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Real-time SLA management of private mobile networks

Private networks have become a mission-critical business resource that delivers real-time information and intelligence to authorised personnel and third parties. Edge computing has enhanced the performance of this process and private networks have enabled end-to-end ownership and local management. Real-time SLAs that trigger automated actions complete the picture.

In this article Bob Emmerson, a freelance writer specialising in information technology, interviews Andrew Keene, head of product management at Volt Active Data, about these developments and the company's unique SLA offer.

Q1: How do you view this multifaceted development and its pivotal role in today's information-centric development?

A1: Thanks for giving me an easy starter question. It comprises a relatively complex mix of computing and communications technologies. For example, ML and AI, edge AI chipsets, digital twins, 4G/5G and NB-IoT. That's just the tip of a massive iceberg. Data is the common denominator and the key generic deliverable is real-time information and intelligence. IoT has become a big industry, is getting much bigger and it will be huge. According to analyst firm IDC, there will be almost 42 billion IoT devices by 2025, and IoT is only starting to realise its full potential.

Q2: What is the role of private networks in this mix?

A2: Private mobile networks are often part of a broader digital transformation program. Organisations of all types are combining connected systems with big data and analytics to transform operations, increase automation and efficiency or deliver new services. Using a private cellular network instead of technologies like Wi-Fi or public cellular networks allow the enterprise more flexibility around device mobility and better security including data isolation. The cost benefit of building and running a private network can be advantageous when managing a mission-critical asset such as a smart factory production line spread over a campus. That said, not being telco experts, in some cases enterprises might elect to rent a dedicated slice from an MNO rather than build and manage their own network. However, the high cost of production downtime mandates MNOs investing in a real time SLA management solution. This is a somewhat contentious topic, but demand for private mobile networks based on 4G LTE and 5G technologies is being driven by the spiralling data, security, digitization and mobility needs of enterprises and governments.

Q3: Your answer suggests that Volt is addressing this issue.

A3: Data is both a driver and an inhibitor. The core issue is the need to ingest and understand the data in real time, which used to be a big ask. It still is, but streaming technologies and the wide adoption of standards by network vendors are enabling the requisite SLA management solutions. However, the vast amount of data is still a problem when it is sent to a centralised data platform for processing. One way to solve this problem is with a distributed real-time data processing platform that can have multiple smaller instances deployed around the network edge. Useless data can be stripped out with actions taken by processing data at the edge. This "hub and spoke" data platform architecture allows for low latency decisions to be made at the edge while the data, and any actions resulting from it, are still relevant. In addition, it minimizes the data that is sent to a central processing facility.

Q4: Does that architecture replace edge computing as we know it right now or does it complement it?

A4: The architecture enables the deployment of edge compute functionality and it also complements an existing deployment. The key functionality of the company's offer is that of a real-time engine that enables decisions to be made in milliseconds. The platform can ingest data from multiple sources, one of which could be an edge compute system that employs intelligence hardware devices that function as small nodes in large intelligent networks. This enables decisions to be made at the local level. The company's offer can function as a command and control centre for IoT, enterprise and third-party data.

Q5: How would you summarise that capability?

A5: Data is only useful if it is driving decisions and actions that mitigate risk, drive revenue and improve business processes. The actual decision, and the subsequent action it drives, typically requires data generated from many sources and events, some of which have already happened and some of which are happening right now. This requires the ability to ingest and process raw event data the moment it is created and aggregate it with past events to enable decisions to be made in real time without compromising on data accuracy or consistency. The Volt Active Data Platform is uniquely positioned to provide this functionality.

Q6: Can you give me a specific use case?

A6: Consider a smart factory campus where the production line is split across several buildings with autonomous robots performing the majority of the work. Some robots will be located in specific areas, others may roam between buildings. A private network would be a good solution for connectivity and security concerns, but consider the cost of any down time, both in delays to production, or worse, cost to expensive robots that are unable to communicate and end up crashing into each other. This enterprise is likely to want 5x9s availability with strict SLAs that require a solution to monitor the network in real time and take automated actions where possible. A 5x9s SLA (99.999% uptime) means a maximum of 1.31 minutes of downtime per quarter, so real-time proactive SLA management is critical to make the investment in such a private mobile network worthwhile.

In summary:

Comprehensive and robust private network service-level management is essential for achieving planned business outcomes and the ability to make decisions on accurate, relevant and consistent data is the foundation to this success.

To learn more about Volt Active Data visit https://go.voltactivedata.com/volt-for-network-SLA-management