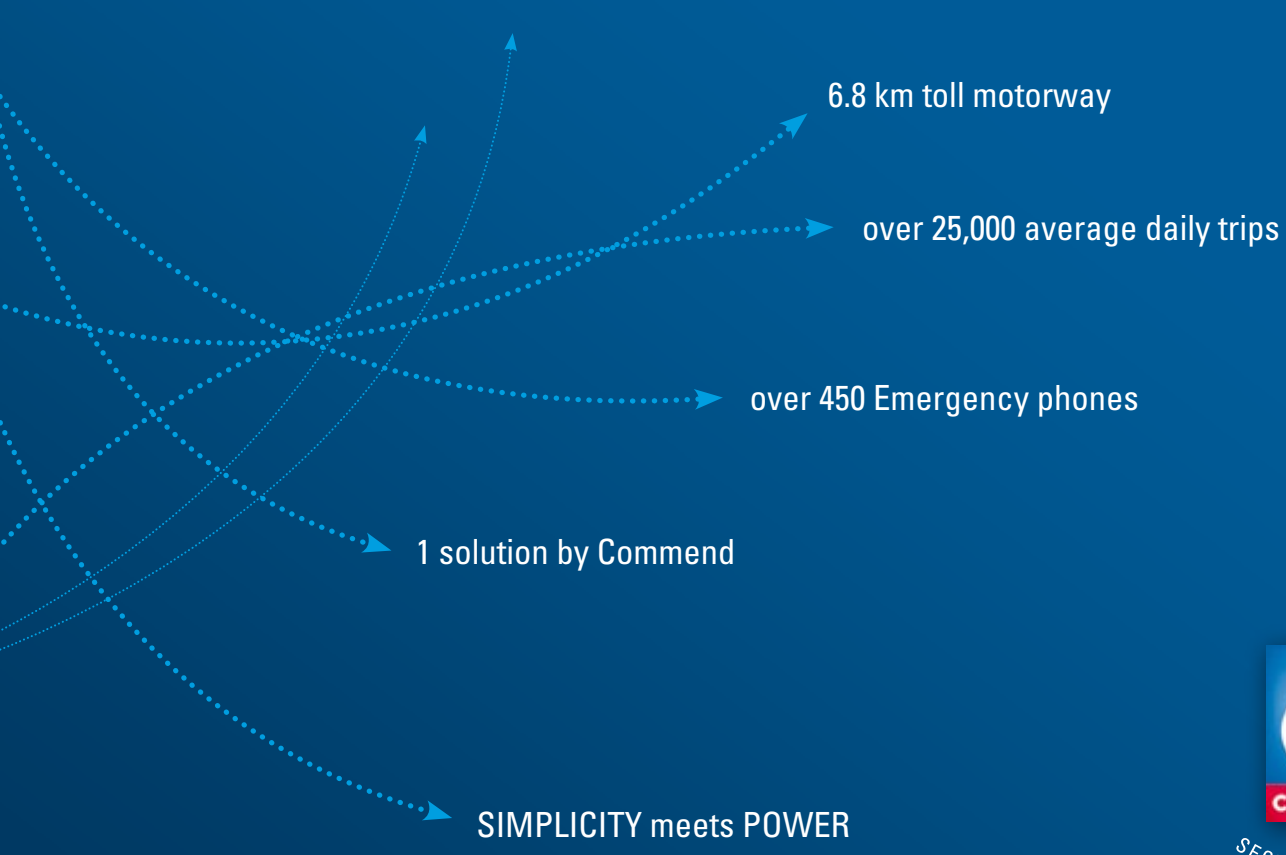




TRANSPORT & INFRASTRUCTURE / TUNNEL

CLEM 7 Tunnel Brisbane / Case Study



SECURITY AND COMMUNICATION

CLEM 7 TUNNEL BRISBANE

Communication at the push of a button



Picture(s): CLEM7

Project Details

Customer

North-South Bypass Tunnel (CLEM7), Brisbane, Australia

Project Type

Road Tunnel - Emergency Telephone Systems for Motorists, Fire, Operations & Maintenance and Disability Locations utilising ComWIN Graphical User Interface (GUI)

Technical Data

14 x GE 700 Intercom Servers networked over a redundant LAN networks

3 x Digital Control Desk Master stations EE 811A

SIP interface to 3rd Party IP PABX

5 x Control Desk Telephone ports

Graphical User Interface (ComWIN & ComREPORTER)

AudioCOM Multi audio engine software (message, logging and playback)

Dual RS 232 / IP Modbus interface to tunnel control for communication system status

Control Desk Master station to dynamically communicate with up to 5 telephones simultaneously in an Open Duplex conference.

Disabled Emergency Telephones (DET-ET 811A) with response messages.

The Challenge

A communications system was required to support over 450 emergency telephones having differing functions including Motorist, Fire, Operations & Maintenance and Disabled Emergency telephones. The driving requirement of this system was to provide a high availability system, distributed over 9 separate locations for use during emergency situations within the tunnel.

The telephone stations had to be presented on a Graphic User Interface, indicating their in-service and operational status. In the event of an emergency situation occurring within the Control Room, the operator has the ability to manage the entire system from a remote backup location.

Some specific requirements included the ability for audio recording of conversations, event logging multi-channel conferencing, Disabled Emergency Telephones (DET), integration with the administration IP PABX and MODBUS Mimic Panel.

The Solution

The system comprises 14 x GE 700 Intercom servers distributed across 9 x locations via an IP network.

Functional integrity and stability was achieved in part, by the interlaced structure of the physical wiring. Alternate telephones were fed from opposing GE 700 communication sites. This architecture ensures that in the event of a major site failure, every alternate telephone remains in service. The system status is also reported via an RS 232 / IP Modbus high level interface to the tunnel control room graphical Mimic Panel. The in-service and operational status of all the Emergency Telephones are displayed on the ComWIN GUI at each Operator position and also on the large Mimic Panel which indicates failures in red via a redundant path to the Tunnel Control Room, should the primary Modbus path be interrupted.



Each tunnel control operator is equipped with an EE 811A master station and ComWIN GUI having over 50 Plans and 500 Icons covering all tunnel and feeder road telephones. Hyperlinks were created within the GUI to open AudioCOM for playback and review of recorded conversations.

Commend combines IP, Digital and Analogue technologies to seamlessly connect Motorist Emergency, DET, Fire and O&M telephones to the GE700 Servers. Provision is also made for Fire Telephones in the control room for independent management of an emergency situation within the tunnel by fire services.

The operator has the ability to dynamically assign up to 5 fire telephones into an Open Duplex conference.

The DET (Disabled Emergency Telephone) has the ability to send pre-programmed messages to the control room GUI. In response, the control room GUI can send its own pre-programmed messages to the caller. Alternatively a normal call request can be initiated from the DET station to the operator.

SIP integration between the Commend emergency telephone system and the administration IP PABX is also included, allowing the O&M telephones to call the administration office and vice versa. The control room operator even has the ability to setup a call between the motorist emergency, fire and DET telephones and a PSTN line to any off-site telephone.

Short profile of CLEM7 Tunnel Brisbane

The North-South Bypass Tunnel, known more recently as the CLEM7, after the Former Lord Mayor Clem Jones, is a 6.8km highway with 4.7km of tunnel under the Brisbane River greatly reducing the traffic congestion from the Brisbane CBD out toward the South East freeway, and other arterial routes.

Customer's Comment

Andrew Watters

Systems integrator of Austdac

"Making one system operate like four on a single high availability platform was a big challenge that Commend handled easily with their standard production equipment. Austdac and Commend worked together perfectly to realize this impressive and cost-effective solution."

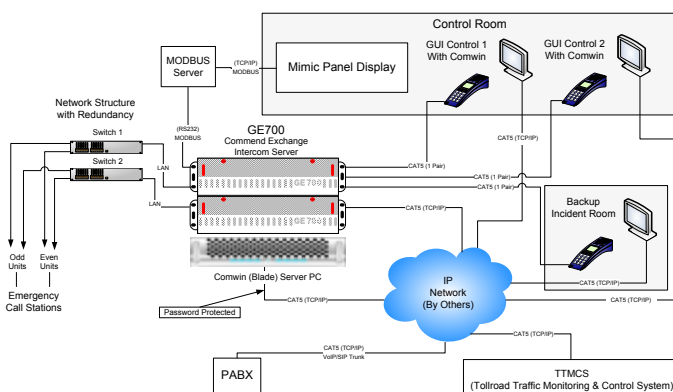
Greg Connolly

Tunnel Operations CLEM 7 Tunnel Brisbane

"It's really impressive that we can have what are essentially 4 distinctly individual emergency systems running independently, yet together. User operation is intuitive and the audio quality exceptional, even from within the very loud road tunnels."

North-South Bypass Tunnel (CLEM7), Brisbane

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