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VOLT EDGE IOT PLATFORMS WEBINAR 2: IS THERE SUCH A THING AS AN EDGE IOT PLATFORM?

Webinar: Questions and Answers

Edge IoT platforms webinar 2: Is there such a thing as an edge IoT platform?

Questions and Answers

This document outlines the questions and answers received by our audience during the second webinar in our STL Partners and Volt Active Data edge IoT platforms series, 'Is there such a thing as an edge IoT platform?' Hosted on Wednesday the 31st of May 2023.

You can watch the recording of the session, and also access the slides, using the link [here](#). And if you're interested in watching and reading our previous webinar and report on edge IoT use cases and verticals driving growth or would like to sign up to attend and receive future webinars and reports in the series, follow the link [here](#).

If you have any questions not addressed in this Q&A document, or would like to hear more about our latest research or from our panellists, please contact:

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Questions and answers

1. Are we looking at bare-metal platform solutions?

STL Partners: Yes, our discussion on edge IoT platforms does include bare-metal platform solutions. These are particularly desirable in situations where performance advantages are crucial, especially due to reduced overhead from not using virtual machines or containers. Real-time processing tasks, for instance, may greatly benefit from the latency advantages of a bare-metal setup.

However, our definition of an edge IoT platform extends beyond bare-metal solutions. It spans from the end devices themselves all the way to the edge of the network, supporting a range of functionalities. While a bare-metal platform can be designed to provide many of these functionalities, some features like offline functionality and edge node orchestration might be more readily achievable or manageable using virtualized or containerized solutions.

The webinar was designed to highlight a variety of Edge IoT platform implementations that can be tailored to meet the specific requirements of different use cases. Some scenarios might be better served by virtualized or containerized environments, while others could indeed benefit from a bare-metal approach.

2. Given OpenFog and MEC consortiums exist, is there a need for an industry body that coalesces around these definitions and frameworks (key features, capabilities, etc.)?

Dalia Adib, STL Partners: So at STL Partners we have tried to provide some kind of definition. We don't operate the same model as an OpenFog consortium and there's other forums and communities that have done this. I think it is important because I would say if you don't get the naming right, everything else becomes much more difficult. I know you Hein and Andrew, I'm sure have those challenges in marketing and sales and in your roles from a platform business. So I think it's so broad this space, and it may be more make sense to have a practical approach to consortiums and tackling specific parts of this space.

So there have been some who've tried to define different types of edges from a kind of physical and logical perspective. Others who started definitions of IoT protocols, which has gone on for probably decades now. There's different things and there is definitely value in doing this. But probably, one thing I would say is that maybe the extension of that is looking at standards. I don't think the person asking the question was asking for this but I'm going mention it in anyway.

We have had a big debate doing this project about to what extent are standards the answer to some of these challenges because we always talk about how you need to standardise or you need to make it easy to be interoperable. But I think the challenge there is that it's so fast moving and it's such a big space. Can you really create standards for every industry and every part of this ecosystem? It would very likely slow things down. So, it's a bit of a balancing act of having some standard things maybe to help with discussions and naming. But with technology standards, I think it's more of a grey area, whether they're really required in this space.

Andrew Keene, Volt Active Data: I would certainly agree that I think, the challenge for a lot of the buyers at the end, like smart cities, the railways, the factories, they're not telco experts. But they don't necessarily know what it is they're looking for. They know what problem they're trying to solve. So some kind of naming standards would definitely help I think, trying to get all these various industries to agree on technical standards. I think it's going to be very hard because a lot of this stuff has been around for years and they're not going to rip it all out. You just have to deal with what's there in many cases.

3. **Don't you think IoT edge platforms should provide rules engine, ML inferencing and workflow kind of functionality? Unless this is already done by device manufacturers.**

STL Partners: It's hard to answer this at an abstract level for a theoretical generic edge IoT platform, as for much the same reason why the likes of Google and Ericsson have pulled out of their IoT offerings, it's tough to produce horizontal solutions (and therefore answer to your question) for such a varied and vertical-dependent space. Requirements are likely to change significantly between deployments depending on various factors including the vertical and use case this is being deployed within, the partnerships behind the deployments, as well as the preferred maintenance and support model being used. These enterprise-side requirements will also filter down into technical requirements which may, or may not, include the specifics you reference.

In some deployments, where an enterprise wants a more granular level of involvement in the deployment, they may have specific technical requirements in these areas. However, many are likely to leave specifics such as the above to their lead vendor, who again may choose to satisfy these requirements through a device manufacturer or other partner.

To illustrate, when it comes to AI/ML specifically, it may be worth considering whether the application requires real-time or non-real-time decision-making. The cloud may be more suitable for decisions that don't need making in real-time such as in smart farming, where IoT devices provide data that AI/ML models may use to predict the best resources to use, times to plant, etc. and therefore this capability may not be a necessity for the edge IoT platform. In this case, an enterprise would likely benefit from a larger group of developers if they were using a public cloud platform who can create the best apps. However, for real-time applications such as autonomous vehicles, having the platform (or even the device in this case) run the compute to ensure the car can make life and death decisions at speed is essential. Interestingly, Elon Musk cites the immaturity of AI models that can run on a vehicle's compute as a key blocker to the proliferation of autonomous vehicles.

4. **This is a particularly challenging area do you think you may be underestimating some of the complexities here?**

Andrew Keene, Volt Active Data: The author of this question is entirely correct in that this area is highly complex. Will touched on this in his presentation with the hexagon slides - there are many areas of complexity not least the vast number of vendors and different types of IoT device out there with no standards around the protocols they talk and data they produce. However, there is a growing trend towards using Kafka streaming for real time data - IoT devices push whatever it is

they generate to streams which makes it easier for a generic data processing platform like Volt to ingest and act on the data. That said, for the many that don't use streaming the solution will need to interface with whatever the specific project needs. Perhaps that is why at present Volt sees more projects from the end user Enterprise than from generic platform vendors, such as the Smart Factory enterprise building their own edge IoT platform built on a generic real time data platform like Volt. But there are a growing number of use cases that have reusable components so I think we will see some that the bigger vendors provide more generic platforms for, but some that will remain bespoke one-off deployments run by the end Enterprise.

5. **How much IoT platform can go into edge, like can core network go into edge? I'm not sure what can go and what cannot go into edge?**

STL Partners: I'm taking this question as being in relation to the distribution of network functions across a telco's edge and core sites. Typically, you would not expect a telco's core network to be deployed at the edge. Most edge deployments are in addition to a pre-existing central infrastructure that manage a range of network functions primarily delivered by the core network. However, there is a growing shift towards virtualised and disaggregated networks, and once a telco has hypothetically split up the network into a series of discrete modules with open interfaces, these can be configured in whichever way best suits a specific deployment, in turn enabling possibilities to deploy traditionally 'core' network functions at the edge to suit a specific deployment. However, there is a reason why core network functions are traditionally hosted at a centralised location, and many of these are likely still going to benefit from the economies of scale and consolidation this enables, and thus will remain hosted at a central location in the majority of deployments.

Certain virtualised and software-defined network components which are likely to be deployed at the edge include firewalls and load balancers. These individual components will be deployed in a distributed manner leveraging the edge; but core network functions will most commonly be deployed centrally.

During the webinar and in our upcoming report we discuss which solution features are commonly run at the edge vs the cloud from a vertical-agnostic lens, however we'd be open to further discussion on how this applies to telco deployments, do just drop us an email if this would be of interest.

6. **What percentage of IoT do you think will use the resources of 5G networks?**

Andrew Keene, Volt Active Data: There are many advances in networking technologies like 5G, Wifi-6 etc. that it is hard to say what percentage would be 5G networks. Even within 5G there are choices such as mobile public network, private network, Fixed Wireless Access. At the end of the day IoT is an enabler that allows enterprises to monitor their business processes and assets which in turn can be put to use for efficient automation of the processes through adjacent technologies such as digital twins and machine learning. If data is the fuel for digitalization, decisions are the engines. Enterprises embarking in implementing IoT should look for the latency at every stage of the journey to extract the best value out of their data. From network such as high bandwidth 5G, to unified decision platform such as Volt and network edge locations or even

on-premise private edge cloud to ensure the data that gets generated through IoT networks get transported, utilized and actions taken all in a low latency manner.

7. **How many from the IoT use cases will be managed by ApplicationFunction connected to the 5GC network?**

STL Partners: I think Andrew's answer to question 6 above mostly covers this question and I'm wary of over-speculating as this is a question that would probably need an extensive research programme to answer. However, from the use cases mentioned during STL's presentation, most of these would benefit from 5G connectivity due to the performance capabilities, although as mentioned in Andrew's answer, other connectivity solutions may be sufficient e.g., Wifi-6. Additionally, there will be some non-real time applications that sit under some of the use case categories we mentioned on slide 9. In smart retail for example, predictive analytics for demand forecasting likely wouldn't require the performance capabilities of a 5G network as the decision-making timeline is likely to be stretched over days, months and years rather than milliseconds, seconds and minutes.

8. **Over the last year, we saw Google and Ericsson, among others, wind down or sell off their IOT platforms. Is there money to be made in this space and what is driving the lack of adoption / traction / revenue?**

Dalia Adib, STL Partners: I think we have put out a few articles on this and I think this will tee up nicely for our next webinar on whether you go horizontal or vertical.

One of the views, that we've hinted at it a lot already, is that a lot of the time IoT is being sold and used to solve quite complex problems that are integral to the operations of a business. It's quite difficult for that to be a single standard platform that meets any industry and application and customer's needs. I think that could be part of the reason. If you take Google in that question, the cloud is quite similar. If you're applying cloud to IT applications, most industries have their CRM platform or finance or whatever it might be, when you force into the cloud, it probably runs in a similar way.

So, it's quite horizontal but IoT is not like that. I think that's one of the challenges that Google had is applying that same model to very different areas. So that's my answer to that question. It's more complicated. You can't just have a one size fits all way of doing things.

Hein Matthee, Nearby Computing: I think, by the same token, you'll see that there is a large amount of edge platforms that are been talked about. If you look at the other side of it, there have been announcements. Regional MNO's are starting to take platforms, large MNO's with operations in Europe are actually starting to expand their MEC platforms or edge platforms. So I think that it's not necessarily that one kind of platform is disappearing. I think it's again, a naming thing where you're looking at the functionality that's encompassing the platform. Customers are still watching it, but it also depends on how platforms are being positioned. But, at least for the edge platforms, we're seeing an increase in demand and availability.

Get in touch with our panellists to learn more:

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