

The 5G - Autonomous Driving Connection

January 2017 — How do two of the biggest buzz words in tech these days, 5G and autonomous driving, relate to each other? In the simplest terms, 5G will help turn autonomous driving from a vision into a reality.

At [AutoMobility LA earlier last year](#), [Brian Krzanich](#) called autonomous vehicles, effectively, mobile mini data centers. The vehicles themselves will generate massive amounts of data, but will also need to take in large quantities of data to navigate and react to sudden changes. Today's communications systems were not designed to handle the massive bandwidth required to support this. That's where 5G comes in, expected to deliver faster speeds, ultra-low latency and vehicle-to-vehicle (V2V) connectivity for the era of autonomous vehicles.

- **Faster speeds.** Today's networks need to be much faster to transport the massive data generated and needed by autonomous vehicles. Through mmWave bands and advances in wireless and antenna technology, 5G is expected to deliver multi-gigabit speeds for mobile usages. The industry expects 5G speeds to be capable of up to 10GB per second, over 600 times faster than today's fastest average LTE speeds in the U.S.¹
- **Ultra-low latency.** 5G will enable the connectivity needed for autonomous vehicles to be able to make imperative split-second decisions instead of sending and receiving data from a server hundreds of miles away. That's because 5G plans to deploy computing resources at the very edge of the network in cellular base stations and towers that connect cars via wireless signals.
- **Vehicle-to-vehicle connectivity.** Autonomous vehicles need to gather and process information to make informed decisions. 5G aims to implement connectivity that allows vehicles to talk to and learn from each other and to the environment around them – even when they are outside of line of sight.

To support 5G and autonomous driving, Intel developed the [Intel® GO™ Automotive 5G Platform](#), the industry's first 5G-ready platform and a complete scalable end-to-end system for autonomous driving. Available in February 2017, this platform is expected to allow automakers to develop and test a broad range of use cases such as sensor data uploads from the vehicle for machine learning, high-definition map downloads in real time, and over-the-air firmware and software updates as well as applications ahead of the broad 5G rollout in 2020 and beyond.

[View the 5G Autonomous Driving Connection Infographic](#)

¹OpenSignal State of Mobile Networks report, August 2016. <https://opensignal.com/reports/2016/08/usa/state-of-the-mobile-network/>

[5 Gbps = 5000Mbps as compared to ~16Mbps which was reported as the fastest average LTE in the U.S. in this report, making 5G modem 307 times faster.]

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