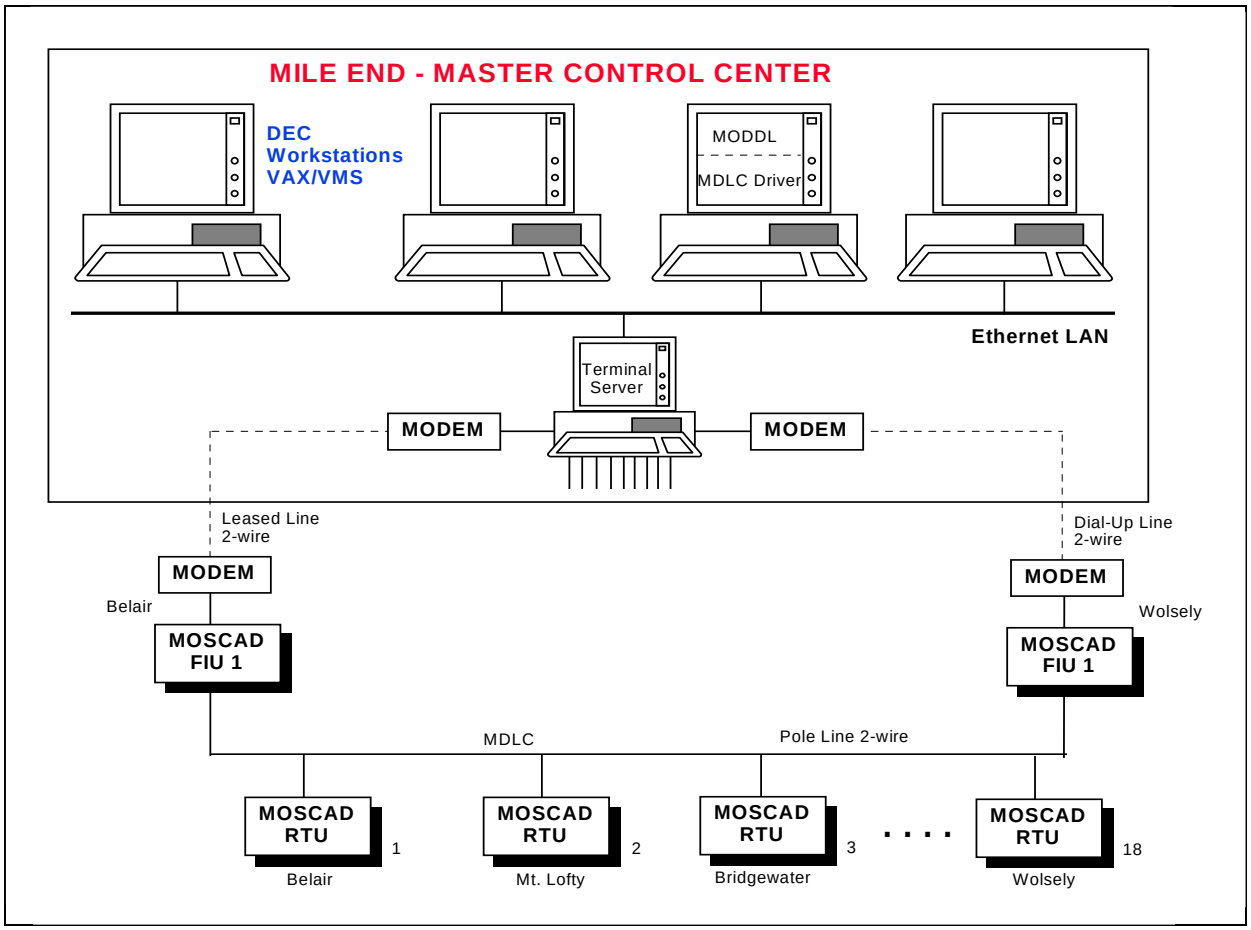
# Australian National Railways

## Railway Control System

Railway Application

## Project Description




### GENERAL

The Australian National Railways (ANR) has installed in 1993 an advanced radio control system from Motorola for their South Line between Adelaide and Wolseley (near the Victorian border).

The South Line is a single track for most of its 350 km. The new system interfaces to ANR's existing fail-safe interlocking relays at the crossing loops. The system also monitors the train track and controls and monitors the signals and switches. In addition, the system continuously checks for faulty sites and alerts the operator accordingly.

### MOSCAD & MDLC

The new system is based on Motorola's MOSCAD RTU, which increases the reliability, flexibility and performance of the system.

The system includes two MOSCAD FIUs. The first FIU at Belair communicates with the control center at Mile End via a leased line at 9600 baud, while the second FIU (backup) at Wolseley communicates with the control center via a dial-up line.

The MDLC communication between the MOSCAD RTUs and FIUs is implemented over 1200-bps 2-wire line (multidrop).

## CONTROL CENTER

The control center consists of four DEC workstations with 19" color monitors (1280×1024 resolution) and a Terminal Server on an Ethernet Local Area Network.

One workstation is used to permanently display the overall system (all 18 crossing loops in one screen), while the second workstation is used to display selected crossing loop.

The two remaining workstations duplicate the first two as a backup and shadowing software duplicates the operating system and database.

The SCADA software is the MODDL package from MITS, Melbourne. The Motorola MDLC Driver for VAX/VMS is integrated with MODDL and is used in order to interface between the SCADA software and MOSCAD RTUs.

## CAPACITY & FUTURE EXPANSION

The system currently includes 18 MOSCAD RTUs and 2 MOSCAD FIUs.

ANR plans to expand the current system to other areas. □

| FEATURES | BENEFITS |
|---|---|
| MDLC communication protocol | Optimized, efficient, and reliable data communication over various media |
| Multi-protocol processor based on Motorola 68302 | Allows multi-tasking operation with on-line network monitoring, traffic analysis, on-line diagnostics, remote monitoring and error logging of the system |
| Remote train track monitoring | Improves safety and efficient control from a central point, and provides real-time data for preventive maintenance and immediate problem alerts |
| Upload/download capability | Application program can be easily changed and downloaded to the RTUs in the field |
| Remote diagnostics | Permits maintenance staff to identify and correct problems at the RTUs from any site in the system |

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