Sydney Trains gets their Operations on Track with the Worlds Largests Control Center

Governmental transportation authorities require an immense amount of information to be distributed, analyzed, and acted upon simultaneously to ensure the efficient and unbroken operation of their services. For the Sydney Trains agency in Sydney, Australia, their first step to optimizing their efficiency –and thus their passenger experience– was merging their six different monitoring locations into one central hub, from which they could more cohesively administrate the day-to-day operations of their 178 stations. This new Rail Operations Centre (ROC), positioned near the Green Square Station in the inner-city Sydney suburb of Alexandria, had to be capable of not only receiving every piece of information Sydney Trains required to run their operation but it also needed to deliver this information to each of the estimated 100 staff members who will be working the ROC's main floor. Taking inspiration from what other command and control centers have done in the face of similar challenges, Sydney Trains concluded they needed a massive digital display. But what kind?

The Challenge

While Sydney Trains understood that a large-format digital display was the most effective and efficient way to communicate the vast swaths of information their employees needed to manage the railway's day-to-day operation, they weren't particularly well versed in how display technology worked. Recognizing their lack of familiarity with their desired technology as their first challenge, the team from Sydney Trains on-boarded the Australian integration firm Critical Room Solutions (CRS) and the technology consultant Digital Place Solutions (DPS). This trio proceeded together to diagnose each of the obstacles the ROC would present. First, the sheer volume of staff moving around the main floor meant the display had to be massive enough to showcase the entire rail network to the whole team while still maintaining a tight enough pixel pitch to show acute details to staff members with a more precise focus. The futuristic interior of the ROC mandated a modern solution to match it and the high levels of natural light in the space set a high brightness threshold. The intended on-time of the display posed another challenge: with the railway running 24/7 that meant the display had to be, too. "Essentially, it's like a NASA command and control center for the entire rail network," said Gerry Thorley, the co-founder of DPS, of the new ROC. Facing complex challenges and the high stakes of a public infrastructure project, the Sydney Trains ROC project presented a tall task.

"Sydney Trains is dedicated to creating a next-generation transportation system comprised of world-class fast, safe and reliable trains that easily take customers to where they want to go."

Gerry Thorley, Co-Founder, Digital Place Solutions

The Solution

2017 marked the beginning of discussions between CRS, DPS, and Sydney Trains to identify the best possible solution for the "Operational Visual Display Screen" (OVDS) in their new ROC control center. According to John Kimenkowski of CRS, "Sydney Trains was initially looking at a cube wall for this installation because that is what they used in prior control centers." This route proved untenable in the ROC. In both weight, brightness, and sheer size, projection cube walls resemble the bulky home televisions from decades past. The massive machines take up far more space than Sydney Trains was looking to dedicate to their new display solution and these outdated, bezel-filled videowalls are also known to exhibit brightness variations alongside bothersome maintenance frequency. Instead of these bulky cubes, continued Kimenkowski, "we presented the option of LED display technology for several reasons and once we made that pitch, NanoLumens quickly became the solutions provider of choice." Brighter, thinner, and less than half the weight of cube wall technology, NanoLumens LED displays provided Sydney Trains with precisely the bezel-free display wall they were looking for with a 1.6 millimeter pixel pitch Performance Series LED display, measuring 106.4 feet wide by 11.8 feet tall With over 41 million pixels, the display contains the largest number of processors ever installed in an LED display.

The Results

Though Sydney Trains is yet to move their entire team to the ROC, the NanoLumens OVDS has transformed the way the new headquarters monitors the entire rail system. Tony Eid, the Sydney Trains Executive Director, confirmed as much, saying, "the Operational Visual Display Screen plays a key role in providing the control center real-time information to make informed decisions with train operations, incident and customer management," among other tasks. Referred to as the "WOW board," the huge NanoLumens display contains the equivalent of 20 windows of full high definition resolution without the need for scaling and occupies far less space than any alternative display solution would have – especially projection cube walls. "For the first time in our history," Eid continued, "we have managed to bring together and consolidate multiple control centers in the one location." The NanoLumens OVDS is what makes that possible. The first of its kind in Australia, it allows ROC staff to masterfully control their entire network of trains, stations, tunnels, and railways for the millions of daily customers relying on Sydney Trains to deliver a safe and swift journey. "The NanoLumens wall, which is what this display really is," adds Gerry Thorley in conclusion, "is central to the main operations of this command and control center for the entire rail network…[it] provides the centerpiece for the continued world class operation of this growing railway system.

> "Our new 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"
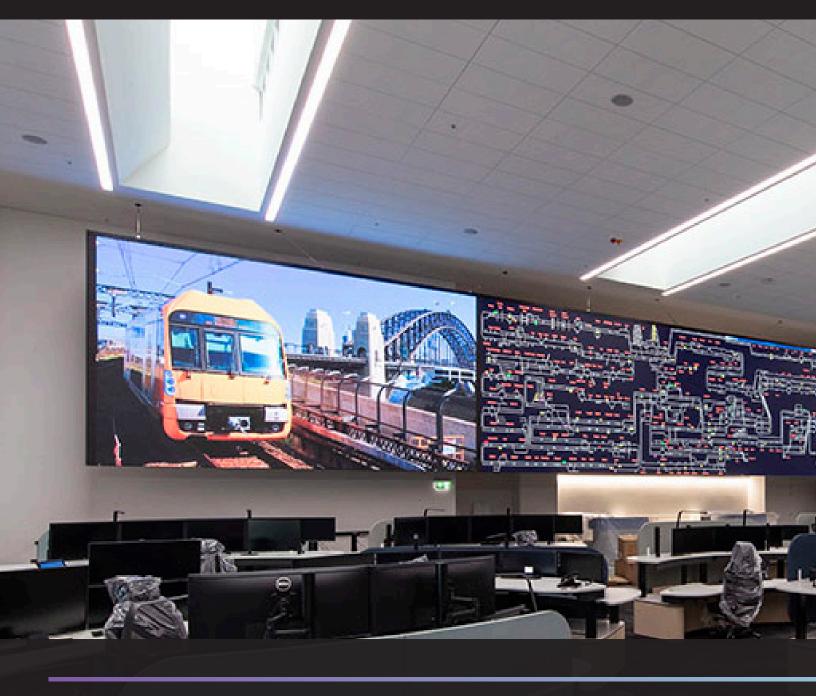> **Tony Eid, Executive Director, Sydney Trains**

The Technology

The NanoLumens Operational Visual Display Screen is a Performance Series™ display with a 1.6 mm pixel pitch. Measuring 106.4 feet (32.4 meters) wide by 11.8 feet (3.6 meters) tall, the display contains over 41 million pixels. It is the central feature of the Sydney Trains Rail Operations Center, located within Sydney in the suburb of Alexandria.

We Are LED™

5390 Triangle Parkway, Suite 300
Peachtree Corners, GA 30092

"Due to the long lifetime of components, low maintenance, low cost of ownership and small amount of space it consumes, we believe that fine pitch LED display technology is the future for many control room environments, and NanoLumens has a superior product and team capable of delivering what is needed for this industry" **John Kimenkowski, Technical Supervisor, Critical Room Solutions (CRS)**

About Nanolumens

Nanolumens is a US-Based LED design and manufacturer headquartered in Atlanta, Georgia. Nanolumens offers world-class displays across multiple market segments adding wonder to physical spaces. Nanolumens is a pioneer of the true curve technology and are committed to being better. With a bold and visionary team of experts Nanolumens will take your project, in all shapes and sizes, from concept to reality. Nanolumens brings your creative visions to life, leaving a first and lasting impression. We are LED! For more information, visit www.nanolumens.com

About Sydney Trains

Sydney Trains is the operator of rail services across the metropolitan Sydney area, bounded by Berowra, Emu Plains, Macarthur and Waterfall. 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 also maintains trains and a large proportion of the infrastructure used by NSW TrainLink.

About Critical Room Solutions

Critical Room Solutions (CRS) is a 100% Australian owned and operated company with over 25 years' experience in design and realization of Turnkey Technical Rooms throughout Australia. They specialize in the creation of exceptional 24/7 Command and Control Rooms (CCR), Remote Operation Centre (ROC), and Incident Control environments. With 1800sqm facilities in Perth and Adelaide, their services are provided throughout Australia, Asia and New Zealand.

About Digital Place Solutions

Digital Place Solutions is a Digital Display and Place Based Media consultancy, including specializing in the new generation of high resolution LED solutions. Digital Place Solutions assists proactive clients gain a commercial edge through achieving their digital display and consumer engagement ambitions, always with a clear point of difference and a business outlook in mind. Digital Place Solutions helps clients adapt their businesses to unlock digital visualization solutions that deliver customer engagement, digital experiences and product differentiation.