

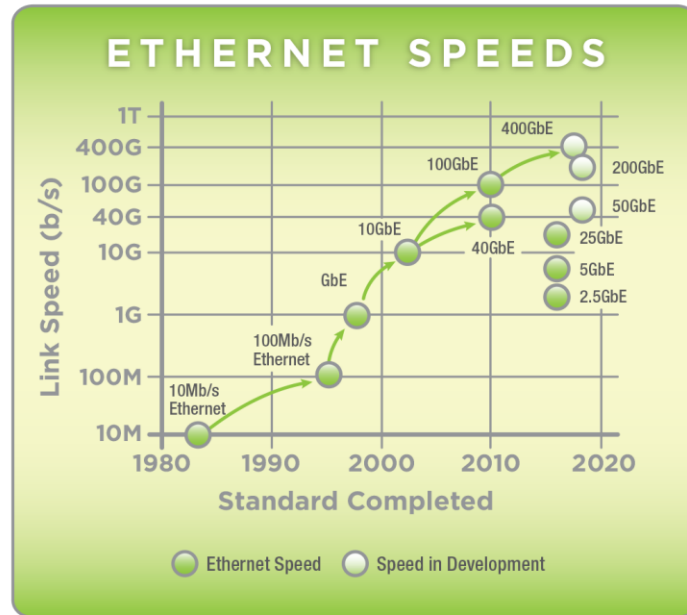
INTO 2020 AND BEYOND

Christopher Mash – VP of Business Development

ETHERNOVIA

TRANSFORMING HOW CARS OF THE FUTURE ARE BUILT

Where are we now?



Automotive Electrical PHYs in IEEE802.3

- 802.3bp -1000BASE-T1
 - CFI 3/2012, Standard 6/2016
- 802.3bw -100BASE-T1
 - CFI 3/2014, Standard 10/2015
- 802.3cg -10BASE-T1S / (10BASE-T1L)
 - CFI 7/2016, Standard 2019 (est)
- 802.3ch -2.5/5/10G BASE-T1
 - CFI 11/2016, Standard 2020 (est)

Source: Beyond 10G IEEE CFI

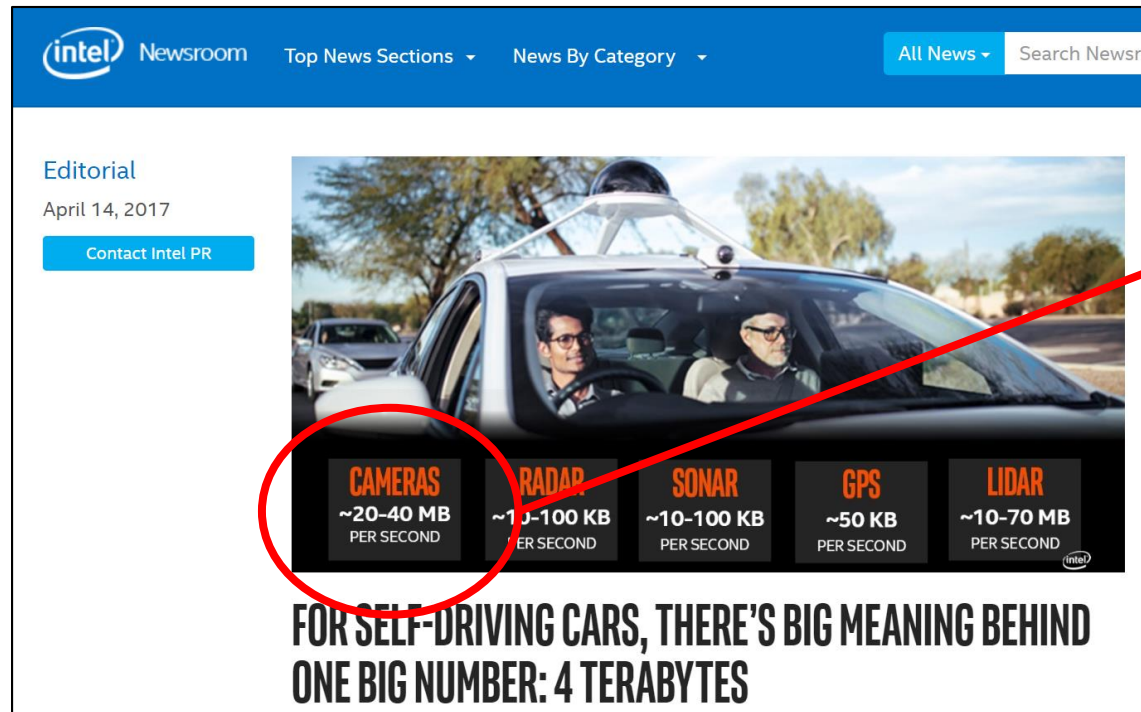
Approx. **20** years: 10Mb/s to 10Gb/s

Approx. **8** years: 10Mb/s to 10Gb/s

Why is bandwidth increasing?

- New applications and use cases, incremental features and functionality
 - 4G > LTE
 - Infotainment quality, number of displays
 - 2D > 3D maps
 - ..
- However, main drivers are autonomous vehicles and changes in architecture
 - Updating from Domain to Zonal / Central architecture requires high speed aggregation
 - Moving from Level 2 to Level 3, L3 > L4, etc requires exponential increase in data

Autonomous Drive



MY2021 L3 autonomous vehicle
Multiple cameras at 8Mpix+
(8-13Gb/s (1-2GB/s) per camera)

Source: Intel – Apr 2017

- 2017 to 2021 – exponential growth of data
- L4 and beyond will generate **Petabytes** of data

Next steps

- How can we support this exponential growth of data?
 - Kick off a new project in IEEE802.3
- The IEEE Beyond 10G Call For Interest (CFI) successfully completed in March 2019
 - Currently in Study Group phase
 - Looking at 25Gb/s and higher speeds
 - Estimated standard completion in 2021/2

Study Group Motion

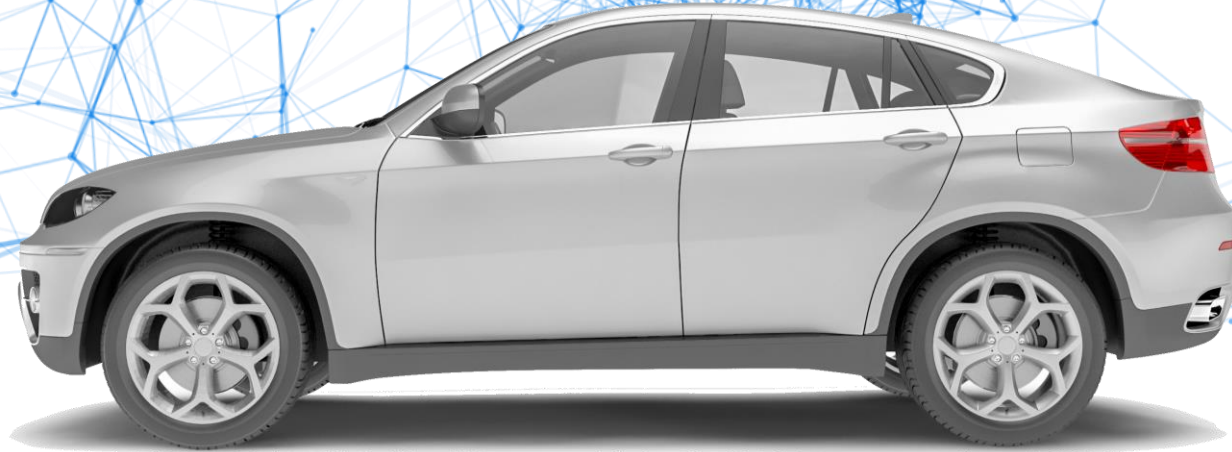
Move that the IEEE 802.3 Working Group request the formation of a Study Group to develop a Project Authorization Request (PAR) and Criteria for Standards Development (CSD) responses for **Greater than 10 Gb/s Automotive Ethernet Electrical PHYs**

M: Steve Carlson S: Chris Mash
(>50%)
Y: 87 N: 0 A: 2

Version 1.2

IEEE 802.3 CFI - Automotive Ethernet: Beyond 10 Gb/s Electrical PHYs - March 2019 IEEE 802.3 Closing Plenary

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THANK YOU

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Christopher Mash

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