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Intelligent Transport Management
Australian Transport Operator

① SITUATION

With rapid urban expansion, increasing private vehicle use, and rising public transport patronage, the road network is under growing strain. The client identified the need for a data-driven solution to optimise existing infrastructure and promote alternative transport modes while new capacity is developed. A real-time digital twin was required to enhance situational awareness, improve traffic management, and enable a more efficient, responsive transport system across the state.

② OPPORTUNITY

The client sought an integrated, real-time platform to transition from a reactive traffic management approach to a predictive and proactive system. Deloitte was engaged to implement Optimal Reality® (OR), a scalable digital twin designed to enhance operational oversight, integrate multiple data sources, and support emerging transport technologies such as electric, autonomous, and connected vehicles. OR would also improve emergency response coordination and facilitate smart city capabilities.

③ SOLUTION

Deloitte developed and deployed Optimal Reality®, a secure and extensible digital twin platform hosted on AWS. This system integrates over 20 real-time data sources, consolidating traffic data from IoT devices, operational systems, and third-party sources. A custom-built browser-based interface provides traffic operators with a comprehensive micro-to-macro network view. OR enhances decision-making by aggregating real-time metrics, including travel time, traffic flow, congestion levels, and incident detection, improving the client's ability to manage network disruptions.

Impact

- **Increased traffic operator productivity**, replacing 15 separate systems with a single integrated view of the entire network.

- **Optimised traffic signals during unplanned events**, such as protests and collisions, reducing disruption.

- **Real-time detection of unpermitted roadworks**, enabling faster response and minimising delays.

- **Enhanced pre-planning and monitoring** for major events, including sporting finals and concerts.

- **Improved coordination between transport operators, local councils, and emergency services**, supporting a more connected, efficient, and resilient transport network.