



Simplified, frictionless asset tracking and monitoring relies on connectivity designed for things, not people

When Qualcomm Technologies developed the Qualcomm Aware Platform, its intention was to create a simple way for enterprises and developers to create scalable and security-focused solutions that add connected intelligence to a wide range of industrial uses. To achieve this, Qualcomm Technologies leaned on its decades of expertise as a wireless technology leader and innovator, and strong relationships with a variety of hardware and software partners to help address a fragmented IoT ecosystem that has been a key roadblock for enterprises who sought to add connected intelligence to their operations. A key area that Qualcomm Aware aimed to simplify is on the connectivity side by taking a differentiated approach through offering the ability to embed and optimise connectivity on IoT devices globally.

In order to achieve a true digitalisation solution, there needs to be uninterrupted global connectivity with flexibility to scale up as required. For this reason, Qualcomm Technologies has collaborated with floLIVE as an early ecosystem partner to enhance global connectivity capabilities on the Qualcomm Aware Platform. Nir Shalom, the chief executive of floLIVE, and Mohammed Ansari, the senior director of Business Development for the Qualcomm Aware Platform, explain to IoT Now managing editor George Malim, how the platform benefits organisations and how the two companies have collaborated to keep things simple for customers

George Malim: What makes the Qualcomm Aware Platform a unique, new offering?

Mohammed Ansari: The Qualcomm Aware Platform is designed to reduce the friction hardware designers face in developing IoT solutions and also for web and app developers to be able to get data from Qualcomm-based devices into any cloud and any enterprise system much more easily. There are several optimisations for different use cases our broad portfolio of system on chips (SoCs) supports. Until now, we've had SoCs that address use cases from low power to those that can run artificial intelligence (AI) at the edge but what we haven't done before is connect edge intelligence to the cloud.

The Qualcomm Aware Platform seeks to address a wide variety of uses across industries, beginning with asset tracking and condition monitoring solutions. We chose these use cases because several industries face problems with accurately tracking their assets and fleets, especially as environmental and operational conditions change and impact operations.

Location technology and positioning capability are central to Qualcomm Aware and from an accuracy perspective we're able to support anything from one kilometre to the centimetre-level, thanks to a variety of signal types and positioning algorithms that can be used depending on the intended application. We will cover the whole range of requirements within the next one to two years and address the complexities inherent to various use cases. For example, variations in the frequency of location updates and reports can range from daily or longer down to 15 minute increments for shipments of pharmaceuticals.

The complexities behind enabling diverse use cases are what we are abstracting behind configurable application programme interfaces (APIs) and the Qualcomm Technologies' location positioning engines. All of that will make customers be able to make designs based on the service configuration and this will be done in real-time. Further complexity is abstracted away in the connectivity, with different technology available for different use cases and for condition ►

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Nir Shalom
floLIVE



Mohammed Ansari
Qualcomm Technologies



monitoring we'll have sensors in our SoCs or in peripheral functions.

GM: Can you elaborate more on why providing integrated connectivity to devices operating on the Qualcomm Aware Platform is a natural fit for floLIVE?

Nir Shalom: Mohammed started by talking about the friction that exists in the market. If you look from the device level to the connectivity layer and on to data management and cloud services, many of these different elements of the IoT value chain have evolved significantly in the last few years, but connectivity hasn't. It's a legacy solution that is very limited in what it can provide and it doesn't correspond with the price points the market requires. Furthermore, it's not always up to meeting the speed, security and data performance requirements of the market.

The reason for this is that connectivity providers took what they had for the consumer cellular market and tried to adapt it for IoT. This isn't a natural fit because IoT devices don't behave and aren't utilised in the same way as your mobile phone. We created floLIVE to solve all the problems inherent to the old approach - a global solution built from the ground up for things, not people. It's very modern by nature and cloud-native,

hence very flexible and scalable. In essence, we're building a global, hyperlocal network that is purpose-built for IoT.

GM: What are the main complexities currently facing enterprises who want to add more connected intelligence to their businesses?

MA: Nir explained some of the issues with traditional cellular connectivity and it's true that, in general, cellular connectivity has been broken because it was designed for a different use case - the smartphone. The challenges of connecting industrial assets is that they are very diverse assets with diverse use cases. These range from being in open sky settings to being indoors to moving through areas of different network coverage.

The total cost of ownership is always a challenge in asset tracking and there are significant recurring costs involved that go beyond the initial installation cost. Cost is therefore a key consideration and when we look at connected intelligence we see cellular connectivity as the most cost-effective method but there are areas where cellular won't work so we look at satellite, indoor sub-1Ghz network with both star and mesh network topologies that can have significant impacts on battery life and power consumption. ►



A Qualcomm Aware device



Collaborating with floLIVE through an API-first approach makes it easier to deliver an embedded and optimised solution

For customers, we're wrapping all of this complexity, including on the connectivity side by collaborating with companies like floLIVE, to embed and optimise technologies to work in a power-optimised and intelligent way on Qualcomm Technologies' chipsets, and making it easy to access, deploy and build on through Qualcomm Aware APIs.

The other important point about cost with Qualcomm Aware is the amount of data that goes from the edge to the cloud. We're uniquely positioned to make decisions on what data to send which can reduce customers' costs and improve security thanks to our very capable edge compute platforms.

GM: Why is connectivity such a core component of Qualcomm Aware and in what ways does floLIVE's offering align with the API-first, cloud-native, integrated design of the platform?

MA: From an API-first perspective we know that Qualcomm Aware solves part of the problem customers face. It's not a full stack solution because the use cases are fragmented and capabilities are diverse. This is why our API-first approach means the solution can be available to developers, enterprises and independent software vendors (ISVs) to build upon.

Collaborating with floLIVE through an API-first approach makes it easier to deliver an embedded and optimised solution. For example, the floLIVE dashboard and insights could be useful to us or our customers. We do not expose all of it to customers because they don't care in-depth about connectivity, they're mainly interested in location

tracking and condition monitoring. Our customers want connectivity and complexity to be abstracted further away from them. They want services enabled via our APIs.

NS: When you build a network for things, not cell phones, you realise that different things connect differently. For example, some connect for a short period of time and then shut off, some will need immediate response from the network in order to preserve battery power while others will not be so power-sensitive.

We believe we can help Qualcomm Aware intelligently enhance its connectivity solutions, with global connectivity that's built for different types of things that can be connected throughout a device's lifecycle; this is what the market needs, because customers are used to obtaining better control and greater visibility into their infrastructure.

Another aspect we're going to help with is connectivity-related information, that's provided in real-time regardless of the specific network to which the device is connected. floLIVE's global network was designed to be a real-time solution, allowing a great deal of control for diverse use cases while also enabling cost optimisation.

Customers are looking to transform their businesses but are constrained by TCO considerations which we address in two ways: the first is that we're cloud-native which means we can support the capability to scale up or down as required. The second is that our philosophy has been to develop the entire set of connectivity components in-house. Other providers mix and match components from different vendors, which is difficult to manage; we have the core network, SIM technology and charging capability to keep costs under control.

GM: Traditionally, end customers would have been responsible for obtaining connectivity in the regions they operate in, but with Qualcomm Aware, enterprises and developers receive a complete package that includes the product, integrated connectivity and a host of other features out of the box. What are some of the pain points offering integrated connectivity will help solve?

MA: A big part is to not have to worry about the underlying radio access network (RAN). With 2G networks being shut down and 3G networks also



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being closed at some point, carriers are ramping up low power wide area (LPWA) networks and narrowband-IoT (NB-IoT) as alternatives. Qualcomm is a big proponent of LTE Cat 1 bis because of its advantages in cost but this shouldn't matter to the customer. We make this possible and also offer flexibility so customers' diverse verticals can be served. We intend to partner with innovative and leading connectivity providers to enable the Qualcomm Aware services platform globally.

Our ability to be global also addresses a major pain point. floLIVE has built a world class platform and we believe in the team. Our plan to collaborate with floLIVE first underscores that it is doing things right.

GM: There are several global connectivity providers with varying definitions of global. What do you see as your differentiators and advantages?

NS: There are two main things we do differently: one is that we have developed our technology in-house and the other is that we are investing in integrating many network operators around the world into our global network; other connectivity providers 'mix and match' different technologies, adding cost and complexity to their business operations; they also do not share our philosophy of trying to obtain as many local or edge partners as possible.

We have multiple networks with integrations into local providers all over the world as part of our global hyperlocal network, all centrally controlled and managed via an API that's fully exposed to Qualcomm Aware. All these networks are controlled in the same way and our global architecture can be minimised onto a set of APIs that can be managed by any enterprise around the world.

GM: The IoT market is fragmented with a significant number of IoT service providers. Do you feel that floLIVE is viewed as a competitor or a complement to other IoT service providers?

NS: When we looked at our portfolio, we thought we'd sell connectivity services to global enterprises to start with, but it's those customers who want to build global solutions that are onboard our platform. It would take a huge effort and very high cost to compete with us, especially

now that the options are to simply use floLIVE or compete with it. Every quarter, additional IoT MVNOs become customers of floLIVE and we welcome them to join us so they can focus on what they're good at while leaving the complex task of managing, maintaining and extending the global connectivity infrastructure to us.

GM: You've just completed another investment round. Can you tell us about your plans to use this funding to evolve floLIVE's capabilities and features?

NS: We've just completed an investment round that included significant participation from existing investors including Qualcomm Ventures as well as new investors. We see this as a vote of trust in the alignment of investors with our vision and the funding allows us to accelerate in three key areas - first, we'll keep investing in our in-house technology to make it better and faster to market.

Next, we'll keep expanding our global network and look for mobile network operators to integrate with, thus improving our network presence, performance and optimisation in each region. Finally, we'll add on a new set of services in the security and data transport domains that will help customers solve another piece of the complexity they face - these services will be provided on top of our growing global network infrastructure.

GM: What has the experience of working together been like?

NS: Working with Qualcomm is amazing. To collaborate with a partner that really understands both business and technology, coupled with such high standards and willingness to innovate and bring something fresh to the market is a great journey to be part of. It's exciting as a technologist to work with Qualcomm Technologies and to think about how to develop in the best way possible is a great experience.

MA: Qualcomm Technologies is building an ecosystem around our vast and innovative technology portfolio, large ecosystem of hardware, ODM/OEM, and software partners, along with business platforms, hyperscalers and connectivity providers. We added floLIVE to the Qualcomm Aware ecosystem because of its connectivity expertise and we're really glad we can scale with a global partner. ■

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