

Intel + Deloitte Alliance

The Evolution of 5G and Next-G

The advent of 5G technology has catalyzed a paradigm shift for what is possible when running applications through advanced connectivity technology.

5G Data transfer speeds are up to 100X faster than 4G networks, and network latency on 5G has been reduced to mere milliseconds, which allows for reliable utilization of breakthrough technology with no network outages or slowdowns that would impact performance. Virtual reality, self-driving vehicles, real-time Internet-of-things (IoT) and smart city applications are just some of the many technologies that are now reliably enabled when running on 5G.

Organizations now face a two-fold challenge when integrating 5G and advanced connectivity into their operations. The first hurdle is integrating the 5G network itself into the operational environment, which requires a core network, base/node stations, and hardware devices to receive the signal. Then, the organization must choose which edge applications to utilize to maximize the network's power.

Intel is a leading technology provider for both the necessary hardware and software to elevate organizations' current operations with 5G technology.

Through the Deloitte and Intel alliance, 5G solutions can be tailored to fit clients' specific needs, while meeting the highest quality standards.



Intel 5G Technology Offerings

Intel 5G Network Hardware & Architecture

Hybrid cloud's ability to share data and applications between on-premises and off-premises infrastructure offers a valuable degree of flexibility when choosing where to run computational workloads.

- **Fort Columbia:** a modular, small form factor and integrated RAN reference design (RDU (DU/CU)) for building 5G radio base stations. This platform can be utilized to dynamically enable low latency use cases for devices at macro scale, such as over a large battlefield area, as well as at micro scale, such as the inside of a small warehouse facility.



- **FlexRAN:** a software-defined reference architecture for cloud-native wireless access virtual network functions (VNFs). When deployed on Intel architecture, organizations can enable high-performance, scalable 5G RAN solutions through a variety of software stacks, at the edge, on-premises or via the cloud, as part of a 5G private network.



Intel Hyper Edge Applications to Use on 5G Network:

- **SceneScape:** a software platform that enables developers to build and deploy real-time scene intelligence solutions at the edge.



- **Situational Awareness at the Dynamic Edge (SADE):** a scalable open software framework designed for edge operations that aggregates data asynchronously from connected devices.

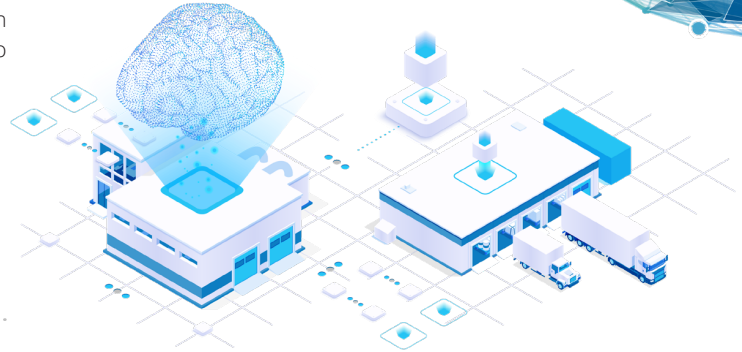


Smart Warehouse & Factory Integration

Intel and Deloitte are collaborating to integrate Intel 5G networking hardware, software, and edge applications to demonstrate end-to-end advanced connectivity delivery to client organizations that are looking to accelerate warehousing, manufacturing, and supply chain capabilities. Notably, 5G will be integrated into the following emerging technology demonstration environments:

Smart Warehouse: Deloitte's Smart Warehouses in York, Pennsylvania is an ideal environment for implementing 5G solutions and being able to demonstrate them in operationally active warehouse conditions.

The warehouse is utilized to test and demonstrate automation, robotics, and augmented workforce technology that aims to improve efficiency and decrease the cost of warehouse operations. This includes the implementation of the Intelligent Security solution, a joint Intel - Deloitte capability, that provides real-time monitoring to reduce response times in the event of a security breach.



Smart Factory: Both Deloitte Smart Factories, one in Wichita, Kansas and one in Montreal, Canada, house technology from over 20 solution providers. They have manufacturing production lines which combine artificial intelligence, machine learning, big data, cloud/edge applications, robotics, vision solutions and more. The factories showcase emerging technologies for tailored Maintenance, Repair and Overhaul (MRO) solutions which result in increased productivity, performance, and cost savings; these benefits are only amplified when running on a high-speed 5G network.

Use Case(s):

Challenge:

In the public safety sector, first responders need to access and share real-time information and data in critical situations, such as natural disasters or terrorist attacks. However, traditional communication systems can be overloaded or unreliable in these situations, making it difficult for first responders to coordinate their efforts and respond effectively. This can increase response time and result in negative outcomes due to slow communication of data.



Solution:

Intel 5G products, such as Fort Columbia and FlexRAN, can be used to build the infrastructure for a reliable, high-speed communication network for first responders. This network would allow first responders to communicate real-time video, audio, and data with both command centers as well as each other. It would also enable first responders to access critical information such as maps, weather data, and intelligence reports.

First responders can also employ Intel edge applications on the 5G network, such as SceneScape, to build smart city AI systems to autonomously track and detect objects like cars or people.

This allows for immediate, real-time alerts or analytics of events that require a public safety response, such as a fire or robbery.

Intel's 5G offerings can connect first responders, public transportation, and other critical infrastructure to boost coordination efforts, enhance AI and edge computing capabilities, and improve the quality of life for civilians of an entire city.



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