proIMS

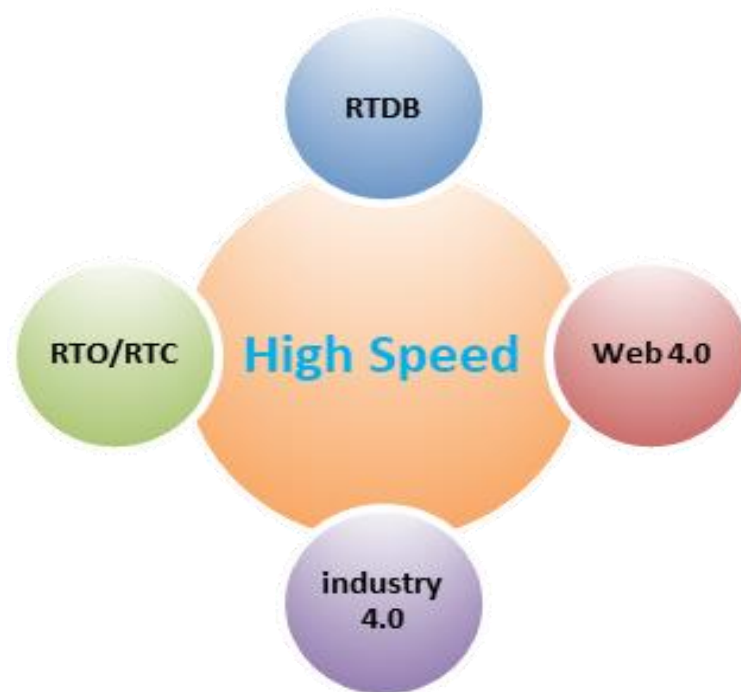**Architecutre**

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proIMS Architecture

Design Concept

proIMS is a performance manager and information management system for the process industries for storage and real-time calculations.
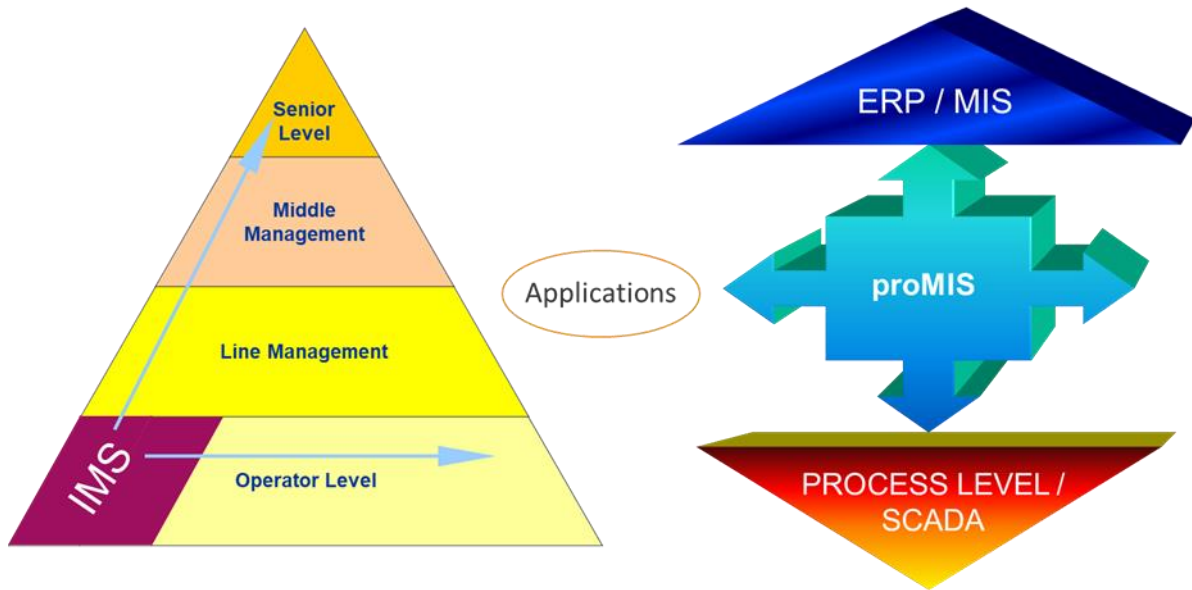
It's a real-time infrastructure platform for real time data, process signals and events.

proIMS brings operational data from the plant floor to the enterprise level.
business critical data are handled by:

- ✓ Collecting real time and event driven data from multiple sources across plant or enterprises

- ✓ Store the data in real time or historical databases

- ✓ Applying advanced analytical calculations and business rules to analyze the data

- ✓ Applying business rules applications

- ✓ Presents the data by using web technologies

Therefore, the suite design is a five-tier architecture:

- ☐ Tier 1 Data collection

- ☐ Tier 2 Database

- ☐ Tier 3 Calculation

- ☐ Tier 4 Business Rules

- ☐ Tier 5 Web-based information access

The suite interconnects the process and control level with ERP systems applying business rules and applications to be a unique information platform for all management levels of the organization.

Design Criteria

The design of the system data flow concept follows the following ideas:

- ✓ Availability

  all data available at the various interfaces should be in principle available at all locations and for all subsystems of the network

- ✓ Simplification

  Standardization of communication and local connections, including defined functions as well as parameterization, simplifies the integration and reduces maintenance expenses.

- ✓ Reliability of operation

  Increased reliability, reduced malfunctions and minimized troubleshooting efforts by clear separation of network and interfacing tasks and inbuilt diagnosis functions

- ✓ Guaranteed future

  Expandability thanks to modern technologies and TCP/IP, WEB 4.0, Industry 4.0

- ✓ Easy Configuration

  The system can be configured centrally. The configuration is online. If a data link for a signal or a group of signals is configured it is immediately available in the configured locations without system rebooting or other actions at any place of the network.

Distributed system concept

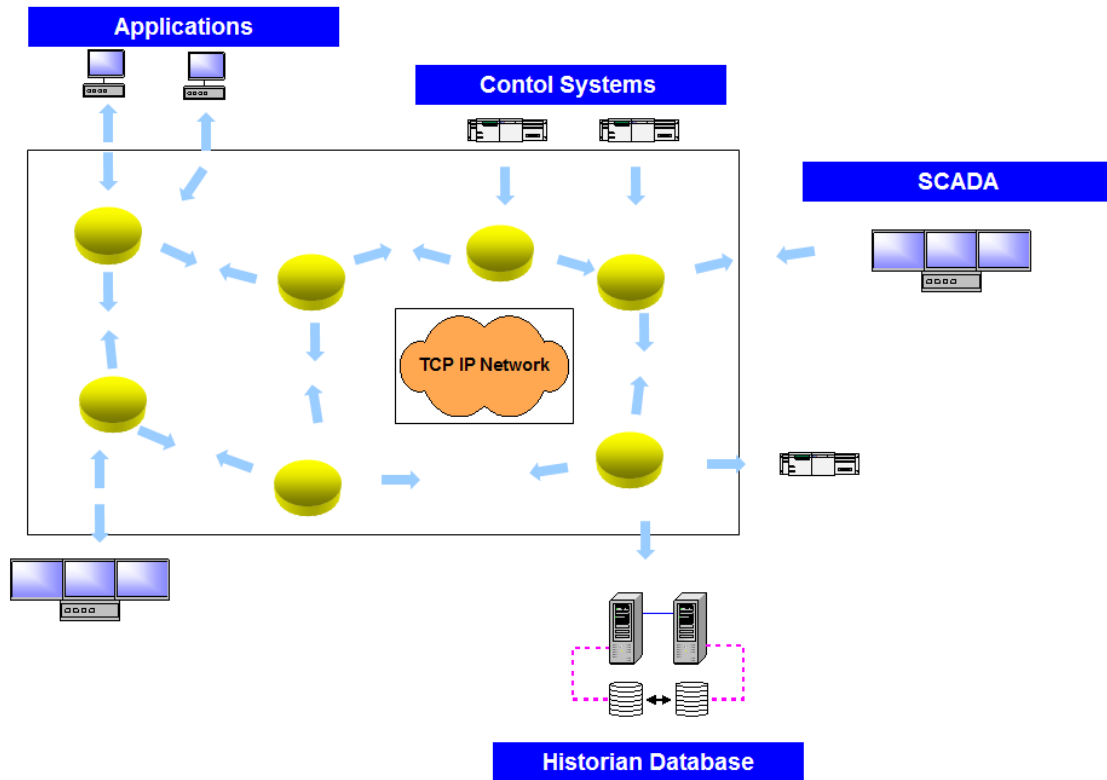**proIMS** is based on nodes connected to TCP/IP networks.

Figure 1 proIMS Node Concept

The nodes form a unique communication platform for process industries. It interconnects heterogeneous systems that need to exchange time series data, signals and events. It is a middleware based on a client/server model that distributes data between nodes. The modules simplify and standardize the communication, guarantee smooth integration and reduce maintenance expenses significantly.

Users of all levels of the organization can connect to the secure and highly available data servers to use a full suite of web-based software for data visualization, validation, trending, reporting and collaboration.

The node concept is based on the software module **proIMS Base Node**. It is a standardized software package that is installed as a complete functional unit at each site.

All the nodes together form a network for signals and events, which, similar to a layer in the OSI model. Each node performs all essential functions such as automatic data synchronization, data recovery in case of communication loss, store & forward and redundancy within the network.

Each node includes also a real-time data base including a fast scan storage. The number of tags for this database is unlimited by licenses and the storage time can be configured from several days up to several years only limited by the available disk space.

All common interfaces are available to collect data from sub systems or distribute data to all systems which need data.

The system ensures that all data (signals, events and alarms) available at a certain location can be transferred to each other location in the network equipped with a base node.

If data is necessary at other locations of the network just a new node needs to be connected to the TCP/IP network, Intranet or Internet to distribute available data to this location or collect data from.

On line configuration

The **proIMS** nodes can be configured online centrally or locally. No shutdown of any process or any other action is necessary to avoid data loss during or after configuration.