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Acuity is a fully integrated micro data center that brings edge processing and communications in a highly portable form factor capable of supporting all manners of use cases: with cloud, without cloud, and intermittent cloud connection by combining significant portable processing power and communication infrastructure in a small 30 pound package.

Acuity provides users and organizations with the ability to have a mobile data center that can act as a standalone data center and/or work as an extension of already established infrastructure to the furthest edges of your enterprise. With Acuity, private or hybrid cloud architectures are possible in an easily deployed turnkey solution. Acuity's 30 pound Micro data center includes ten dual or quad core servers with extensive virtual machine capabilities, two 3G/4G LTE modems that are 5G ready, three WIFI modems, and a host of wired Ethernet connections. Powered by either AC 105-114V or 9-14 VDC, Acuity can be easily connected to any local or vehicle power source. The combination of data center, computing, communications, and flexible power enables users to run their services, analytics, situational awareness, and communication infrastructure in a manner that will work with or without an internet connection.

This year, Tyto was selected by the U.S. Department of Homeland Security (DHS) Science and Technology Directorate (S&T) to participate in an Operational Experimentation (OpEx) that would be evaluating a range of technology solutions in a real world simulated first responder events in Birmingham Alabama. The long term goal of the OPEX is preparation for the 2021 World Games. The OpEx was to be held at Legion Field, with the backstory that an earthquake hit in the middle of a stadium filled sports event. Three (3) vignettes took place over the course of two days with each one requiring a different response from the first responders and the various technologies to handle appropriately. The Scenarios included earthquakes, chemical spills, and vehicle accidents.

The Acuity capabilities were proven during the OpEx's live events as a first of its kind, common operating picture (COP) cloud insurance solution by combining on premise processing and a seamless failover synchronization of corresponding cloud services. While cloud insurance was proven to be very effective during the OpEx, it was only one of the many use cases Acuity can provide organizations that put safety and the mission first in mind.

At the DHS NGFR event, it is was estimated that 80% of the processing that was required during the event could have been deployed on a single Acuity platform with a net result of reduced infrastructure complexity, reduced reliance on uncontrollable third party network infrastructure such as wireless carriers, and provide redundancies on critical applications and services. If Acuity's local or hybrid cloud offering were to be fully leveraged during the OpEx, troubleshooting, operational downtime, and management resources would have been significantly streamlined.

By utilizing Acuity, DHS was able to have an immediate real-time view of the situational awareness environment at all times. There were several disconnected modes demonstrated during the OpEx which leveraged Acuity's ability to maintain services for the first responders and management teams while being completely disconnected from the cloud. Other applications could be leveraged and set up to primarily reside on the Acuity and have additional connectivity to the cloud through a single platform. Acuity provides direct WAN, LAN, WIFI, and LTE services through a single platform and pane of glass. This seamless end use capability allows for applications and resources to be constantly managed and maintained locally with the ability to leverage a hybrid cloud model.

By leveraging a hybrid cloud model with edge processing, CC and field operators will be able to access the situation at all times through a unified management system. This would result in a significant decrease of troubleshooting man hours, management overhead, and loss of operational time. With Acuity as the edge processor, the worst case scenario would be that all services run locally on the box and the first responders could complete their mission without noticing the connection or cloud services issues.

The DHS NGFR OPEX opportunity provided concrete evidence that next generation technologies are highly capable in safeguarding first responders and the people they are trying to help. However, in order to fully utilize cloud technologies, it became apparent that edge processing is a powerful and required tool in use cases that cannot depend on unlimited and constant internet connection.