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ENTERPRISE IOT: CLOSING THE AUTOMATION AND AI CAPABILITY GAP TO SOLVE REAL BUSINESS PROBLEMS

Webinar: Questions and Answers

Questions and Answers:

This document outlines the questions and answers received from the STL Partners webinar, **Enterprise IoT: Closing the automation and AI capability gap to solve real business problems**, which took place on Tuesday 12th March 2024.

You can watch the recording of the session, and also access the slides, using the link [here](#). In this document, we seek to address the questions raised in the webinar that we were unable to address in the time available.

If you have any questions not addressed in the webinar or this Q&A document, or want to hear more about our latest research or from Volt, our research sponsor, please contact:

- Will Davies, Senior Consultant at STL Partners – will.davies@stlpartners.com
 - Dheeraj Remella, Chief Product Officer at Volt Active Data – dremella@voltactivedata.com
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In the following pages, we address some of the questions we received from the audience on the day of the webinar.

1. **When it comes to the Edge, a lot of what you describe is happening at the on-premises Edge. What role do you see for telco-based Edge?**

Lumen Technologies: The telco-based edge should be used as an alternative to deploying on premise when it makes business and technical sense to do so. The advantages of the telco-based edge are that you can achieve greater scalability, better cost efficiency, and a quicker speed to market by using existing connectivity and deploying your IoT platform at the telco-edge. This enables you to aggregate the compute, storage and application platform for multiple sites that are in a metro market into a single shared environment, with a standard and automated deployment. The requirements for such a deployment are that you have enough IoT sites to make the ROI of a shared telco-edge justified and you have available and performant connectivity at all the locations. Think cloud-like scale at the telco-edge.

STL Partners: Telco-based edge computing can play a crucial role in enabling low-latency and more reliable solutions, particularly when wide area mobility is essential. Operators can deploy edge infrastructure at or near the network edge within their infrastructure to bring computing resources and capabilities closer to the end-users and devices. By orchestrating workloads and tasks across telcos' distributed and extensive networks, telco-based edge optimises critical functions, ensuring that they can continue to operate even in cases of network disruptions and latency spikes. This is enabled by localised processing capabilities and by allocating dedicated resources specifically for edge computing applications so that

you can ensure consistent performance and quality of service. Ultimately, architecting edge solutions at the network edge can unlock new opportunities for innovation that enable faster, real-time data-driven actions to substantially enhance the overall network performance or user experience.

Example use cases that could particularly benefit from telco edge include:

- **Smart cities:** Telco-edge enhances smart cities by enabling low-latency and localised processing of IoT sensor data to provide real-time monitoring and management of infrastructure such as traffic lights, waste management and energy grids. Edge computing, combined with IoT and AI, can support traffic surveillance (by predicting future congestion to optimise traffic flows), monitor energy consumption and predict downtime, and can leverage real-time video analytics for enhanced public safety.
- **Autonomous vehicles:** Telco-edge computing can support safety applications in autonomous vehicles at intersections. The vehicles can communicate to prevent potential collisions and sensor data can be offloaded to telco edge compute (e.g. base stations aggregation points or dedicated roadside units) to benefit from reduced latency. More detail on this use case can be found on STL's website [here](#).

2. **We all know IoT data differs from place to place due to various influential factors. In such a case, how are machine learning models made to interact with the new data? Does it have the intelligence to learn new data or is it done by online/incremental learning?**

Clearblade: Today we see most of the learning taking place in the cloud and being done by data scientists with information from some sort of data lake. The data is not moving in real time and can be cleansed in various ways and experimented with to build different models and trial them for how successful they are and how they best fit a scenario. In general, these models are created and then deployed out onto the edge for real-time inferencing. As they inference in real-time, they are scored for how successful they are being. In essence, we look at is they correctly predict something that happened at the usual rate. If their scores drop, they are looked at to see if external factors have changed.

We are moving toward a more incremental learning model in the field. We see this today with analytical behaviour where we may look for values outside of a standard deviation. Provided we are using a time window to set that standard deviation we essentially allow an analytic to get rebuilt based on what is normal for that period in time. An example of where this works well is finding normal temperatures during a time of year or time of day. This strategy can also work well to help us identify and adapt to normal, non-standard events like 'Cyber Monday' shopping or water consumption during a drought.

This pattern for redefining the model or analytics in real-time is beginning to move to the edge. We do see some base AI models beginning to adapt to low-light vs bright light. We also see patterns to adjust how we react to changing inferencing patterns. For example, if we change the cleaning schedule of solar panels such that we no longer have the degraded

power generation curves, we can change our action to see a generated power reduction for repairs rather than a maintenance event.

- 3. There is huge dependence on telcos or mobile companies as part of IoT solutions to reach source data at remote locations. How does communication and/or latency influence IoT when it comes to the performance of algorithms to make rapid predictive decisions about the data that edge systems are collecting?**

Lumen Technologies: Our point of view is that connectivity is at the core of any IoT solution. When reliable, performant connectivity is available these real time decisions can be done at the network/metro edge and when this connectivity is not available, these decisions and processing needs to occur on-premises. But even the on-premises solution will need to aggregate the data, do comparisons between locations, and understand long term trending via a centralized location (often the cloud). When you have 100s and 1000s of locations with IoT data ingest, data reduction, data processing, event management/detection, etc. will require scalable and interconnected networks. Latency will be one factor that needs to be considered and how much latency can be tolerated for the specific use case which will determine where the data needs to be processed, whether on-premises, at the network edge or in the cloud.

- 4. Will the advent and progression of AI eliminate a number of jobs over time - in the coming years? That is, won't several "mundane" types of jobs go? Skilled jobs will be added with AI. But from a net perspective, is it imaginable that there could be a net loss of jobs in economies?**

Volt Active Data: The automation doesn't necessarily eliminate the jobs, at least to begin with and wouldn't at all if done correctly. What I mean by that is that, in the beginning, the benefits are immediate that an enterprise gets to remove the human errors in performing the mundane jobs and free up the time for the people to add on to the experiential intelligence on "new" exception scenarios. As time progresses, it becomes imperative for the enterprises to upskill and train their staff to add value in the new reality of adaptive decision automation. This can ensure that the loss of jobs is not as pronounced as it would be without the internal investment in employees. All this said, there is no sugarcoating the fact that the new jobs created would require higher level skills and not based on keeping things status quo. The investment is not just from enterprises, the employees also must be willing to uplevel themselves.

Get in touch with our panellist to learn more:

Darius Singh, STL Partners – darius.singh@stlpartners.com

Dheeraj Remella, Volt Active Data – dremella@voltageactive.com

Scott Brindamour, Lumen Technologies – Scott.Brindamour@lumen.com

Aaron Allsbrook, Clearblade – aallsbrook@clearblade.com

For more information on our research and to watch the series of webinars, follow the links here:

<https://stlpartners.com/edge-iot-platforms-webinar-series/>

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