

Asavie IoT Connect Solution Use Case

Connecting the IoT edge to the AWS Cloud

Asavie IoT Connect is an on-demand network service which simplifies connecting IoT devices on the network edge to the AWS cloud. Asavie IoT Connect provisions the Asavie PassBridge™ connectivity platform, to securely connect IoT devices to where you need; when you need.

Customer Challenge

An enterprise customer wished to roll out an IoT program across geo-dispersed sites. They needed to securely connect and federate data from each of the sites but the data had to be made available centrally, so users of the service could perform detailed analytics on the collected data. This would ensure intelligent decision making regarding updates could be done per remote site.

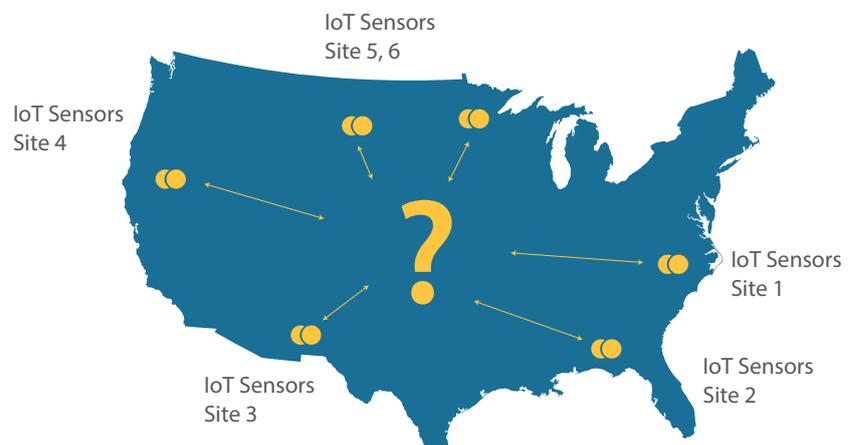


Figure 1
Customer required to securely deploy a nationwide IoT program

The ultimate challenge for the customer, was how to securely connect and manage each of the remote sites. The customer recognized that if the IoT sensors appeared on the public network, they would become an “IoT hacktivist target”. In addition, the customer needed the ability to provision and manage each of the unique IoT sensors and actuators, live in the remote sites. This further complicated the situation, as there was a need for unique and static IP addresses per IoT sensor.

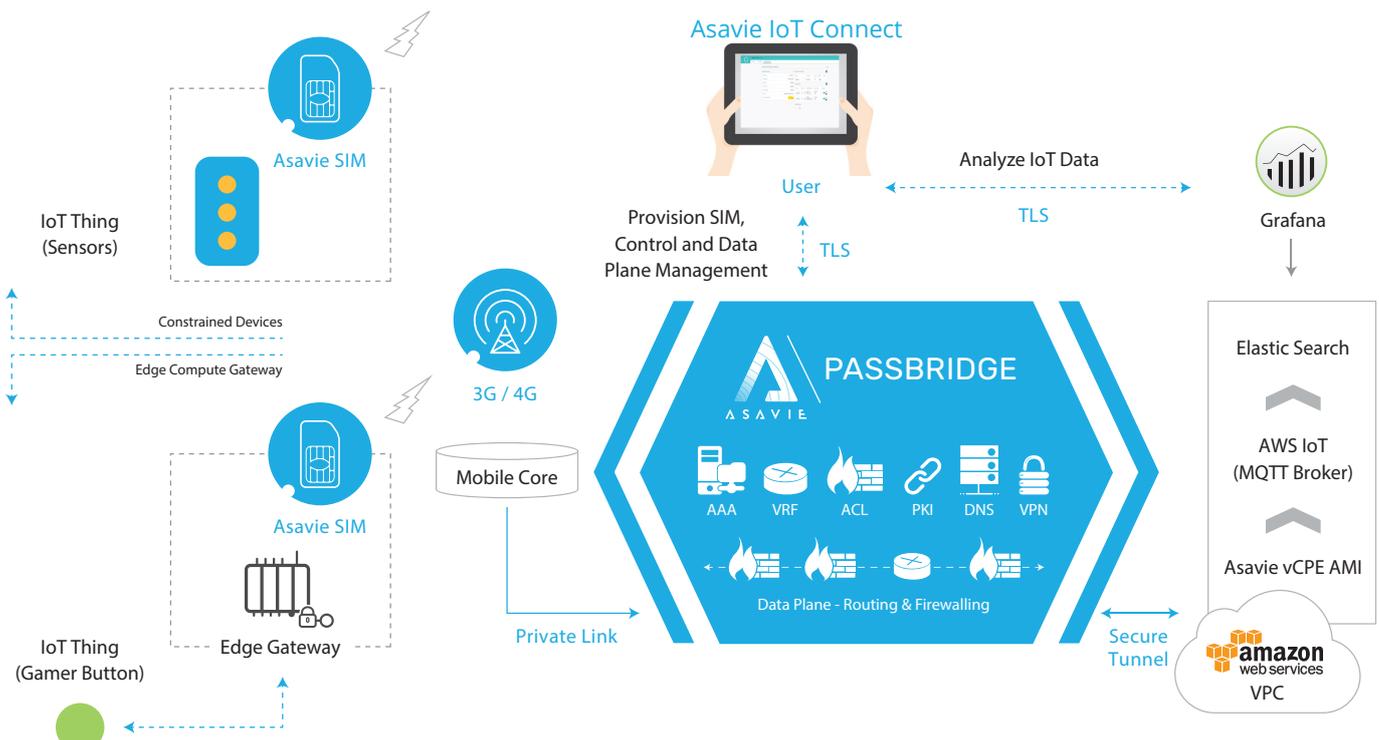
A secondary objective for the customer was the requirement to present the stored data in a secure manner. A key ask was for data privacy, per site location, meaning certain business groups were not entitled to see data from a particular site.

Solution Overview

The customer selected Asavie to deliver the end-to-end secure connectivity for their IoT program. Using Asavie the customer could provision the gateway and constrained devices with cellular connectivity, enabling transmission of the collected IoT data to a virtual private cloud (VPC) in Amazon.

Leveraging Asavie IoT Connect the customer could provision Asavie PassBridge™ to federate data from the unique remote locations, using multiple carrier networks, through a single private access point name (APN). Using the private network, the customer sites were removed from the public internet, making them safe from any potential hacktivist target.

Figure 2
Asavie PassBridge™
enables a private network
from the IoT edge to the
AWS Cloud



Asavie is an advanced technology partner of AWS and provides a virtual customer premise edge (vCPE) application - available as an Amazon machine image (AMI), to securely connect into AWS. This provides a virtual private network from the AWS VPC to the Asavie PassBridge™ platform. This ensures the entire estate of IoT devices are run on a completely private network, extending from the edge to the cloud.

The second customer objective was in relation to management of the data from the IoT devices. The IoT devices use the MQTT protocol to send data. To extrapolate the data, required the use of the AWS IOT MQTT broker. This is used to push the data into the Elasticsearch service database for analytics and presentation.

A key feature of Asavie PassBridge™ is the capability to segment data in order to address the requirement for data privacy per site location. The provisioning was easily implemented using the Asavie IoT Connect web interface. PassBridge's virtual route function (VRF) allowed the customer to add static IP addresses per IoT device. This ensured that data could be mapped accurately in the AWS Elasticsearch database.

Confident of the data integrity in the Elasticsearch database, the customer chose Grafana to deliver a reporting dashboard. Grafana enabled the customer to create unique logins and dashboards per site location, per IoT sensor, for its employees.

Why Asavie IoT Connect was chosen?

Asavie was chosen by the enterprise customer because of the flexible and configurable networks, it provides over cellular connectivity.

The following table highlights some of key features and advantages of the Asavie solution.

Complete end-to-end private network	A proven end-to-end solution, enabling secure connectivity from the IoT edge to the AWS cloud service.
Carrier Agnostic	Flexibility to use unique SIMs from multiple carriers, with all data from remote sites being federated through a private network.
Private APN	Using cellular network connectivity, ensures the IoT gateways/devices are kept off the public internet.
Enhanced security	Utilizes RADIUS records, for authentication and access of the edge gateways/devices to the private network.
Provisioning per IoT device	Ability to statically assign an IP address per IoT device. Ease of correlating data per IoT device in the AWS Elasticsearch database.
Secure remote access	Ability to securely connect (SSH) into each IoT device and run debug sessions, along with automated updates from remote site.
Right size scale	Ease in which the IoT network could be scaled, building from initial deployment to 6 key geo-sites cost efficiently.
Speed of roll-out	Initial prototype on constrained IoT devices to live deployment was done in weeks.
Secure IoT Devices	Ability to restrict all application traffic types, except for MQTT protocol. Block all incoming traffic at the gateways. Block all out of range IP address requests. Act as digital certificate proxy for constrained devices.

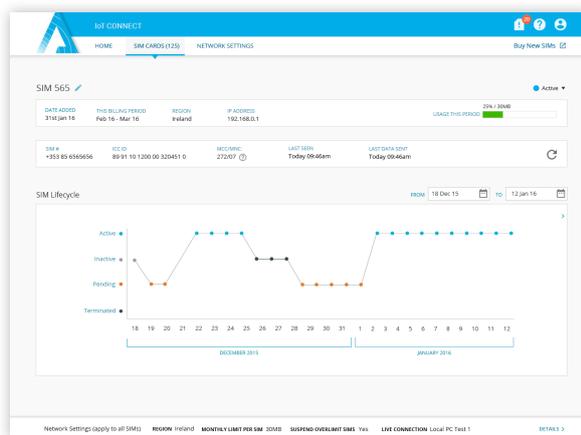
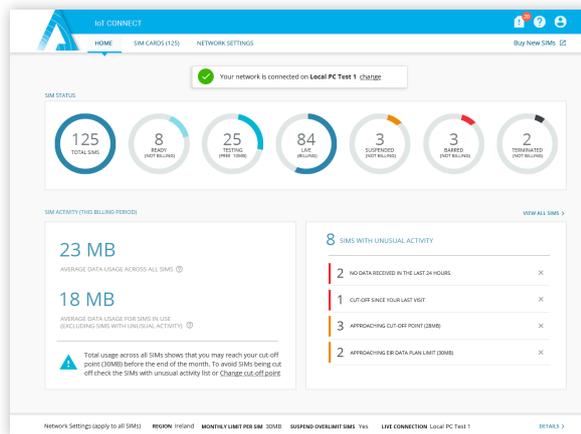
About Asavie IoT Connect

Asavie IoT Connect simplifies connecting IoT devices to the cloud by providing scalable on-demand, secure connectivity to and from IoT devices wherever they may be.

Asavie IoT Connect is a self-service web portal that enables organizations of all sizes to set up and manage cellular connectivity and private networks for their IoT devices. Users can provision and manage an IoT network with a few simple clicks, with none of the project overhead or lead time that so often derails or delays IoT innovation.

Asavie IoT Connect removes the need for bespoke per-customer network builds or complex integrations. Simply get your SIM cards, set up your network and deploy – all from the comfort of an easy-to-use browser.

Figure 3
Asavie IoT Connect
network & data
management portal



Want to know more?

www.asavie.com/products/asavie-iot-connect/