# Year 2014 - Which PON?

Maybe I should go with **EPON**. After all, **EPON** is "pure" Ethernet, and I only need to transport Ethernet frames. I don't need any of that GEM encapsulation, I want Ethernet.

And fragmentation – that's blasphemy when spoken in the same sentence as Ethernet!

**EPON** costs less, right? As long as I get my requirements met, saving the company $$$ will be awesome. Maybe I'll get a promotion!

The **10G EPON** solution is perfect to provide symmetric gig services to businesses, but it's still too expensive to deploy. 2.5 Gbps **GPON** might hit the sweet spot for residential deployments. What to do?

Who cares how the Ethernet frame crosses the PON, as long as it gets there error-free? Ethernet in – Ethernet out, that's what you really care about, at least from a transport perspective.

Fragmentation? Shoot, IEEE is already studying ways to fragment larger frames. Besides, it takes 7.2 us for a 9KB frame to get across a 10Gbps link. Fragmentation is a non-issue today.

**EPON** doesn't cost less. Future chipsets support both **EPON** and **GPON**. What are vendors going to do, price components differently based on firmware? Not likely.

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# Year 2018 - Which PON?



Maybe I should go with **next-gen EPON**. After all, **next-gen EPON** is "pure" Ethernet, and I only need to transport Ethernet frames. I don't need any of that GEM encapsulation, I want Ethernet.

And fragmentation – that's blasphemy when spoken in the same sentence as Ethernet!

**Next-gen EPON** is cheaper, right? As long as I get my requirements met, saving the company $$$ will be awesome. Maybe I'll get a promotion!

The **next-gen EPON** solution is perfect to provide symmetric gig services to businesses. But **next-gen GPON** might hit the sweet spot for residential deployments. What to do?

Who cares how the Ethernet frame crosses the PON, as long as it gets there error-free? Ethernet in – Ethernet out, that's what you really care about, at least from a transport perspective.

Fragmentation? IEEE **next-gen EPON** also fragments larger frames.

**Next-gen EPON** is the same price as **next-gen GPON**. Chipsets support both next-gen EPON and next-gen GPON.
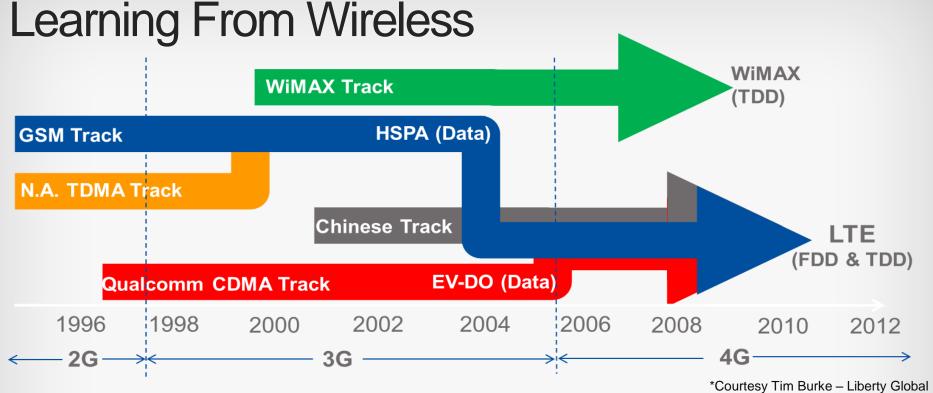
Why didn't we create a single solution four years ago?

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*Will service providers ask the same questions and have the same debates in 2018?*
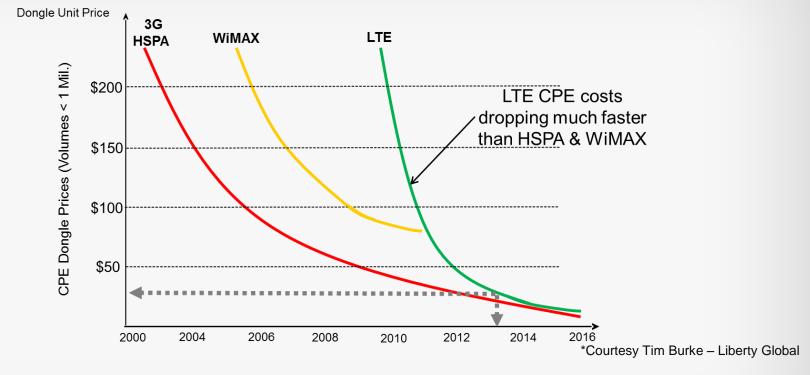
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# What's the Point?

- The differences between EPON and GPON are becoming less significant
  - Both solutions address the same problem in different ways

- Both IEEE and ITU are developing next-generation solutions that will essentially meet the same service requirements
  - Is the market large enough to support two next-generation solutions?

- Having two solutions fragments the market and increases costs:
  - Service providers pay more for network equipment
  - Vendors pay more to develop two solutions

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# Learning From Wireless



*Courtesy Tim Burke – Liberty Global

- For the first time in ~20 years (since analog) mobile standards have converged into a single worldwide standard (LTE)
- Resulting in a large device ecosystem with excellent economics and selection

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# Learning From Wireless - Pricing and Timing



Dongle Unit Price

**3G HSPA**  **WiMAX**  **LTE**

LTE CPE costs dropping much faster than HSPA & WiMAX

CPE Dongle Prices (Volumes < 1 Mil.)

$200
$150
$100
$50

2000  2004  2006  2008  2010  2012  2014  2016

*Courtesy Tim Burke – Liberty Global

*A single PON standard should result in more rapid price decrease*

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# Is It Possible To Harmonize Requirements (And Solution)?
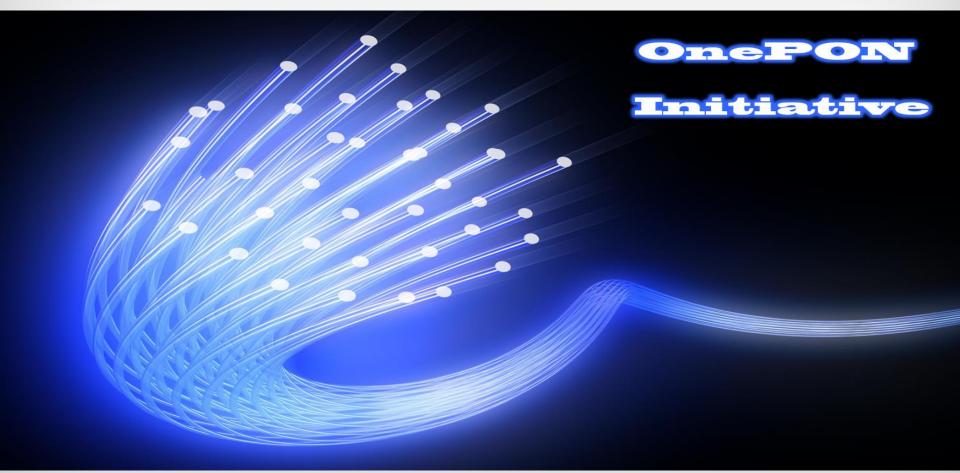
- Service providers:

*Do you believe working on one of two similar solutions (instead of a single global solution) will provide your company with the best long-term, most cost-effective solution?*

- Vendors:

*Would you rather:*
  *1) Build two different solutions to address an entire market?*
  *2) Build one solution to address half of the market?*
  *3) Build one solution to address the entire market?*

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# What Should We Do?


OnePON Initiative

# The OnePON Initiative …

- … is not about selecting EPON or GPON
  - We are <u>not</u> suggesting IEEE adopt the next-gen GPON standard!
- … is about gaining alignment at least at the PHY layer
  - Stretch goal is to increase commonality at higher layers!
- … if successful OnePON will result in:
  - Reduced development costs for vendors
  - Increased focus on innovation and CPE functionality
  - Reduced costs for service providers
  - Shorter time to product, shorter time to deployment

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# Thank you!

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