



EVENT, DATE

zenon Operations Data Management

Information | Integrity | Insight

Christopher Hausmanns, Global Product Manager SCADA

Important notices

This presentation includes forward-looking information and statements including statements concerning the outlook for our businesses. These statements are based on current expectations, estimates and projections about the factors that may affect our future performance, including global economic conditions, and the economic conditions of the regions and industries that are major markets for ABB Ltd. These expectations, estimates and projections are generally identifiable by statements containing words such as “expects,” “believes,” “estimates,” “targets,” “plans,” “outlook” or similar expressions.

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- business risks associated with the volatile global economic environment and political conditions
- costs associated with compliance activities
- market acceptance of new products and services
- changes in governmental regulations and currency exchange rates, and
- such other factors as may be discussed from time to time in ABB Ltd’s filings with the U.S. Securities and Exchange Commission, including its Annual Reports on Form 20-F.

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zenon Operations Data Management

In zenon, we do ABB Ability TODAY

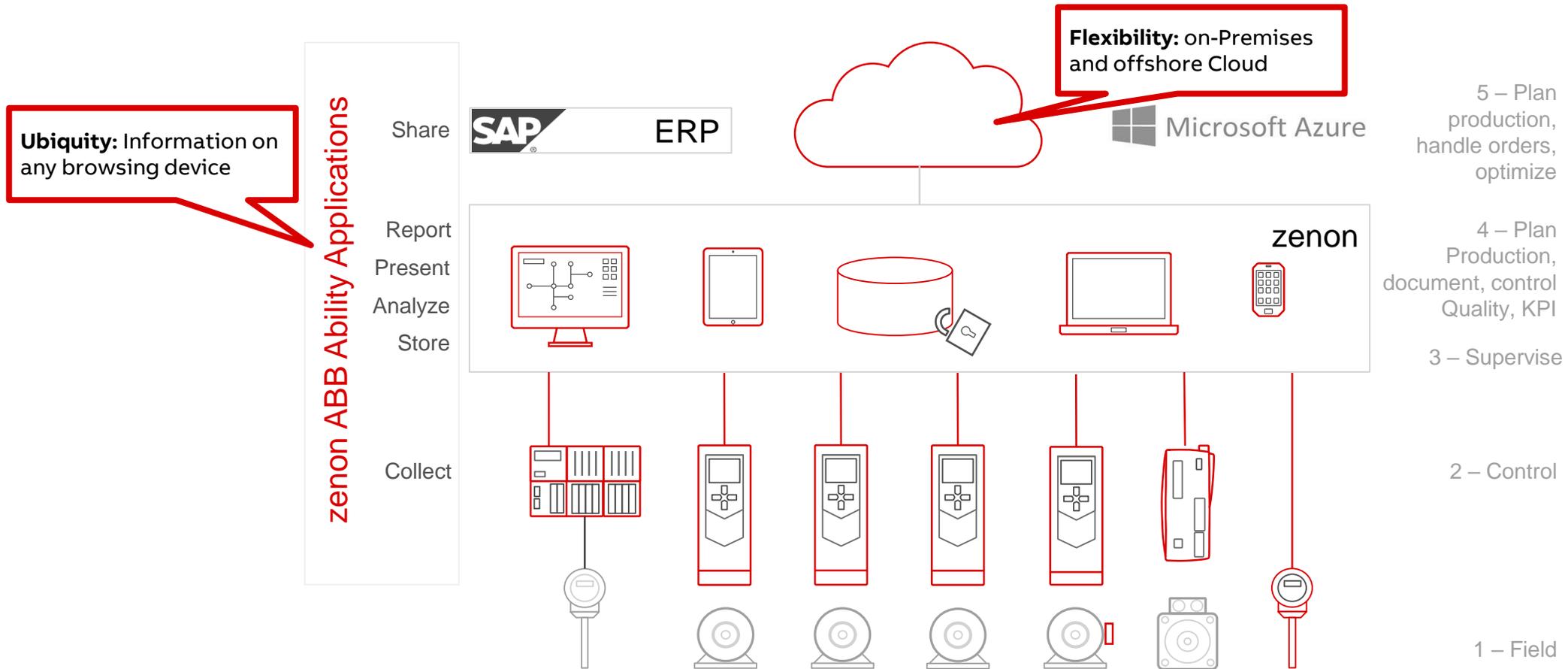


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The Product Family

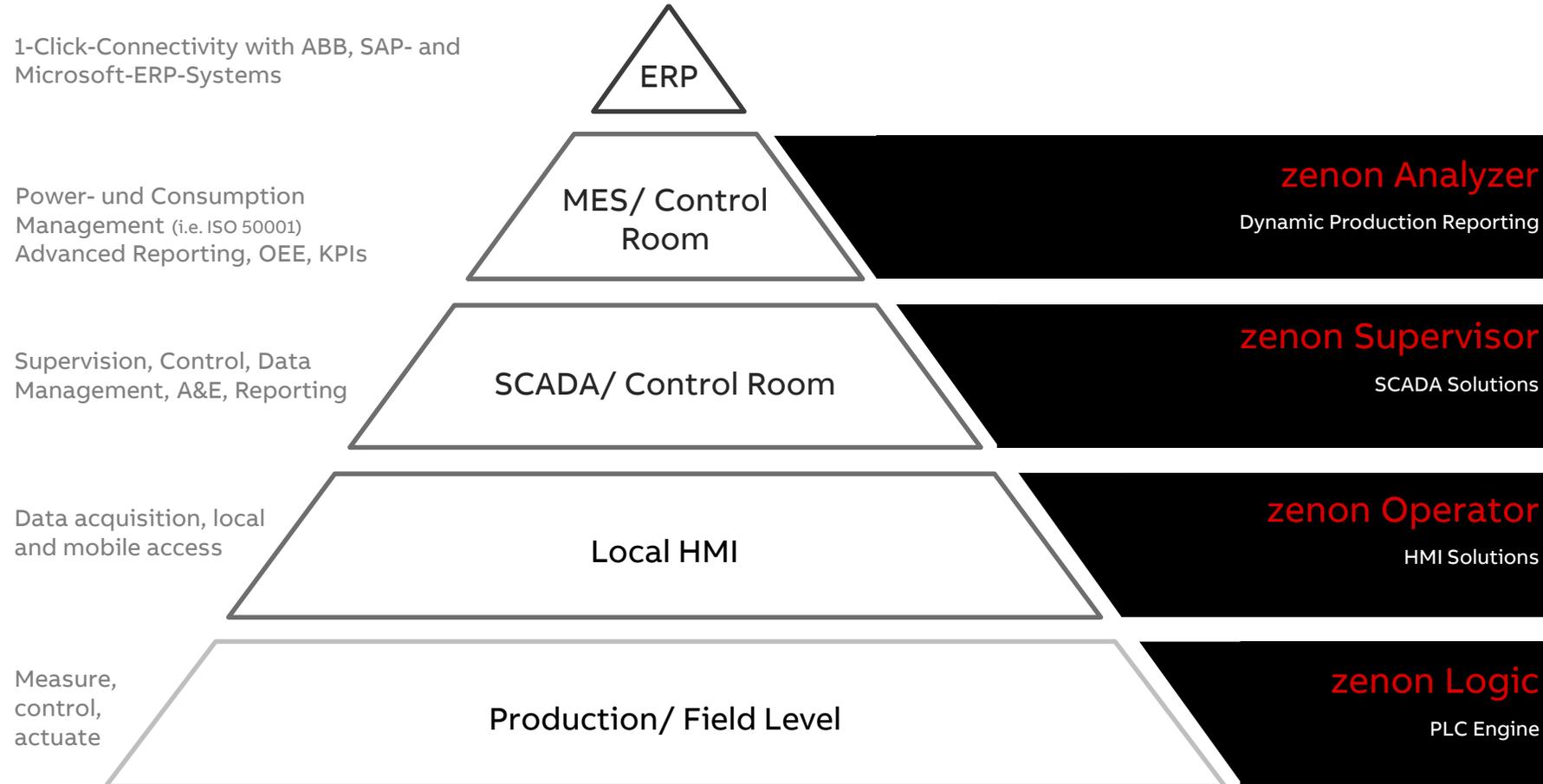
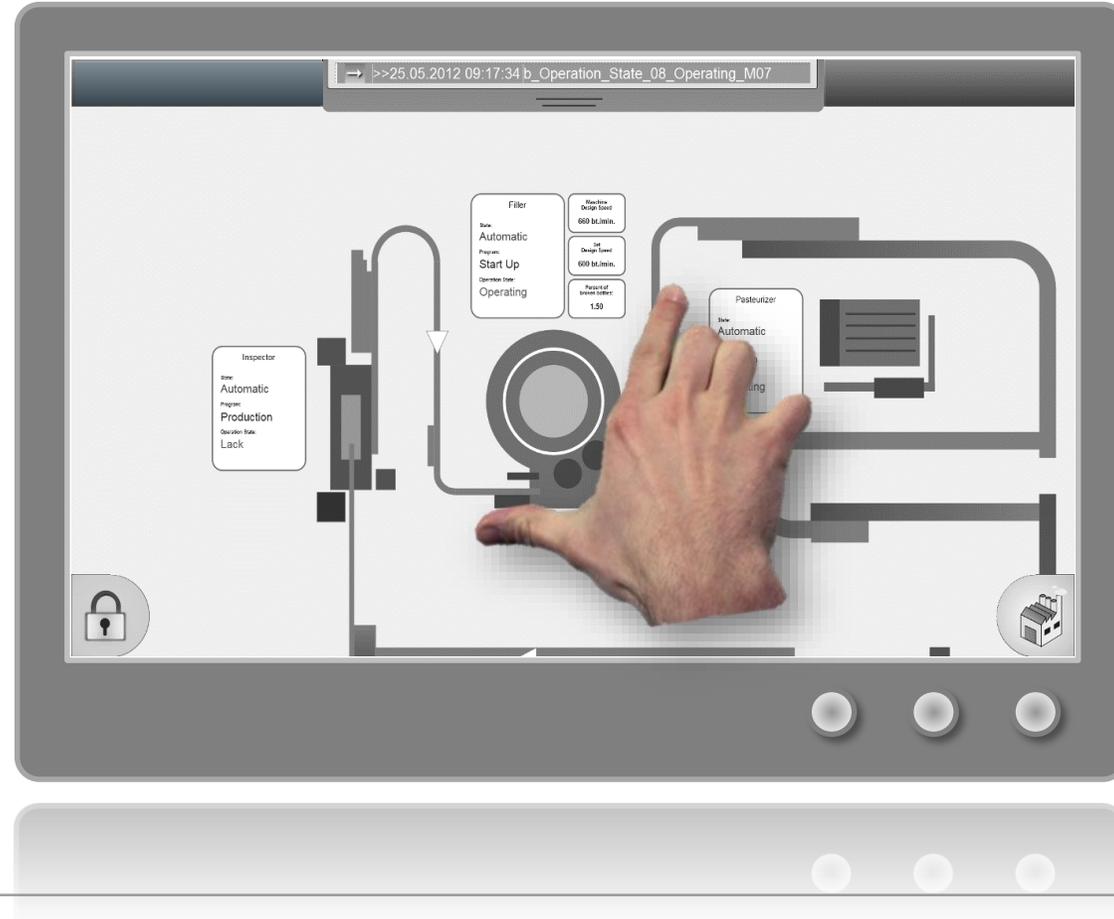


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HMI features: Zoom



Requires



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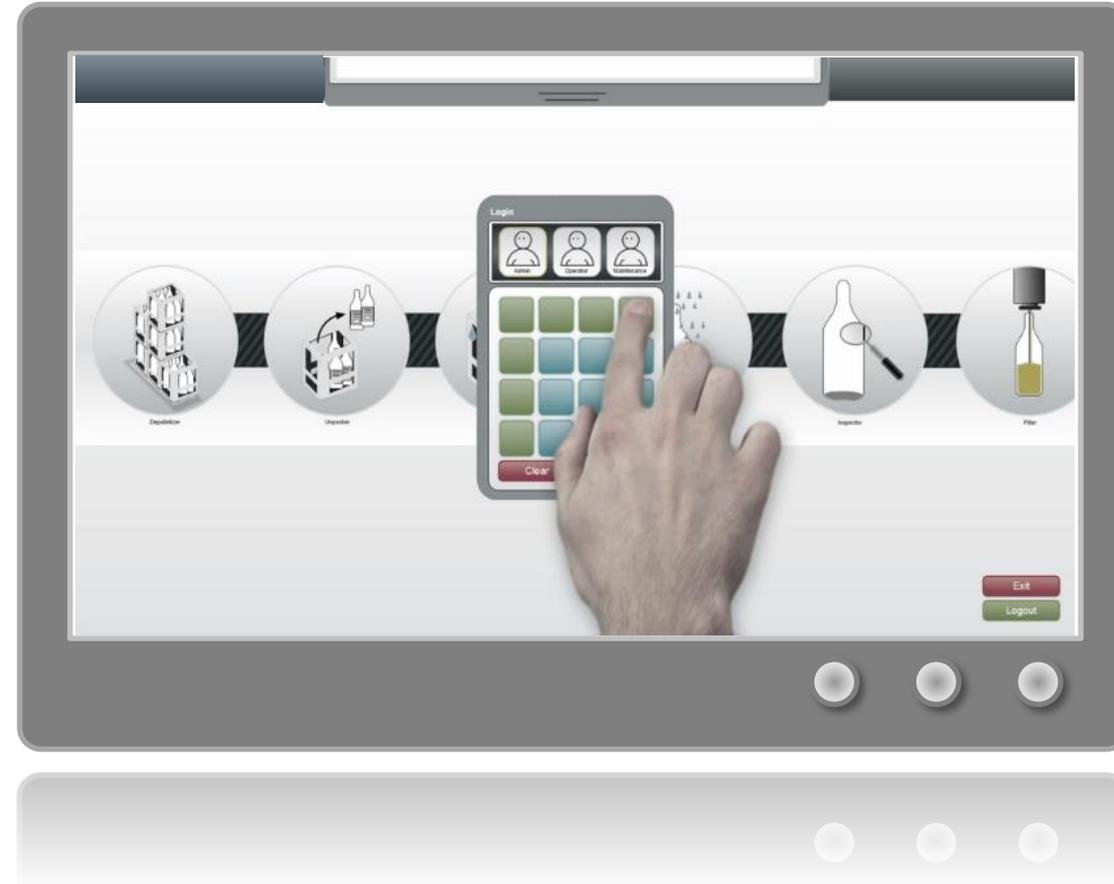
HMI features: Two-Hand Operation



Requires
Windows
Embedded

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HMI features: Pattern Login



Requires



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Resolution Independence through Vector Graphics

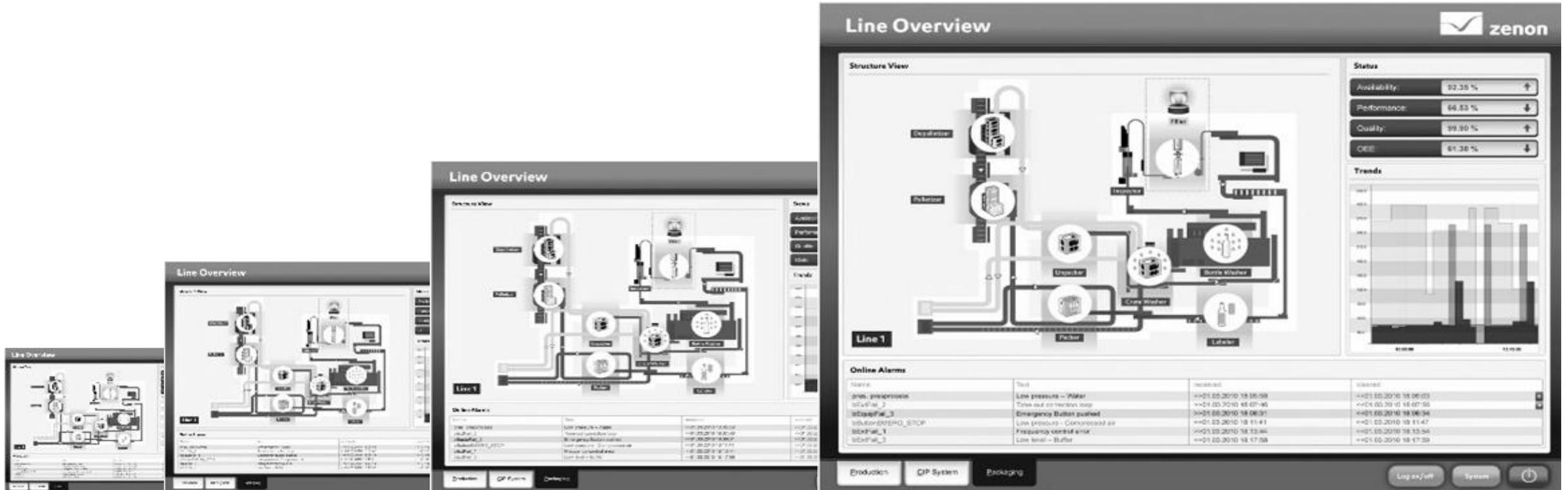


ABB Ability Operations Data Management zenon

Native Language Support

System

8 languages in zenon Editor
Unicode-based

Project

Online change of project and system language

- Language, Font, Physical units
- HTML pages, Sound and Video, Online Help, Lists

Runtime-Preview of project languages in zenon Editor

Automatic creation of translation lists through wizard

Project Translation Interface für translator and translation agencies

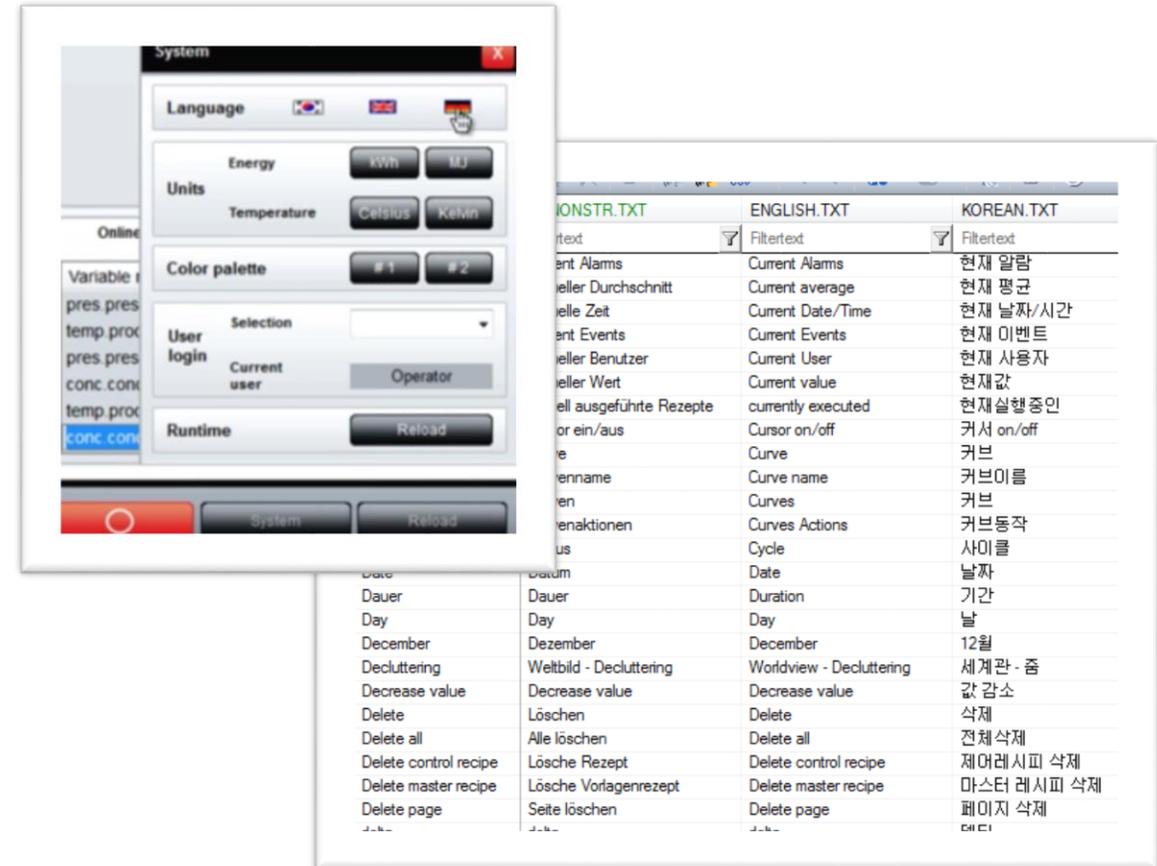


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Switching skins dynamically



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Multi Protocol

300 Protocols and Drivers

More than 300 protocols natively supported

Smooth migration - start with SCADA then harmonize control

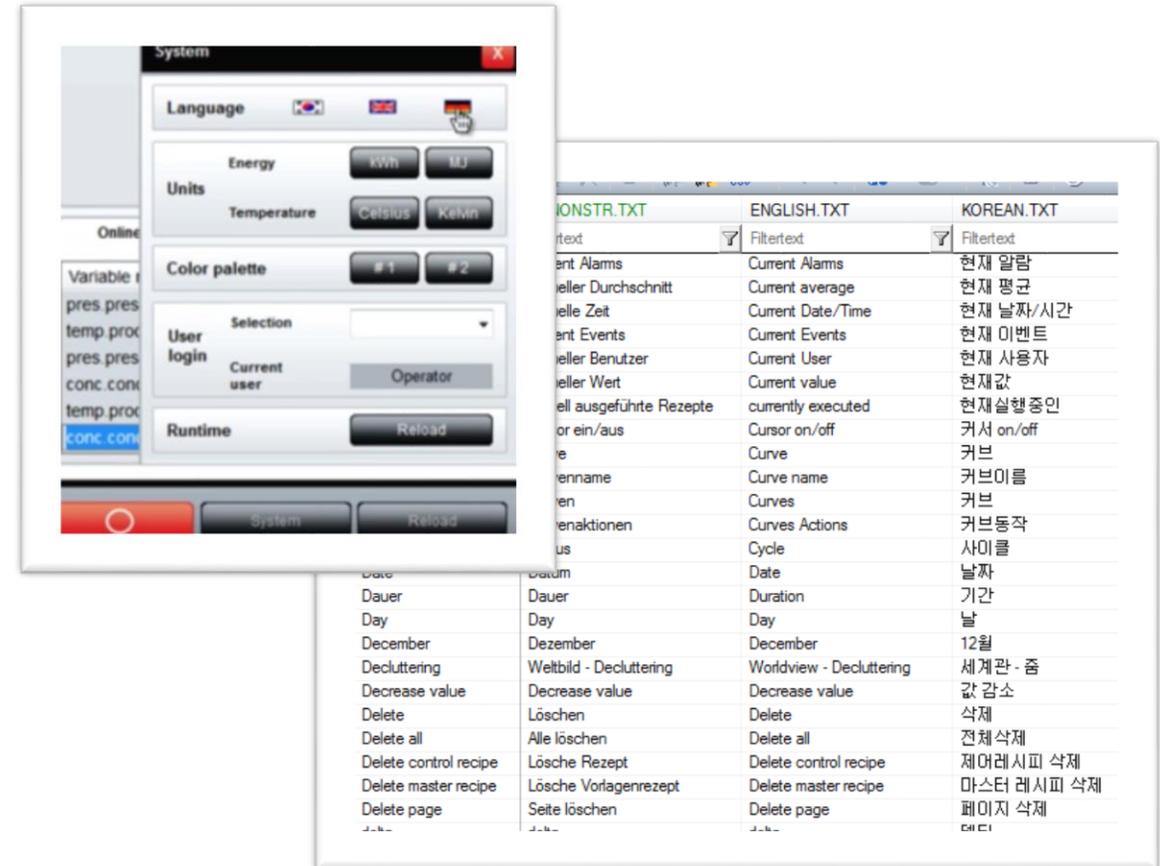


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Redundancy

Flexible Redundancy

100% data security
Bumpless switchover

(Non-) Dominant Redundancy

Simple Redundancy, symmetric servers

Rated Redundancy

Redundancy based on service quality levels (connectivity, power quality)

Circular Redundancy

Chains of n Redundant Servers

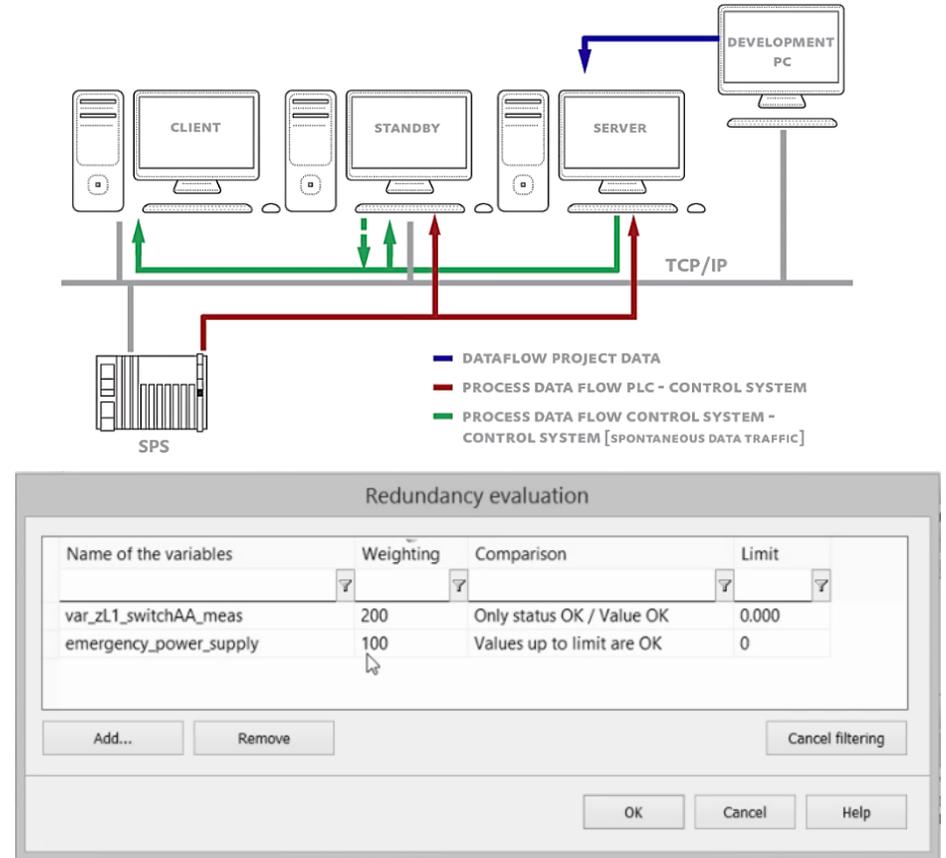
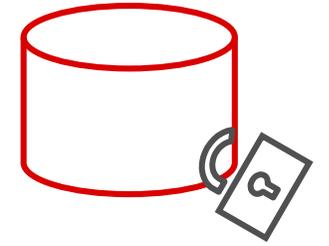


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Security



System

- Code signing
- Gapless Change History
- Secure Audit Trail - FDA 21 Part 11 conformity
- Encrypted data storage and transfer
- Secure communication
- Storage in binary format
- Separation of applications and engineering
- Network supervision

User

- Role Based Access Control on object level
- Single action Log-Over
- Two factor authentication
- Password policy
- Password stored encrypted
- User administration – Active Directory (AD LDS/ ADAM)

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Webserver

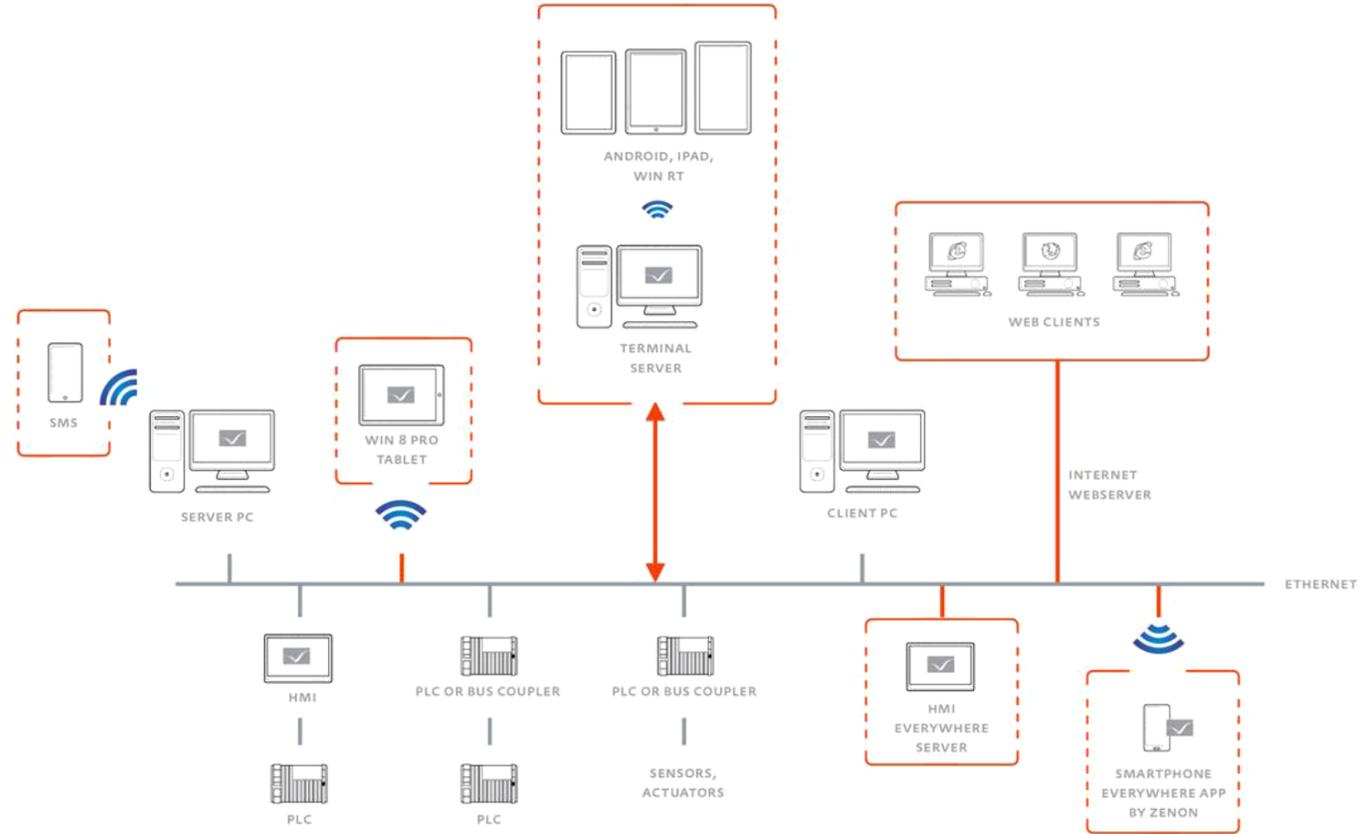


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Reporting

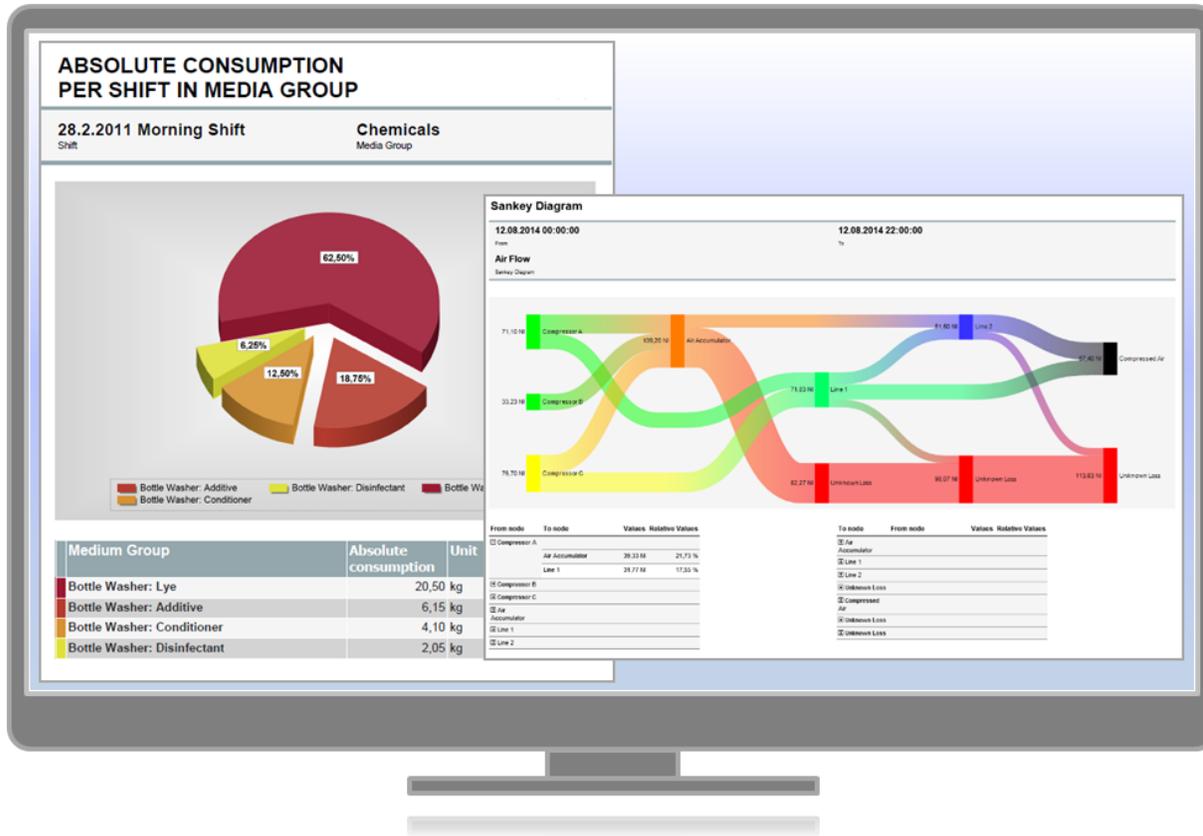


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Vertical Integration

ABB Ability™ Integration

Certified Microsoft Azure IoT Hub Interface

Certified SAP interface

Direct SQL connect

OPC UA Interface

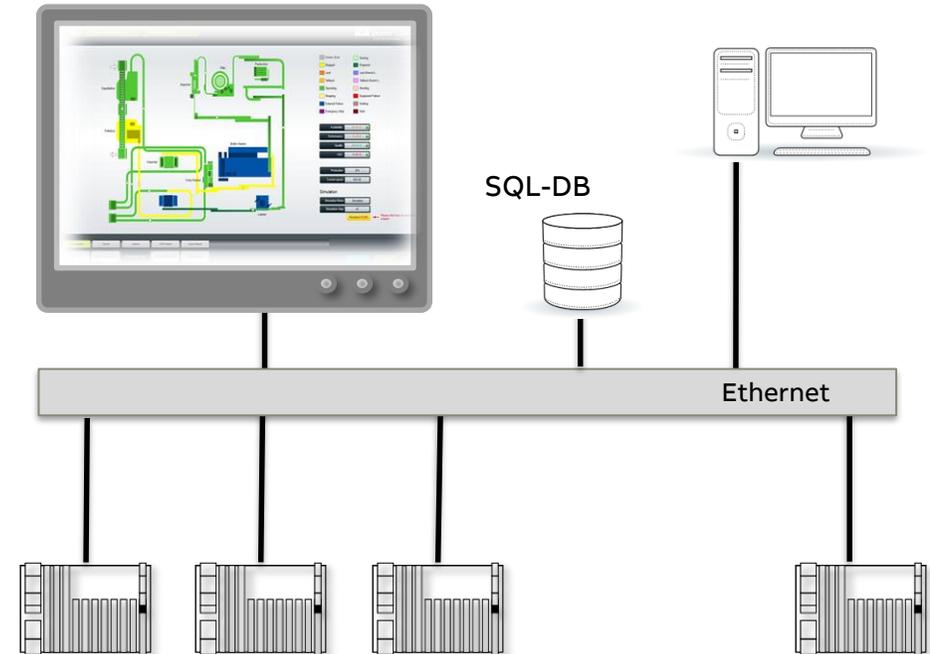


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Collaborative Engineering

- Single Engineering Tool
- Multi User Engineering
- Parametrize instead of program
- Object oriented engineering
- Strong library concept
- Template libraries
- Version Control
- Change history
- Backup
- Comparison

<https://www.youtube.com/watch?v=ut7NW3aL74E>

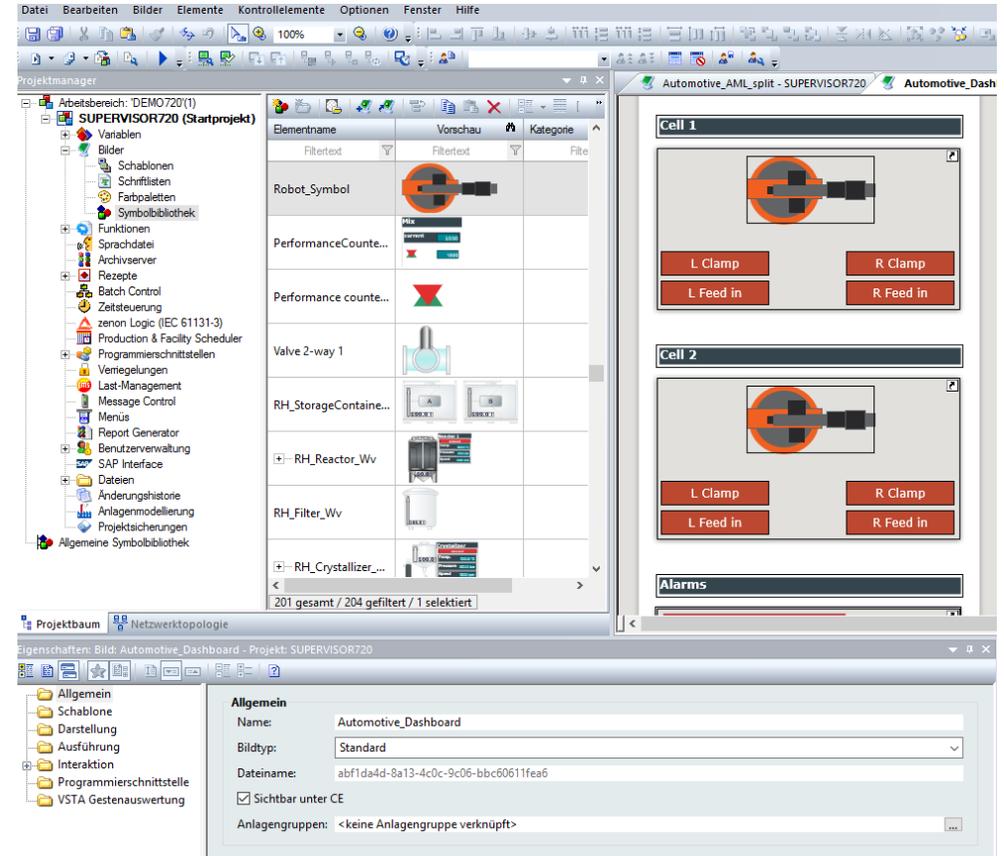
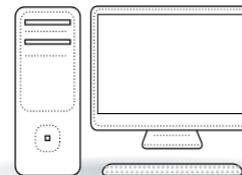
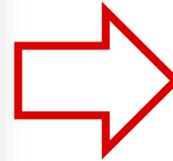
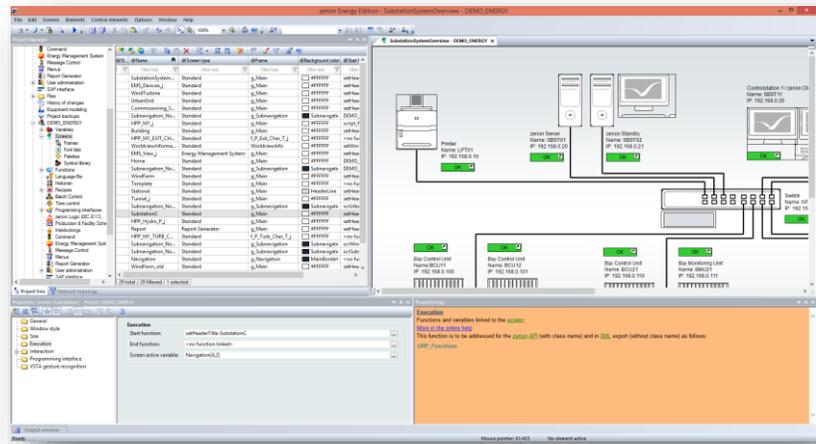
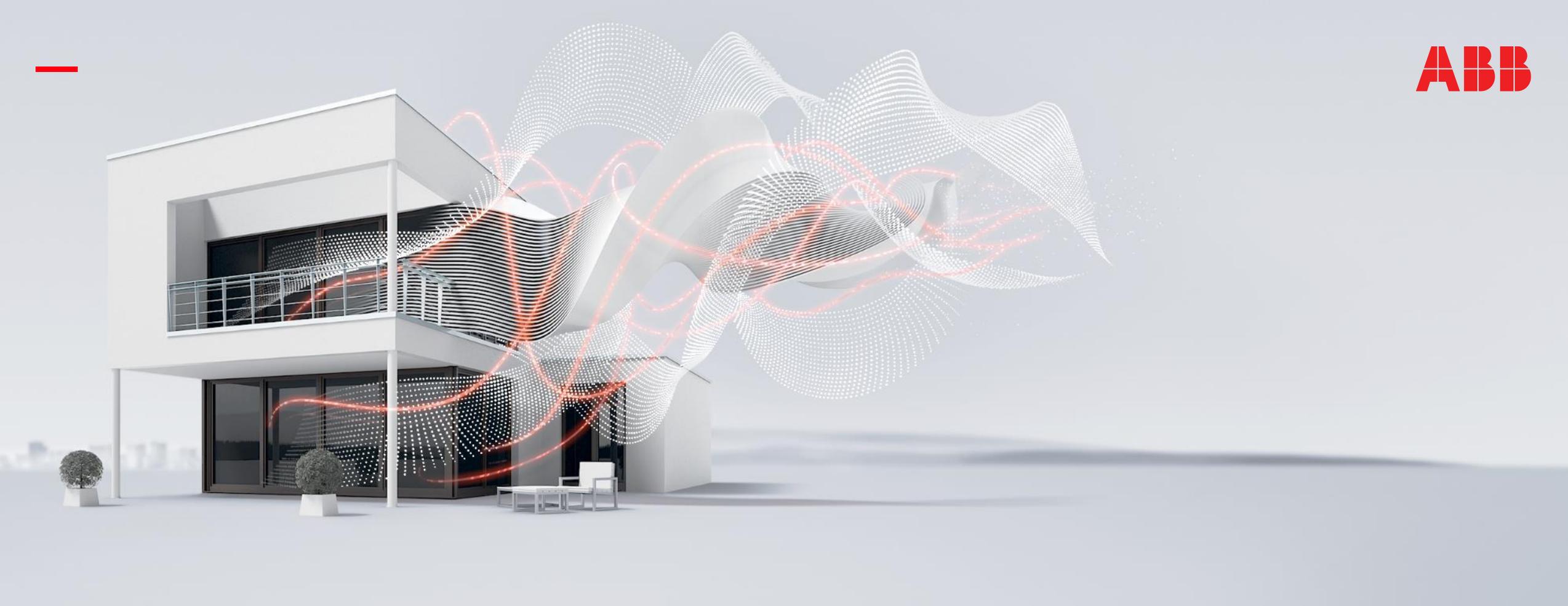


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Single Engineering Tool





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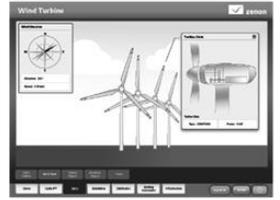
Supplier References

Over 100,000 installations

zenon WAVE 2 Rollout

One System – Many Industries

Further information at www.copadata.com/fmb, www.copadata.com/automotive, www.copadata.com/pharmaceutical, www.copadata.com/energy and www.copadata.com/automation-solutions.



zenon WAVE 2 Rollout

Successful Customers: Automotive



AUDI

VOLKSWAGEN

BMW GROUP

FORD

DAIMLER

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Automotive: Success Factors

High performance drivers for S7 and TIA

Robot control

Hardware independent production HMI

Combining all technologies in a automotive plant: assembly, paint shop, building automation...

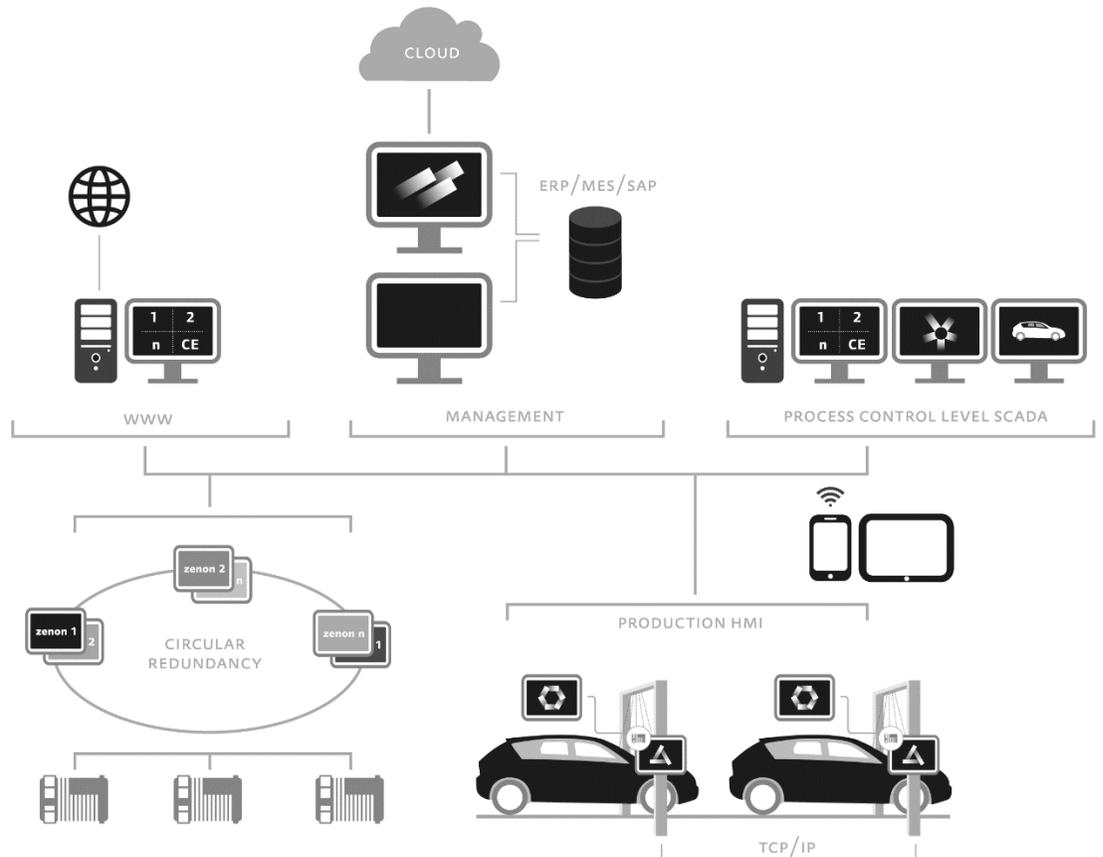
Horizontal integration with Multi-Project management

Seamless and circular redundancy

Reports- for production and performance management

FIS-, INTEGRA-, SAP-Connection

Perfect for standardization



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Food & Beverage: Examples and References



AB INBEV ADELHOLZENER BONDUELLE HILCONA INOTEC
ESAU & HUEBER HEINEKEN HÖRMANN LOGISTIK IMPERIAL TOBACCO KHS
KRONES MONDELEZ PEPSI POLY-CLIP SIDEL SIG COMBIBLOC SIGPACK SYSKRON

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Applications with zenon in a F&B Plant

Production

Production Data Collection
Batch Control
Traceability reporting

Utilities

Central Supervision
Water and Waste Supervision

Packaging

Classical HMI
Line Management System
Efficiency System / OEE

Entire Plant

Energy Data Management
Plant Reporting

Buildings & Infrastructure

Building Automation
Security Systems



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Food & Beverage: Success Factors

High market penetration in F&B

FDA CFR Part 11 compliance

Connectivity with more than 300 drivers

Hardware independence

Parametrizing instead of programming

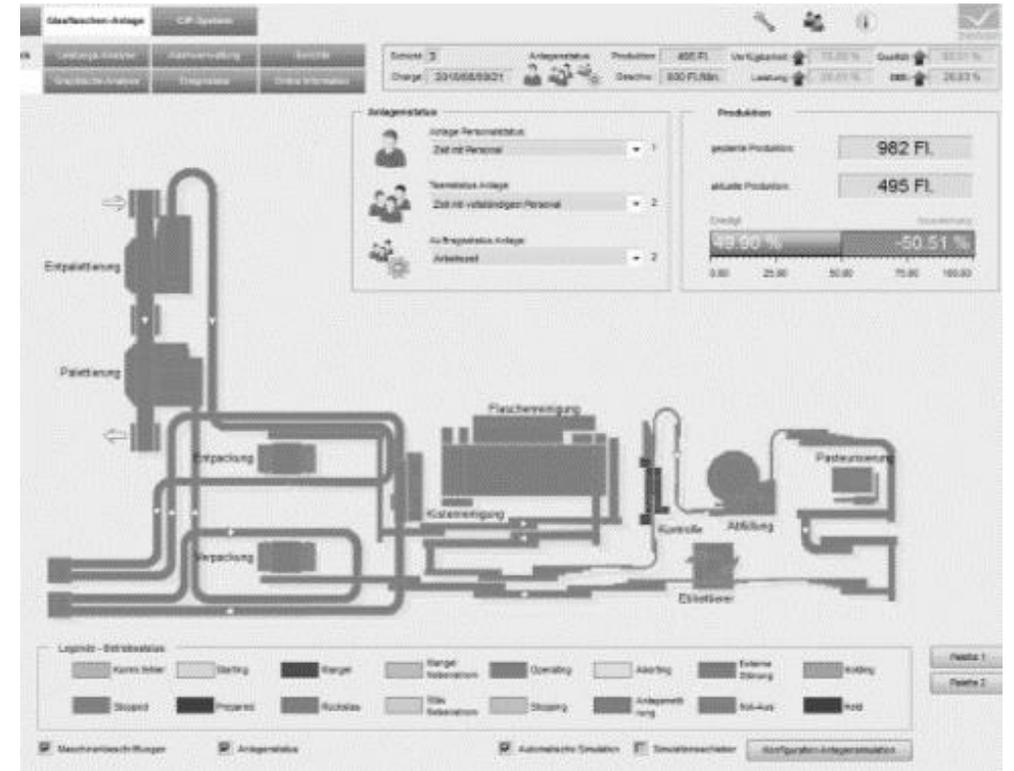
Automatic engineering

Extensive Recipe Handling and Batch Control

Online language- and unit switch

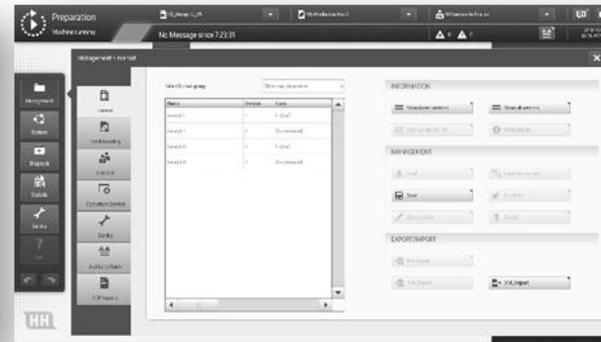
One Tool for HMI, Line Management, SCADA and Batch Production

Company wide reporting for OEE and energy consumption



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Pharma: Examples and References



BAUSCH + STRÖBEL

BOSCH

GRONINGER

HARRO HÖFLIGER

HOLOPACK

MÜLLER CLEANING SOLUTIONS

ROMACO

ROTA

SKAN

VETTER PHARMA

ABBOTT LABORATORIES

ASTRA ZENECA

BAYER HEALTH CARE

GLAXO SMITH KLINE

JOHNSON & JOHNSON

MERCK & CO

NOVARTIS

PFIZER

ROCHE

SANOFI

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Pharma: Success Factors

Ready for FDA 21 CFR Part 11, GAMP Software Category 4/5, No Programming Knowledge necessary

Secure access control with Active Directory connection and eSignatures

Project version control and –comparison, history of changes

Solutions for HMI, Process Data Collection & SCADA

Paper on Glass

Batch S88 support for the process area

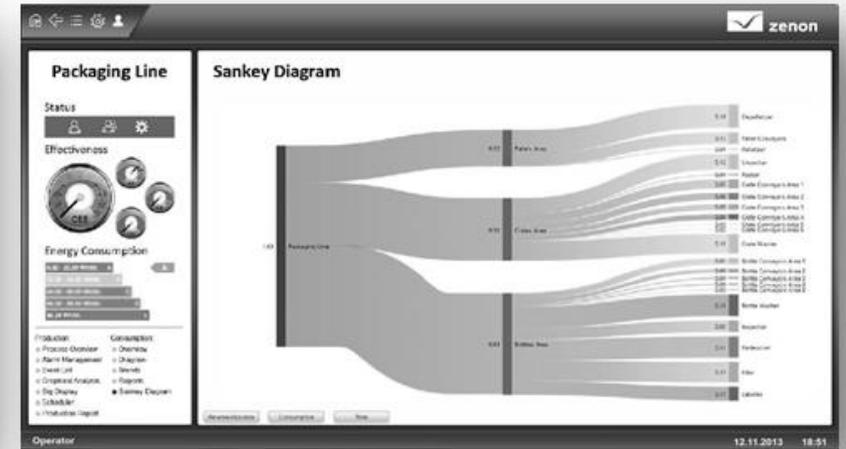
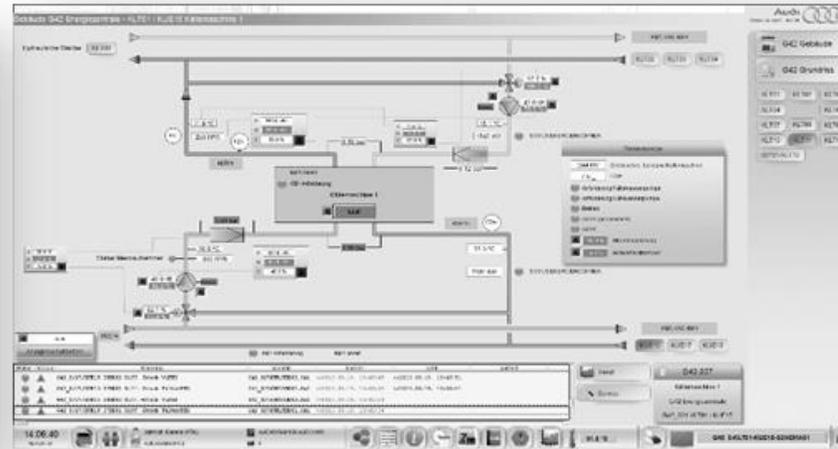
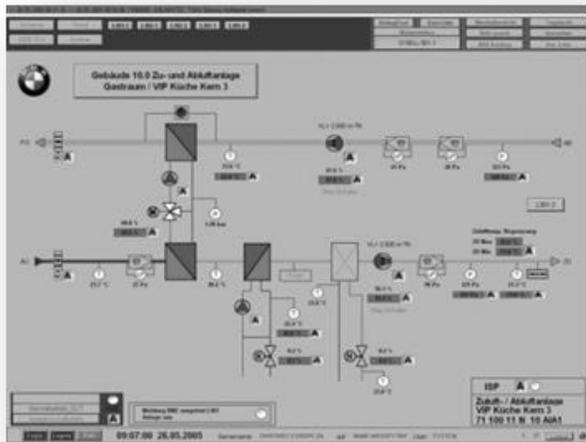
Transparent lot- and batch reports

Easy and standardized data exchange to other systems like PI from OSI



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Excursus: Building Automation and EDMS



ADELHOLZENER AUDI BLANCO BMW BRITA
B/S/H CONTINENTAL DAIMLER E.G.O. FORD
FRISCHPACK GOODYEAR DUNLOP INA SCHAEFFLER AB INBEV MONTBLANC
NORDGETREIDE REHAU SALZGITTER FLACHSTAHL TESA VOLKSWAGEN

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Success factors: Building automation and EDMS

Scalable solution for all medias

Cover different areas such as building automation, EDMS, load management, scheduling

TÜV certification for ISO 50001:2011

Support of typical drivers such as BACnet, EIB, KNX, M-Bus, OPC, Modbus

Display data where it is needed (native, Web, HTML5, SMS, E-Mail, Cloud)

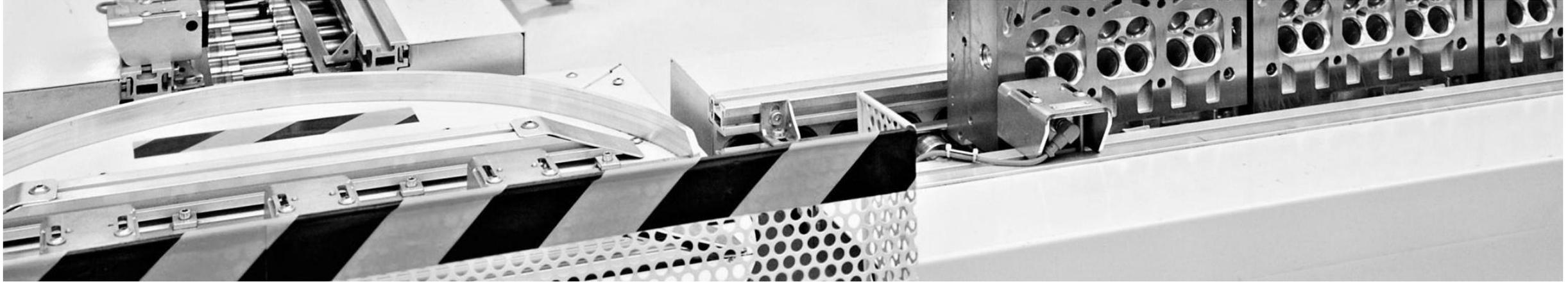
Multi Monitor applications

Future oriented strategies in terms of product compatibility



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Automation Solutions - Successful Customers



TEXAS INSTRUMENTS

LG INNOTEK

SAMSUNGELECTRONICS

HYUNDAI ROTEM

GOODYEAR DUNLOP

PHILIPS

SWAROVSKI

IMPERIAL TOBACCO

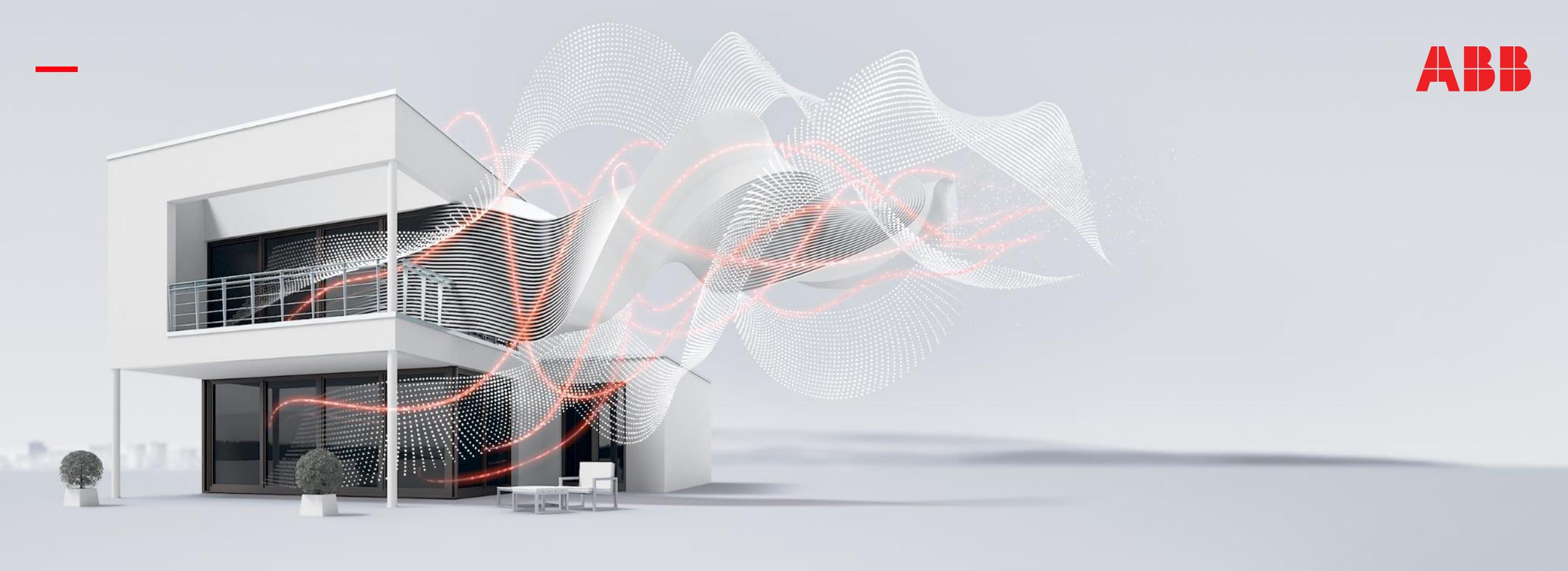
VOESTALPINE

KUKA ROBOTER

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Get started with zenon





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ABB zenon Operations Data Management in F&B

zenon is known and grown in Food and Beverages

 Adelholzener Alpenquellen GmbH	 Bonduelle SA	 Bosch Packaging Systems AG	 Krones AG	 Pago International GmbH	 Römerquelle GmbH
SUCCESS STORY ▶		SUCCESS STORY ▶		SUCCESS STORY ▶	
 BRAU UNION ÖSTERREICH AG	 Handl Tyrol GmbH	 Hilcona AG	 SIDEL SpA	 SIG Combibloc Systems	 Imperial Tobacco Ltd
SUCCESS STORY ▶		SUCCESS STORY ▶		SUCCESS STORY ▶	
 iglo GmbH	 Inotec GmbH	 KHS GmbH	 Harro Höfliger Verpackungsmaschinen GmbH	 Müller AG Cleaning Solutions	
SUCCESS STORY ▶		SUCCESS STORY ▶		SUCCESS STORIES ▶	

<https://www.copadata.com/en-us/process-control-system/references/>

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Applications with zenon in a F&B Plant

Production

Production Data Collection
Batch Control
Traceability reporting

Utilities

Central Supervision
Water and Waste Supervision

Packaging

Classical HMI
Line Management System
Efficiency System / OEE

Entire Plant

Energy Data Management
Plant Reporting

Buildings & Infrastructure

Building Automation
Security Systems



ABB zenon Operations Data Management in F&B

zenon makes our customers value chain transparent

Certified ISO 50001 Energy Management System

Overall Equipment Effectiveness

Freely definable KPIs

Alarm Management

Realtime Management Dashboards

Extensive production data analytics

Audit Trail

IoTSP from machines to multi factory



ABB zenon Operations Data Management in F&B

zenon is for Food and Beverage

Batch and recipe handling – ANSI/ISA–88.01 compliant

Equipment Model – ISA S95 compliant

Production Scheduler

FDA CFR 21 Part 11 compliant

GAMP 5 compliant

Weihenstephan pack and food standard compliant

Certified SAP ERP interface

Certified MS Azure interface

Paper on Glass Technology for Digital Process Documentation

Connectivity through more than 300 native protocols and drivers



ABB zenon Operations Data Management in F&B

Value proposition

Transparency

Energy efficiency > reduce operations cost

Productivity > increases output

Connectivity

Security

Food safety (Audit Trail)

Tracking and tracing

Real time ERP integration

Information (Connectivity)

Integrity (Security, Redundancy, Quality control)

Insight (Energy efficiency, OEE, ...)

ABB zenon Operations Data Management in F&B

Value Chain - schedule, supervise, control, report and optimize

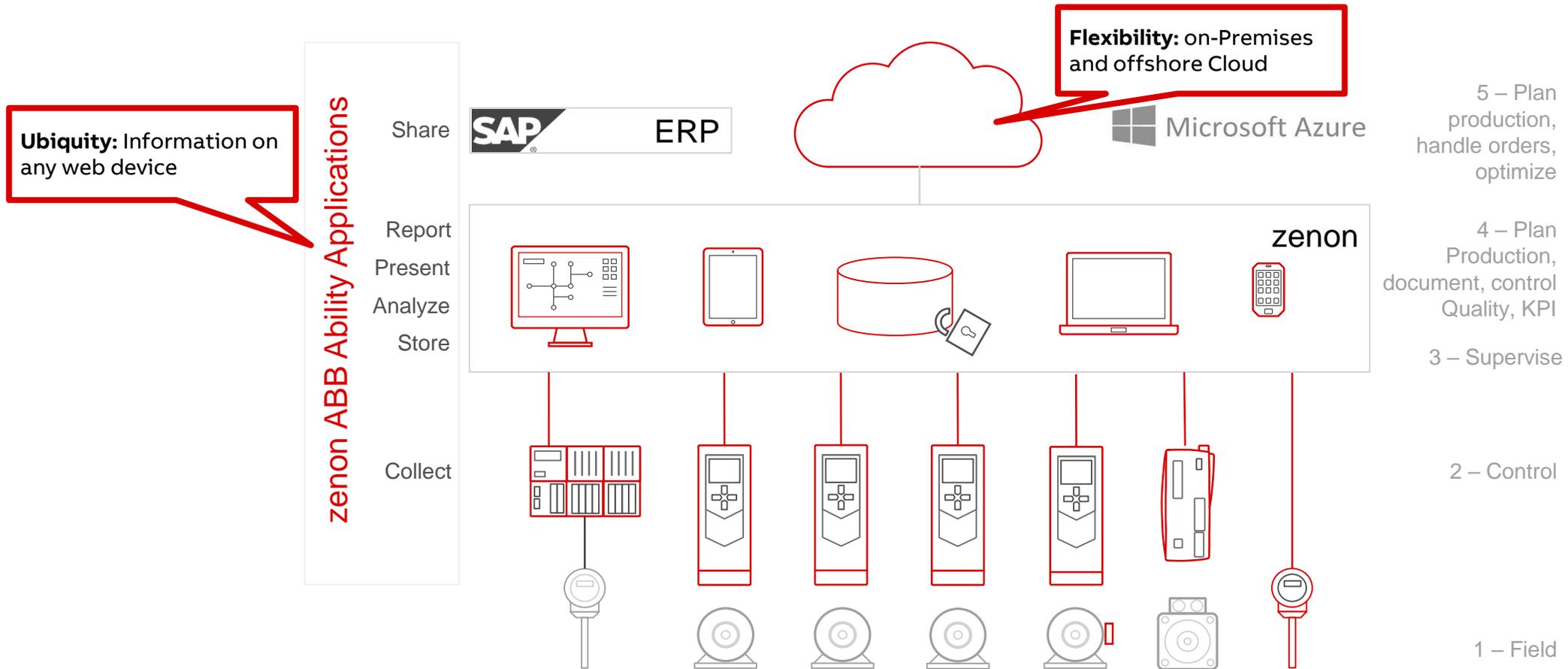


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The Product Family

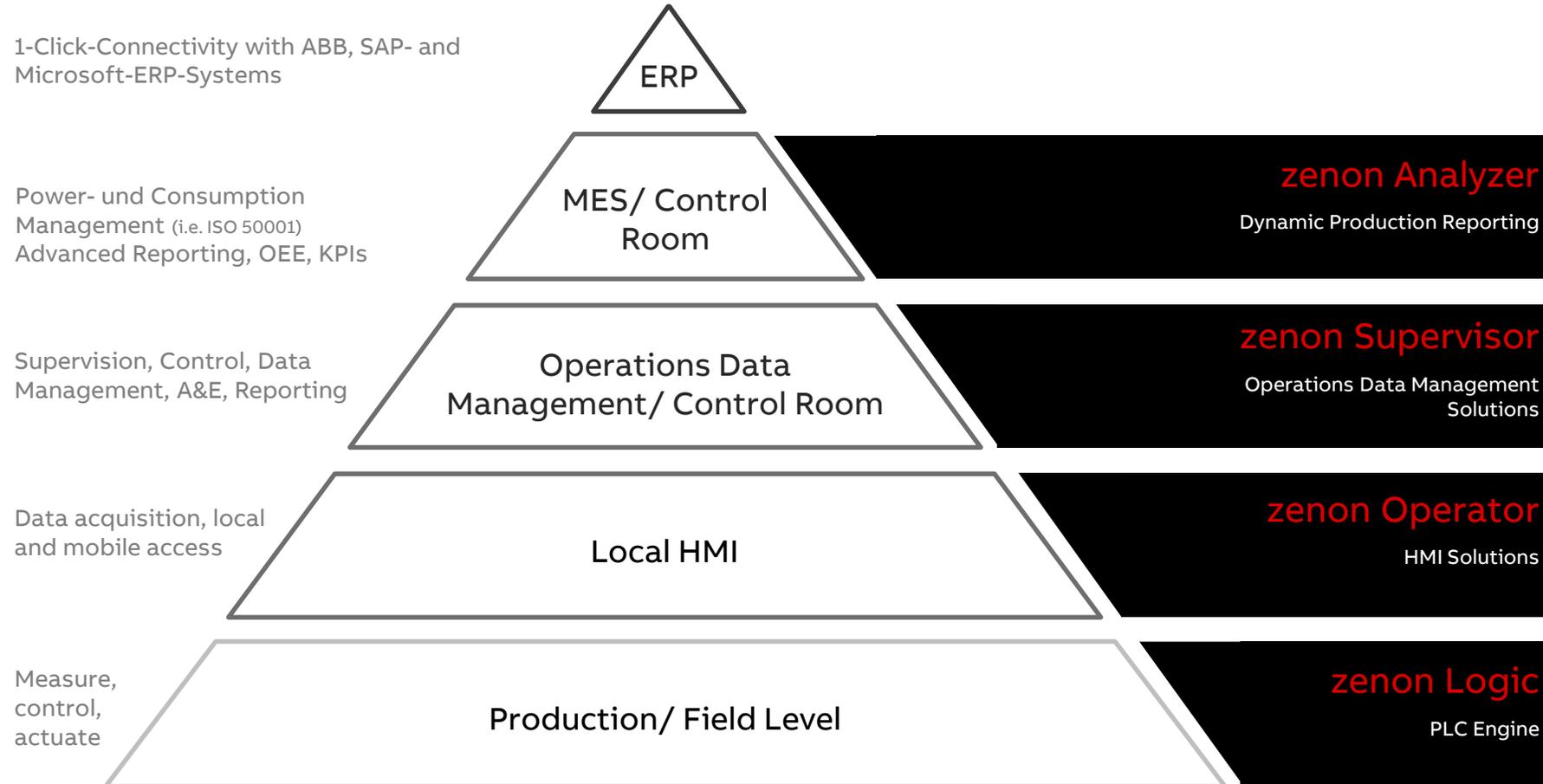


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Machine and Line Control

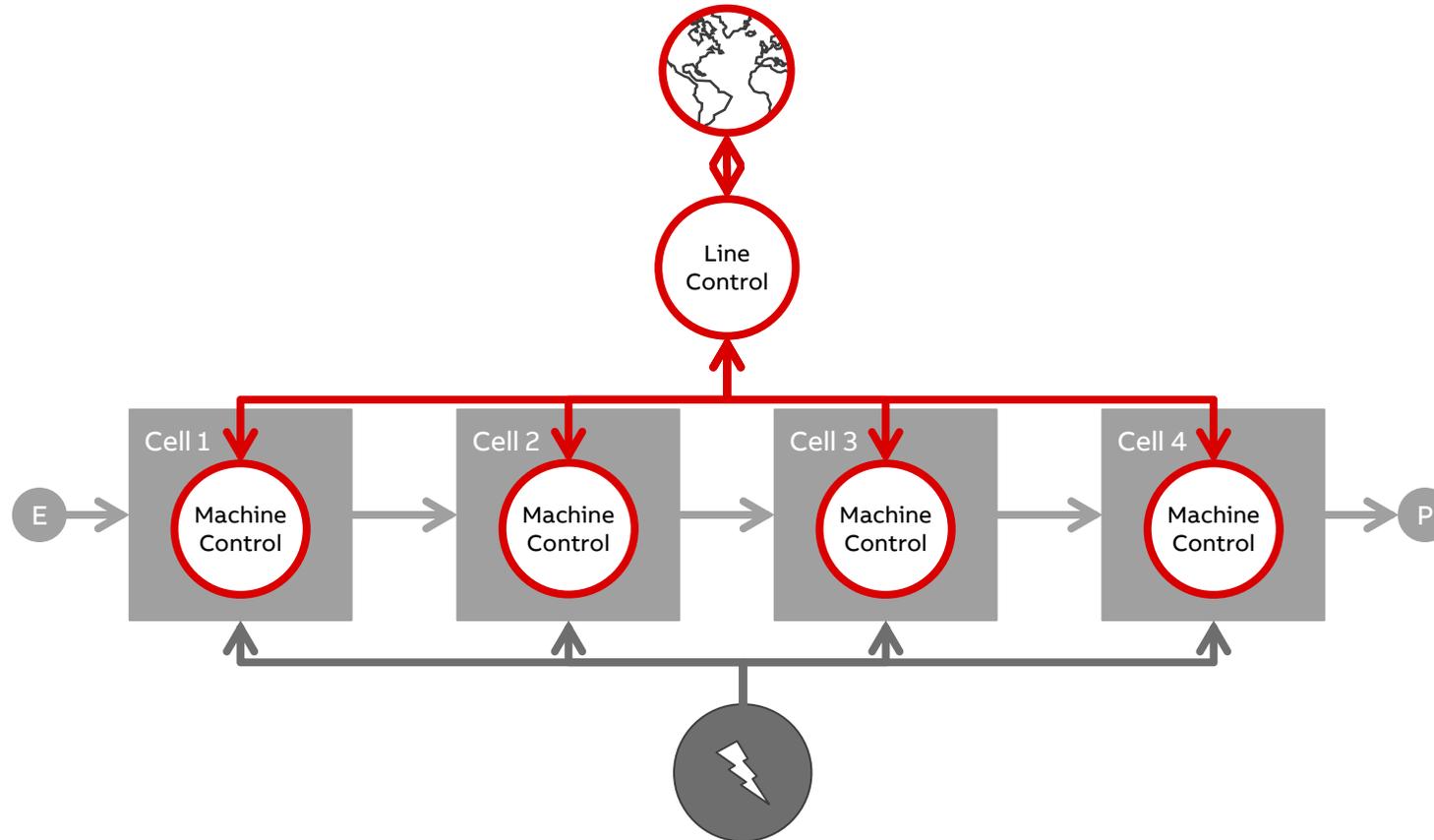
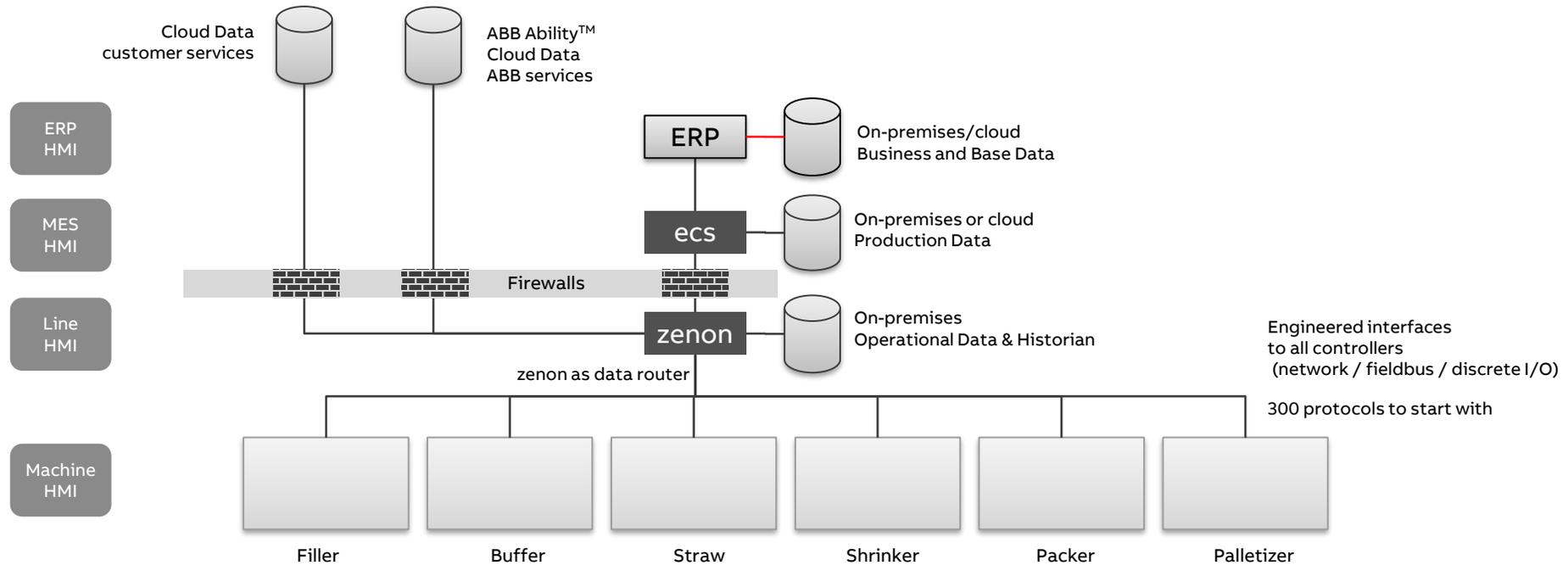


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Brownfield – zenon as multi-protocol gateway





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