EEMITS TRBOCALL SOLUTION CONNECTS BOC'S UK MANUFACTURING SITES

MANUFACTURING

BOC approached Eemits to deliver a unified digital two-way radio solution to their manufacturing sites across the UK to enhance critical voice communications and worker safety, control remote site access and receive instant plant alarm notifications.

THE CHALLENGE

The challenge was to provide BOC with a mission critical communication solution between their Operational and Maintenance (O&M) teams located at ATEX and none ATEX manufacturing sites across the UK and their centralised Control Room Team located at the Remote Operations Centre (ROC). The system needed to connect the O&M teams, no matter where they were located or how loud their environment was, to the team at the ROC and it was essential that all voice messages were received and understood without interruption or interference. In addition, the system needed to instantly notify the ROC and O&M teams of important plant alarm notifications, provide enhanced worker safety for the O&M teams at site, control site access by remotely opening and closing gates, and allow the O&M teams to make and receive telephone calls.

PRODUCTIVITY
up

EFFICIENCY
raised

SAFETY
increased

TRBOCALL - GREATER THAN THE SUM OF ITS PARTS

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THE SOLUTION

We installed Eemits ultra-smart digital two-way radio solution - TRBOCALL – a modular platform comprising the following:

INFRASTRUCTURE

BOC chose:

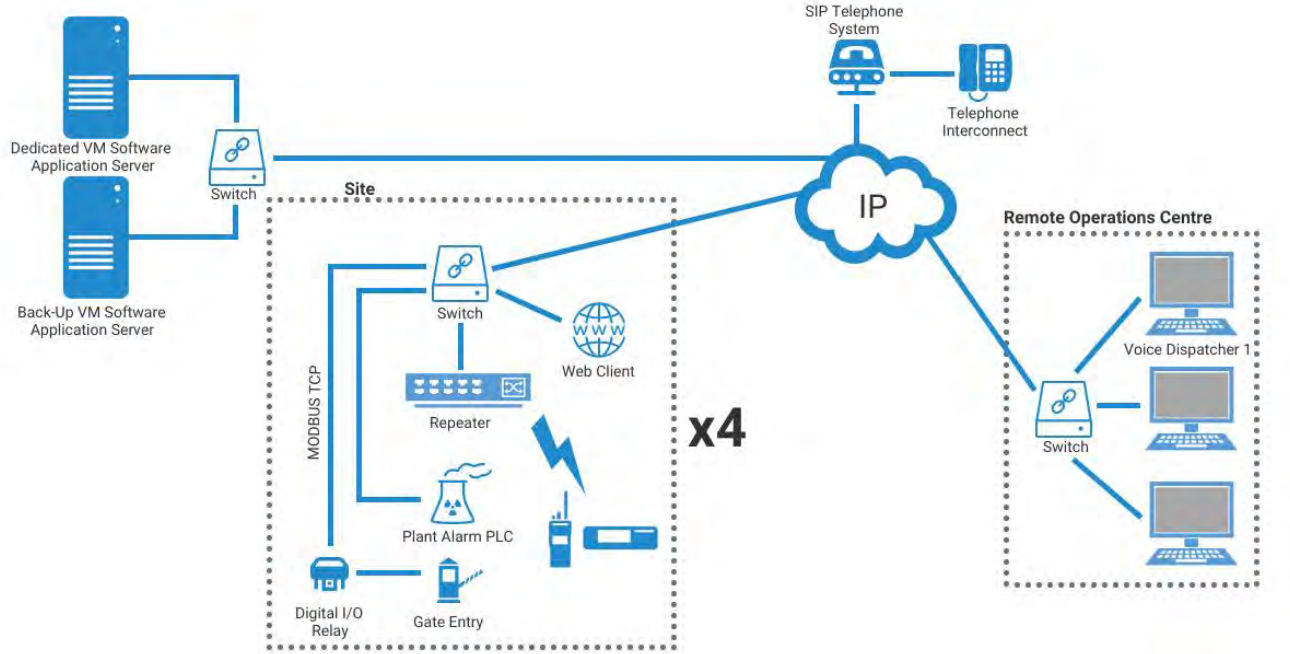
- IP Site Connect

The Benefits:

BOC needed to communicate with voice and data across dispersed geographical manufacturing sites, operating in both UHF and VHF frequency bands, the Motorola Solutions IP Site Connect (IPSC) infrastructure incorporating their SLR5500 repeaters with a 6-8 hour battery backup system was chosen. IPSC allows multiple single-site systems, to be connected to each other via a standard IP network facilitating uninterrupted voice and data communication without geographical limitations.

The rich data features of the IPSC infrastructure allows software applications to be layered over the top of the radio voice solution to provide the instant plant alarm notification, enhanced worker safety, remote gate entry, and telephone interconnect that BOC required. The software applications were hosted on a dedicated virtual machine (VM) server that was backed up on another VM server, allowing seamless switching from the dedicated to backup server in the case of failure.

As part of our project management methodology we worked closely with BOC's IT team to ensure that their IP backend network met the performance requirements for a successful IPSC and software application installation prior to deployment. Delay/Latency, Jitter, Packet Loss and Bandwidth are all crucial factors in delivering a successful IPSC solution with software applications otherwise a degradation audio quality would have been observed by the ROC and O&M teams, which would be unacceptable for a mission critical system.



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THE SOLUTION

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SOFTWARE & FEATURES

BOC chose the following software on their radios:

- Voice Dispatch
- Personal Safety
- AVL Tracking
- Voice Recording
- Text & Email Messaging
- Audit Reports
- Extended Alarm Management
- Telemetry
- Telephone Interconnect

The Benefits:

Three, "mirrored", Voice Dispatch positions were setup for the centralised Control Room Team at the ROC. Each position consisted of a Client PC, 2 x 22" touch screen display and a USB desktop mic, and each position was connected to the software application server over BOC's IP network. The Voice Dispatch position allows the control room team to place and receive different types of radio calls, such as private (individual), group or emergency calls. It also provided the Control Room Team a graphical user interface (GUI) to the radio system that allows the Control Room Team to monitor the safety of the manufacturing sites' O&M teams as well as interacting with the sites' plant alarms and access control. Each of the manufacturing sites were also given access to the GUI of the radio system by means of a Web Client interface that allows the O&M teams to log on to any IP connected device with internet connection. This gives each site the flexibility of interfacing with the radio system as and when required as opposed to needing a dedicated PC Client Voice Dispatch position.

The software application server when configured with the Extended Alarm Management module can interrogate plant alarms sent via each of the manufacturing sites' programmable logic controllers (PLC's) that control the alarm outputs on critical plant machinery and processes. The Extended Alarm Management module was setup to run MODBUS Remote Terminal Unit (RTU) listeners that were setup as "SLAVES". In turn, each plant's PLC was configured as the MODBUS MASTER. This enabled each manufacturing sites' plant alarm integration so that alarm notifications can be monitored and sent instantly to the dispatch positions at the ROC and hand portable radios, via text messaging and voice annunciation, used by the O&M teams at the manufacturing sites.

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THE SOLUTION

We installed Eemits ultra-smart digital two-way radio solution - TRBOCALL – a modular platform comprising the following:

SOFTWARE & FEATURES

BOC chose the following features on their radios:

- PTT (Push-to-Talk)
- Telemetry
- Panic Button
- Text to Speech
- Lone Worker
- Man Down
- Rugged Design
- ATEX
- Intelligent Audio

Continued:

The Extended Alarm Management module was also used to enable the hand portable radios at the manufacturing sites and the dispatchers located at the ROC to open and close gates when necessary. The main gates are opened by closing a digital input/output (I/O) relay device connected to the BOC gate entry system. This relay is closed using a pre-programmed side button on the hand portable radio and a designated button on the dispatcher GUI. This then sends a MODBUS telemetry command from the software application Server application to the corresponding relay device output via BOC's IP network.

The system offers BOC a resilient Worker Safety Solution that utilises the Motorola DP4000 series dedicated emergency panic button, lone worker and man down no movement alarms, together with the built in GPS function. In the event that any of these alarms are triggered an escalation route is followed where a loud emergency tone is sent to other radio users on the site and also to the ROC together with the location of the worker who raised the alarm. The location of the worker in distress is easily determined on the dispatcher screens at the ROC and Web Clients at the sites, whereas the location information is sent via a text and voice annunciation to individual handsets on site and also 'off-site' to a dedicated telephone number for a third party response to the emergency. The emergency escalation route also includes an e-mail to be sent to the appropriate BOC health and safety manager so that a post investigation of the incident can be carried out. The system also offers tools to help BOC with their post investigation work such as voice recording that allows the incident to be played back in real time and when this is combined with the detailed GPS historic route data helps provide a transparent picture of the build up to the incident and the response procedures deployed during the incident.

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THE SOLUTION

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SERVICE WRAP

BOC chose:

- End-to-end management of system faults
- Uncompromised management of services
- Dedicated service team proactively monitoring for system issues
- Planned system upgrades
- Infrastructure asset management
- Spare parts management
- Fully comprehensive priority repair service for all Motorola hardware
- Onsite support for system issues
- Preventative maintenance by certified technicians

The Benefits:

The BOC system is monitored by a system health monitor, which is a client server based application that is co-hosted on the dedicated and backup software application VM servers. It gives an integrated view of the radio system and it can be used to pinpoint any problems with the system that can be quickly diagnosed and rectified thereby minimising the potential down time to the system. The Motorola hardware in the system is covered by their advanced warranty, which means all the repeaters within the system are covered by their advanced replacement or 'hot swap' scheme and the radio handsets are covered for all failure including accidental damage. Eemits further support Motorola's warranty service by including preventative and reactive maintenance so that the system is fully supported throughout its lifetime.

HARDWARE & ACCESSORIES

BOC chose:

- Motorola DP4801Ex (ATEX Full Keypad Radios)
- Motorola DP4801e Radios
- Headsets

The Benefits:

As the BOC manufacturing sites are hazardous, potentially explosive, and high noise environments it was important to select the appropriate hand portable radio. The Motorola DP4801Ex (ATEX) and DP4801e (Non-ATEX) radios were chosen due to their rugged design, enhanced feature set, and large colour backlit display, full keypad, and long battery life. The intelligent audio feature adjusts the volume automatically in line with fluctuating background noise to ensure commands are not misunderstood or requests for help ignored. When voice communication is not practical due to excessively high noise, the O&M team can quickly and easily share information with colleagues using text messaging or by wearing ear defender style headsets. BOC were supplied with both ATEX and Non-ATEX high noise headsets with associated push-to-talk adaptors that allows the O&M teams to easily communicate with each other and the ROC whilst in a high noise environment, which is essential for their day to day operations.

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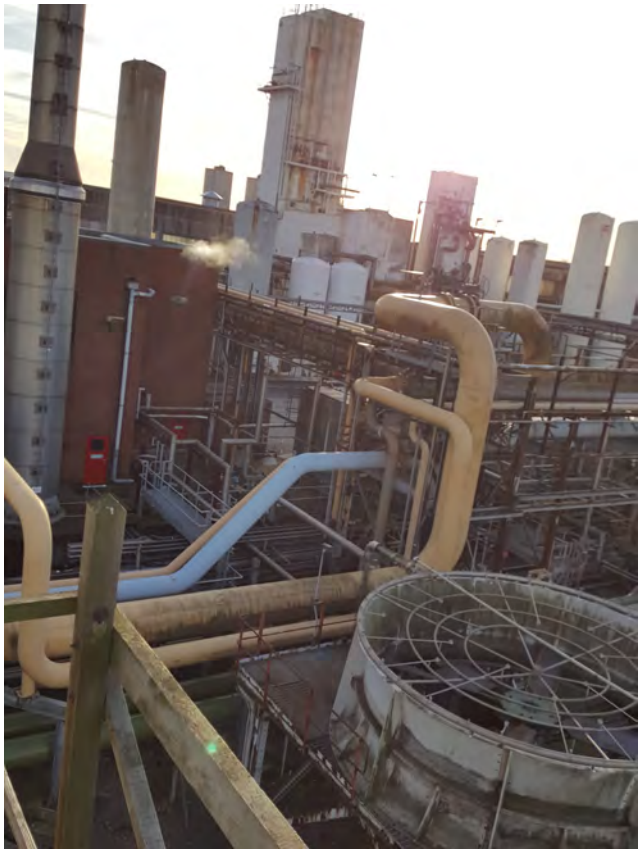
THE RESULTS:

BOC now have a system that has significantly increased the safety of their workers, whilst also significantly improving communications across their multiple sites.



Eemits innovative modular platform TRBOCALL - a unique combination of hardware, bespoke software applications and digital features - together create an ultra-smart two-way radio system. Combined with unrivalled wide area network coverage, our customers have the flexibility to build their own system with all, or a combination of infrastructure, hardware, software service wrap, features and accessories that suite their individual business needs.

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EEMITS CLIENTS BENEFIT FROM:

Productivity increased by up to

40%

PER SITE

Efficiency raised by up to

1hr

PER EMPLOYEE PER DAY

Safety increased for

100%

OF YOUR WORKFORCE VIA DIGITAL RADIO WHERE EVER THEIR LOCATION