# Industry Software Solutions – Line Performance Suite

Improving Efficiency Through Advanced Line Performance Management

Line Performance Suite targets, captures and evaluates packaging line performance in food and beverage plants. It provides capability for data capturing, production delay analysis with reasons and root cause analysis. Our model-driven framework allows you to deploy Line Performance for a line, a site, or the enterprise.

Line Performance Suite is available for both manual plants, where data capture is worker-based, or for fully automated plants.
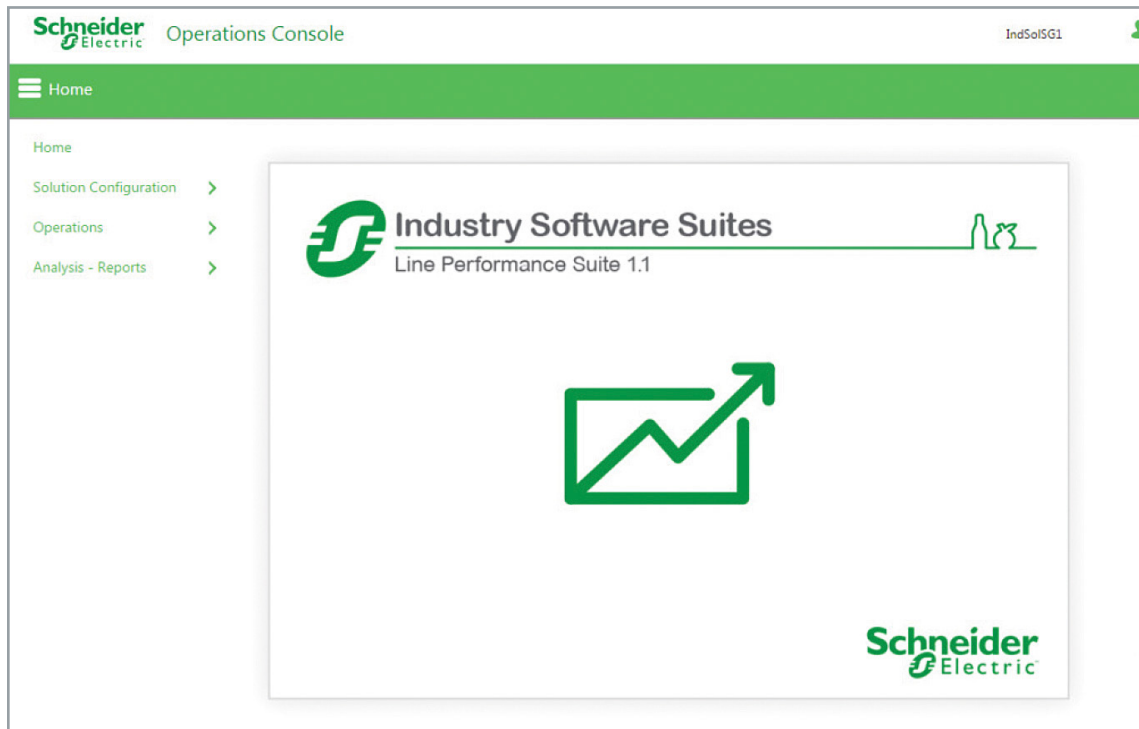
Line Performance Suite

The Line Performance Suite by Schneider Electric Software enables Food & Beverage manufacturers to maximize their packaging lines by:

- Providing a platform for work order execution

- Enabling real-time data acquisition and visibility of production equipment utilization performance and production progress

- Providing tools for in-depth performance evaluation deploying a workflow-driven framework for collaboration, standardization and scalability
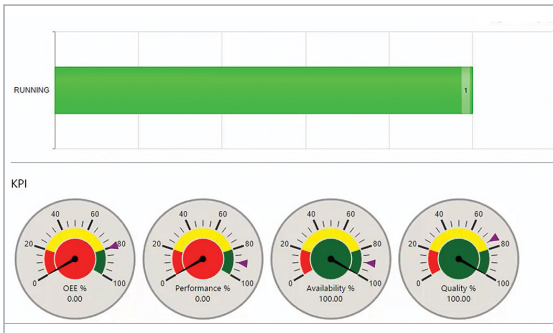
SUMMARY

Line Performance Suite manages overall packaging line performance with integrated reporting and analysis fed from the process. In addition to being a work order execution platform, it offers real time dashboards and production reports to understand packaging line performance and identify performance improvement areas.

BUSINESS VALUE

Increase your Return on Assets (ROA) through in-depth performance evaluation to maximize process equipment utilization.

Maximize profitability through low start-up costs.

Leverage the agility to rapidly deploy process improvements.

Optimize Throughput & Equipment Utilization

Line Performance Suite is unique in its comprehensive data acquisition and processing capability. It can run large volumes of process data quickly without affecting system performance. This provides you with the real-time information needed to enable in-depth line performance evaluations and actions required for process improvements.

Empower Operations

Equipped with an easy-to-use user interface dashboard and reports, process engineers can quickly access both real-time and historical data. Rich performance reporting and analysis covers all relevant information needed for production, quality and maintenance teams. With comprehensive data coverage, Line Performance Suite becomes an effective continuous improvement enabler and an essential tool for process engineers.

Reduce Cost of Deployment

A pre-defined / standardized user interface, along with dashboards, reports, configuration and installation procedures, reduce the customization time needed for deployment. This makes the installation and configuration easy, reduces the engineering time and cost and mitigates the risks and errors that could happen during deployment.

Line Performance Suite Overview

Line Performance Suite targets, captures and evaluates packaging line performance in food and beverage /CPG processing plants. It provides the capability for data capture and production delay analysis with reason codes and root cause analysis. This feature-rich solution is based on the award-winning Wonderware® System Platform®, Wonderware MES/Performance, Wonderware Skelta BPM® and Wonderware Intelligence®.

Line Performance Suite offers:

- Real-time data acquisition and visibility of production equipment utilization performance and production progress

- A comprehensive work order execution platform with whole plant work order management and overview, individual machine work order progress and individual machine work order queues

- Tools including dashboards and analytics reports for performance evaluation covers all production, quality and maintenance aspects of line management

- Standard dashboards and reports to deliver a thorough performance management solution

- Sophisticated data processing capability to process large amounts of data in a short time

- Reduced deployment effort, with the ease of installation and easy configuration features

Line Performance Suite can be used in plants that have fully manual or automatic data capture. Like other Wonderware MES products, Line Performance Suite can be incrementally deployed, avoiding the "big bang" of MES deployments, allowing you to start small and scale according to your needs.
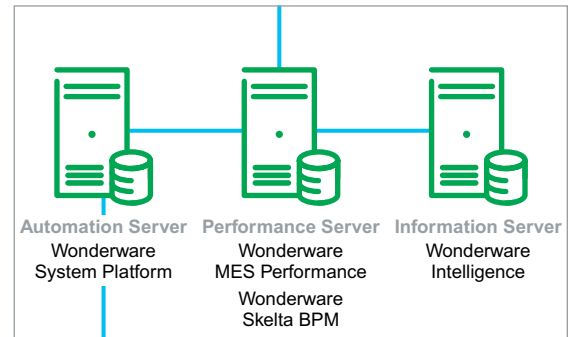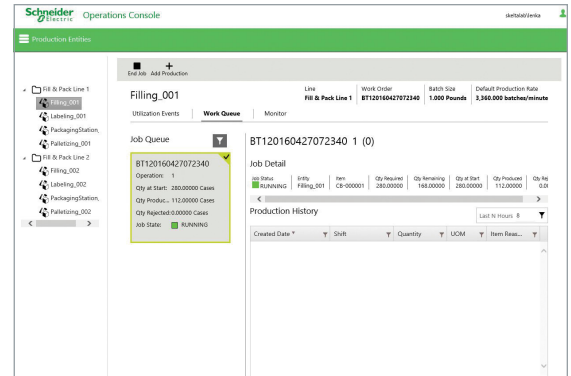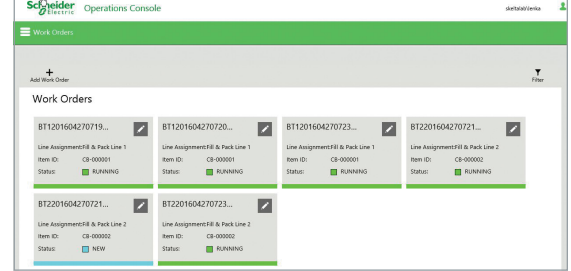
Process Configuration & Data Categorization

Line Performance Suite is equipped with the capability to define the plant's equipment and user needs and its control and information requirements. This enhances the performance evaluation capabilities by making all the data captured informative and meaningful. Once the process model is defined, work order, dashboard and reports will follow the definition and bring meaningful information for performance evaluation.
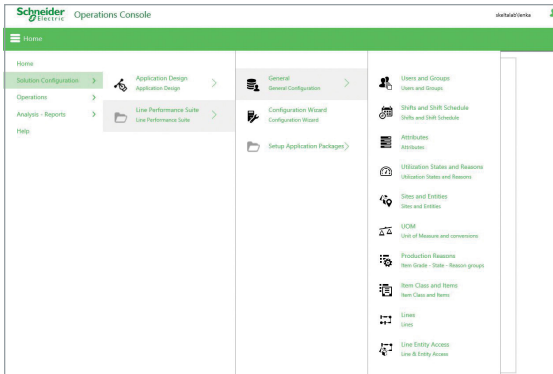
Work Order Management, Dashboard & Reporting

Line Performance Suite work order management consists of creation, line assignment, execution, queuing, status, history and overview monitoring. The dashboard provides real-time performance data on utilization and quality to understand the production status and issues faced. Past data is also available as the dashboard shows the data of the chosen period.

Line Performance reports provide useful reporting analysis for all production, quality and maintenance teams. Leveraging Wonderware Intelligence, Line Performance Suite reports come with a drill-down feature that zooms in on the root cause of the production loss.

Automation Server
Wonderware
System Platform

Performance Server
Wonderware
MES Performance
Wonderware
Skelta BPM

Information Server
Wonderware
Intelligence

Line Performance Suite Features

Standard Solution To Deploy

Line Performance Suite is a standard solution with a pre-defined and standardized BOM, rich user interface, and intuitive dashboards, reports, installation and configuration procedures. Customization is minimized and thus project cycle and delivery timelines can be greatly reduced.

It's easy to buy — as a turnkey solution, you simply choose the type of plant (automatic or manual), number of clients and any extensions. That's it. You are quickly up and running in days versus weeks or even months found with other MES solutions.

Process Configuration & Data Categorization

Process configuration and data categorization can be done interactively using the Line Performance Suite's Operations Console. This can be done during first configuration via a configuration wizard, or item by item at any time, based on business needs or environment changes.
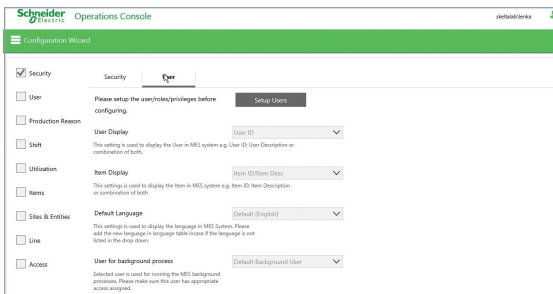
- **Users and Groups** – Configure users and user groups; provide privileges and access rights to specific user groups
- **Shifts and Shift Schedules** – Configure the shift days, timings and shift breaks for an entity on the plant floor
- **Attributes** – Specify the attribute of an item, item class, work order, job and so on; you can also specify the attribute's data and entry types
- **Utilization States and Reasons** – Specify the utilization status of an entity
- **Sites and Entities** – Add and configure entities, sites and region details of an entity
- **UOM (Unit of Measure)** – Specify the units of measure for an item
- **Production Reasons** – Specify the reason for producing an item
- **Item Class and Items** – Configure an item class and specify details for an item class (such as produced, consumed and obsolete); specify an item
- **Lines** – Configure lines (an ordered set of entities that models a production line, manufacturing line or assembly line)
- **Line Entity Access** – Specify user access to lines to view lines, including their work orders and entities

The configuration is simplified with workflow-driven questions. The number of configuration points is 90% less compared to traditional MES configuration. Process configuration, simplified and effective.

Line Performance Suite
# Features (continued)

Work Order Management, Dashboards & Reporting

Work Order Management

The Line Performance Suite work order management comes with both Supervisor and Operator consoles.

The Supervisor console consists of a work order overview for whole plant production status monitoring. In this mode, work orders can be created or deleted, assigned to a line or moved to another line. Detailed information of each work order can be viewed and status can be changed as needed.

The Operator Console is used to view the job details of a work order. This enables the user to see the working orders assigned to the line, the start and end work orders and data entry for production events and reasons.
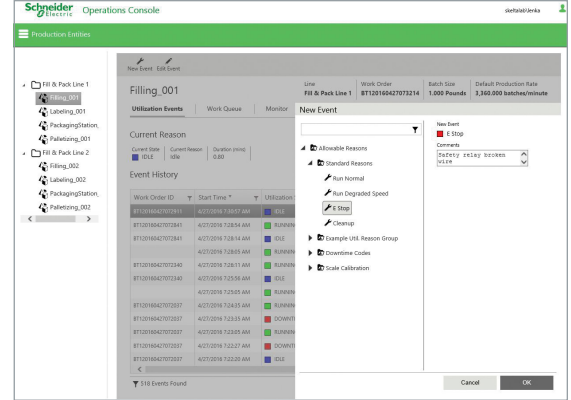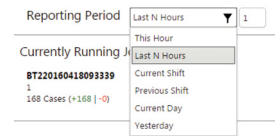

Dashboards

The Line Performance Suite Dashboard provides real-time updates on production performance via Utilization States and Key Performance Indicators (KPIs).

Utilization States come with two types of details, duration and count, allowing the supervisor to know how many breakdowns occurred or how long there is downtime over a certain period.

KPIs include OEE performance. They also show OEE subcomponents, such as performance, availability and quality numbers and enable the drill down to the contributors and reasons behind OEE numbers with regular updates.

Different periods can be set for the dashboard to support performance visibility over the period. The periods available for configuration are current hour, current shift, current day, previous shift, previous day or self-defined numbers of past shift hours.
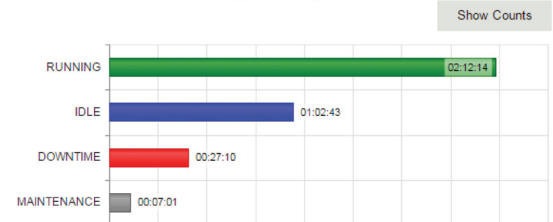
KPIs

Line Performance Suite
Features (continued)

Work Order Management, Dashboards & Reporting, continued
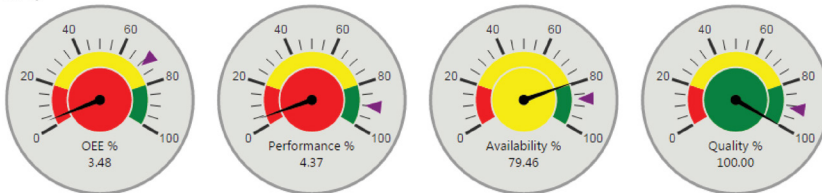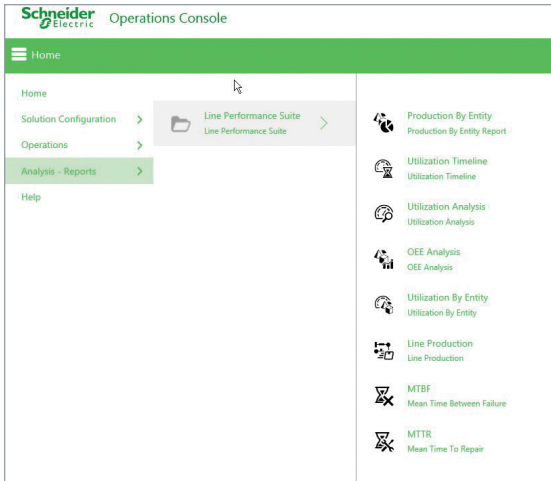
Reports

Line Performance Suite reports are based on Lean Manufacturing and Total Productive Maintenance (TPM) practices. They cover useful data and information for the production, quality and maintenance teams. The reports can save users time researching the ocean of data. Users can get the data easily by setting the time period, production days and detail levels of the reports.

There are eight reports available, covering various production needs:

- **Production By Entity** – Detailed production quality performance reporting, showing the amount of good production and scrap; ability to drill down from Line, Process, Work Order to Reason, Day to Shift to Hour

- **Utilization Timeline** – Utilization overview of the process by event state, sequence and duration; provide an understanding of overall performance over the period in one glance

- **Utilization Analysis** – Loss deployment by reason group / reason / category; zoom down from general downtime to reason level

- **OEE Analysis** – Overall Equipment Effectiveness (OEE), availability, performance and quality number and trend of processes; charts can be produced based on daily, shift and hourly data

- **Utilization By Entity** – Detailed event reporting on running, downtime, idle and reasons; ability to drill down from Line, Process, Event to Reason and Category and Day to Shift to Hour

- **Line Production** – Detailed production trends showing the percentage and number of good products produced and scrap based on period and product item

- **MTBF** – Mean Time Between Failure (average runtime before failure occurs) of process; ability to drill down from process, shift to event

- **MTTR** – Mean Time To Repair (average downtime of breakdowns) of process; ability to drill down from process, shift to event

Leveraging Wonderware Intelligence, Line Performance Suite Reports provides context to your data. With the ability to run reports consolidating data from near term to longer term — even three to five years out — you are quickly able to get data without affecting system performance.

Line Performance Suite
Features (continued)

A Standard Solution

Line Performance Suite is a standard solution that simplifies the acquisition and deployment of line management. We call this "Easy to Buy, Easy to Install, and Easy to Configure and Set up."

Easy To Buy

Line Performance Suite comes with standard Bill of Materials (BOM). You only need to answer three questions:
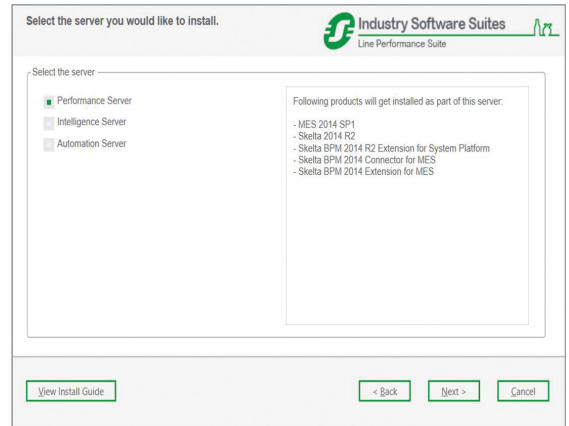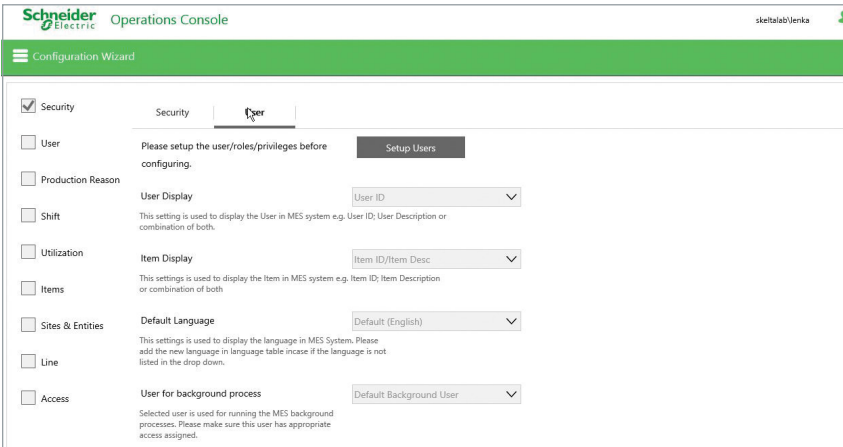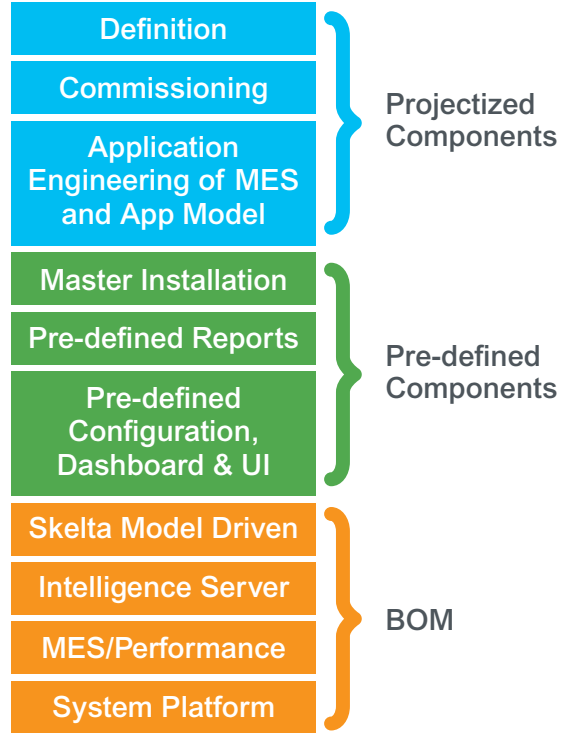
1. Is your plant manually or automatically collecting data?

2. How many users will you have (including reporting, data entry)?

3. Do you desire any additional functionality? Options include Enterprise Manufacturing Intelligence (through Wonderware Intelligence), Plant to Business integration (Wonderware Enterprise Integrator®) and plant modeling (through Wonderware System Platform).

Easy To Install

Line Performance's architecture is pre-defined and proven, enabling standardized installation. Role / server-based installation wizards and installation guides enable the Line Performance Suite to be installed easily with low risk of error.

Easy To Configure And Set Up

Configuration is automated with a wizard. Through workflow-driven questions, configuration is simple. Online documentation helps users with configuration questions. The user interface, dashboard and reports are all pre-defined, reducing set up complexity. This also minimizes the risk of error. Project cycle and delivery timeline is greatly reduced, while maximizing user experience and configuration flexibility.

Projectized Components
Definition
Commissioning
Application Engineering of MES and App Model

Pre-defined Components
Master Installation
Pre-defined Reports
Pre-defined Configuration, Dashboard & UI

BOM
Skelta Model Driven
Intelligence Server
MES/Performance
System Platform

Line Performance Suite Architecture

Performance Server

Wonderware MES Client
- Configurator
- Supervisor
- .NET Controls
- MES Client

Server
- Database
- Middleware
- MES Service
- Web Portal

Wonderware Skelta BPM
- Skelta Workflow
- Skelta Portal
- SkeltaFarm DB
- Skelta RepositoryDB
- Skelta DB_BI

Connector & Extensions
- Skelta Connector for MES
- Skelta Extension for MES
- Skelta Extension for System Platform

Line Performance Suite Application Package

SQL

Intelligence Server

Wonderware Intelligence
- Intelligence Server
- Intelligence Data Adapters

Wonderware MESReports-Intelligence

SQL Server Reporting Services

SQL

Automation Server

Wonderware Application Server
- Galaxy Repository
- Bootstrap
- Automation Object Server (AOS)
- Integrated Development Environment (IDE)

Wonderware MES
- Middleware
- Middleware Proxy
- Entity Model Builder
- .NET Controls
- Application Objects

Connector
- Skelta Connector for System Platform

SQL (Galaxy Repository database)

DA Server (PLC Drivers)*

*Installed separately

Server

The Line Performance Suite for an **automated plant** is formed by three servers – Performance Server, Intelligence Server and Automation Server.

Performance Server

This server hosts Wonderware MES to track plant performance and Wonderware Skelta BPM for business process modeling. It includes these components:

- **MES Client** – Used to configure almost all aspects of the manufacturing operations management system and interact with operational information

- **MES Database** – A centralized database repository for manufacturing operations management data

- **MES Middleware** – A component that enables communication between MES client components and MES database

- **MES Service** – Service that runs middleware activities that occur on a schedule, such as changing shifts

- **MES Web Portal** – Web service that provides web-based access to Wonderware MES

- **Wonderware Skelta BPM** – Modeling software for creating, executing and optimizing business processes

- **Wonderware Skelta BPM Connector for Wonderware MES, and Wonderware Skelta BPM Extension for Wonderware MES** – Connector and extension that helps you integrate your business process management and workflow with MES

- **Wonderware Skelta BPM Extension for System Platform** – Extension that helps you integrate your business process management and workflow with Wonderware System Platform

Intelligence Server

This server hosts the components for report generation:

- **Wonderware Intelligence** – Software that contextualizes manufacturing and operational data from various sources into usable reports and helps decision making for manufacturing plants and enterprises

- **Microsoft SQL Server Reporting Services** – Microsoft SQL services for report generation

- **Wonderware MES Reports for Intelligence** – Intelligence reports for MES
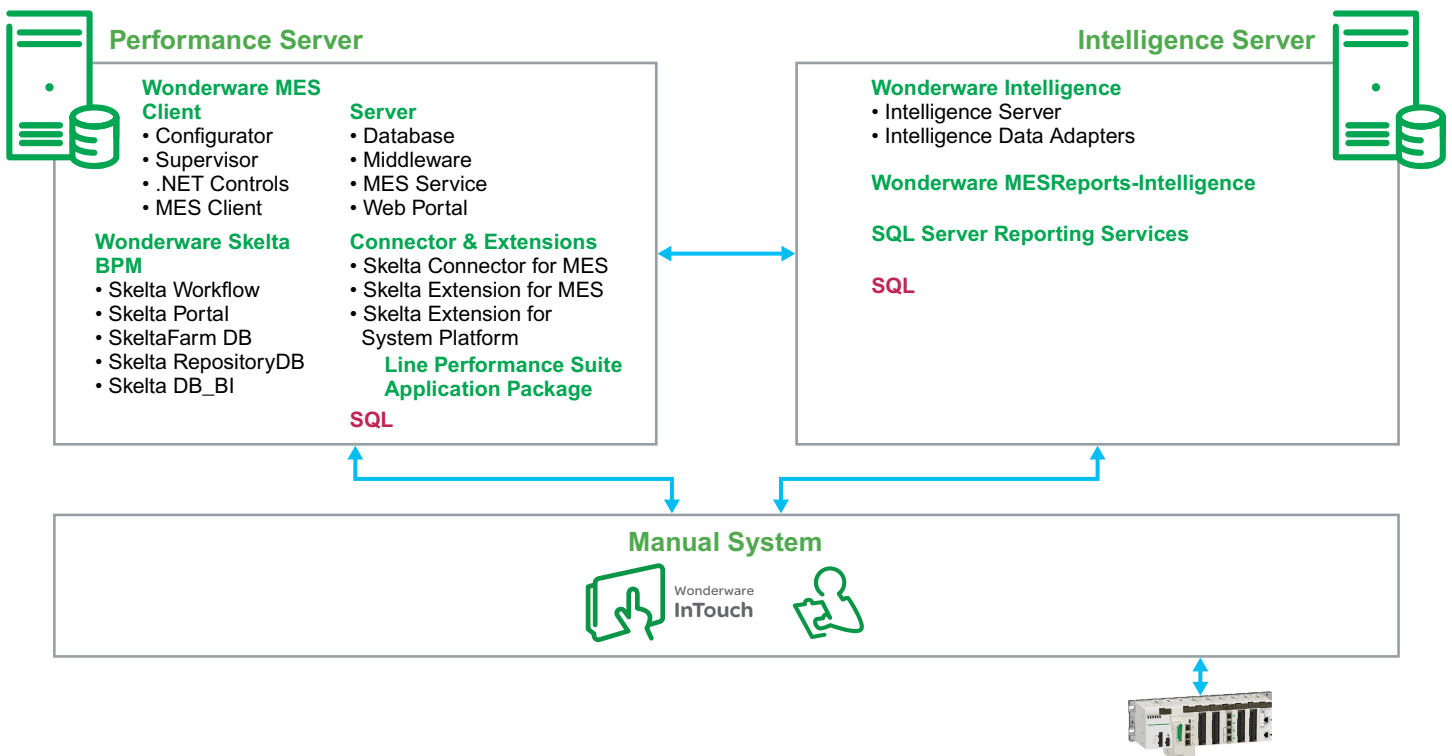
Line Performance Suite
Architecture (continued)

Automation Server

This server hosts the automation components:

- **Galaxy Repository (GR)** – Database for Wonderware Application Server

- **Automation Object Server (AOS)** – Server that hosts the application engines and associated automation objects, including the MES Operations Capability Object (OCO) and Utilization Capability Object (UCO)

- **Application Engine** – A scan-based engine that hosts and executes Automation Objects

- **Application Objects** – OperationsCapability, SampleRecording, UtilizationCapability and WorkflowGateway

- **Script Libraries** – ArchestrA.WorkflowScripts.dll and Historian.EventScript.dll

- **Integrated Development Environment (IDE)** – ArchestrA IDE design and development tool that you can use to configure and deploy all ArchestrA automation objects

- **Bootstrap** – Base ArchestrA service providing the required software environment to enable System Platform

- **MES Middleware** – Component that enables communication between the client components and the MES database

- **MES Middleware Proxy** – Component that is needed by clients on remote machines to access the MES middleware server

- **Wonderware Skelta BPM 2014 R2 Connector for System Platform** – Software component that integrates your business process management and workflow with Wonderware System Platform

For **manual plants**, only two servers are needed – Performance Server and Intelligence Server. Automation Server, Wonderware System Platform and its related items are not required for the manual plant version as the data entry is done manually by users.

Performance Server

Wonderware MES Client
- Configurator
- Supervisor
- .NET Controls
- MES Client

Server
- Database
- Middleware
- MES Service
- Web Portal

Wonderware Skelta BPM
- Skelta Workflow
- Skelta Portal
- SkeltaFarm DB
- Skelta RepositoryDB
- Skelta DB_BI

Connector & Extensions
- Skelta Connector for MES
- Skelta Extension for MES
- Skelta Extension for System Platform

Line Performance Suite Application Package
SQL

Intelligence Server

Wonderware Intelligence
- Intelligence Server
- Intelligence Data Adapters

Wonderware MESReports-Intelligence

SQL Server Reporting Services

SQL

Manual System

Wonderware
InTouch

Line Performance Suite
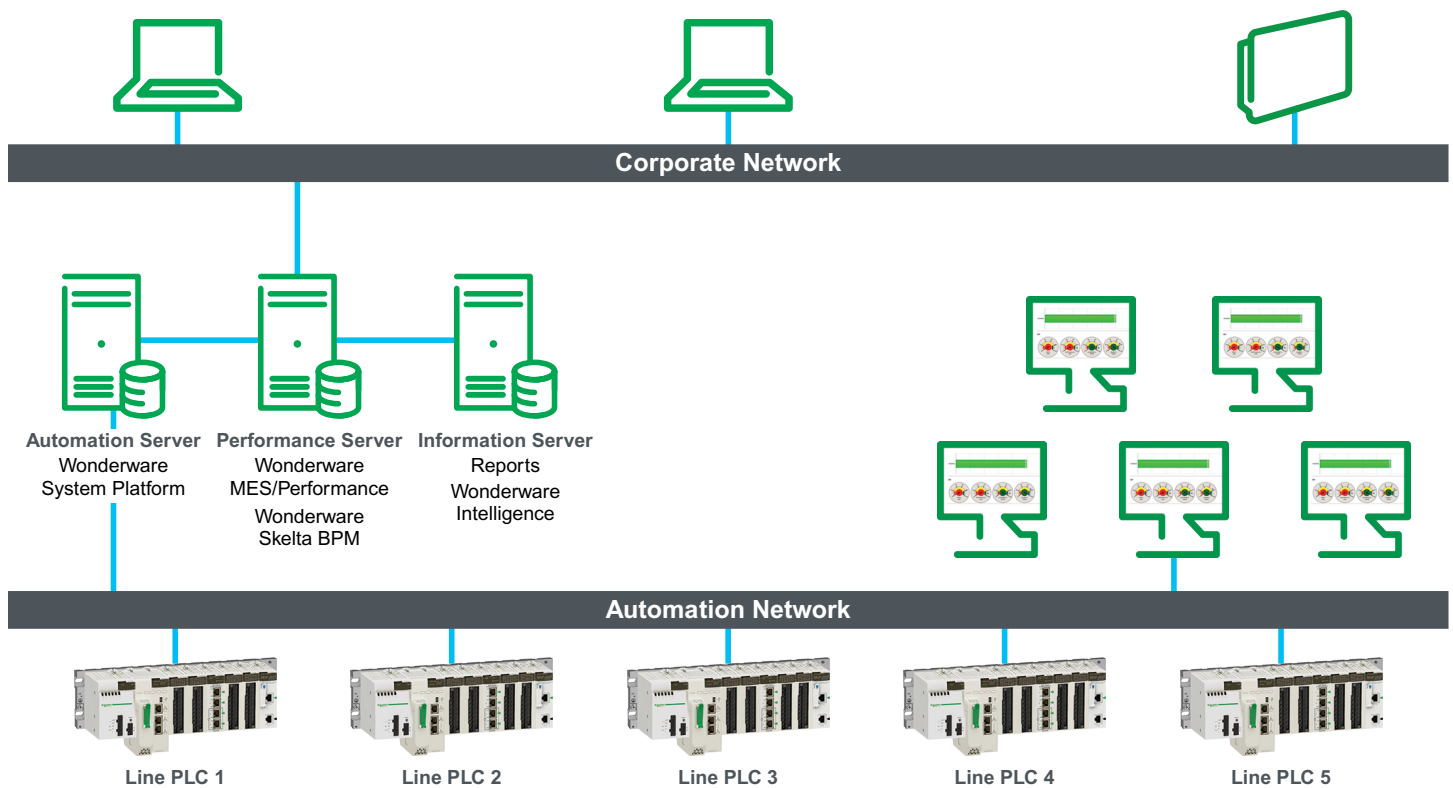## Architecture (continued)

Clients

Line Performance Suite Clients access the Operations Console for configuration changes, work order management and execution, dashboards, reports and data entry. All Line Performance Suite Clients require a license.

Web clients are also available, which are able to access the SSRS report on a browser. Web clients are license-free.

Connectivity

With Wonderware System Platform, Line Performance Suite offers connectivity for real-time communication to any control system or plant floor device.

Line Performance Suite can also be connected to a corporate ERP or business system via Wonderware Enterprise Integrator, which comes as a module add-on.

Corporate Network

Automation Server
Wonderware
System Platform

Performance Server
Wonderware
MES/Performance

Wonderware
Skelta BPM

Information Server
Reports
Wonderware
Intelligence

Automation Network

Line PLC 1   Line PLC 2   Line PLC 3   Line PLC 4   Line PLC 5

Line Performance Suite Specifications

Products included:

- Wonderware MES/Performance
- Wonderware Intelligence
- Wonderware System Platform
- Wonderware Model-driven Add-On (Wonderware Skelta BPM)

Extension Products (add-on's):

- Wonderware Enterprise Integrator
- Wonderware Intelligence
- Wonderware System Platform

About Wonderware MES/Performance

Wonderware
**MES Software
Performance**

Configurable, standardized software approach to downtime tracking and OEE monitoring. Connects non-intrusively to existing automation systems, generating highly accurate and timely views of equipment performance to drive improvements.

For more information:
www.software.schneider-electric.com/Products/Wonderware/Manufacturing-Operations-Management/MES-Software-Performance

About Wonderware Intelligence

Wonderware
Intelligence

Wonderware Intelligence's powerful, easy-to-use analytics and innovative visualization technology empowers workers, operation users and decision makers by putting Manufacturing Big Data in their hands.

For more information:
www.software.schneider-electric.com/Products/Wonderware/Production-Information-Management/Intelligence-Software

About Wonderware System Platform

Wonderware
**System
Platform**

Increases information value and availability, enabling improved product quality and equipment reliability, decreased production costs and downtime and higher plant profitability.

For more information:
www.software.schneider-electric.com/Products/Wonderware/HMI-and-Supervisory-Control/System-Platform

About Wonderware Enterprise Integrator

Wonderware
**Enterprise
Integrator**

Wonderware Enterprise Integrator enables fast and reliable information exchange between Wonderware Software and Enterprise Business Systems.

For more information:
www.software.schneider-electric.com/products/wonderware/manufacturing-operations-management/enterprise-integrator

About Wonderware Skelta BPM

Wonderware
Skelta BPM

Enable collaboration and integration between people, processes and systems.

For more information:
www.software.schneider-electric.com/products/wonderware/manufacturing-operations-management/skelta-bpm

Line Performance Suite
Specifications (continued)

Operating Systems

Line Performance Suite supports the following Microsoft Windows platform:

Server
Windows Server 2012 R2 Standard

Database Technology

Line Performance Suite supports the following database:

Microsoft SQL Server 2014 in Standard SP1 (64-Bit)

Customer FIRST Software Maintenance and Support Program – Our Mission: Your Success

The Customer FIRST Software Maintenance and Support Program is a flexible portfolio of services that help protect and extend the value of your Schneider Electric Industry Solution across the entire lifecycle. A Customer FIRST Agreement establishes a formal service relationship with Schneider Electric, enabling access to the latest software upgrades and providing expert technical assistance, optional services and self-help tools to help you improve your operational effectiveness.

For more information on Customer FIRST for Industry Solutions, please visit:
www.software.schneider-electric.com/support/customer-first/

Learn More

For more information about the Line Performance Suite, contact your local Wonderware distributor, or visit:
www.software.schneider-electric.com/solutions/operations-management-and-mes/line-performance-suite/