



swim

CASE STUDY

Enabling Intelligent Infrastructure

Connected Vehicles

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Latency is critical to determine the best route from a catalog of over 300,000 traffic intersections in the U.S. alone

Today's connected vehicles are aptly referred to as "data centers on wheels." Sensors and integrated systems across each car continuously monitor and alert the owner on the vehicle's performance and maintenance needs. However, data generated internally is only part of what is needed by the vehicle's computers to ensure passenger safety and support efficient navigation while operating. A key source of data for every connected vehicle continues to be data from the surrounding environment - particularly data from the nearby traffic infrastructure.

While critical for connected vehicles, the raw quality and volume of data from modern traffic infrastructure is enormous. The average U.S. town will generate more daily data from traffic intersections than Twitter generates globally. A connected vehicle doesn't need all the data from every single intersection in a city - it only needs data pertinent to its intended route. The information is only relevant and valuable to the connected vehicle if delivered in the sub-second timeframe required for decision making.

Building the full, contextual understanding of a connected vehicle's environment and surrounding traffic requires a sub-second connection to locally relevant data. The data needs to be transformed, processed, and analyzed immediately from raw sources and communicated as information in real-time. While reducing latency is critical, the problem is compounded when considering over 270 million vehicles may one day need discrete data to determine the best route from a catalog of over 300,000 intersections in the U.S. To date, it's been impossible to build a real-time data service for continuous intelligence at scale with modern software infrastructure.

Cubic | Trafficware Solution

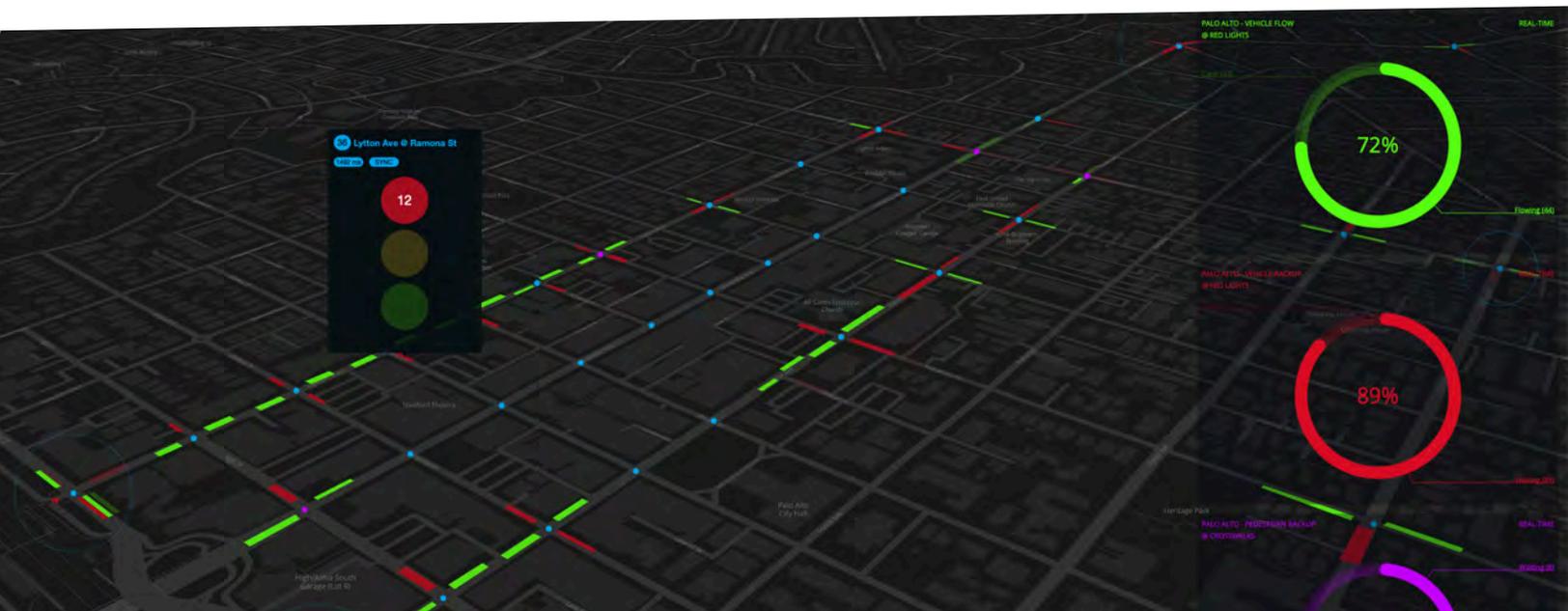
The first technology company in the transportation industry to recognize the evolving needs of connected vehicles while attempting to build a real-time traffic information service.

With an innovative and integrated suite of software, devices, and hardware for traffic management, Cubic | Trafficware has the experience developing innovative solutions to improve mobility in cities world-wide. They offer the most technologically advanced central transport management system on the market to monitor and control an agency's intelligent transportation system (ITS) infrastructure. Cubic | Trafficware knew that extending their offerings to deliver superior, high resolution, and accurate data for city intersections and traffic locations in less than a second could be a game-changer for intelligent infrastructure and connected vehicles.

Cubic | Trafficware tested and evaluated several modern software architectures to identify a technology stack that could connect and transform the enormous volumes of data into a highly accessible real-time service and discovered Swim. As the first provider of an open core platform that enables continuous intelligence at scale, Swim helps organizations transform their business operations by continuously augmenting human decision-making, using the most accurate, relevant data possible from real-time and contextual data sources. Cubic | Trafficware TidalWave Connected Vehicle Solution, is powered by Swim Continuum to deliver real-time data with sub-second latency required by connected vehicles.

Swim Continuum is the first fully-integrated, enterprise grade platform enabling a new class of continuous intelligence applications that can provide businesses with situational awareness and decision support in real-time. Whereas big data or stream processing platforms rely on data centralization, Swim Continuum has the unique, distributed architecture for operationalizing business logic on streaming data at massive scale. The result is a complete, live view into the data needed to support “frictionless” decision-making at every moment.

TidalWave is powered by Swim Continuum



Real-Time Data Service

Each day, Cubic | Trafficware leverages Swim Continuum to transform petabytes of raw traffic data from connected infrastructure and deliver it through the Cubic | Trafficware TidalWave Connected Vehicle Solution as a real-time data service. Architected for massive scale and unprecedented efficiency, Swim Continuum is deployed to integrate, structure, and aggregate the raw traffic data locally where deployed. It then creates a smart, interlinked model - referred to as a Swim Web Agent - to transform data into streaming hyperlinks that are uniquely addressable and continuously update data at the speed of change. By utilizing the Cubic | Trafficware TidalWave Connected Vehicle Solution powered by Swim Continuum, each connected vehicle can dynamically and securely link to relevant traffic intersections and receive streaming updates in real-time from the existing infrastructure.

The success and value of this service has prompted broader adoption across U.S. cities as they look for innovative tools to improve traffic flow and ensure safety using the latest technology.

Latency is no longer an issue, and the solution has maintained superior performance as Cubic | Trafficware continues to expand the deployment nationally as part of its innovative solutions for intelligent infrastructure. Using Cubic | Trafficware TidalWave Connected Vehicle Solution powered by Swim Continuum, connected vehicles now have access to the accurate, high resolution data in the sub-second timeframe needed to operate safely and efficiently.

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 speed at which we capture and report traffic/intersection data is incredibly valuable to cities and counties, so it is gratifying to see it expand so rapidly."

*- Joe Custer, GM
Cubic | Trafficware*