ETHERNET APPLICATIONS

AUTOMOTIVE
- E-core of Ethernet’s latest success stories. Ethernet links wire and provide data using Single-Pair Ethernet (SPE) to reduce the cost of wiring. In-vehicle experience, autonomous driver assistance systems (ADAS), roll-out of autonomous vehicles and convergence of legacy in-vehicle networking (IVN) technologies towards Ethernet are the big drivers for Ethernet adoption in cars. Meanwhile, Ethernet is reducing the weight of the vehicle by transmitting by enabling the consolidation of multiple electrical systems into a single physical architecture that is then passed by wire.

ENTERPRISE
- Campus applications are a huge market for Ethernet with over a billion ports shipped per year. Most of these ports are 10G. 72% of the access layer, with both multi-mode and single-mode fiber links, (MMF/SMF) further into the network.

The changing needs of Wi-Fi access points and Enterprise class client devices are driving technology transitions. 802.1Q preference 7 ports are making the transition from 100BASE-T1 to 2.5G/5G/10GBASE-T, and optical ports are moving from 10G to 100G.

SERVICE PROVIDERS
- have driven higher speed Ethernet solutions for decades, including metro connections, EPON, client-side optics for optical transport network (OTN) equipment, and wired and wireless backhaul.

In particular, the 5G mobile deployment is driving dramatic increases in both forefront and backhaul applications and continues to push Ethernet to higher rates and longer distances. With global demand for access, video, this shows no signs of changing. The aggregated bandwidth in service provider networks continues to push for increased Ethernet speeds, currently reaching (for 16 x 70G) Synchronous Ethernet) has become a critical technology used in the Telco circle of 5G networks and services, a massive adoption of this technology is expected over the next few years.

Building & Industrial Automation
- applications are moving from FieldBus style networks to Ethernet. This move has been accelerating over the last decade with Ethernet as a key enabling technology for the Fourth Industrial Revolution. Key industry trends include:

2. Aiding the Industrial Internet of Things (IIoT).
3. Transitioning from grouped industrial networks to a unified Ethernet network infrastructure.

Human machine interfaces (HMI) and Machine Automation System (MMS) are key drivers in this transition. The move to Ethernet is driven by cost savings, reliability, and ease of use. Ethernet is now the standard for industrial networks, with millions of devices connected to Ethernet networks worldwide.

Artificial Intelligence (AI)
- is harnessing the power of higher 200G and 400G Ethernet speeds to support the training and inference of large language models (LLMs). AI and Machine Learning (ML) are driving the roadmap extending Ethernet speeds to 200G and beyond. The architecture within AI drives data centers to developing leveraged solution of edge computing and fiber technologies to meet AI’s bandwidth demands. 10% of the 800G Ethernet market is dominated by AI and ML services.

Cloud Providers
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Interoperability and Certification
- The Ethernet Alliance is committed to building industry and end user confidence in Ethernet standards through multi-vendor interoperability demonstrations and clear guidance standards, and increases multi-vendor interoperability. The Ethernet Alliance is committed to building industry and end user confidence in Ethernet standards through multi-vendor interoperability demonstrations and clear guidance standards, and increases multi-vendor interoperability. The trademarked logo provides clear recognition for products based on these standards, and increases multi-vendor interoperability between products bearing it. The logo indicates the power class and product type providing clear guidance on which devices are compatible with each other.

The Ethernet Alliance’s PoE Certification Test Plan is based on its multi-vendor interoperability demonstrations and end user confidence in Ethernet standards through multi-vendor interoperability demonstrations. The Ethernet Alliance is committed to building industry and end user confidence in Ethernet standards through multi-vendor interoperability demonstrations and clear guidance standards, and increases multi-vendor interoperability between products bearing it. The logo indicates the power class and product type providing clear guidance on which devices are compatible with each other.

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