

TRANSFORMING  
**HOME NETWORKS**  
FROM THE INSIDE OUT



# Market Study Observations for Gigabit Ethernet over Plastic Optical Fiber

IEEE 802.3 GEPOF Study Group May 2014

# Background

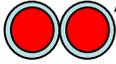
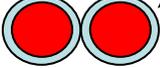
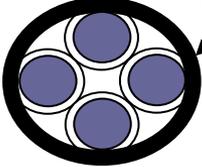
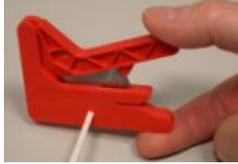
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- Firecomms is providing fiber optic solutions for Plastic Optical Fiber (POF) over 10 years
- History in Automotive, Medical, Industrial and Consumer Markets
- Expertise in III/V photonics, CMOS driver and receiver chips, optical packaging and connectors

# Usage Markets for POF

| <b>Market</b>     | <b>Application</b>  | <b>Maturity</b>               | <b>Market Focus<br/>Market Size</b>                    |
|-------------------|---|-------------------------------|--|
| <b>Automotive</b> | <ul style="list-style-type: none"><li>- Infotainment</li><li>- Comfort</li></ul>  | <p>Mature</p> <p>Emerging</p> | <p>Niche – “MOST”</p> <p>~20Mill Nodes/yr</p>          |
| <b>Industrial</b> | <ul style="list-style-type: none"><li>- Command &amp; Control</li><li>- Communications</li></ul>                            | <p>Mature</p>                 | <p>Wide</p> <p>~20 Mill. Nodes/yr</p>                  |
| <b>Consumer</b>   | <ul style="list-style-type: none"><li>- Cabinet-To-Home</li><li>- Structured Cabling</li><li>- In-Home Networking</li></ul> | <p>Emerging</p>               | <p>Wide</p> <p>Potential ~100’s Mill.<br/>Nodes/yr</p> |

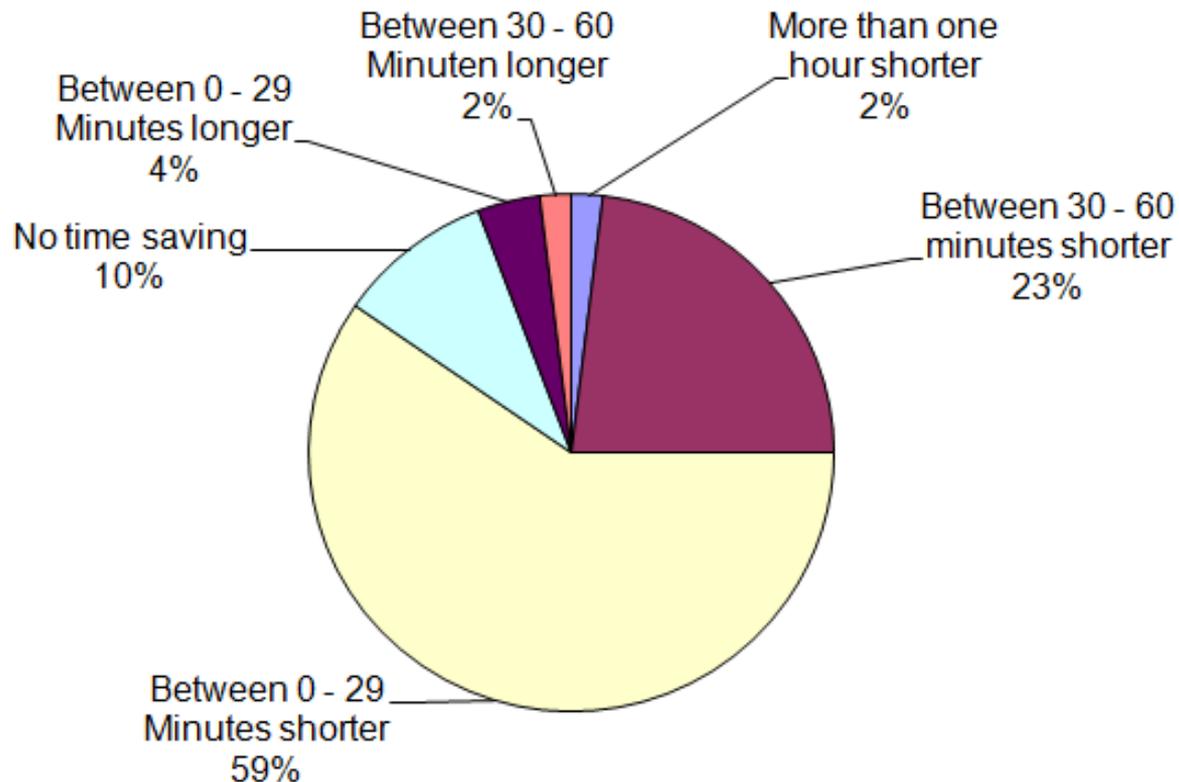
# POF Pro's & Con's

|                         | SILICA   | POF  | COPPER  |
|-------------------------|--|--|---|
| Size                    | <p><b>EXCELLENT</b></p> <p>&lt; Ø2.2mm</p>  | <p><b>EXCELLENT</b></p> <p>Ø2.2mm</p>  | <p><b>POOR</b></p> <p>Ø 5.2mm</p>  |
| Installation Complexity | <p><b>COMPLEX</b></p>                       | <p><b>SIMPLE</b></p>                   | <p><b>COMPLEX</b></p>              |
| EMI Susceptibility      | <p><b>EXCELLENT</b></p>  | <p><b>EXCELLENT</b></p>  | <p><b>POOR</b></p>  |
| Bandwidth               | <p><b>EXCELLENT</b></p> <p>&gt; Gbps</p>   | <p><b>POOR</b></p> <p>~ 100's Mbps</p>   | <p><b>GOOD</b></p> <p>~ 1 Gbps</p>  |

# Field Proven Benefits of POF

## Commercial Trial Results: Installation crew for tier one Swiss Telco

### Cat5 vs POF Install times



# Field Proven Benefits of POF

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## Commercial Trial Results: Self Install consumers of tier one French Telco

- Install time of 30-60 mins or under 30mins
- 55% used the POF to replace Powerline or Wifi
- 58% said it improved the quality of the network
- 75% used 15m or more POF per installation
- 93% would recommend POF to others
- 79% would pay for the benefits of POF

# Field Proven Benefits of POF

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- *“ The noise floor in our homes just continues to rise, POF is a technology that offers an insurance policy against that”*

## **Tier One US Telco**

- *“...very positive results from install trials...25% install time saving...”*

## **Tier One Portuguese Telco**

- *“ POF should be part of the Home Network solution portfolio at least in the following cases:*

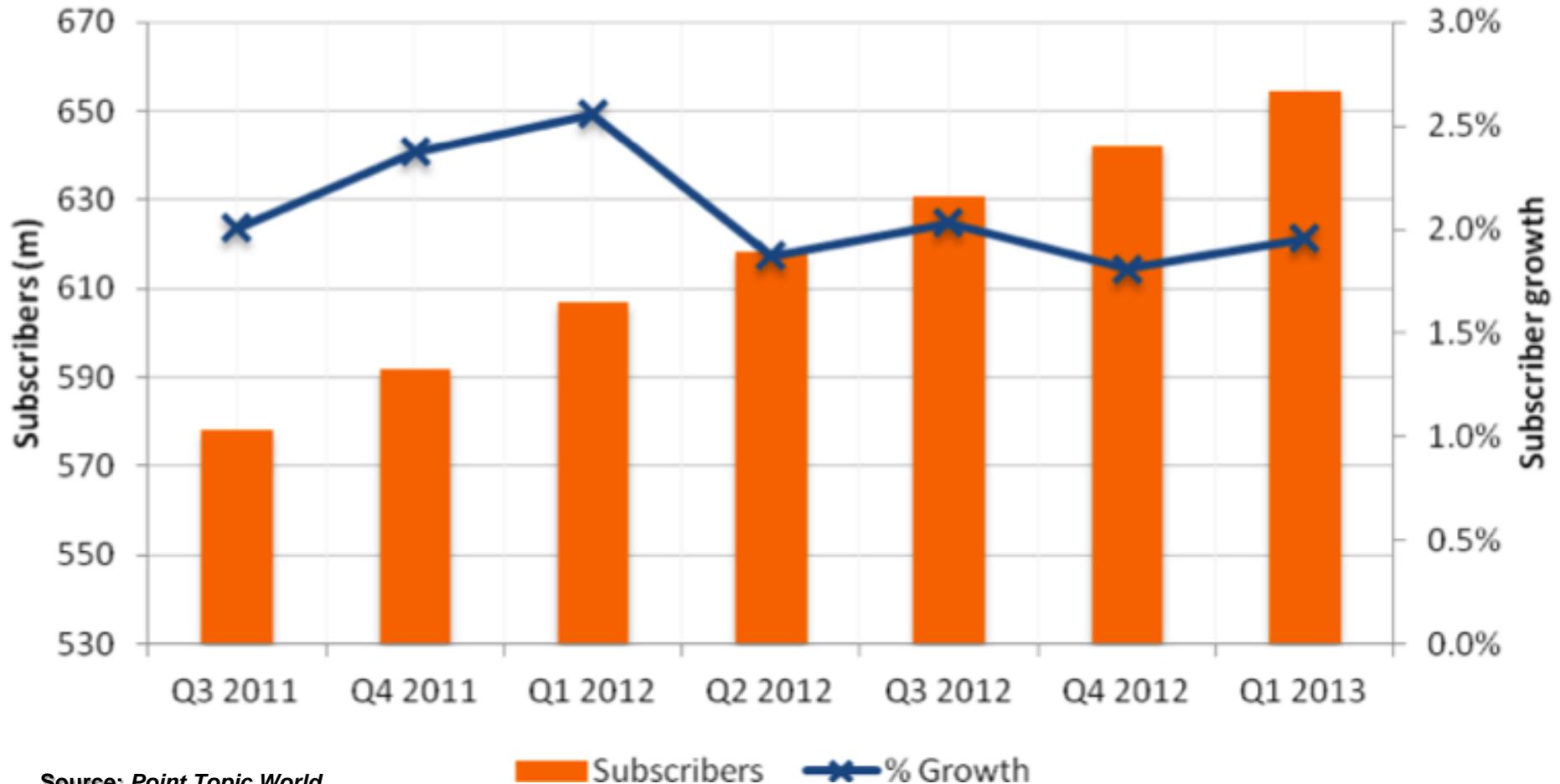
*High @home bandwidth (FTTx offer)*

*High quality video services”*

## **Pan-European Operator**

# Opportunities for POF in consumer

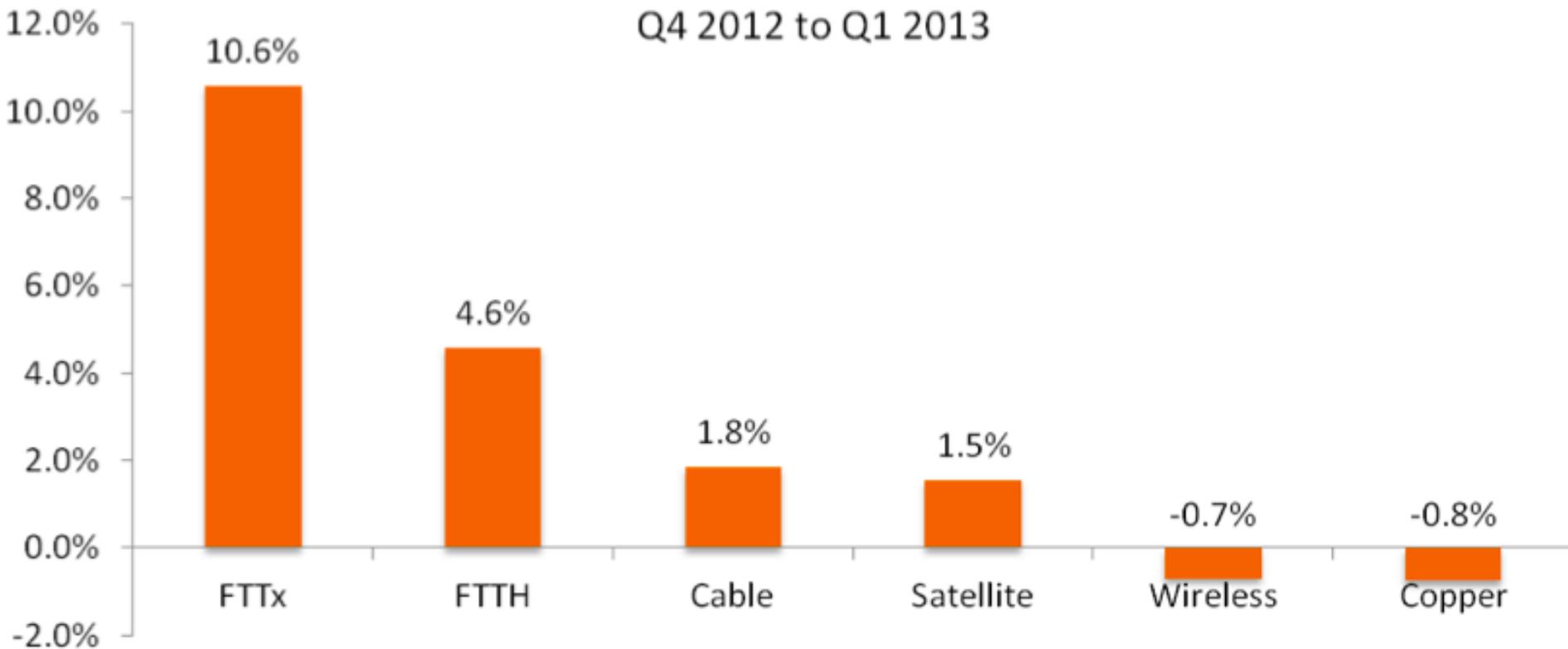
- Over 650 Million Broadband subscribers



Source: Point Topic World  
Broadband Statistics – Q1 2013

# Opportunities for POF in consumer

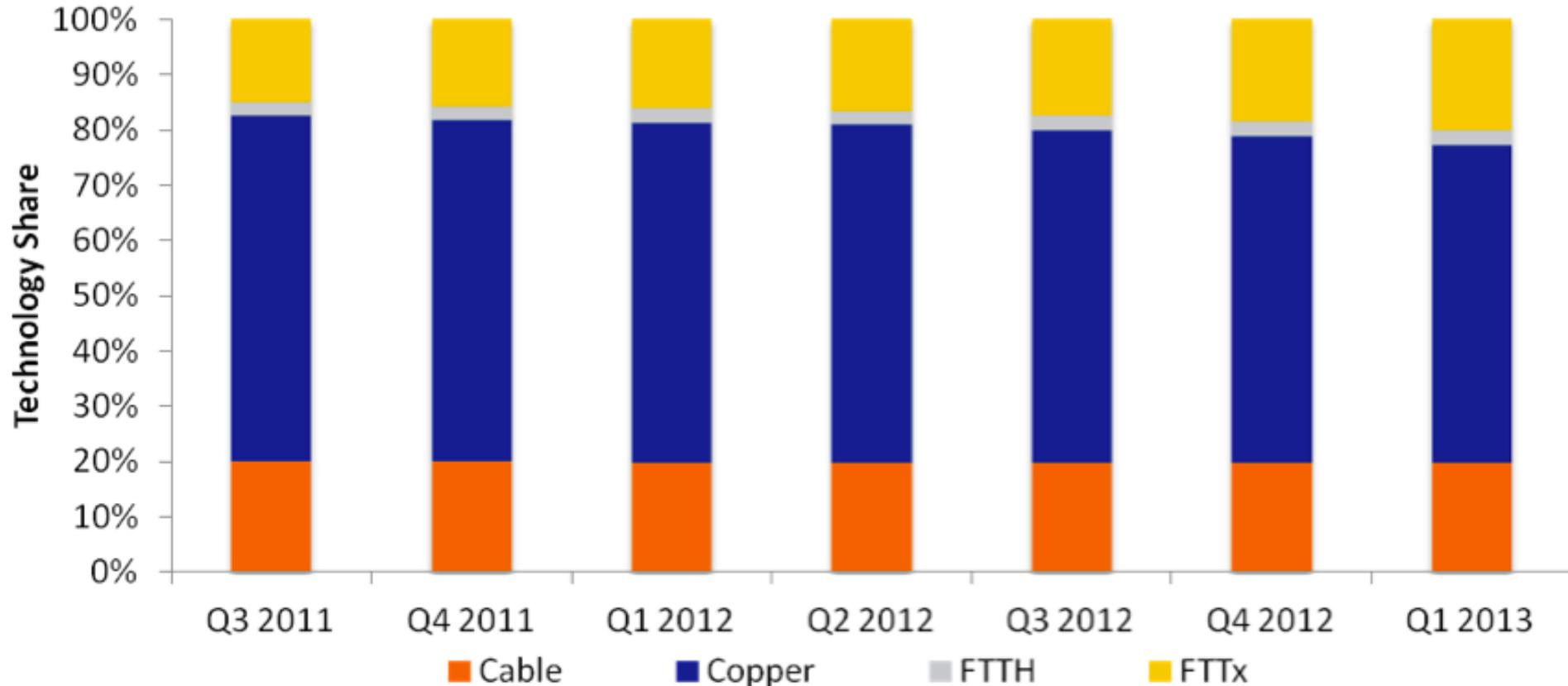
- Fiber dominates growth in subscriber technology...



# Opportunities for POF in consumer

- Install complexity of Silica fiber limits FTTH penetration...

Broadband market share by technology



Source: Point Topic World  
Broadband Statistics – Q1 2013

# Barriers to growth for POF in consumer

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- Speed

- ▶ 100Mbps solutions does not match home networking or structured cabling equipment capabilities
- ▶ Gigabit Ethernet required for compatibility and future proofing

- Distance

- ▶ Current Gigabit POF transceivers fail at 10m SI POF
- ▶ Minimum requirement 50m, preferred 100m to match 1000BaseT

- Standardization

- ▶ No specific standards in place for Gb Ethernet over POF
- ▶ Automatic disqualification for several markets

# Summary

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- POF opportunities continue to grow
  - Well documented benefits to users, installers, operators & designers
  - Multiple markets
  - Multiple applications
- Continued innovation required and ongoing
  - 100-250 Mbps applications maturing, but remain “nichey”
  - Market expansion opportunities in all markets with Gig-E
- Standardization
  - Key to facilitating adoption of POF