Today, Internet of Things (IoT) is the most researched topic globally. Businesses are adding millions of IoT devices to build smart connected solutions, improve operational efficiency and drive intelligent decision making. With the Industrial IoT market predicted to reach USD 123 billion by 2021, IoT is poised to be the centrepiece of digital transformation across many organizations.

But IoT comes with its own challenges. Most of the deployments are usually in remote locations, requiring an assured bandwidth for sending critical data to the gateways and cloud. And the devices don't have enough compute power to support Transport Layer Security (TLS) for secure data transmission. Additionally, due to lack of interoperability across different IoT protocols, integrating and managing IoT systems can get quite complicated for organizations.

Decillion Devices, with its SD-WAN approach, aims to solve the existing and future challenges in IoT market. Using a data-model defined, secure device management framework and built-in protocol adapters, our solution seamlessly cloud-enables last-mile IoT/M2M devices and establishes a standardized and highly available network for controlling and monitoring connected devices through centralized cloud portals.

Solution

Decillion's SD-WAN consists of three components:
- **SD-Gateway:** Deployed on-prem or in public clouds, the gateways host virtual network functions (VNFs) and deliver network services from the cloud to the IoT edge devices.
- **SD-Controller:** Centralized server orchestrating network-wide service deployment. Also exposes a self-service portal in the cloud for network management and monitoring.
- **SD-Edge:** Whitebox appliances providing secure branch-to-cloud connectivity and enabling service delivery from the gateways.
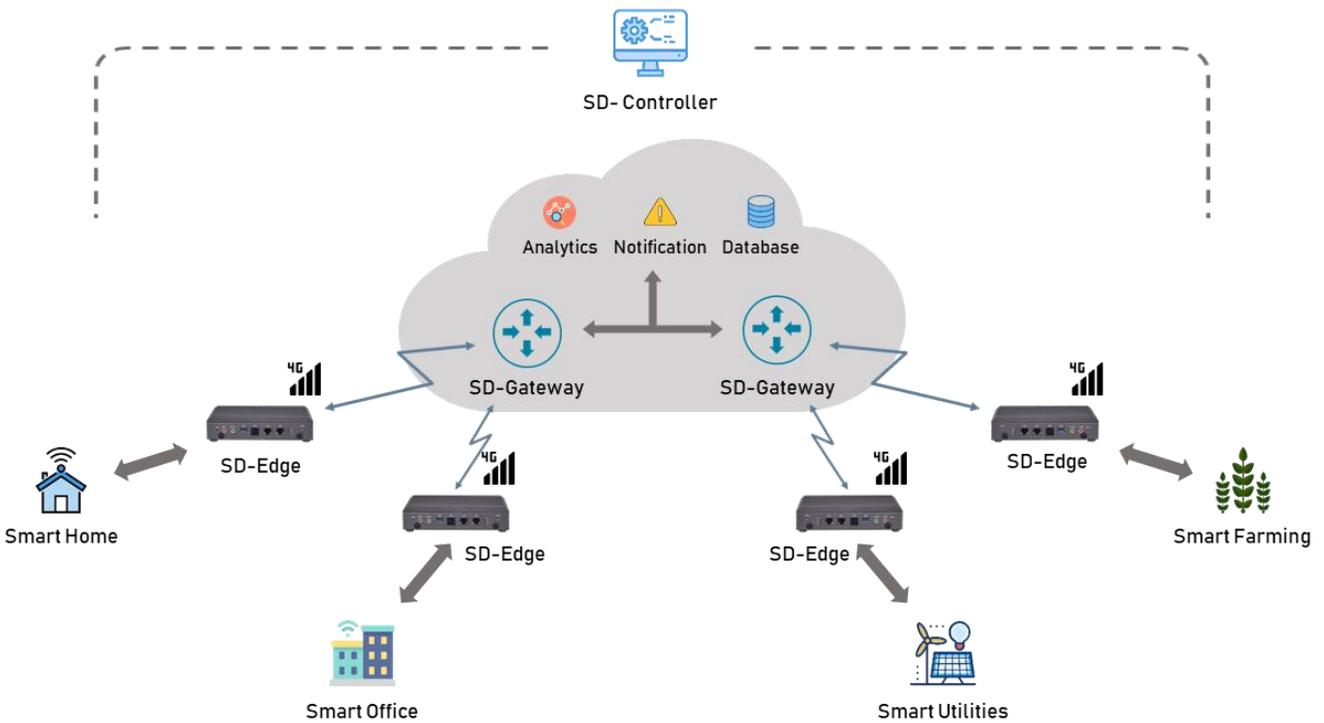

Connecting multiple IoT networks through industrial-grade edge appliances

The entire solution is designed using IETF-defined YANG data models, enabling a well-defined and secure framework for network service orchestration and management. This makes the SD-Edge appliances a perfect solution to act as the gateways/aggregators for the IoT sensors/devices. IoT Sensors are the last-mile devices that periodically send useful data to the gateways, which in turn aggregates the data and uploads them in the cloud. The edge appliances cloud-enable the IoT networks and with YANG-defined services for IoT management, the devices can be managed and monitored from centralized portals. WAN optimization at the edge ensures the uplink remains highly available and traffic gets dynamically steered through the best available connection. All edge appliances for IoT come with 4G/LTE support, making them ideal for deployment at remote locations. For secure transmission of IoT data, the connections from edge is established over SSL/TLS channels.

Unique Value Proposition: Protocol Adapters

What really differentiates Decillion's SD-WAN solution from competitor offerings is the built-in protocol adaptation support in the SD-Edge appliances. With translators for multiple low-power IoT and industrial protocols, including Z-Wave, MQTT, LoRa, Modbus, the SD-Edge appliances create an interoperable network at the edge and non-intrusively bring the last-mile networks under the SD-WAN framework. Hence devices ranging from temperature or pressure sensors, long-range sensors to smart bulbs, drones and industrial control units can connect behind the same edge appliance and get exposed in a common cloud portal for centralized management and monitoring. The protocol adapters ensure the time taken to onboard a new device to making it fully operational is hardly days instead of weeks or months.

Protocol Adapters
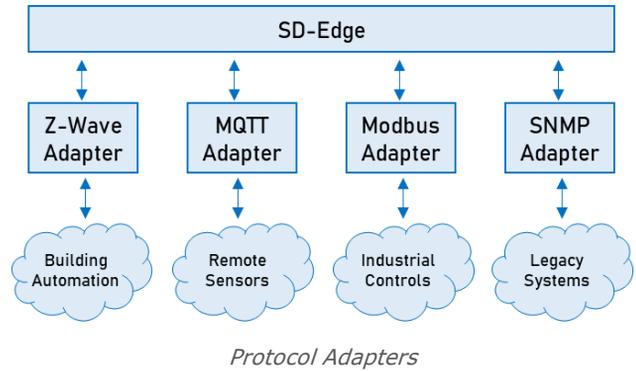
Cloud IoT Integration

Decillion Devices, in partnership with Microsoft, has integrated the SD-WAN solution with Azure IoT Hub, IoT Central and Power BI, allowing organizations to seamlessly subscribe for all available value-added services in Azure Cloud, and facilitate real-time intelligence and analytics on the network data generated from connected devices.
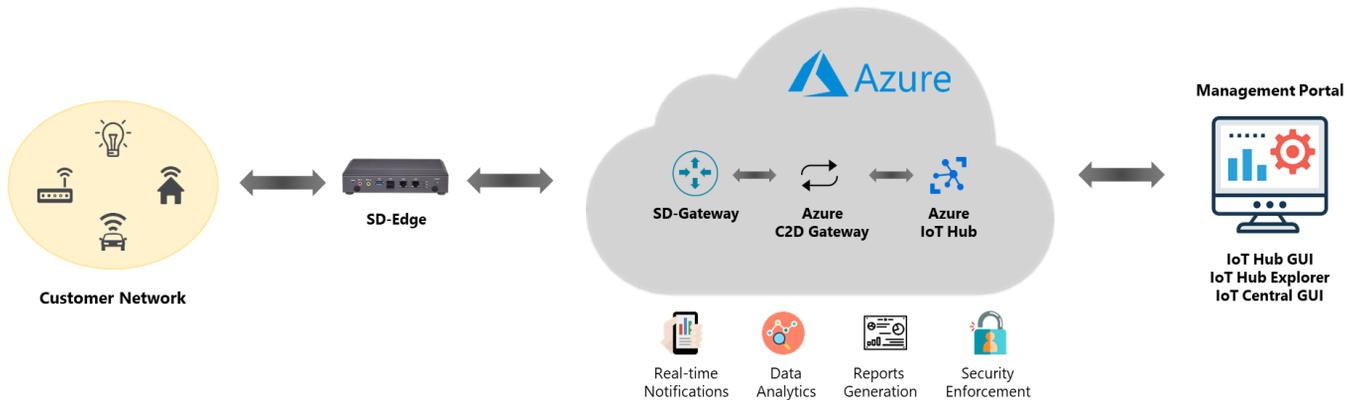
Business Benefits

- Centralized network visibility and real-time alerts
- Protocol adapters for Z-Wave, ZigBee, MQTT, 6LoWPAN, LoRa, Modbus, SNMP
- Assured WAN bandwidth with traffic optimization
- Network scaling, with over 10,000 active connections

SD-Edge Appliance

LEC-7230M
4 cores, 8 GB RAM, 128 GB Storage

Hardware Partner: Lanner Electronics

Conclusion

IoT deployments today are a very disparate, complicating the visibility and management of networks. Decillion Devices, through its software-defined edges, unifies all the IoT devices under a common management framework. Plus, the devices avail all the SD-WAN benefits offered by the solution. Decillion's SD-WAN simplifies the IoT deployments and significantly reduces the time-to-market with its protocol adaptation support to create agile, connected networks and allow organizations to quickly evolve as per the changing business requirements.

ABOUT DECILLION DEVICES

Decillion Devices India Private Limited focuses on delivering network as a service using SD-WAN technology, deployed on-prem or in public clouds. Our SD-WAN enables centralized service deployment, management and monitoring for home and enterprise networks, industrial gateways and connected fleet solutions.

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