



Client

Brussels Metro (MIVB - STIB)

Industry

Transportation & Logistics

Environment

- Municipal Transit System
- 39.9 Kilometers (24.8 Miles)
- 69 Stations, 4 Metro Lines, 3 Premetro Lines
- 417.6 Million Annual Ridership

Technology needs

- Updated and Purpose-Built Network Solution
- Ensure 24x7x365 Critical Operational Uptime
- Automation for Increased Efficiencies and Transit Capacity

Solution

- ExtremeFabric™ (+ 600 devices) & Control for Network Access Control
- Multicast traffic flow via the SPBm protocol



Pierre-André Rulmont
Vice President Information Systems, STIB - MIVB

Prodata Systems provides Mission Critical Network (MCN) for MIVB/STIB to run public transport for 850000 commuters

Public transport today faces many new challenges. One of them is an increase in the number of passengers. Take the Brussels public transport company MIVB/STIB that serves 850000 commuters every day with metro, tram and bus connections. The network runs like an artery through the Belgian capital city and has to operate almost 24 hours a day, all year round. Without it, life in Brussels would come to a standstill for the many customers who depend on this service.

Especially during peak hours, the manual system is now running up to its limits. Any disturbance to the service can lead to serious problems. MIVB/ STIB therefore needed a network solution that maximizes the efficiency of the current and future capacity. In other words, they wanted a modern infrastructure and a fully redundant network for a hostile industry-like environment that can resume activities within a second in the event of an incident. It was soon clear that automation would play a key role in the success of this project.

Pierre-André Rulmont, VP Information Systems at MIVB/STIB: "The metro system in Brussels is the lifeblood of the city. Over the years, the metro lines have gradually reached the limits of what they can achieve in terms of capacity, efficiency and operability. This has brought us dangerously

close to not being able to keep up with demand anymore. We needed a new mission critical network solution that would help us identify new efficiencies and automate manual processes."

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Increasing metro capacity with automation

MIVB/STIB concluded that an update of their IT network would enable them to meet the needs they see today and in the long term. In fact, they discovered that if they are able to effectively use automation capabilities in the network, this should increase the capacity of the Brussels metro by no less than 33 percent. The network needs to support all critical passenger ser-

vices and the digitalization of the different passenger and security applications. After an extensive evaluation, MIVB/STIB decided to climb aboard the Prodata Systems train. They selected Prodata to design, build,



Prodata Systems services:

- Full Managed Services
- 24/7 support
- 24/7 fault & performance monitoring
- Recurrent health check of environment
- Recurrent maintenance activities to ensure environment is updated with new releases
- Skilled & certified staff to ensure operational excellence of the MCN
- Dedicated Senior & certified Service Manager for optimal Service Delivery
- Dedicated Senior & certified Project Manager for transformation projects within STIB-MIVB

Results

- Network Virtualization: Video surveillance network with up to 15000 IP cameras supporting real-time virtual machine mobility
- Real-time automated control of metro traffic
- Full integration of manual and automated transit system management

maintain and continuously transform the Mission Critical Network (MCN) of the STIB-MIVB. The partnership started in 2017 and has been renewed in 2020 – the network is now fully and 24/7 managed by Prodata Systems. Extreme Networks was also chosen as partner for the design and delivery of the network.

The proposed network solution had to allow for real-time automated control of metro traffic. For the safety of both passengers and staff, automating transit services also required a connected system with extensive video surveillance. At the moment, there are about 5000 cameras spread over the 69 stations of the underground railway system. But this number is rapidly increasing to 8000 in the near future. Prodata Systems designed an architecture for a future-proof environment that can support 15000 cameras that are located in MIVB/STIB's facilities and in the metro carriages. Network performance, reliability and scalability were therefore crucial competencies. The network has been moved to a 100GB backbone.

Finally, the integration of manual and automated management was key for the new strategy. On the one hand, MIVB/STIB wanted to maintain human control, but they also aimed at reducing or even eliminating the potential for human error.

Self-driving trains

The cameras on the trains are not only important to guarantee passenger safety, but also to enable MIVB/STIB to deploy self-driving trains. This makes the network

even more mission-critical: any issue could lead to an interruption of traffic on the entire metro system. Fortunately, Prodata Systems can rely on a lot of experience with business-critical networks. MIVB/STIB is already experimenting with a Proof of Concept of driverless trains. Each of these trains is equipped with 40 cameras and voice control to inform passengers about their journey.

During the entire process of installing, implementing and testing the network, Prodata Systems and Extreme Networks collaborated closely. Together, they ensured that the solution meets the high standards and demands of MIVB/STIB. The solution includes Extreme Fabric and Control. By leveraging the Fabric Connect network virtualization technology, MIVB/STIB now has a system that is flexible, redundant and agile, enabling seamless extension of Layer 2 services within and between data centers, supporting real-time mobility of virtual machines.

Effective today and ready for the future

MIVB/STIB ultimately wants to become an autonomous enterprise where architecture, automation, and human intelligence operate in harmony. This network was a critical first step to make that happen. Prodata Systems will continue to play a key role in this mission. So far, it has been responsible for the network architecture, delivery of software and hardware, and implementation, as well as complete 24/7 network management. And in the upcoming years, the company will take care of the network's maintenance and any other adjustments that may be necessary.



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