GM’s new ‘digital nerve system’ will enable over-the-air software updates on all vehicles

General Motors unveiled a new electronic platform for its vehicles on Monday that’s designed to handle the heavy data loads that will become increasingly necessary as cars get smarter and more autonomous. This new “digital nerve system” will enable smartphone-style over-the-air software updates on all GM vehicles in the next four years, said Mark Reuss, president of GM.

“It is a real digital nerve system.”
The new platform will make its debut on the recently unveiled 2020 Cadillac CT5 sedan. After that, it will go into production later this year and should be rolled out to most vehicles within GM’s lineup by 2023.

“It is a real digital nerve system that will deliver the future of connectivity, autonomous vehicles, and cybersecurity,” Reuss said in an interview with *The Verge*.

Photo by Jeffrey Sauger for General Motors
Legacy automakers have struggled to catch up to Tesla, which has long been the leader in shipping over-the-air (OTA) updates to its customers to change everything from its Autopilot driver assistance system to the layout and look of its touchscreen interfaces. It’s similar to how Apple or Samsung, for example, can update or repair the software on a smartphone.

GM would be the first major automaker to implement an OTA

system after Tesla. Ford has also said it would start rolling out software updates for its 2020 models.

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In the past, GM has said matching such a system would require completely rewiring the electrical wiring of its vehicles in order to ensure such updates were secure from tampering. Now, after five years of research and development involving 300 engineers and over 100 patents, the auto giant is ready to roll out its new platform.

The new architecture will be capable of handling 4.5 terabytes of data an hour, or about five times the load of what GM's cars can handle today. "That's about 500 movies," Reuss said. But it won't be movies that cars will need to process, so much as large quantities of sensor data, including camera footage, LIDAR input, and real-time traffic and road conditions from municipal partners. This applies to both self-driving cars with their expensive sensor suites and production cars currently available, like Cadillac's advanced driver assist system Super Cruise.

"That pipe has to be pretty hefty," Reuss said between bites of ravioli at an Italian restaurant in the West Village. "Because you want the speed. You know, you're driving a car."

Image: GM

Self-driving cars are still years — if not decades — away from becoming commonplace, but GM sees near-term gains with this new electronic platform. Over-the-air software updates will allow the automaker to fix engine malfunctions, improve fuel economy, adjust steering quality, and alter almost every feature on a vehicle, possibly even including updates for safety standards that go into effect years after the vehicle was built.

Car dealers are generally wary of OTA updates for fear of being cut out of the lucrative service and maintenance process. Basically, if you can fix your car with an OTA update, you don’t need to take it in to the dealership as often. And that means less money for them.

Reuss believes GM’s dealers will ultimately benefit from this new digital architecture because it will allow them to focus on elements of their business that are more important. Dealers could also save some serious money by fulfilling basic warranty and repair claims with fewer overhead costs, completing the work over the airwaves

“This takes it to a whole different place where we can do safety things very accurately. We can do enhancements. We can basically provide you with a new buying experience and vehicle any time we want on a repeated basis,” he said. “So the ownership model becomes very good.”

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