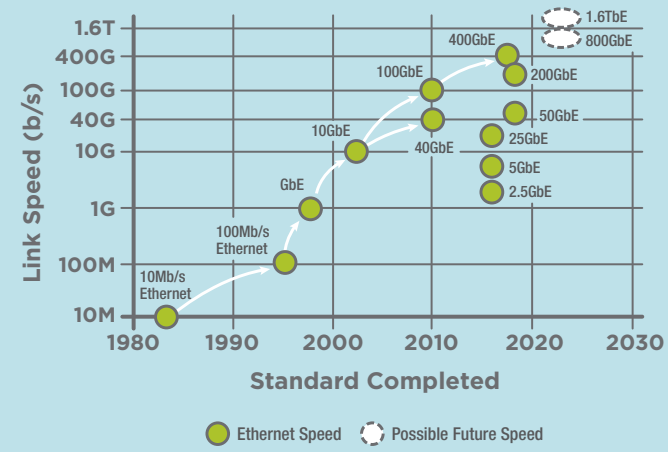


# 2020 ETHERNET ROADMAP

THE PAST, PRESENT AND FUTURE OF ETHERNET

## ETHERNET SPEEDS



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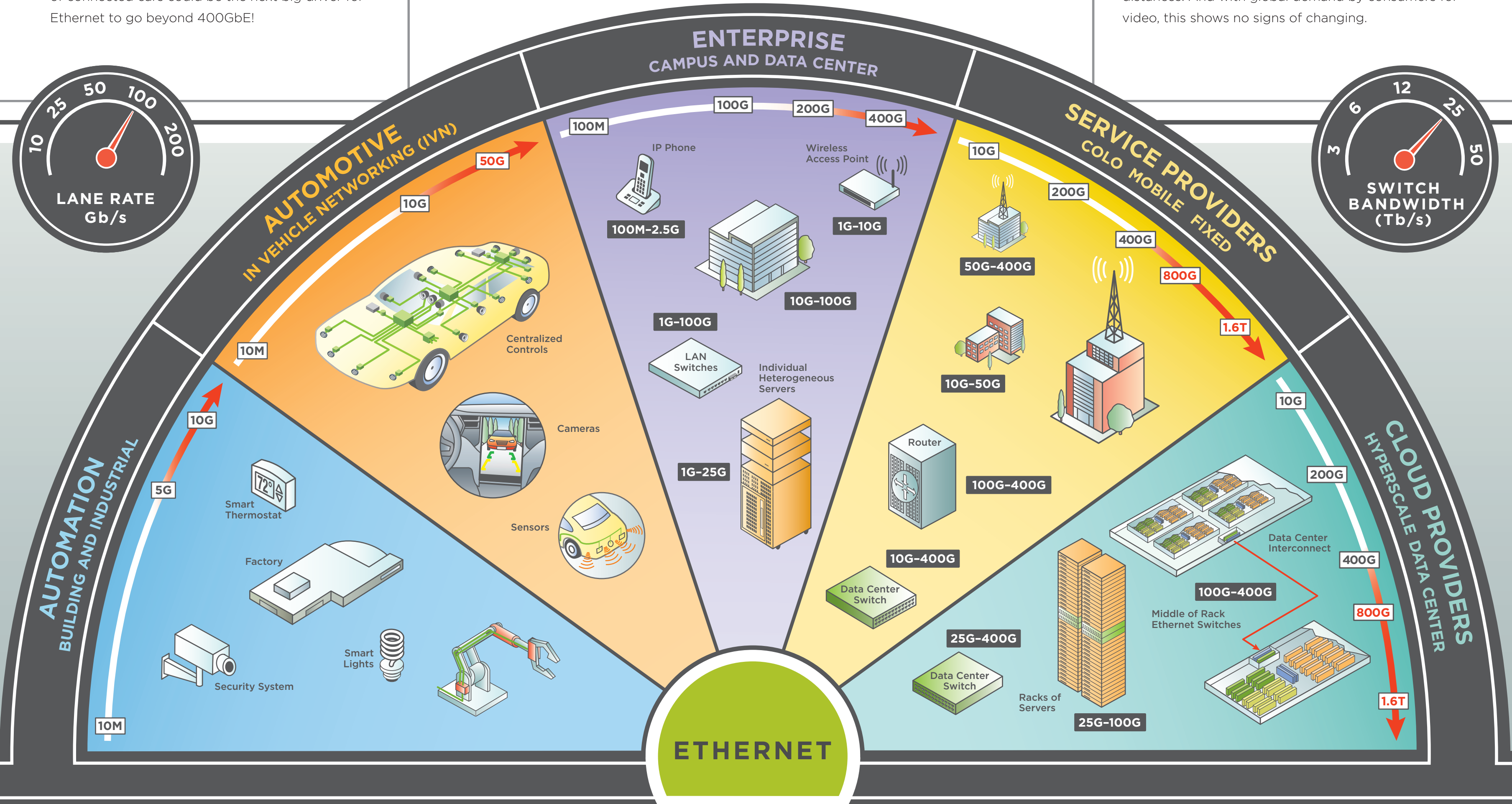
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# ETHERNET APPLICATIONS

**AUTOMOTIVE** Ethernet is one of Ethernet's latest success stories. Forecasts predict up to 500 million ports of Ethernet will ship in over 100M vehicles by 2021. Ethernet links within cars provide data and power to reduce the cost and weight in vehicles while providing economies of scale and interoperability. The bandwidth demand of connected cars could be the next big driver for Ethernet to go beyond 400GbE!

**ENTERPRISE** and Campus applications drive the bulk of Ethernet port shipments with hundreds of millions of ports shipping per year. Ethernet's roots are in enterprise local area networks (LANs) where the entire Ethernet family, including the BASE-T products, can be found. LANs are rich in copper where over 70 Billion meters of cable have been deployed over the past 15 years. Enterprise data centers are very cost sensitive and most servers deploy GbE and 10GbE, and are expected to transition to 25GbE.

**SERVICE PROVIDERS** have driven higher speed Ethernet solutions for decades. Router 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 fronthaul and backhaul applications, and continues to push Ethernet to higher rates and longer distances. And with global demand by consumers for video, this shows no signs of changing.



## INTEROPERABILITY AND CERTIFICATION

The Ethernet Alliance is committed to leading the charge to instilling industry confidence in Ethernet standards through its multivendor interoperability demonstrations and plugfests. Our PoE Certification Program takes this mission to the next level!

Our industry-defined PoE Certification Test Plan is based on the Ethernet PoE standard, and products passing this test will be granted the Ethernet Alliance PoE Certification Logo. This logo will provide instant recognition for products that are based on the IEEE 802.3 PoE standard, and provide confidence in the multi-vendor interoperability of those products bearing it. The logos will also provide clear guidance on which devices will work with each other.

The first generation of the program certifies Type 1 and Type 2 products that use 2-Pair of wires. The second generation of the program tackles the IEEE802.3bt standard. This table explains the capabilities of the Types.

PoE Types and Classes	2-Pair PoE+ - Type 2				4-Pair PoE In Standardization				
	0	1	2	3	4	5	6	7	8
PSE Power (W)	15.4	4	7	15.4	30	45	60	75	90
PD Power (W)	13	3.84	6.49	13	25.5	40	51	62	71.3



EA Certified

<https://ethernetalliance.org/poecert/>

**AUTOMATION, BUILDING, AND INDUSTRIAL** applications highlight the need for lower speed Ethernet solutions in harsh environments. Today this space is leveraging BASE-T solutions from the enterprise space. The Ethernet community defined the IEEE 802.3cg standard for 10Mb/s operation plus power delivery over a single twisted pair. This will consolidate a landscape of multiple legacy protocols, driving the promise of Ethernet's multi-level interoperability to new heights.

**CLOUD PROVIDERS** were the first to adopt 10GbE servers on a large scale in 2010 for hyperscale data centers. With voracious appetites for applications like AI and Machine Learning, hyperscale servers have moved to 25GbE, and are transitioning to 50GbE and beyond. Unique networking architectures within these warehouse scale data centers have driven multiple multimode and single-mode fiber solutions at 100, 200 and 400 GbE. The bandwidth demands of hyperscale data centers and service providers continue to grow exponentially and in a similar direction that blurs the lines between the two.

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To get a PDF version of the roadmap and to find out more about the roadmap, please go to: [www.ethernetalliance.org/roadmap/](http://www.ethernetalliance.org/roadmap/)