

# Intel® Smart Edge : Healthcare

## EXECUTIVE SUMMARY

As healthcare providers and their equipment providers drive toward digital transformation, they are grappling with pressures regarding cost containment as well as preparing for new business models. While far cloud applications can satisfy many problems, there are some use cases that require a more in-depth use of local compute, networking and storage. Additionally, infrastructure based on the public wireless spectrum does not provide the same level of reliability and robustness of carrier-class wireless technology like LTE and 5G—built for uninterrupted operation in challenging environments—which healthcare facilities certainly qualify. Intel® Smart Edge solutions provide robust communications services as well as near field compute, networking and storage for legacy and emerging on-premises cloud requirements in the healthcare industry.



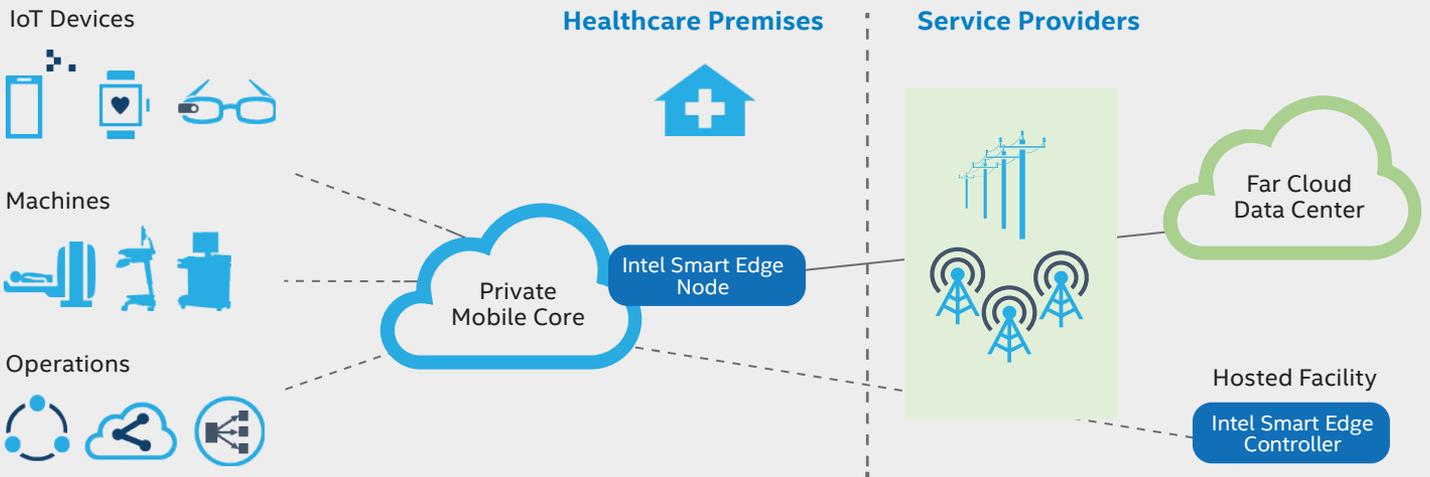
## ENTERPRISE NEEDS

The advent of cloud computing has created tremendous advantages and economies. This evolution has impacted nearly every industry in varying orders of magnitude. Healthcare facilities and equipment have seen its share of change in this regard. Still, the bulk of applications run inside the premises network at a hospital or healthcare facility. Regulatory requirements may further drive the need for local storage and data culling inside the premises. In healthcare, a close integration with communications facilities built on LTE and 5G, which recently expanded to include CBRS spectrum, combined with high-performance, virtualized compute, software defined networking and modular storage provides many benefits to the healthcare industry, including:

- **Local Data Storage.** Traditional carrier services used a structured networking approach that introduced delay and increased latency between device, application and local storage. Large datasets, like MRI scans, created by healthcare equipment are expensive to store in the far cloud and unwieldy to transmit through the network. As both providers and equipment manufacturers grapple with this problem, a number of cost-effective solutions have emerged. Metadata—reducing a large dataset into smaller components—represents an order of magnitude reduction in required storage. As an additional step, large datasets can be stored at the edge and transmitted over time, thereby maximizing rare network resources. Lastly, temporary edge storage based on regulatory requirements can ensure that data is warehoused for as long as needed.
- **Zero-trust Security Model.** The software of any contemplated solution must ensure that remotely deployed edge compute comprehensively protects the increase in “attack surface”. Leveraging asymmetric cryptography and strict mutual authentication for control interfaces is a critical requirement. In addition, policy-driven operation combined with centrally controlled permissions ensure that only legitimate traffic flows between applications and devices.
- **Privately Managed Mobility.** Carrier-class wireless connectivity, using managed or licensed spectrum, must be easily deployable and simply operated on an ongoing basis. Private LTE, encompassing leased-licensed and CBRS spectrum, provides the comprehensive consistency and control that mission critical applications require. In addition, carrier-class wireless in the form of LTE reduces downtime and provides a robust communications service that consumer-grade unlicensed wireless technologies do not.

## PROPOSED SOLUTION

Intel Smart Edge is a multi-access edge (MEC) platform that has the ability to connect on-premises devices and applications over a robust carrier-class private wireless network to local compute, network and storage in a healthcare facility. Should far cloud resources or public carrier services be required solution elements, access to those service providers is further enabled and governed by the Intel Smart Edge node. The diagram below provides a simple reference for the topology:



## BENEFITS & OUTCOMES

The key high-level benefits of the Intel Smart Edge solution include:

- Higher performing local compute, network and storage
- Zero-trust security and policy enforcement
- Ease of deployment and use
- Faster responses and lower latencies

The Intel Smart Edge platform provides complete application life-cycle services for the network edge. This enables simple one-click deployment of applications as well as the zero-trust security paradigm required to on-board devices and help protect resources from undesired access. Through a comprehensive set of deployment and management tools, this software enables any healthcare concern to stand up a private LTE/5G network inside a hospital or facility. Only devices identified by policy have access to the network thereby ensuring promoting high performance and a more secure operation. Local hosting of applications provides sub-millisecond access to compute and storage within the premises by authorized devices.

The Intel Smart Edge software can be implemented on Intel® Xeon® processor-based servers to offer a robust way to operationalize and better secure the network and compute edge. Additionally, Intel® Secure Device Onboard (Intel® SDO) ensures automated deployment of endpoint devices enabling a chain of trust between them and other resources. Intel® Software Guard Extensions can also help increase the security of application code and data, giving them more protection from disclosure or modification. With this portfolio of Intel technology, healthcare providers can implement more secure, high-performance edge compute frameworks for healthcare applications.

## Find more information

To learn more about the Intel Smart Edge solution, please contact us at [smartedge@intel.com](mailto:smartedge@intel.com).



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