

# SYDNEY TRAINS RAIL OPERATIONS CENTRE

## CASE STUDY

### Sydney Trains Rail Operations Centre Monitors 506 Miles of Track Using One of the World's Largest Command and Control LED Displays

“Our Rail Operations Centre is more than bricks and mortar, it's a symbol about how we operate trains and provide real time customer information to improve the customer experience. For the first time in our history we have managed to bring together and consolidate multiple control centres in the one location.”

- TONY EID, SYDNEY TRAINS EXECUTIVE DIRECTOR



The Sydney Rail Operation Centre (ROC) has modernised how Sydney's rail network is controlled by incorporating dozens of different systems into a single location. The NSW Government has invested in this state-of-the-art facility in order to minimise delays and ensure when incidents do occur on the Sydney Trains rail network, customers receive better and faster information. In 2018, Australian integrator Critical Room Solutions (CRS) and technology consultant Digital Place Solutions (DPS) partnered with NanoLumens and VuWall to commission what is now believed to be the world's largest command and control LED display system.

#### THE CHALLENGE

Prior to building the ROC, dispatchers operated and monitored nearly 506 miles of track from six control centres by 104 transit dispatchers/controllers. The main challenge was to consolidate these six locations to one central location with the perfect display solution to allow the new control centre staff to effectively monitor all 178 stations on the Sydney Trains rail network. The main video wall needed to display content from over 40 sources, such as day of operation (DoO) information. The scope and size of the operation demanded a video wall management solution that could accelerate and simplify the access, exchange, and management of information between

operational staff, so that they can respond and resolve incidents faster. It also needed to connect the five other active control centres within the rail network seamlessly. The AV integrator was mandated to install and configure this very large project within a very rigorous timeframe.

#### THE SOLUTION | THE VIDEO WALL

CRS selected LED display technology because of its long lifetime of components, low maintenance, low cost of ownership and the small amount of space it consumes. **“We believe that fine pitch LED display technology is the future for many control room environments”** - John Kimenkowski, Technical Supervisor at CRS. To meet the project's sizable needs, CRS selected NanoLumens to engineer and install a customized 41-million-pixel LED video wall nicknamed the **“WOW” board** - a 1.6mm **Engage Series LED display** measuring 106 x 12 feet and providing an entire display resolution of 19,200 x 2,160 pixels, equivalent to 20 windows of native Full HD resolution or 5 windows of 4K. With the the “WOW” board's narrow-pixel-pitch (NPP) of 1.6mm, the pixel-to-pixel tolerance is a very tight 0.08mm. NanoLumens provided a seamless finish, as well as the robust, adaptable, and comprehensive structural design required to handle the complexity of the hanging mount and seismic inputs required for such a large LED display.



**“Sydney Trains serves more than 32 million passengers every month. Numbers like that require a sophisticated and powerful system capable of keeping an eye on the entire network, and VuWall is at the heart of this mission-critical operation. As these numbers continue to rise, we know we can trust the VuWall ecosystem to keep us accurately informed, so we can continue to provide the best commuter experience to our customers.”**  
**- GEOFF HOWARD, SYDNEY TRAINS ROC PROGRAM DIRECTOR**

## THE SOLUTION | VIDEO WALL MANAGEMENT

To optimize control room efficiency and visualization, CRS turned to VuWall. The massive NanoLumens LED wall is controlled by VuWall's **VuScape VS640 Video Wall Controller**, with an additional VS640 in each of the five other control centres to drive their respective video walls. VuScape was selected for its powerful processing and graphics, its ability to preserve pixel integrity, its easy-to-use video wall management software and its ability to easily streamline virtually an unlimited number of sources onto any type of video wall, despite its resolution or aspect ratio. VuScape's ease of deployment optimized the on-site installation and configuration phase, meeting CRS' delivery deadlines.



VuScape Video Wall Controller

## THE RESULT

The new ROC has drastically changed the way the rail system manages day-to-day operations, and at the heart of it all is NanoLumens' WOW LED wall powered by VuWall's VuScape controller. Together, they're **providing critical information clearly, quickly and effectively, keeping the Sydney Rail Operations Centre on track** and ensuring that the rail lines are running smoothly.

The ROC relies on VuWall's VuScape video wall controllers for accuracy and flexibility in its 24/7 operations centres. The NanoLumens spectacular wall blends perfectly with the new centre's futuristic interior design. The combined solution has enabled Sydney Trains' controllers to monitor the entire rail system, controlling the trains, tunnels and platforms to deliver a safe and reliable journey.

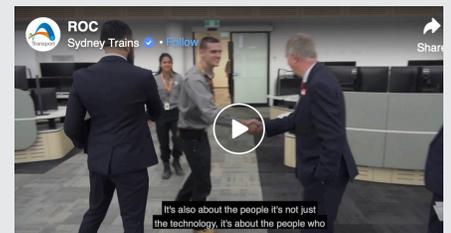
**“The Operational Visual Display Screen (OVDS) plays a key role in providing the control centre real-time information to make informed decisions with train operations, incident and customer management. The OVDS, now dubbed the WOW board due to its sheer size and stature, is the first of its kind used in Australian control centres.”**

**- TONY EID, SYDNEY TRAINS EXECUTIVE DIRECTOR**

The Sydney Train Station ROC project has truly become an architectural gem, marking a major step forward in the plan to bring the performance and operational benefits to leading transportation authorities.

## About Sydney Trains

Sydney Trains is the suburban passenger rail network serving the city of Sydney, New South Wales, Australia. The network is a hybrid suburban-commuter rail system with a central underground core. Sydney Trains also operate the Rail Operations Centre and are responsible for the maintenance of assets including tracks, trains, signals, overhead wiring, stations and facilities. Sydney Trains Rail Operation Centre (ROC) Sydney Trains has been operating all suburban rail services across metropolitan Sydney since 2013. Its services cover 815km across 178 stations on 9 lines, with metro-equivalent train frequencies of every 3 minutes. Sydney Trains also maintains trains and a large proportion of the infrastructure used by NSW TrainLink.



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