

# UGL

## EMC Service Assurance Suite delivers improved performance and safety for Australian trains



### ESSENTIALS

#### Industry

Rail transportation

#### Organization Size

Approximately 53,000 employees

#### Business Challenges

- Produce a world-class GSM-R digital mobile communications system
- Scale to meet future increases in the quantum of use and geographical extent of Sydney Trains' operations
- Collect and analyze in real-time, data generated by tens of thousands of devices

#### Solutions

- EMC Service Assurance Suite

#### Results

- Improved monitoring of rail communication devices to ensure optimal operations
- Enabled real-time detection of impending faults
- Reduced root-cause analysis from months to minutes
- Delivered predictive analytics to avoid future device failures

### OVERVIEW

UGL is an Australian owned multinational provider of engineering, construction, property management and maintenance services. UGL is the primary contractor for a major project to provide a GSM-R based digital communication and monitoring system for Sydney Trains, a government agency that operates metropolitan rail services throughout New South Wales (NSW) in Australia.

### BUSINESS CHALLENGES

When your business is delivering transportation services to 1 million customers per weekday and 287 million people annually, ensuring performance, efficiency and safety is your top priority. Sydney Trains was looking for ways to reduce service delays and stoppages, as well as improve monitoring of track and rail conditions, communications, and environmental systems such as air conditioning on the trains.

Sydney Trains' Head of Engineering and Projects Ian McCullough said, "The radio system was vital technology for rail safety, and will replace the existing Metronet radio network, which is coming to the end of its operating life.

"The digital radio system will have better functions than the current network, and provide a foundation for other safety initiatives, such as Automatic Train Protection. Also, it will enhance communication between trains and network control in emergencies. The new system will also have additional functionality enabling communications between other rail staff such as track workers, transit officers, and freight operators," McCullough said.

The project would involve deploying thousands of advanced measurement devices and communication systems along tracks, at train stations, and within communication rooms. Sydney Trains knew they needed a solution that could monitor and correlate the data being sent by these devices. They awarded a contract to design, install and maintain a digital radio system for Sydney Trains in NSW, to UGL Ltd.

UGL worked closely with IT consulting firm and EMC partner, iQ Consult to recommend a solution that would centrally monitor, analyze and report the vast amounts of data generated. To solve Sydney Trains' availability, performance, and service-level monitoring and management challenges, UGL and iQ Consult selected EMC Service Assurance Suite, which is built on a foundation of market-leading, proven technologies originally brought to market as EMC Smarts and EMC Watch4net.

Wesley Howick, UGL Senior Systems Engineer, says, "We were impressed with how the integrated solution collects and reports on data from virtually any device, whether it's installed in a remote location, a base transceiver station, within a train cabin, or inside of a tunnel."

# REDEFINE

CUSTOMER PROFILE

The EMC logo, consisting of the letters "EMC" in a bold, white, sans-serif font, with a small registered trademark symbol (®) to the upper right. The logo is set against a solid blue rectangular background.

## **SOLUTIONS**

Monitoring a 200 mile radius area around Sydney, Australia, the EMC Smarts in the Service Assurance Suite collects data from more than 250 base transceiver stations, typically installed alongside railway tracks, as well as within a number of critical and operational core and equipment communication rooms. It also polls logs and other communications from on-train equipment and signal towers via GSM-R wireless transmission.

The solution transmits network data to an existing Sydney Trains EMC Smarts deployment, which has monitored Sydney Trains data center and business systems for several years. Also part of the EMC Service Assurance Suite, Watch4net extracts data from Smarts and other element managers and displays real-time railway performance information for fault reporting, root cause investigation and predictive analytics.

## **INSTANT MONITORING ACROSS A VAST NETWORK**

With the EMC Service Assurance Suite, UGL has broad visibility into the entire Sydney Trains digital communications network and can monitor, analyze, and report on system conditions in real time. This improves performance analysis of devices to ensure optimal operations, enables quick resolution of detected system faults through root cause analysis, and helps prevent safety risks or stoppages with predictive analytics.

**"The bottom line is preventing problems before they happen. That's what the EMC Service Assurance Suite is helping us do so the rail system runs safely and on schedule."**

Wesley Howick  
Senior Systems Engineer, UGL Limited

"In an expansive rail network like the one at Sydney Trains, devices in the field could fail and not be detected for days or weeks," explains Howick. "The EMC Service Assurance Suite allows us to monitor every device regardless of the vendor and track how they're working -- something unavailable on the previous system. Instead of viewing multiple consoles of various device vendors, we can poll and correlate data from multiple sources and manage them from a single console. This centralized visibility into the performance and availability of the digital communications infrastructure allow us to spot potential problems before they affect safety or train schedules."

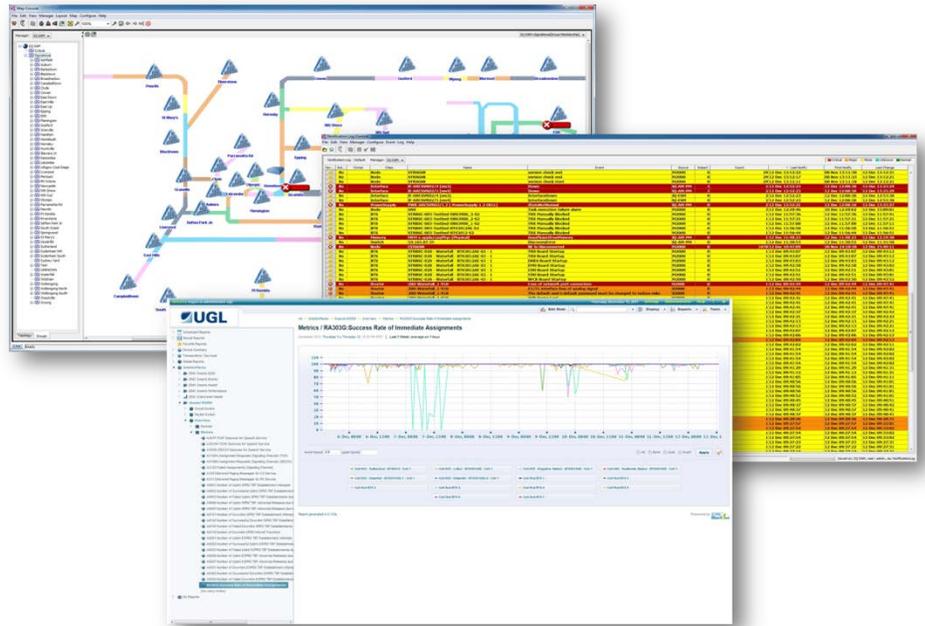
## **SHRINKS TIME TO ANALYZE THE ROOT CAUSE**

Thousands of metrics, transmitted by each device, are collected and analyzed by the Service Assurance Suite. If any impending problems are detected, the operations staff is immediately alerted and can then drill down and examine in detail the exact root cause. Watch4net also provides a range of out-of-the-box reports for analysis and strategic planning.

"The out-of-the-box reports allows us to quickly view metrics and performance information that are supported for our supplied data center straight away and limits our need for a system administrator to spend time creating the functions and views needed to display this useful information," say Howick. "The ability to also copy and

modify the out-of-the-box reports allows us to customize the tables and charts to display specialized equipment we need to monitor and report on for KPI purposes."

To make it easy for operations staff to visually monitor the rail system, iQ Consult integrated Smarts with a detailed graphical image of the rail system that is displayed live on a large screen in the Sydney Trains infrastructure control room. UGL and Sydney Trains staff also can easily monitor the rail system remotely via the secure Web-based portal provided in the Service Assurance Suite.



Brent Cetinich, iQ Consult's Senior Technical Engineer, comments, "A quick glance at the screen allows operators to see if there's a problem in a particular area and then use the root cause analysis capabilities to trace the fault to the exact hardware or software causing the problem. Before, this could take weeks or months of sifting through data and physically checking devices. Now, EMC Service Assurance Suite does this within minutes."

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Howick adds, "Being able to quickly analyze faults is especially valuable to UGL because we have SLAs with Sydney Trains. So the faster we find the problem, the quicker we can make the repair and get the device back into service."

## **PREDICTS ISSUES WITH ANALYTICS**

As Watch4net technology collects performance data over longer periods of time, the reports can uncover trends and predict potential trouble spots well in advance of failure. For example, it may discover one section of the rail network that is particularly prone to heat-related issues. This allows operators to monitor the device more closely. Similarly, the analysis may show that a particular device is likely to fail within a certain time period, prompting UGL to replace it and avoid the failure altogether.

"Without the EMC Service Assurance Suite, we would not be able to predict these issues and address them proactively as we do now," says Howick. "It's helping us ensure higher levels of service for Sydney Trains and reduce costs associated with repairing broken parts."

He adds, "iQ Consult did a great job with the design and implementation. They completed the deployment, integration, and testing within five months."

"The bottom line", states Howick, "is preventing problems before they happen. That's what the EMC Service Assurance Suite is helping us do so the rail system runs safely and on schedule."

## **CONTACT US**

To learn more about how EMC products, services, and solutions can help solve your business and IT challenges, [contact](#) your local representative or authorized reseller, visit [www.emc.com](http://www.emc.com), or explore and compare products in the [EMC Store](#).

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