



Smart Process Gateway

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Typical Challenges faced by Manufacturing Companies In Implementing Digitalization

- How will the MES vendor acquire data from machine controllers ?
- How will the IIOT vendor acquire data from the machines ?
- How to Digitize the data coming from manual processes like logbooks, maintenance records, laboratory systems etc.
- How to apply Data Analytics model to production processes to improve overall efficiency?
- How to have single data source for all stakeholders like MES, ERP, IIOT etc. in the journey towards Digitalization?

What is Smart Process Gateway?

A complete software-based solution for data communication, acquisition and management, essentially the first step in digitalization journey. With it's most powerful and flexible communication protocol converters, bridges, and data concentrators smart process gateway creates comprehensive data lake at the edge systems which can be leveraged by any third-party systems such as MES , CRMS , MIS based.

Building Blocks of Smart Process Gateway

Block 1: Connects the OT network to IT network in most secured way.

Block 2: Establishes communication with different PLC's and sensors over ethernet , Profibus , Profinet or Modbus network and transfers data over OPC UA or PLC/ SCADA based data concentrators

Block 3: Software applications :

- Programmed as OPC clients to establish connectivity with OPC servers and move data to databases.
- These applications also exchange data with underlying database systems like SCADA DB's , csv files and excel based systems
- Applications are developed to digitize existing paper-based system and get the data to central databases
- Services are available to move the data to level 3 systems such as MES and IIOT.
- Data health monitoring are available.

Block4 : High available databases , continuous data logging for both Transactional and Time series data in database instances



MES SYSTEM

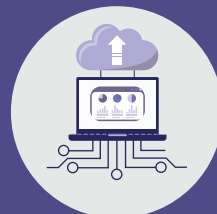


CRM SYSTEM

IIOT SYSTEM



MIS SYSTEM



ERP SYSTEM



1

Network service

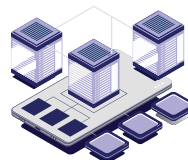
Connects the OT network to IT network in most secured way.



2

Communication Software

Through Ethernet, Profibus, Profinet or Modbus network and transfers data over OPC UA or PLC/SCADA based data concentrators



Data Lake At EDGE

3

Software Applications

Application are developed to digitize existing paper based system, move data to systems like MES & IIOT and monitor data health



4

High Available Database

High available databases, continuous data logging for both Transactional and Time series data in database instances.



NETWORK 1



NETWORK 2



NETWORK 3



Salient Features Of Smart Process Gateway



Connectivity to the plant network in secure way



Seamless connectivity to field devices like PLC's, Controllers, Sensors



Easy interfacing with database enabled systems like SCADA's , Historians



Data Read from multiple networks with huge data storage capacity



Digitization of isolated data pockets



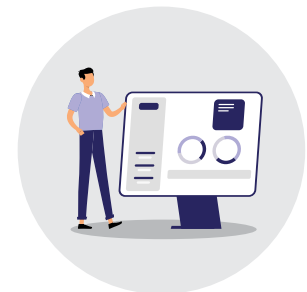
Supports all serial and ethernet protocols



Open interfacing methodologies for third party system integrations like ERP, MES, IIOT



Data Archiving for duration of 10+ years



Application to monitor the data health and Data Cataloging



User & Access Control



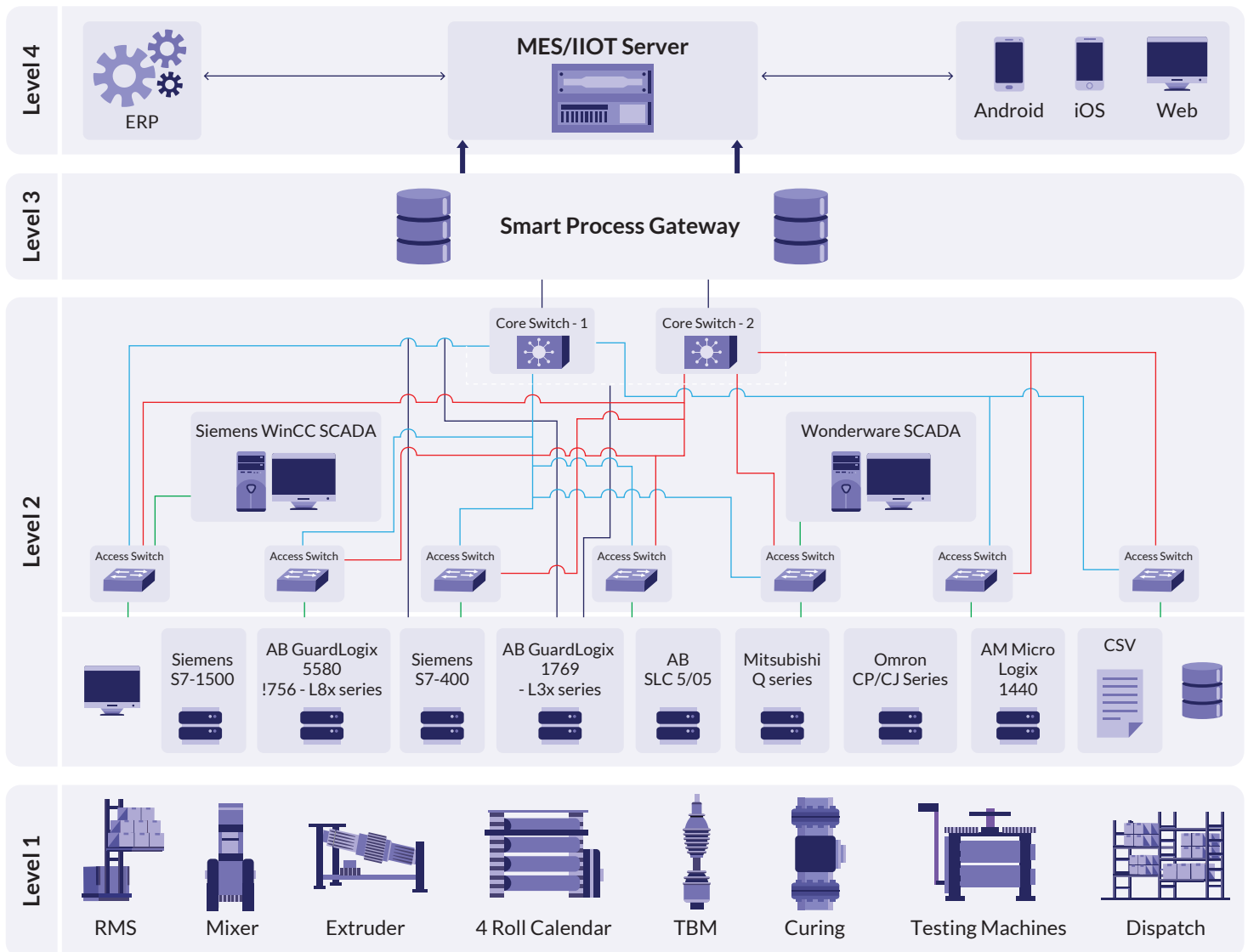
Cloud Connectors to transfer data to Cloud securely for AI/ML and Mobile Apps



Security at all levels and layers



Smart Controls Expertise : Plant Connectivity With Smart Process Gateway

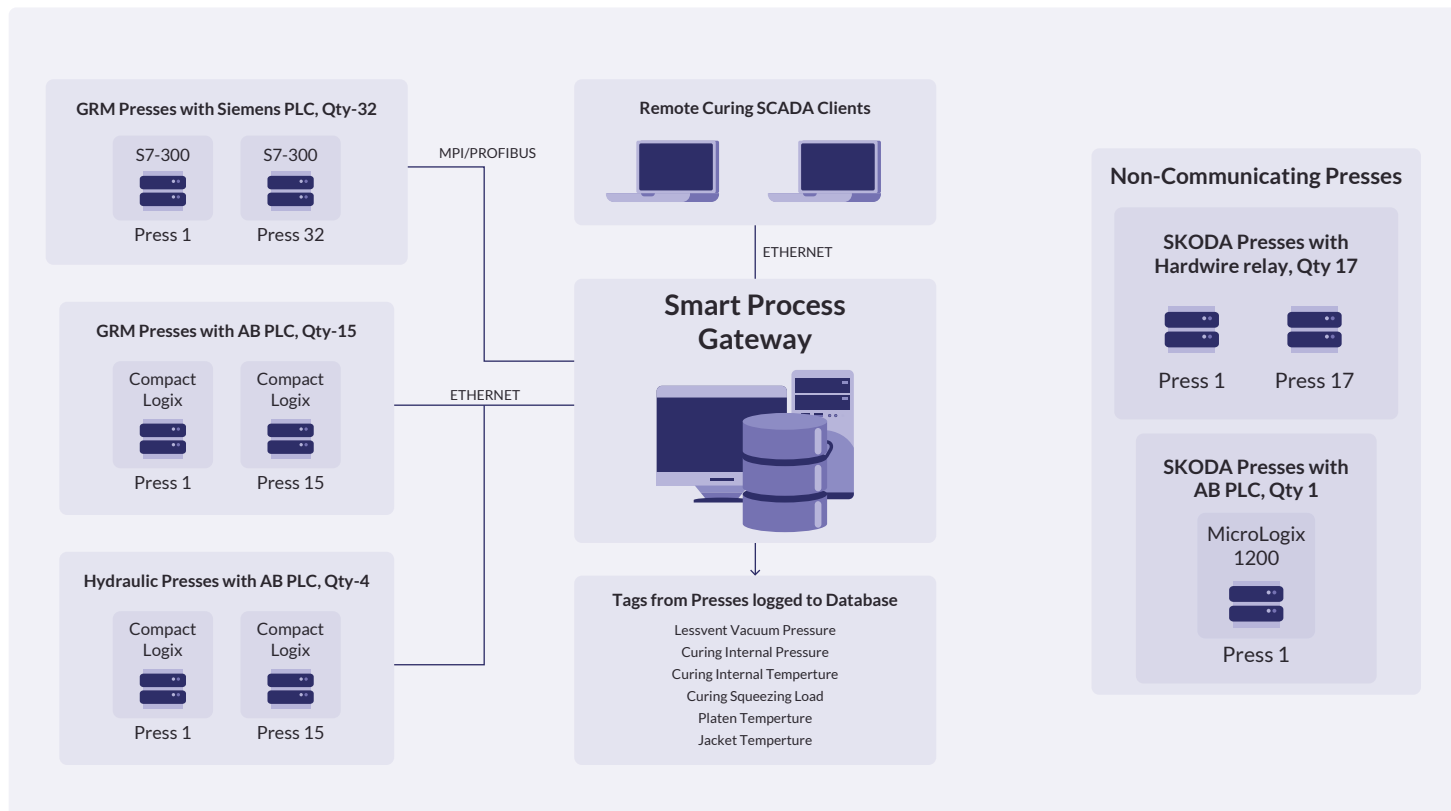


What Will Smart Controls Deliver As Part Of Smart Process Gateway

- Installation and configuration of Smart Process Gateway as per plant requirement
- Configuration of Applications and Database layer.
- Connectivity through communication layer for data acquisition
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- Configuration of Applications and Database layer.
- Connectivity through communication layer for data acquisition



Tire Industry – Case Study With Smart Process Gateway



Plant With Curing Presses With Different Control Systems

Objective

Fetch the data from all the presses via Smart Process Gateway

Problem Statement

To fetch data from non communication presses.

Smart designs the solution

Presses having hardware relay logic :

- PLC's can be considered for individual presses, relays can be connected to these PLC's.
- Smart Process Gateway to fetch data from these PLC's.

Presses having MicroLogix 1200 PLC:

- MicroLogix 1200 PLC been obsolete PLC , data can be acquired directly if it supports 485 port . 485 to ethernet converter can be used for receiving data on Modbus protocol.
- Upgrade to MicroLogix 1400 PLC and then communicate on ethernet port.

Final Output

Data logged from all presses having multiple PLC makes, non communicating PLC's in Smart Process Gateway DB.