Tata Steel

No5 Line Tracking System

Challenge

To replace the obsolete Vax based Process Computer system with little or no disruption to production or system users

Solution

Develop a new SCADA system with plant simulation to allow exhaustive in-house testing ensuring rapid commissioning

Implementation

9 month lifecycle
Installed and commissioned in production environment with no down-time
Delivered on time and to cost

Technology

Microsoft Windows Server 2003 & XP clients
Oracle 10g Database
iFIX 3.5 SCADA
Microsoft Visual Basic
GEM 80 400 Enhanced plc
IBM Websphere messaging
**XML data exchange to SAP r4 ERP System**

Detail

The No5 Galvanising Line at Tata Steel's Shotton Works provides an advanced continuous coating process in the manufacturing of pre-finished steel products.

A coil of steel strip, up to 30 tonnes in weight, is welded to the tail of the previous coil on the line. The steel strip passes down the line through the coating process. The finished steel is sheared from the end of the line and packed for despatch. For efficient operation of the process it is essential to prevent any interruption to the normal operation.

The tracking system interfaces with an enterprise planning system to receive production schedules and send back actual production information. It interfaces to the line PLC systems to control and monitor the production process. It also provides a real time user interface to allow the operators to schedule and track the production process. In addition, it logs regulatory quality information for long term storage to a Product Liability Database. If the tracking system does not operate the line cannot run.

The tracking system on the No5 Line was based on an ageing Dec Vax computer system which had become unsupportable and could not be modified to integrate to the new enterprise planning system. Kdi systems provided a replacement solution that emulated and improved on the existing functionality.

System Architecture
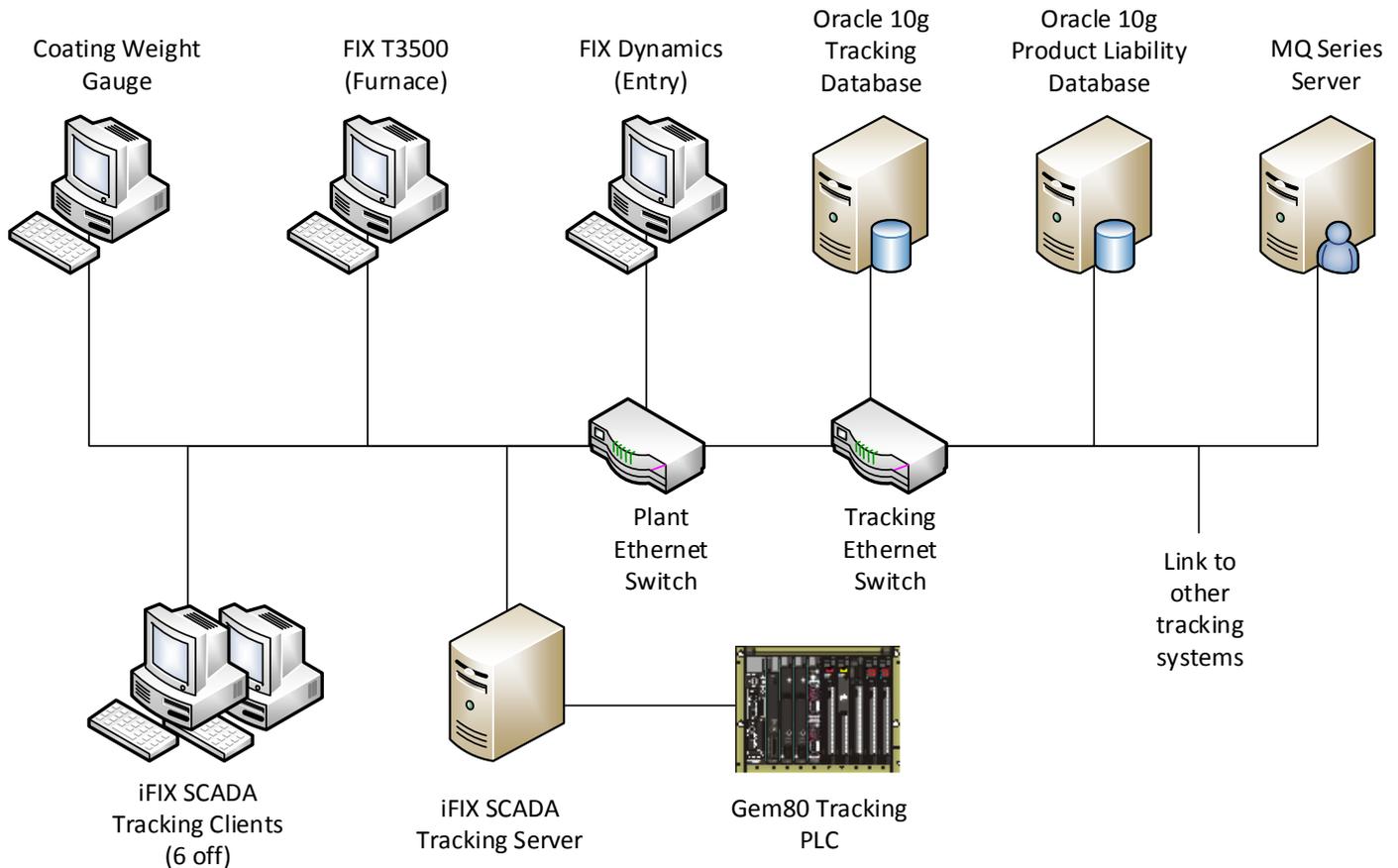
Key constraints of the project were the need to minimise downtime and to keep a similar look and feel to the existing application to reduce operator re-training. The choice of SCADA system was also defined by Tata Steel. Any changes to the existing PLCs were to be kept to a minimum.

In order to deliver the complex functionality and bespoke interfacing required, a combination of products were chosen, principally iFIX SCADA, Oracle database and Visual Basic. This provided a fully integrated, robust solution in a similar configuration to other process line tracking and logging systems within Tata Steel.

To enable a trouble-free site implementation, a great emphasis was placed on exhaustive in-house testing. To facilitate this detailed simulation software was developed, enabling the system to be tested and exercised in a risk-free environment, prior to installation and commissioning.

The project followed a normal life cycle with a functional specification approved by the client prior to build and in-house test. After the detailed customer acceptance tests the system was delivered to site on time.

The new equipment was installed and commissioned while the old system was still running. The change over to the new system took place during a short planned outage and incurred no additional down time on the line.