



swim

CASE STUDY

Advancing Efficient Operations

Cities worldwide are attempting to transform themselves into smart cities

Managed in isolation, the wide variety of data sources tends to overwhelm cities

To operate effectively, smart cities require a unified, real-time view of all data

Public Transportation

Forward-thinking smart cities are implementing advanced technologies to improve the efficiency, effectiveness, and sustainability of their transportation infrastructure. Many of these investments have already benefited their citizens directly with much improved services, all while supporting economic development and innovation. However, the growth of these technologies has also created an ever-increasing volume of information that smart cities must take into account. Built over time and managed in isolation, the data generated by assets, equipment and monitoring systems are at risk of overwhelming planners, operators, and city officials.

To operate effectively, smart cities now require a more unified, real-time view of all data and available resources across both geographical area and time. This means combining dynamic geospatial and telemetry data, operational schedule and routing data, and static administrative data regarding licenses, permits, and passenger/cargo manifests. The complexity of these data sources and speed with which they stream updates make it difficult to harmonize and even more of a challenge to analyze and understand in real-time.

Smart cities have their work cut out for them as their decisions can massively impact population shifts between major city locations and communities throughout the workday, affect the efficient and safe flow of vehicles, and enable them to immediately respond to operational issues and incidents. Not only will their assets and equipment risk being delayed, overstressed, or over capacity, but their information and communication infrastructure will be stressed by this ever-increasing volume of data. Integrating multiple, disparate systems in real-time to provide a smart city with continuous intelligence about its transportation network has been impossible for public entities until today.

Smart City Solution

Dubai: Doubling down on transportation safety

Dubai Roads and Transport Authority (RTA) is a major independent government authority responsible for developing and managing a world-class, integrated and sustainable transportation network for the residents of Dubai. Since 2005, the RTA has led several initiatives to improve the services and facilities available for public transportation and roads throughout the UAE. With the goal of making transportation safe and easy for everyone, the RTA has led the world in their use of the latest technology innovations to provide ground-breaking services. For example, the Dubai Metro carries over 164 million riders annually on the world's longest, fully automated driverless system on route lengths of 75 kilometers.

To accomplish this, Dubai RTA operates a sophisticated, modern software infrastructure that uses many industry-leading technologies in data collection, message brokers, data storage, and analytics. The resulting information from these systems is used by regulators and operators in state-of-the-art operations and control centers across Dubai. When implementing traditional database approaches, results were often delayed by hours or days. When Dubai RTA began exploring “digital twin” technologies that might move them closer to real-time, they discovered the capabilities of Swim to go beyond just mirroring the state of data.

Swim Continuum is a single, production-ready platform for building and running continuous intelligence applications at scale. Its unique capabilities enable data to be unified from static and dynamic data sources into smart, interlinked models that capture the most relevant data and build a fully contextual understanding of the real-world in real-time. Swim Continuum instantaneously visualizes the data through a single pane-of-glass that fosters collaboration more easily across teams and continuously augments human decision-making in real-time.

While exploring “digital twin” technologies, Dubai RTA discovered the enormous potential of Swim to drive their real-time operations.



Real-Time Monitoring & Alerting

Swim Continuum is being used by Dubai RTA to collect, analyze, and ultimately improve the efficiency with which freight vehicles move goods across the UAE. The solution leverages data from vehicle telemetry systems, event-driven alerts, and compliance information from RTA's central databases. This analysis is supported by Swim Continuum's ability to dynamically display all vehicles geospatially on a map and measure several dozen KPI's simultaneously and in real-time. Vehicle inspectors, operational monitoring teams and regulators are able to use the solution to form a better real-time understanding of freight vehicle movements, driver behavior, road conditions, traffic incidents, and potential high-risk areas in the city.

Other projects are now underway to extend the real-time intelligence capabilities to all forms of transport that the RTA is responsible for, including trains, buses, taxis, trams, boats and private vehicles. For smart cities like Dubai, continuous intelligence applications can deliver enormous value by providing the most accurate, relevant data possible from real-time and contextual data sources as fast as the data is created. Critical for safe operations, the information unified and visualized in Swim Continuum has helped Dubai RTA facilitate a rapid decision-making process and enabled more effective planning of public and private resources that maximize the efficient use of assets and equipment across the city.

The benefits of this solution will be on full display as Dubai prepares to host tens of millions of international visitors during the Dubai World Expo, now scheduled to open in 2021. The massive infusion of visitors, coupled with the city's existing population, has the potential to stress the public transportation system to its limits. With Swim Continuum, Dubai RTA now has the continuous intelligence needed to meet the challenges that come with being a smart city leader.

About Swim

Swim offers Swim Continuum, the first open core, enterprise-grade platform for building, managing and operating continuous intelligence applications on-premises, in the cloud or at the edge. It provides businesses with complete situational awareness and operational decision support at every moment. Built upon the open source SwimOS core, Swim Continuum provides unprecedented performance and efficiency for operationalizing high-frequency, contextual data analytics and real-time visualizations of massive amounts of streaming and batch data. Its single, production-ready platform monitors and manages all Swim operations, creates engaging, connected user experiences and seamlessly interoperates with existing enterprise systems. For more information, visit www.swim.ai and follow us on Twitter @swim.

"The ability to unify, analyze and instantly visualize our data with Swim has enormous potential for our operators."

- Dr. Younes Boukellal,
Chief Technical Supervisor
Monitoring & Enforcement
Department, Dubai RTA