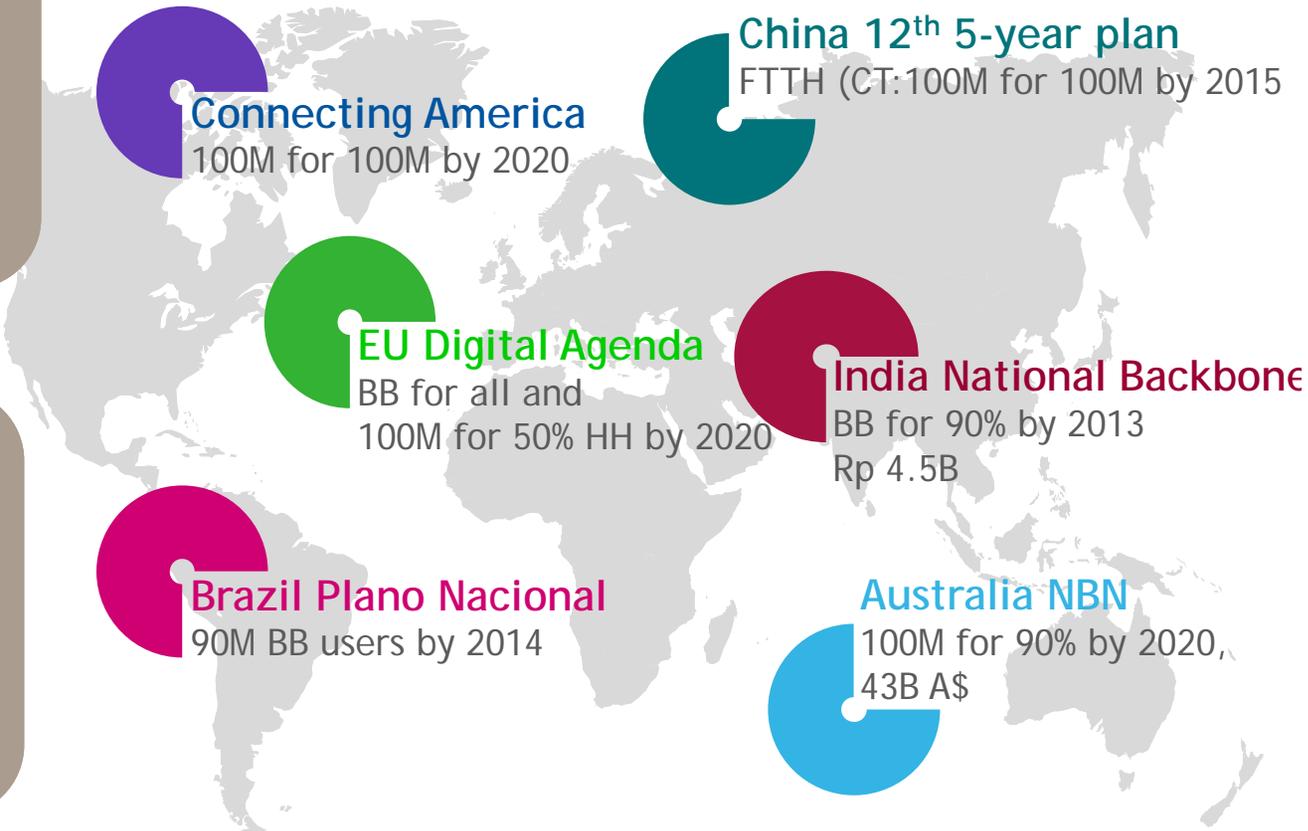
# GOVERNMENTS RECOGNIZE THE VALUE OF BROADBAND ...AND ENCOURAGING THE EXECUTION

## Socio-economic benefits:

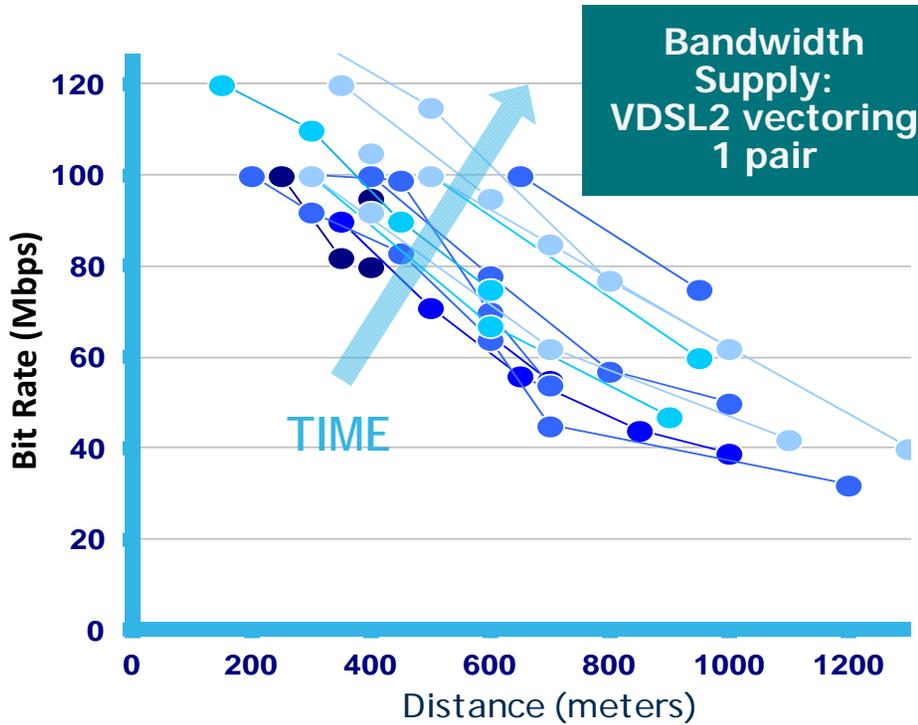
- Job creation
- Close the Digital Divide
- Location Independence
- Productivity

## Cost savings:

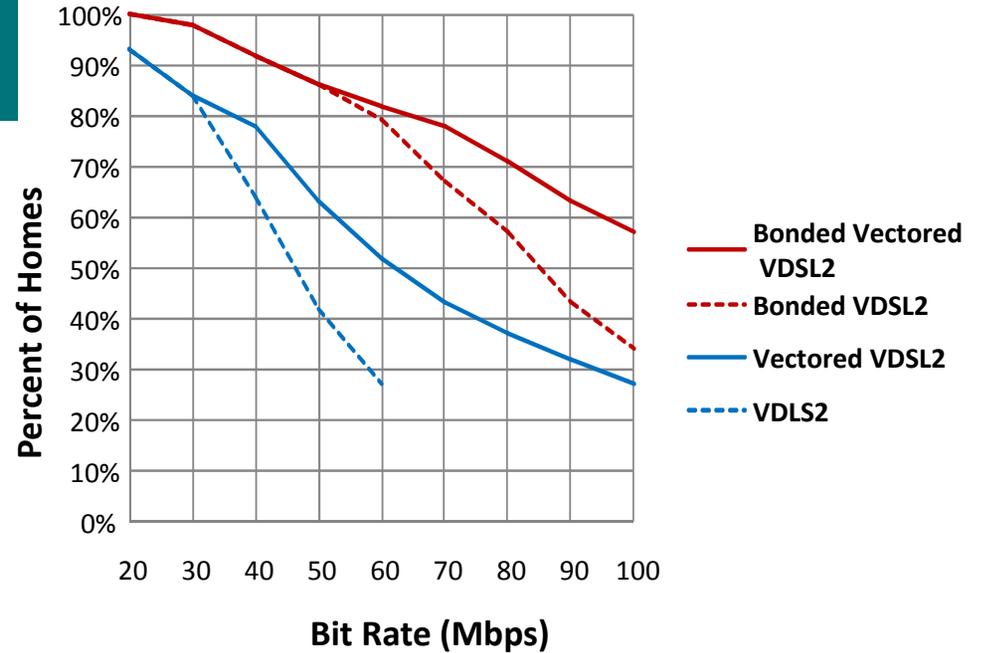
- Health
- Education
- Transportation
- Energy Conservation



# Can vectored VDSL2 meet future bandwidth demand?

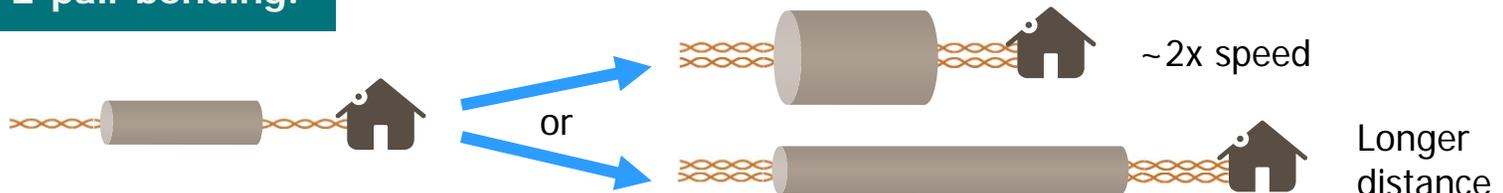


Measured Performance of Vectoring



Service vs Coverage for representative NAR FTTN Serving Area

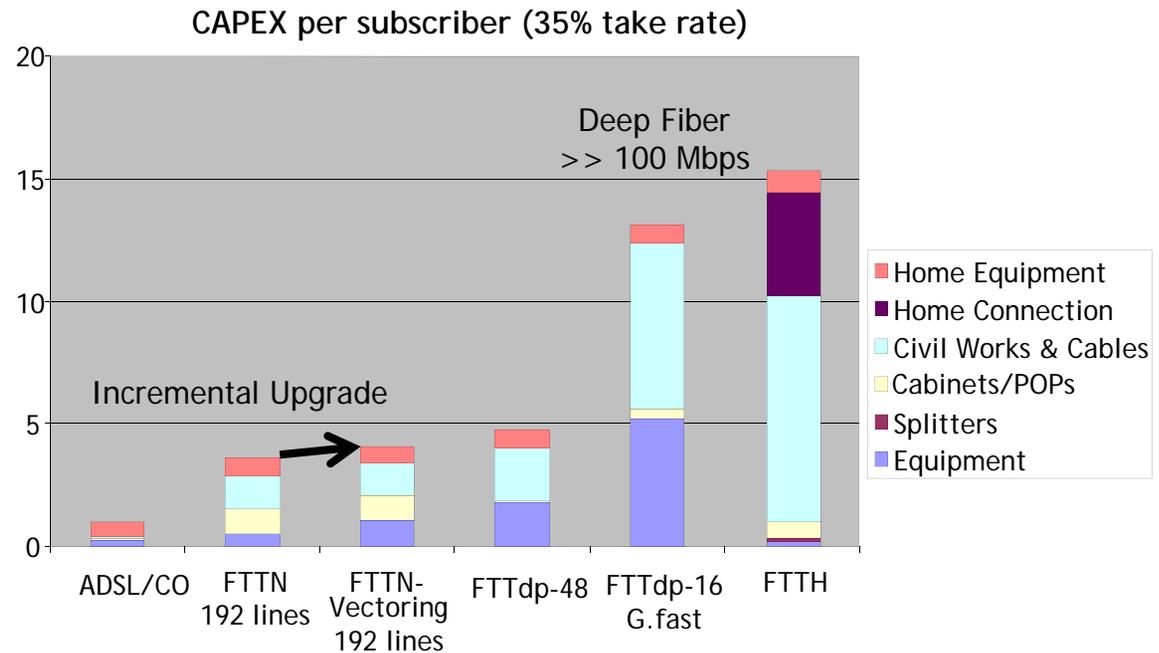
Add 2-pair bonding:



# Meeting the National Broadband Plan

- Don't Count Copper Out

- Incremental upgrade to FTTN with vectoring can achieve the throughput targets
- Use bonding and small remote nodes to reach remaining subscribers
- Beyond vectoring and bonding, loops will be getting shorter and shorter to support even higher bandwidths (>>100Mbps)
- Operators will need to deploy remotes deeper into the network
  - CAPEX Investments
  - Remote Powering
  - Manage Operational Overhead
- *Then for >> 100 Mbps does fiber not make more sense?*

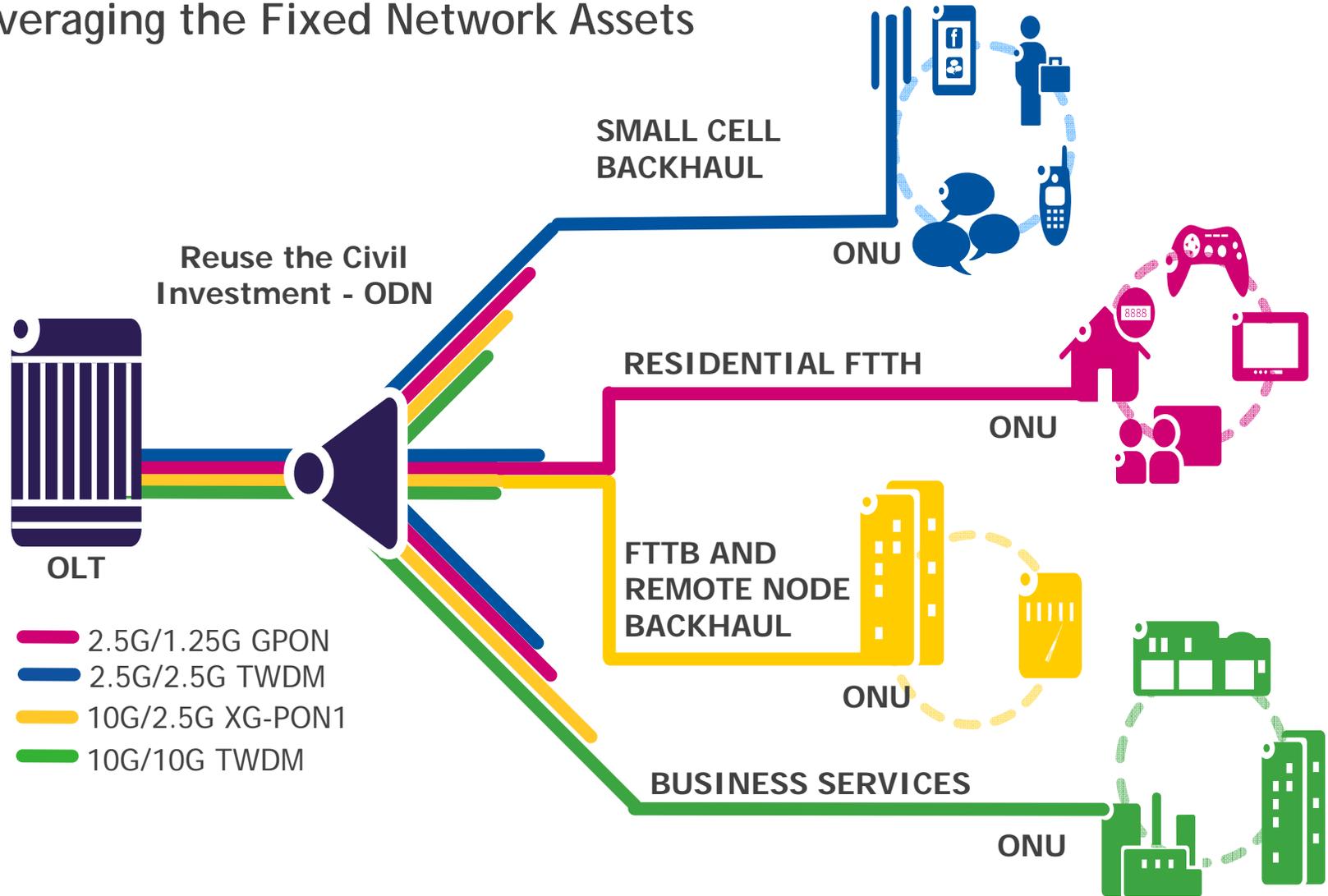


- Passive Optical Networks offers the greatest flexibility

- Reduction in OPEX and Maintenance
- Differentiated bandwidth - Support for high peak bandwidth on demand
- Longevity – deploy a network for our children and their children's generations
- Reuse of fiber plant - support for different networks on the same fiber

# Fiber Enables New Markets and Services

## Leveraging the Fixed Network Assets



**Not all challenges are technical ... some are organizational and operational**

## Further Reading

<http://www2.alcatel-lucent.com/techzine/is-symmetrical-bandwidth-a-myth-or-a-must>

<http://www2.alcatel-lucent.com/techzine/vdsl2-vectoring-delivers-on-its-promise>

<http://www2.alcatel-lucent.com/techzine/boosting-vdsl2-bit-rates-with-vectoring>



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