

FUSION System Architecture

The Borer FUSION system is highly scalable allowing the same software modules to be run on a single PC platform or to be distributed across many hardware platforms over a large enterprise environment.

The principle components of the Borer FUSION system are:

- **The Microsoft SQL 2016** database, which is the repository for the FUSION systems data. FUSION client workstations and service programs access the database via SQL statements over ADO connections.
- **The FUSION Engine** software runs as a Windows Service and is responsible for detecting changes to the FUSION database. These are transmitted to the downstream NIM (Building Controller) subsystems which in turn update the access control devices. The FUSION Engine collects data from the downstream NIMs which are written to the central database. The connections to the central FUSION Engine from NIMs and other devices are made via TCP/IP port-to-port client/server communications.
- **The FUSION NIM** software runs as a Windows Service. It has a reduced site specific database to control downstream devices including card access readers and alarm panels. The NIM database contains only the data necessary to control the sites it manages. The NIM is flexible in that a single site NIM can run on a low cost industrial PC located at the site being controlled. In addition, several NIMs (Super NIM) running on one Server platform can manage several geographically separate sites. The NIM hardware and its associated sites must all reside in the same time zone, though the entire system can span many time zones.
- **The FUSION Ringleader Software** is an optional service that undertakes global real-time anti-pass-back control, across all sites, in an enterprise environment.
- **The FUSION Client** is the front end operator interface. This enables users to manage the system, entering and altering the FUSION database and generating reports such as audit trails, event logs and configuration listings.



NIM (Single Site Controller)



8 Port Midspan Bridge V2

FUSION NIM Site Overview

The NIM (Building Controller) with its site database enables an enterprise system working with a single physical database to be separated into several logical systems and databases.

This allows FUSION to support an operator hierarchy with a master administrator having access to all sites and all NIMs, regional administrators only having access to the data relating to the NIMs in their region and site administrators restricted to working with their own site database.

Each NIM can be remotely configured, managed and maintained via a web interface. User authentication is required to log onto a NIM.

Every NIM has a scripting engine that allows the customer to implement special control requirements.

Examples include:

Building Lock Down - Count staff in and out of the building. Lock down the building and arm the intruder alarm on the last person departure. Allow only a designated key holder to open up the building and disarm the intruder alarm.

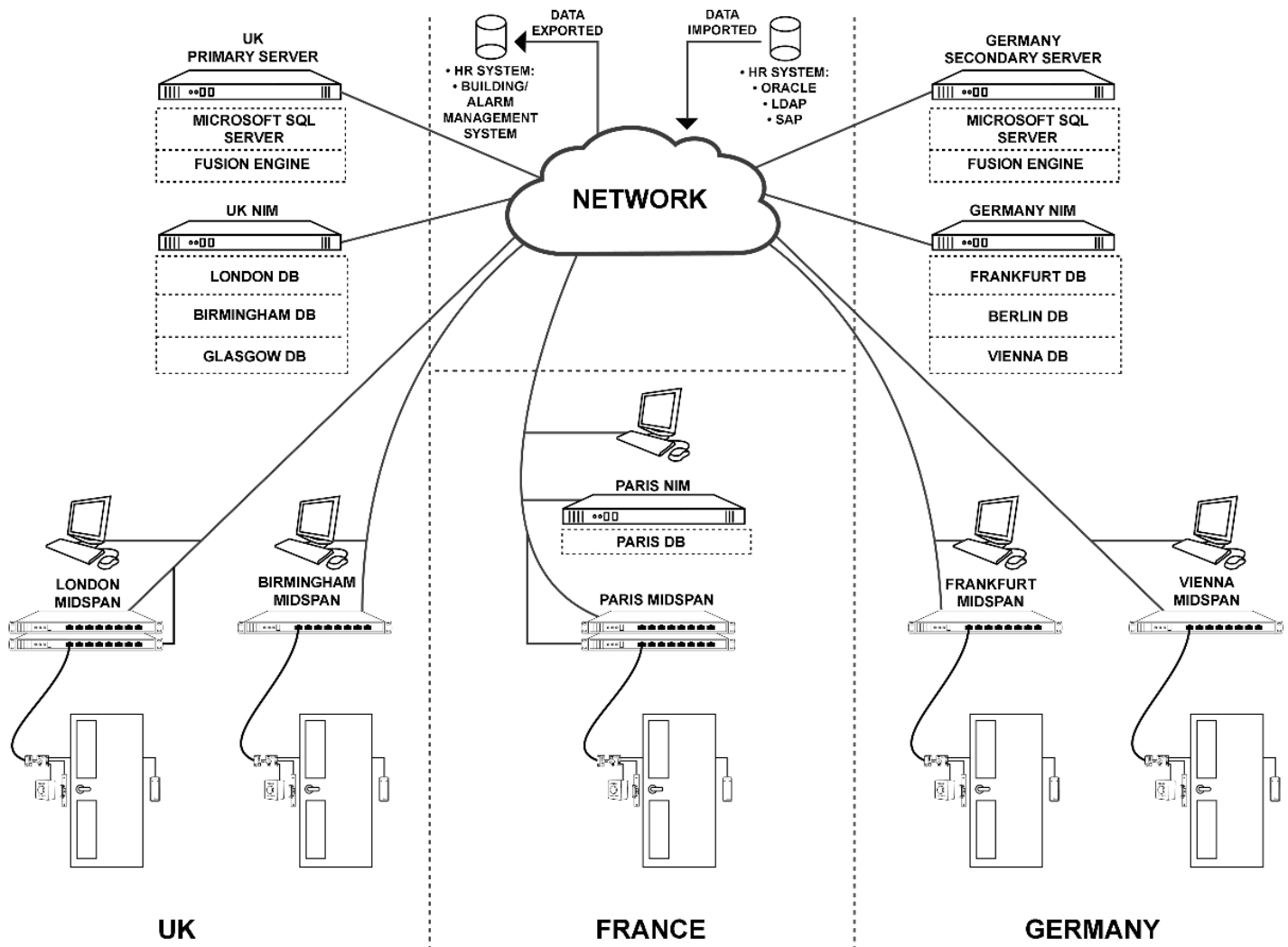
Key Personnel On Site Display - Provide a display in reception listing all key personnel currently on site. Key personnel can include first aiders, fire officers, plant maintenance personnel etc. People who, if absent, may cause the organisation to inadvertently transgress current health and safety legislation.

FUSION Fault Tolerant Solutions

FUSION provides five levels of fallback protection with:

- **Dual Databases** with database merge replication (Dual Enterprise Mode).
- **Dual FUSION Engines** enabling a NIM to switch to an alternative database server at a co-location in the event of the loss of the primary server connection.
- **Dual NIM** site controllers enables a Midspan Bridge to automatically switch to an alternative NIM in the event of losing the connection to its primary NIM. The dual NIM feature also adds an effective load balancing solution as either NIM can process live transaction.

- **Dual Network Paths** with automatic rerouting at the Midspan Bridge should it loses its connection to its NIM host.
- **Card Readers** with dual local cardholder and transaction databases that are referenced should the card reader become disconnected from the LAN. Should an error occur, such as a network failure during a card reader database download, the card reader will automatically switch back to the last known good database. Transactions are automatically saved in the reader's memory store while the card reader works offline. These are uploaded to the central database via the NIM when a network connection is re-established. The card reader encrypts personnel details and events before being written to its memory.



FUSION with five levels of fallback protection