

Automakers use 5G to digitally transform vehicles and factories



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Executive summary

The combination of edge computing and modern cellular technology will transform the automotive industry. Along with the ability to increase the efficiency of everything from robots on the factory floor to sales and shipping, digitally connected cars will provide a steady flow of data back to the company. The feedback loop created by this data flow will allow continuous product and operational improvement. Furthermore, the industry will become a key part of the digital environments of the future.

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How automakers can modernize IT with edge computing and 5G

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Edge computing is one such strategy, offering benefits that include faster and better use of data, reduced costs, and continuity of operations. As companies across industries recognize the advantages of storing and processing data close to the source, they are rapidly adopting this relatively new model.

As promising as edge computing is, conventional cellular data transmission speeds and latency have prevented realization of the full potential of edge computing in many application areas. The advent of fifth generation mobile and cellular networks (5G) helps eliminate this issue. 5G transmits data with low latency and high bandwidth and has other advantages, like low power consumption. This technology provides a faster, more efficient, and more reliable connection between edge devices and the cloud. This advance is a key component in accelerating the transformation journey of the automotive industry.

Collecting raw data versus delivering useful information

One of edge computing's key benefits is reducing network bandwidth consumption. With advances in the Industrial Internet of Things (IIoT), many edge devices – including embedded controllers in vehicles – now have greater onboard storage and computing power. They can also use artificial intelligence (AI) for smarter processing at the data source. These capabilities mean that rather than sending massive amounts of raw data back to the cloud or datacenter for processing, the edge device can perform analytics on the spot. It then sends analysis results, alerts, and other processed information to a central source.

For example, a conventional security camera might send massive amounts of data across the network, showing an empty hallway where nothing happens for hours. However, a smart edge device could use analytics to detect a meaningful change in the environment. Then, it could either send an alert or start a live video feed of the hallway.


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