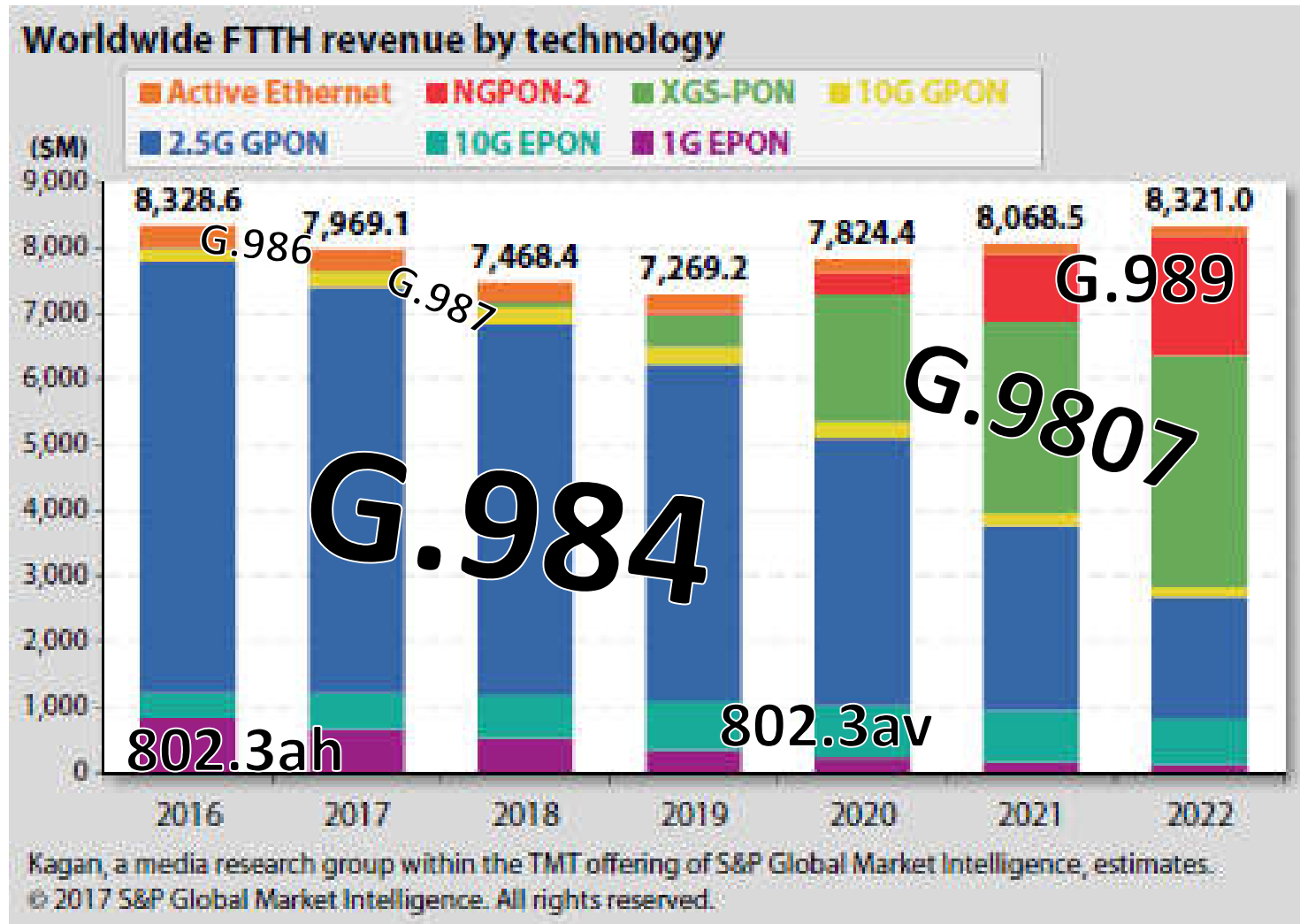# ITU-T Q2 work program

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Q2/15: Optical Access Networks

- Q2/15 belongs to WP1 of SG15
- Over the past, Q2 has worked on several generations of PON
  - G.982 (pi-PON) Mostly of historical interest
  - G.983 (A/B-PON)   Perhaps 10M ONUs deployed
  - G.984 (G-PON)   Several 100M ONUs deployed
  - G.987 (XG-PON)
  - G.9807 (XGS-PON)   Both beginning to grow now
  - G.989 (NG-PON2)   Ecosystem building stage
- Additionally, several point to point systems were specified
  - G.985 (Bidi 100Mb/s Ethernet access) (aka 100Base-BX)
  - G.986 (Bidi 1Gb/s Ethernet access) (aka 1000Base-BX)

FTTH market breakdown

Worldwide FTTH revenue by technology

Legend: Active Ethernet, NGPON-2, XGS-PON, 10G GPON, 2.5G GPON, 10G EPON, 1G EPON

($M) axis: 9,000 / 8,000 / 7,000 / 6,000 / 5,000 / 4,000 / 3,000 / 2,000 / 1,000 / 0

Values by year:
- 2016: 8,328.6
- 2017: 7,969.1
- 2018: 7,468.4
- 2019: 7,269.2
- 2020: 7,824.4
- 2021: 8,068.5
- 2022: 8,321.0

Annotations: G.986, G.987, G.989, G.9807, G.984, 802.3ah, 802.3av

Kagan, a media research group within the TMT offering of S&P Global Market Intelligence, estimates.
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IEEE 802

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Current projects

- G.984.5 Am: CE parameters, Multi-PON module
- G.988: Regular maintenance of PON management
- G.989 Amendments: Channel bonding, cooperative DBA
- G.sup.TCadapt: Clarifying how G.9807 TC is a subset of G.989 TC
- G.sup.HSP: Exploring higher speed PONs
- G.sup.5GP: Exploring 5G applications of PON

Proposed new projects (1)

- G.hsp.Req: The requirements for higher speed PONs

  – Meant to be a collector of all PON requirements, working to find application sets that define reasonable systems

- G.hsp.ConvTC: The specifications for a converged TC layer

  – Meant to cover all HSP systems (single and multiple wavelengths, fixed and tunable optics), and maximum commonality with other systems

Proposed new projects (2)

- G.hsp.25Gpmd: Specifications of fixed 25G PMD

- G.hsp.50Gpmd: Specifications of fixed 50G PMD

- G.hsp.TWDMpmd: Specifications of the higher rate TWDM PMD (ie., tunable ONU optics)

- G.hsp.P2POpmd: Specifications of the higher rate P2P overlay (a part of NG-PON2, also tunable) PMDs

Proposed new projects (3)

- G.9806: Higher speed point to point optical access systems
  - Meant to be a follow on to G.986 (1G P2P OAS)
  - Most urgent need is for 10G single fiber systems
  - Even higher speeds (25G, 50G, 100G) potential second steps
  - Hope to have a counterpart in IEEE 802.3 to ensure convergence and compliance

Summary

- Q2/15 is the standing group that works on optical access networks, with a wide range of projects spanning several PON generations

- Substantial work plan on higher speed (>10G) access

- Aim is to make this the "Last PON"

  - Common requirements and TC layer that is scalable to any reasonable rate combination

  - Many PMD projects to allow development at the pace of the technology (The PMD is generally the gating item on systems)

Thank You