

# CORNING

## Future Fiber Architectures

John A. Jay  
Manager, Worldwide Applications Engineering

19 November 2009

# John A. Jay

---

- Manager, Worldwide Applications Engineering, Corning Optical Fiber
- 26 years in fiber optics at Corning
- BChE 1983 Georgia Institute of Technology
- Rapporteur, ITU-T Study Group 15 Question 1 “Coordination of Access Network Transport Standards”
- IEC Subcommittee 86A (“Fibres and cables”)/Working Group 1 (“Optical Fibres”) 1990 - 2000
- Founding member of the Fiber to the Home Council



# Fiber is an optimum immediate investment to carry networks to the “post-100 Mb/s era”

---

- Fiber network technology is well established and proven
- Fiber networks are highly reliable
- Fiber networks reduce operating costs
- Fiber networks have the smallest carbon footprint of access network technologies

# Current fiber network architectures are upgradeable for technologies taking us in to the 100 Mb/s era

---

- Fiber networks have the strongest transmission capability
- Fiber network standardization is established well past GPON
- Developing standards drafted (or envisioned) to leverage current fiber product and invested Plant
- Fiber networks are compatible with all other access network technologies

# Current fiber network architectures are scalable for technologies taking us beyond the 100 Mb/s era

---

- PON support of 4G wireless
- Reach extension - 60 km reach or more
- WDM PON - A wavelength to each customer
- RFOG

# Fiber networks create infrastructure for Innovation and Investment up to and beyond the “100 Mb/s era”

---

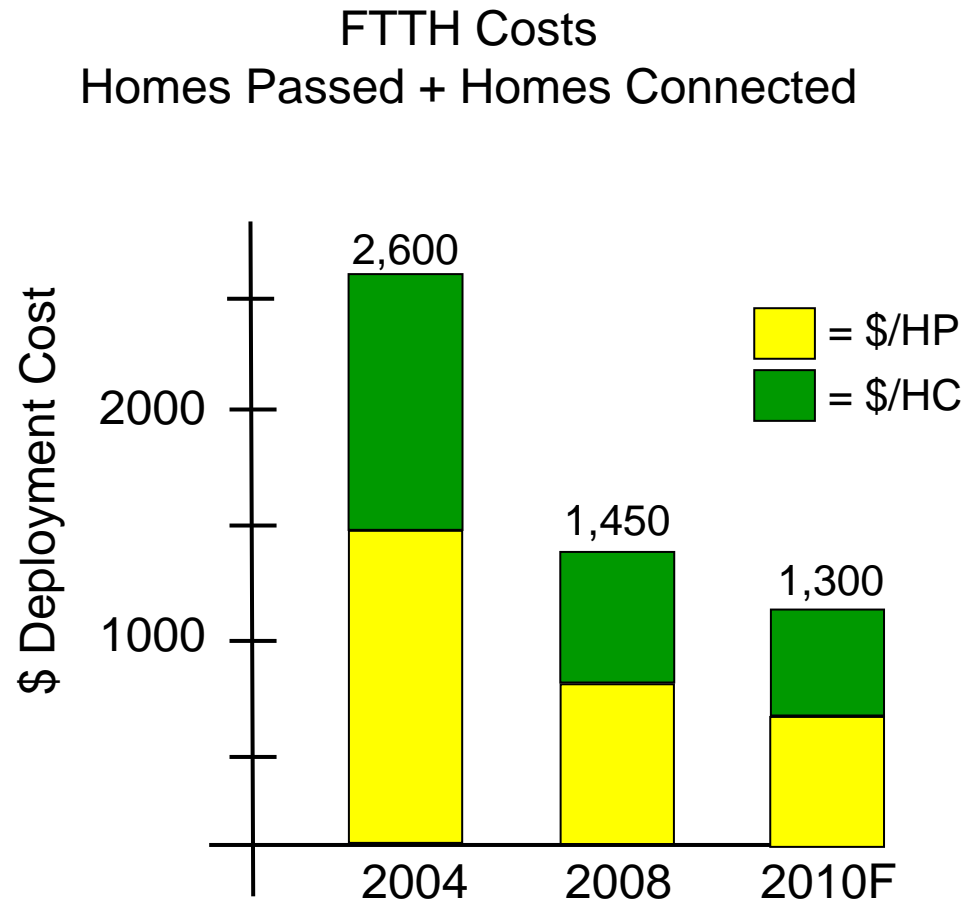
- Fiber is ready for the 100 Mb/s era today
- Optical fiber access networks leverage current fiber product and invested Plant
- Fiber networks are compatible with all other access network technologies
- Fiber networks complement other access network technologies in cases they are a better solution
- Fiber networks are the optimum baseline infrastructure for extending broadband and developing new and improved applications

# CORNING

Back-Up Material

# Fiber networks already prove in over copper for new builds & are closing the gap vs. overbuilds

- Since 2004, the cost to deploy FTTH has dropped about 45%
- It now costs network providers about \$1,450 to bring optical solutions direct to your home.
- Due to the adoption of new technical innovations we expect deployment costs to continue to decline to \$1,300 by 2010.

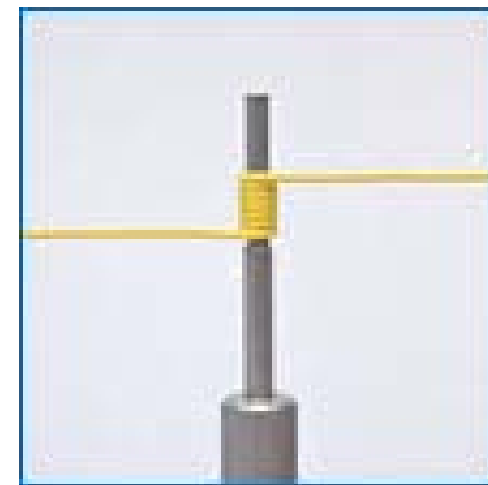


Source: Fiber to the Home Council

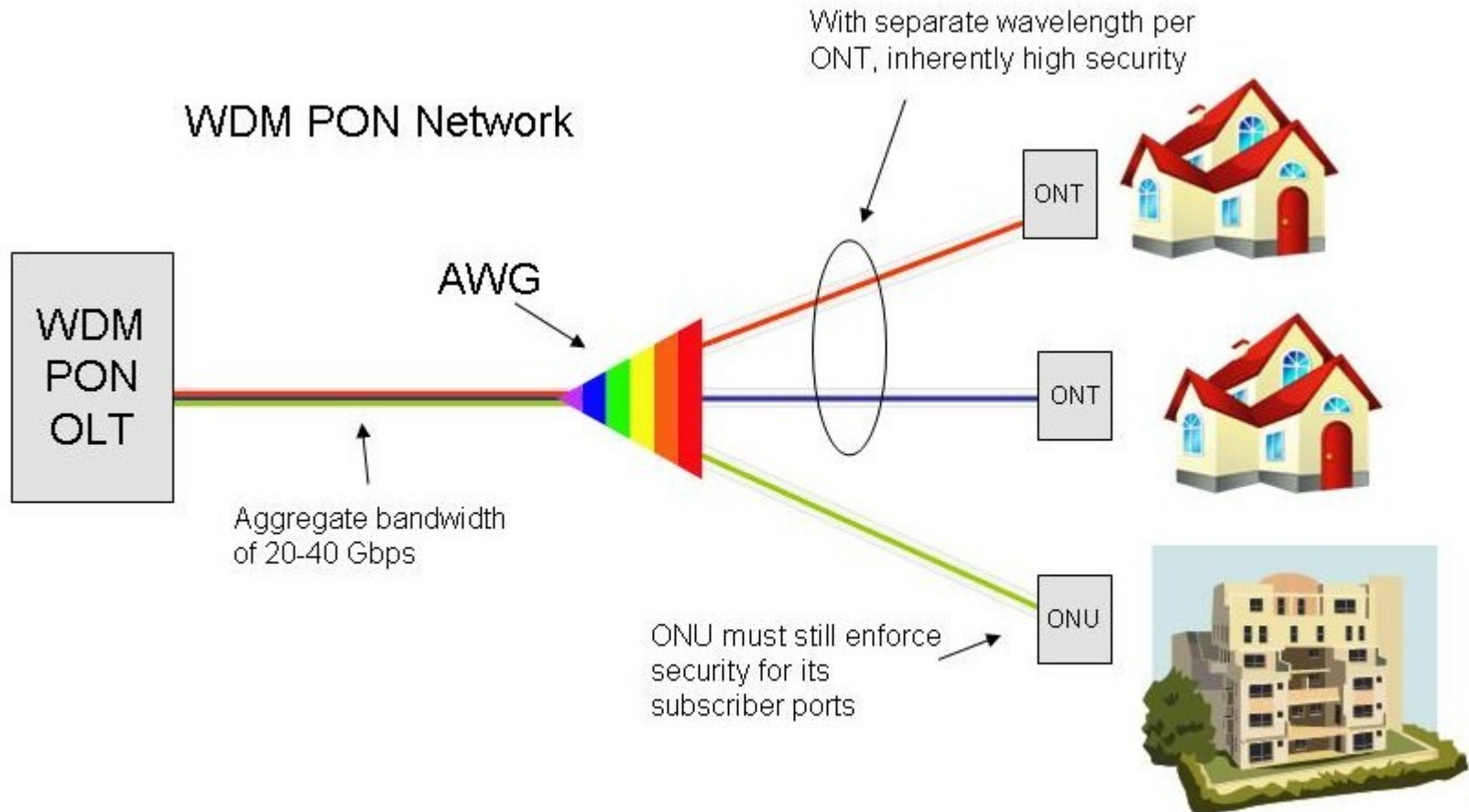


# Fiber network products produced for FTTP

## Innovation reducing labor costs

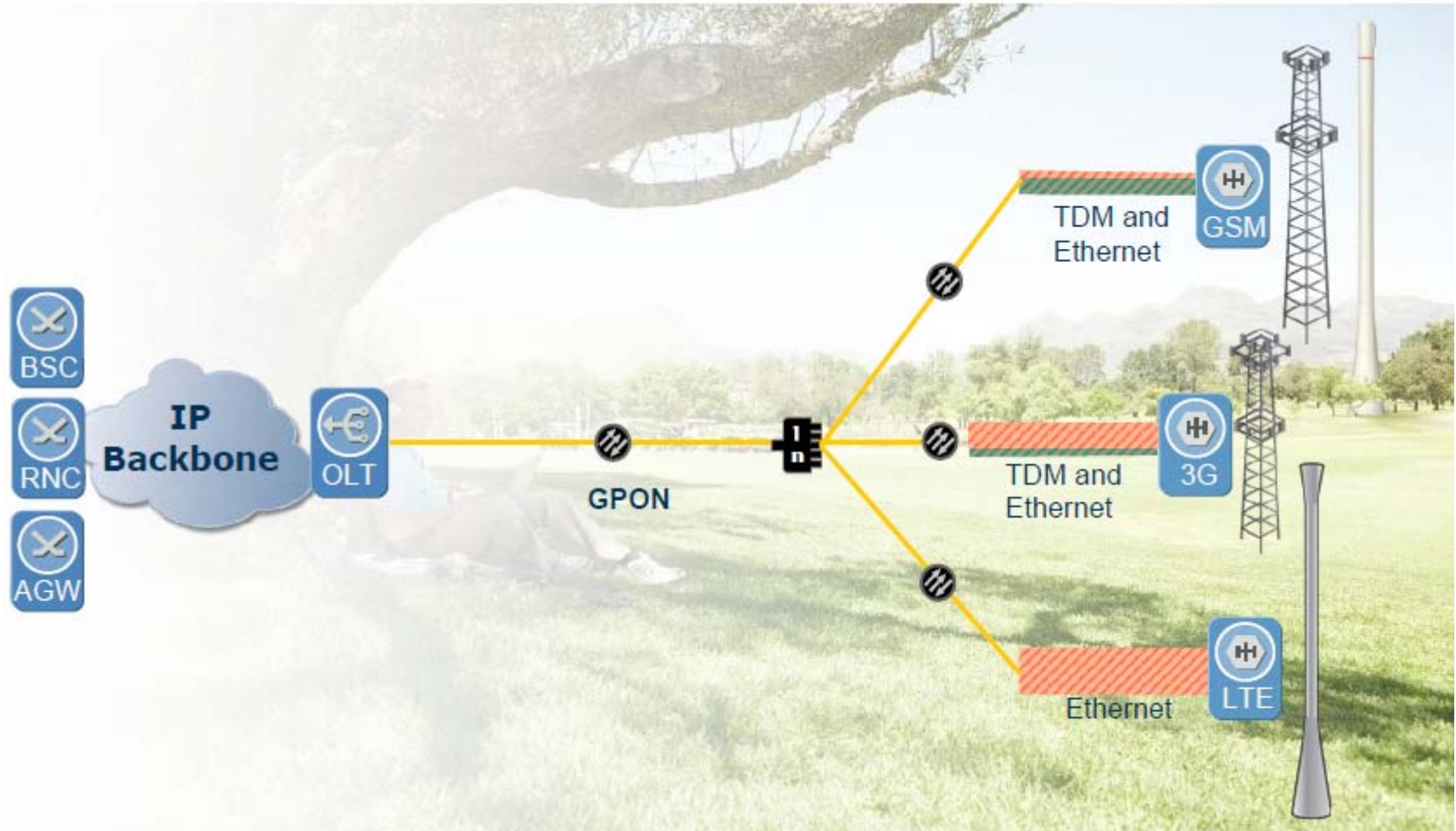


# WDM PON architecture



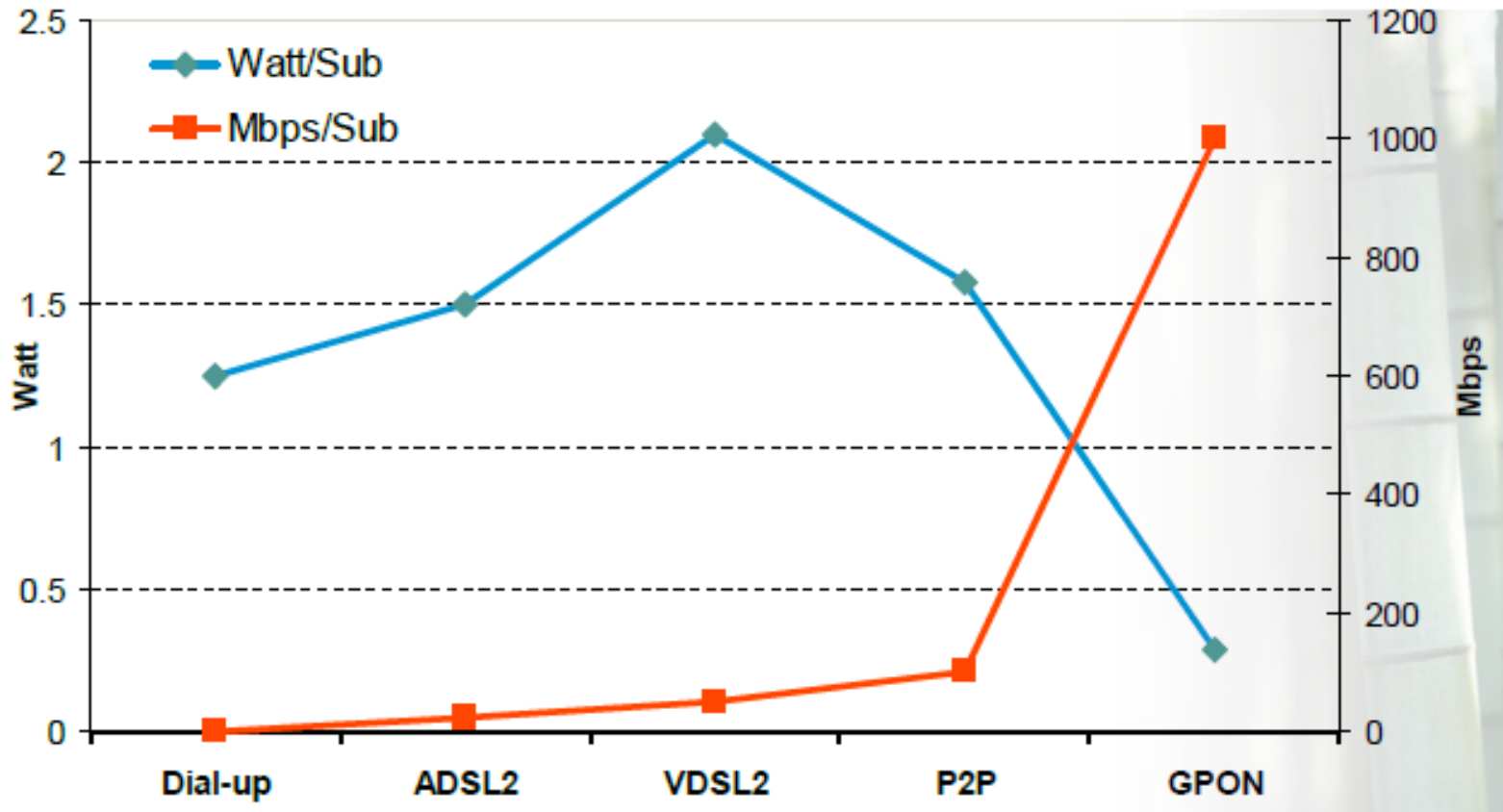
Source: <http://www.fttxtra.com/pon/wdm-pon/what-companies-have-wdm-pon/>

# Fiber to the Tower



Source: *Light Reading* and Ericsson

# Fiber access networks have the smallest carbon footprint of all broadband technologies

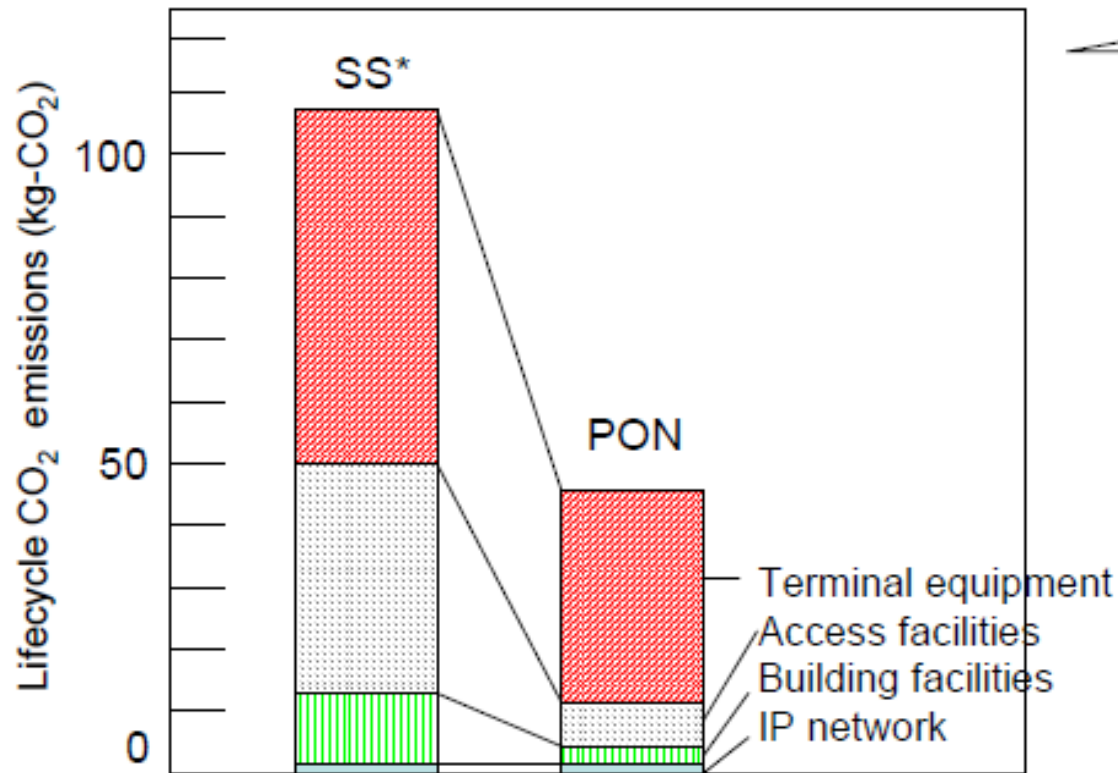


For 1M users equates to 250K-700K gallons of CO<sub>2</sub> or \$1-3M

Source: *Light Reading* and Ericsson

# CO<sub>2</sub> reduction effect of Internet connection service with PON (passive optical network) system

CO<sub>2</sub> reduction of 57% by sharing an optical fiber



Conditions: PC used for 1 h and one ONU used for 24 h in a day  
CO<sub>2</sub> emissions of a subscriber in metropolitan area during a year  
\*: Single Star

Source: NTT

# Summary

---

- Optical fiber access networks leverage current fiber product and invested Plant
- Optical fiber networks offer the strongest technical capability
- Fiber networks installed today are future-proof
- Fiber networks are the best infrastructure for Innovation and Investment
- Fiber networks are the optimum baseline infrastructure for extending broadband and developing new and improved service models and applications

# References

---

- “Environmental Impact Reduction by Broadband Services”, Mr. Hiromichi SHINOHARA, ITU Symposium "ICTs and Climate Change". Kyoto, Japan, 15 – 16 April 2008
- “NEBS/FOC: Green Network Topologies” L. C. Graff, Verizon NEBS Conference 2008 “*Communication Goes Green*”
- “GPON in Practice Where, When, How?” Michael Gronovius. *A Light Reading Webinar* June 22nd, 2009.

CORNING

---