Change Management - FactoryTalk AssetCentre

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Rockwell Automation

Change Mgmt. - FactoryTalk AssetCentre: Agenda

1. Introduction – Automation Asset Management

2. FactoryTalk AssetCentre – Product Overview

3. FactoryTalk AssetCentre – Strategic Roadmap

4. FactoryTalk AssetCentre – Product Demo (Optional)

5. Question & Answer

Change Management – FactoryTalk AssetCentre

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Section 1:
Asset Management Approach

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Rockwell Automation

Automation Asset Management: Rockwell Automation Approach

- A collaborative approach that optimizes asset value by using software, technology platforms, and people to improve decision making around life cycle costs

Software:
Asset Mgmt. Production Disc.

ROCKWELL AUTOMATION

ASSET MANAGEMENT

Platforms:
Integrated Architecture

People:
Strategic Maintenance

Enterprise

Plant Management

Plant Floor

Automation Asset Management:
Early Implementation Maximizes Return

- An asset management program has the most influence on reducing the cost of ownership when implemented early in the system life cycle
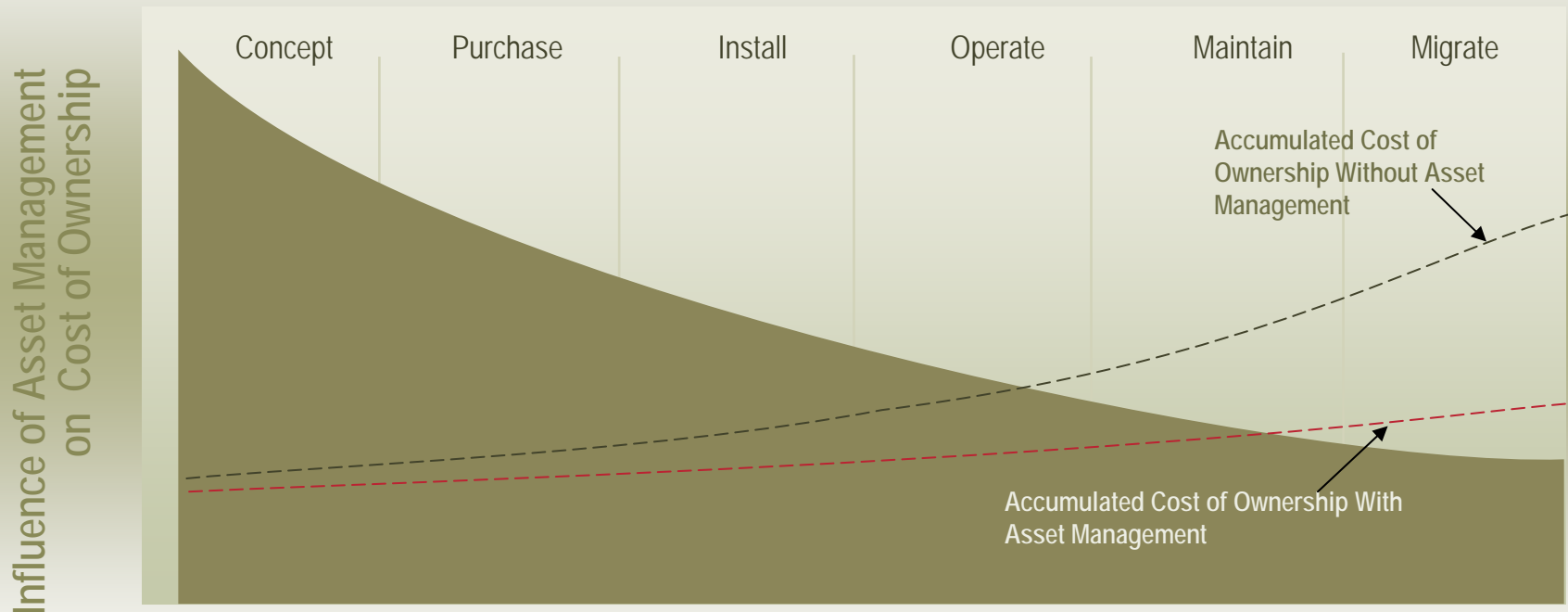
Automation Asset Management: Common Plant Objectives

We need to insure our operation is running the way it was designed to run or better!

disaster recovery

improve maintenance staff effectiveness

product safety & quality

employee safety

regulatory scrutiny

reducing commissioning time & cost

monitor & protect assets

reduce risk to production

excessive unplanned downtime

improved site security

Automation Asset Management: Common Plant Conversations

We are not sure we have every asset's configuration program.

Minor changes to stay operational tends to cause major problems later.

If only we could get information from our critical devices so we would know if something is out of spec.

It seems like some of our maintenance practices may be unnecessary.

We might have downloaded the wrong program to the wrong machine.

We cannot manage every version well and we have made mistakes.

It's running so it's probably fine.

We think we lost a version of the program for that machine.

We lost the comments to another program.

Our security risk profile, what is that?

The X^$&^%()& machine is down! Again!

A line operator opened a controller's editor and altered a variable to reduce the amount of time the line spent in a certain function so that his line would produce more product during that shift.
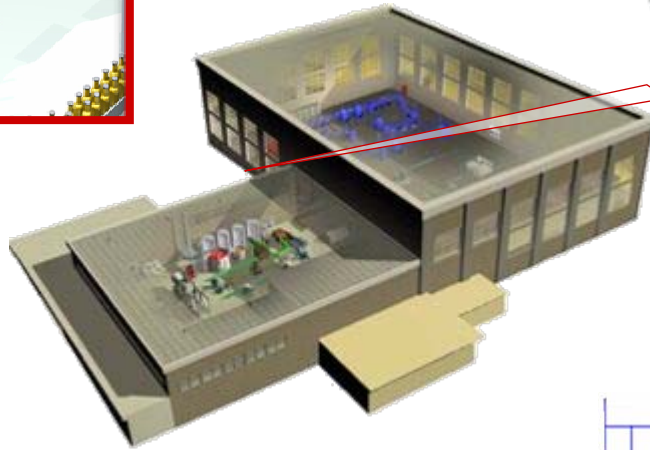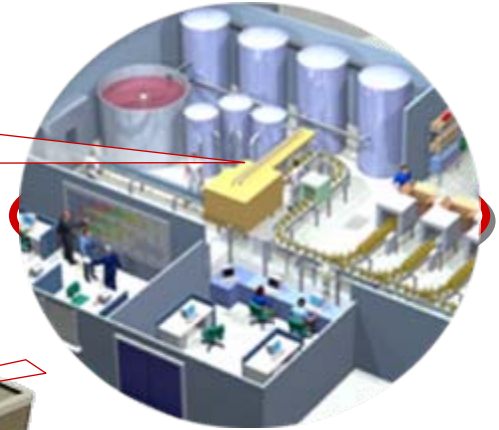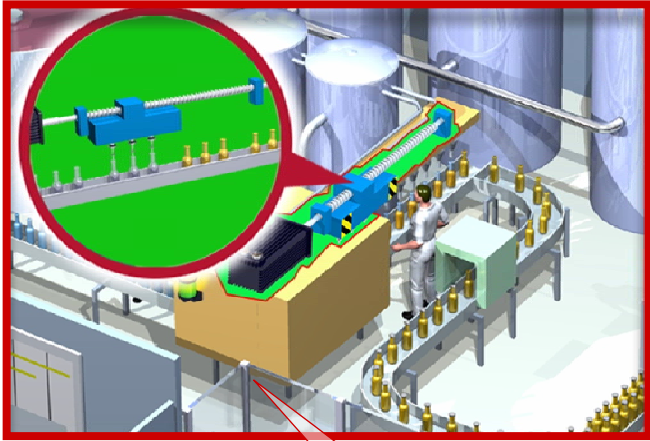
A problem with product quality was caught many weeks later that resulted in a recall of a lot of product.
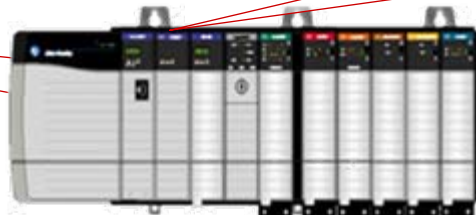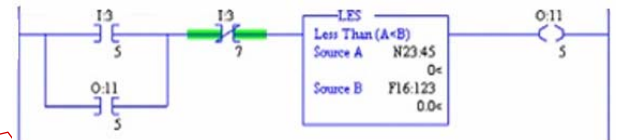
A manual method was already in place!

Automation Asset Management:
Automation Assets Influence on Production

Each asset no matter how large or small is linked to the next asset.

Even the smallest change can affect manufacturing!

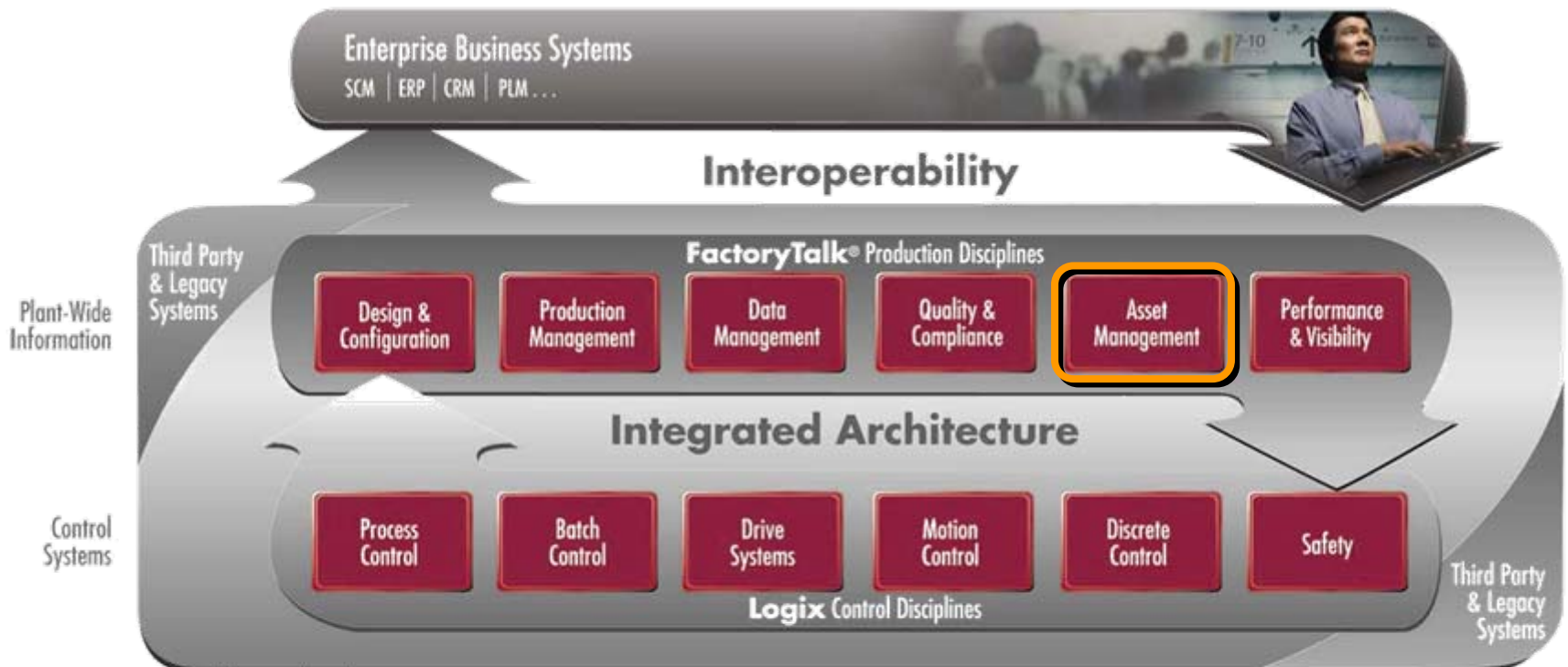# Change Management – FactoryTalk AssetCentre

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Section 2:
FactoryTalk AssetCentre –
Product Overview

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Rockwell
Automation

RSMACC Change Management (CM) Capabilities

- Audit
  - Records individual user activity and logs information to a secure database

- Archive
  - Secure electronic document repository

- Authenticate
  - User security and access privileges

- Verification
  - Upload and compare (devices and files)

- Asset Management Discipline is part of a rich set of disciplines focused on interoperability

- Asset Management goals include:
  - Optimizing maintenance and plant operations to improve your resource availability
    - Foundation for <u>optimizing maintenance & plant operations</u>
    - <u>Risk mitigation processes</u> for discrete, hybrid and process applications
    - <u>Comprehensive change management</u> for automation controls
    - <u>Detailed auditing & diagnostics</u>
    - Extensive <u>calibration & condition monitoring</u>

- Common Benefits

  - Reduction in long term operating and maintenance costs, lowering the risks to production and product safety with…

    - **Centralized management** of assets for troubleshooting and diagnostics
    - **Prevent unauthorized access** to assets and information
    - **Detailed audit trails** for asset configuration changes
    - **Detect unwanted changes** including notification and reports
    - **Back up all asset** intellectual property (configurations and documentation) to a secure system for disaster recovery
    - **Store every version** of asset configurations or documentation in a secure system for archival and retrieval
    - **Automatic verification** of critical device configurations against controlled masters
    - Automatic and on-demand **notification** capabilities

much more reliable manufacturing, many less control system mistakes, minimal governance

FactoryTalk AssetCentre – Product Preview: Introduction

- Set of asset-centric focused tools to securely and centrally manage your automated production environment
  - Secure access to the control system
  - Track users' actions
  - Provide backup and recovery of operating asset configurations
  - Manage asset configuration files
  - Configure process instruments
  - Manage device calibrations
- Scalable design allows expansion of functionality and device counts
  - Practical application for small line applications and enterprise wide installations
  - Low entry cost easily supports testing and proof of concept work

> **FactoryTalk® AssetCentre is a tool to manage automation assets**

FactoryTalk AssetCentre – Product Preview: FactoryTalk AssetCentre Platform

- The platform is called **FactoryTalk® AssetCentre**
  - The **AssetCentre Server** forms the system core providing for common functions like security, source control, notification, audit and event information
  - The **AssetCentre Add-On Capabilities** allow for the appropriate function for your operations like device configuration management and disaster recovery for controllers, robots or drives
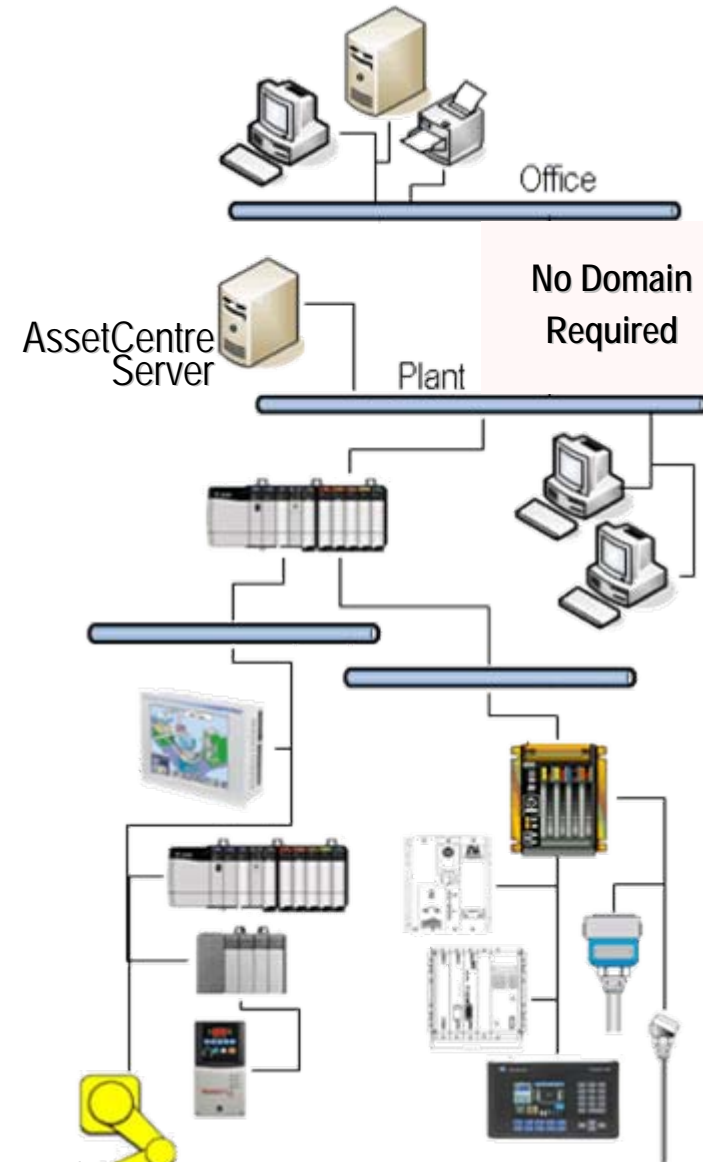
FactoryTalk AssetCentre – Product Preview: FactoryTalk AssetCentre System

- **Server Capabilities**
  - Centralized Database
  - Source Control
  - Audits ✔
  - Events
  - Security ☺☻☹
  - Notification ✉
  - Reporting
  - Software Delivery System
  - Scheduler ⇈
- **Add-On Capabilities**
  - Disaster Recovery
    - Rockwell Automation
    - Fanuc Robots
    - Motoman Robots
  - Instrument Configuration
  - Calibration Management

Office

AssetCentre Server

Plant

No Domain Required

- Centralized Database
  - Database, Microsoft SQL Server, is configured automatically as part of the system install
  - **Central repository for Source Control, Audit and Event information**
  - **Secure** environment for information and source control
    - Cannot lose files or accidentally delete them
    - Large storage capability
    - Replication capability
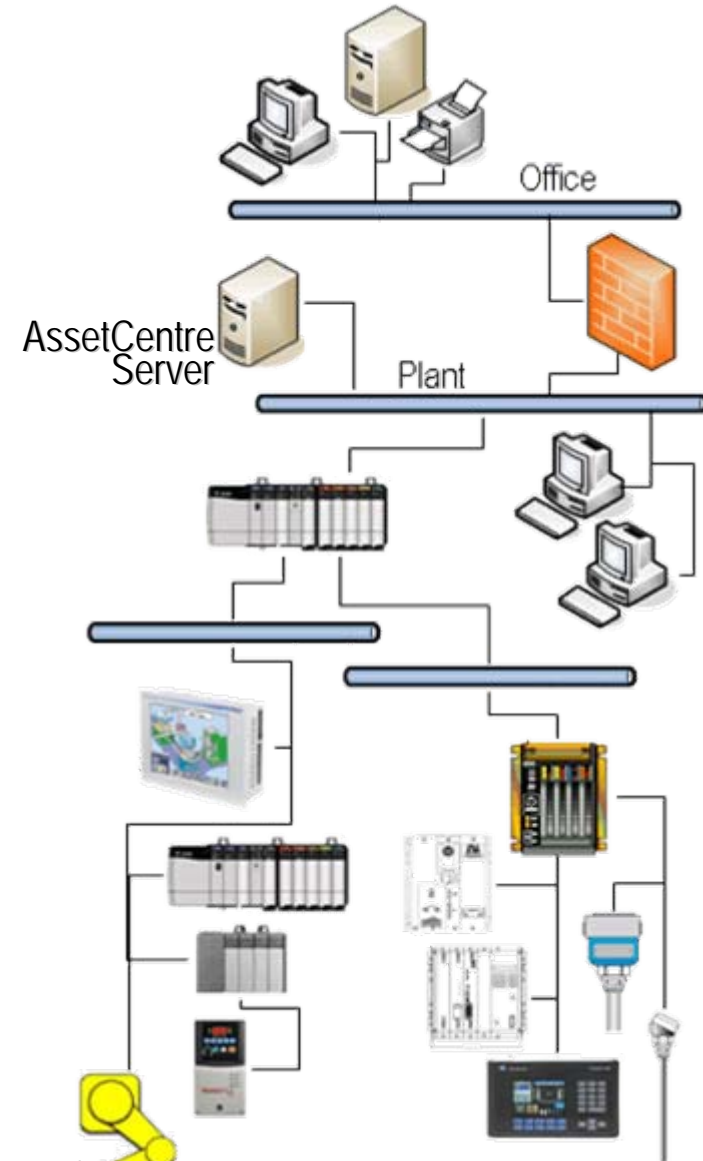
Office

AssetCentre Server

Plant

- Source Control 🗐 v41 △ v42

  – Secure repository utilizes the database

  – Stores any files, configurations, programs, SOPs, CAD, and more

  – Automatic version control insures proper file management

  – Maintains master file

    - File locking prevents multiple users from changing same file

    - Pinning allows previous version to be identified as master version

Office

AssetCentre Server

Plant
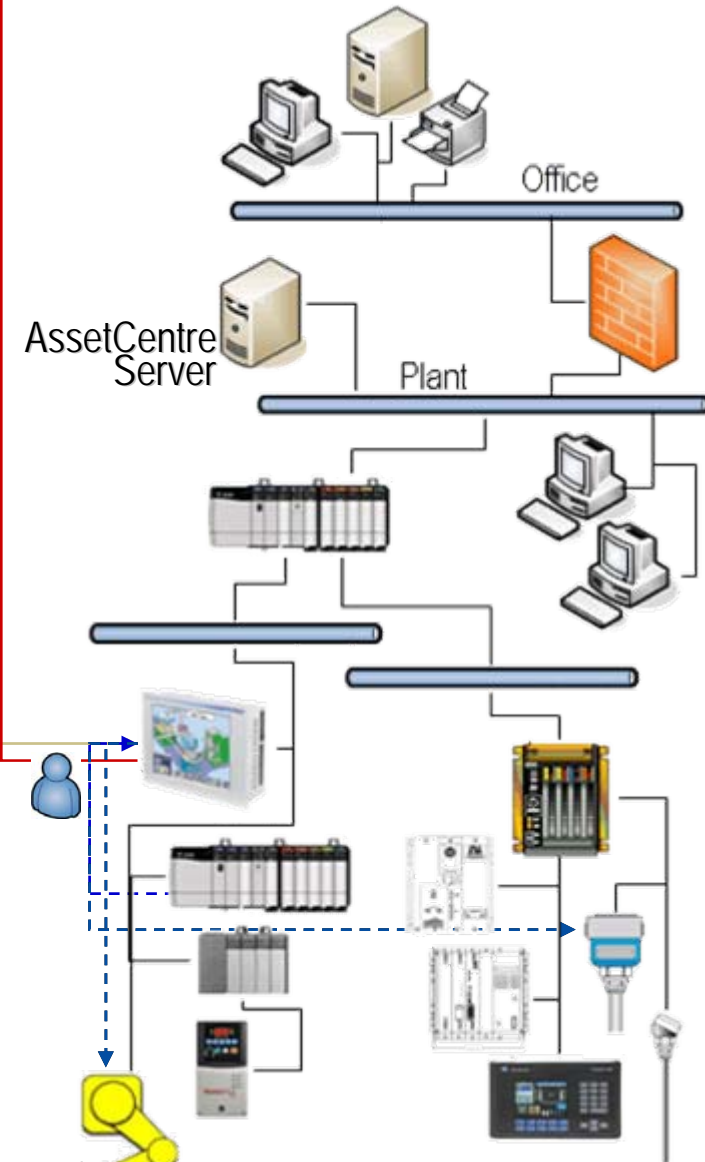
- ## Audits ✓

  - Serves as a central repository for Audit information in real-time from FactoryTalk applications

    - **Captures Audit messages generated by user actions**

  - Stores Audit messages including user, device, computer, time and action taken to create an historical trail

Logged at:	8/26/2005 8:16:26 AM	Location:	RSMACC-DEMO
Occurred at:	8/26/2005 8:16:26 AM	Username:	Adam Nistrator [RSMACC-DEMO\RSMACC_ADMIN]
Source:	RSLogix 5000	Resource:	DEMO_2
Attachments:	0		

Message:
Changed Data Value of Tag [\MainProgram\mycounter.PRE] from
[100]
to
[90]

- Events 🔔

  – Serves as a central repository for Event information in real-time from FactoryTalk applications

    - **Captures Event messages generated by the system**

  – Stores Event messages including time, source and specific message to create an historical trail

Office

AssetCentre Server

Plant

Logged at:	5/1/2006 10:11:35 AM	Location: RSMACC-DEMO-107
Occurred at:	5/1/2006 10:11:35 AM	Severity: Information
Source:	FactoryTalk Service	
Attachments:	0	
Message:		

In service. The FactoryTalk Directory server for scope '$Global' on computer localhost is now active.
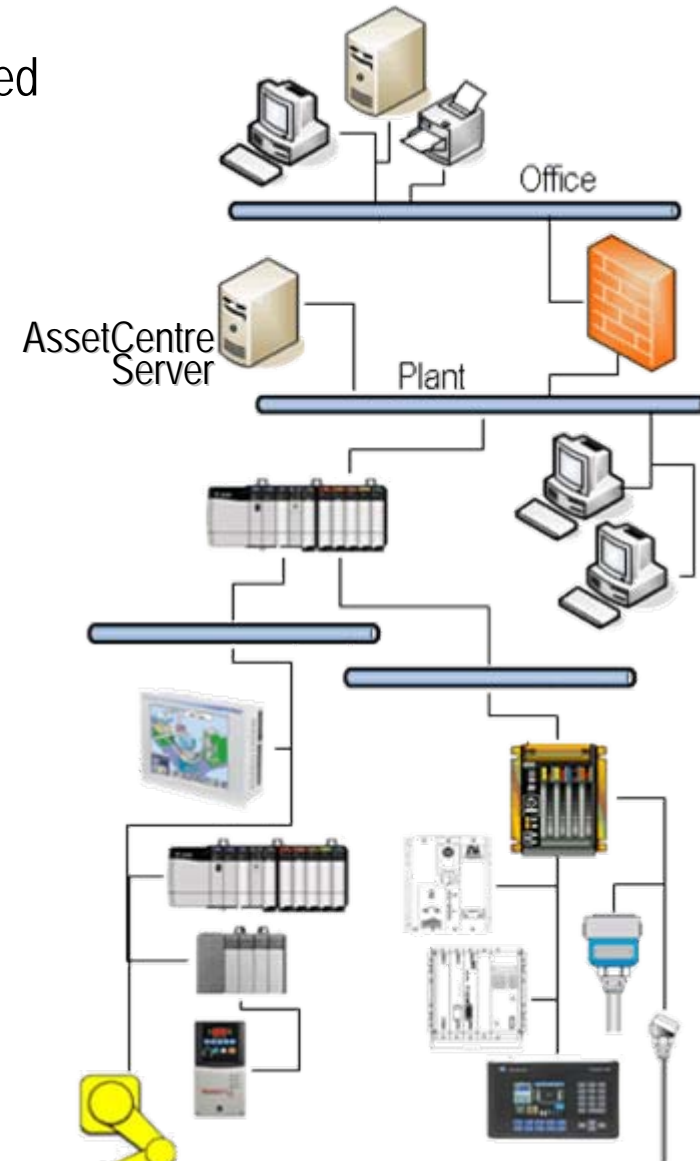
- Security 😊😐☹️

  - **Centralized security system** for Rockwell Automation FactoryTalk systems using FactoryTalk® Security

  - **No domain required**

  - **Minimizes effort to administer users and passwords** on operator interfaces, historians, engineering and maintenance workstations

  - **Standardizes a security model** using groups for relationships with appropriate assets

  - **Enforces security rights even when machines are disconnected from the LAN**
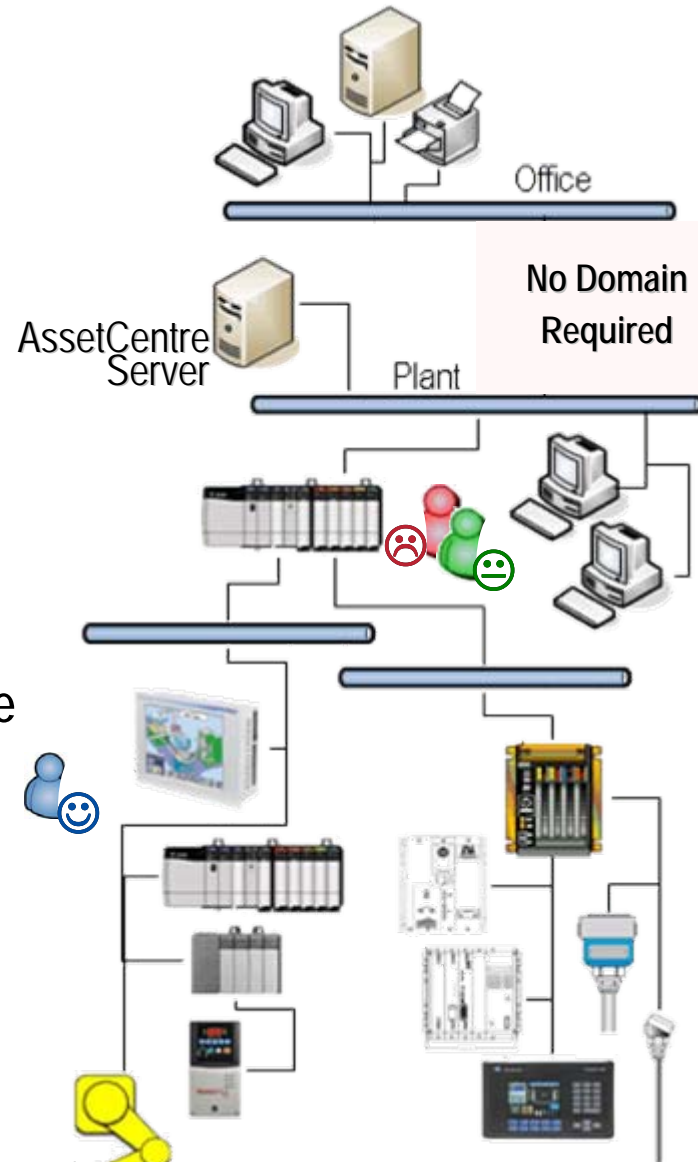
Office

No Domain Required

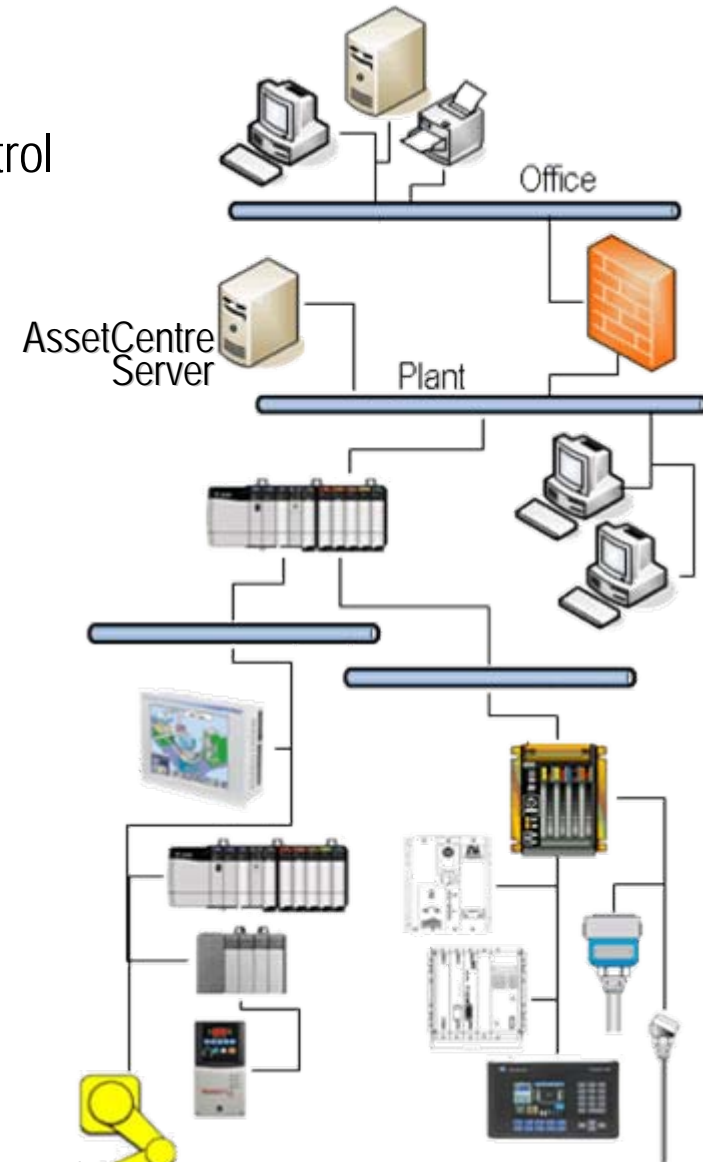AssetCentre Server

Plant

- Notification ✉

  – Proactively notifies designated users when predefined system events occur

    - Upload and compare event statuses

    - Completed, aborted or failed schedules

    - Scheduled reports

    - Rogue candidate detection

    - Source Control file reminder

- Reporting
  - Conduct searches
  - Create reports from Events, Audits and Source Control information
  - Scheduled and on-demand reporting

- ## Software Delivery System ⇄

  - Deploys AssetCentre applications to remote computers

    - AssetCentre Clients and Agents

  - Client connects via web browser to install

Install AssetCentre Client Software

Click the link below to start AssetCentre Client software installation. This will start the Client Preparation utility to install prerequisite software for the client and also install the client loader which will automatically load rest of the files from the server.

Note : When prompted, choose to run/open the software from its current location. Do not save it to local disk and run. It will not function properly if you download it to your local computer and run.

Install AssetCentre Client

- Scheduler ⇈

  - Assigns tasks to FactoryTalk® AssetCentre Agents

    - More Agents can be added to handle larger systems

    - Automatically load-balances agent tasks across all agents

      - If an agent fails to perform, the system adjusts automatically 🚫
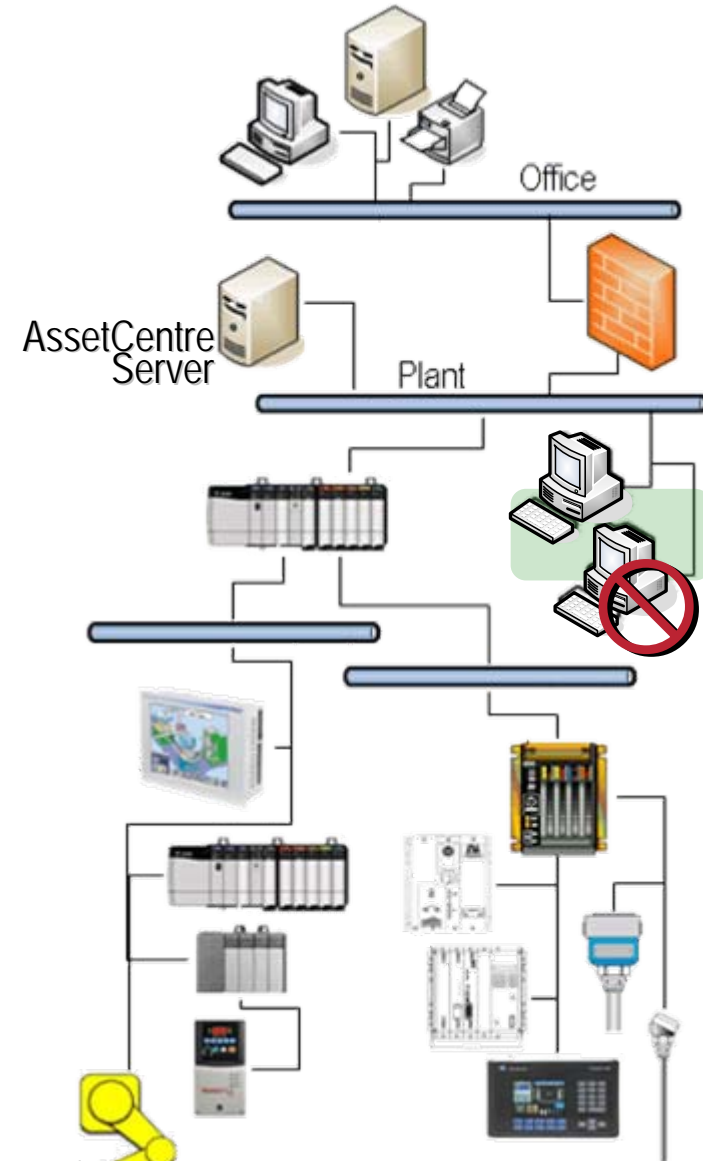
FactoryTalk AssetCentre – Product Preview: Add-On Capabilities

- Disaster Recovery
  - Rockwell Automation
  - Fanuc Robots
  - Motoman Robots
- Instrumentation Configuration
- Calibration Management

- Disaster Recovery
  - Rockwell Automation 🔊
    - Ability to backup files from Rockwell Automation devices directly into Source Control
    - Ability to upload files from Rockwell Automation devices and compare against the latest or selected file version in Source Control
      - Comparison results stored in Event log
      - Comparison results identify specific differences

Office

AssetCentre Server

Plant
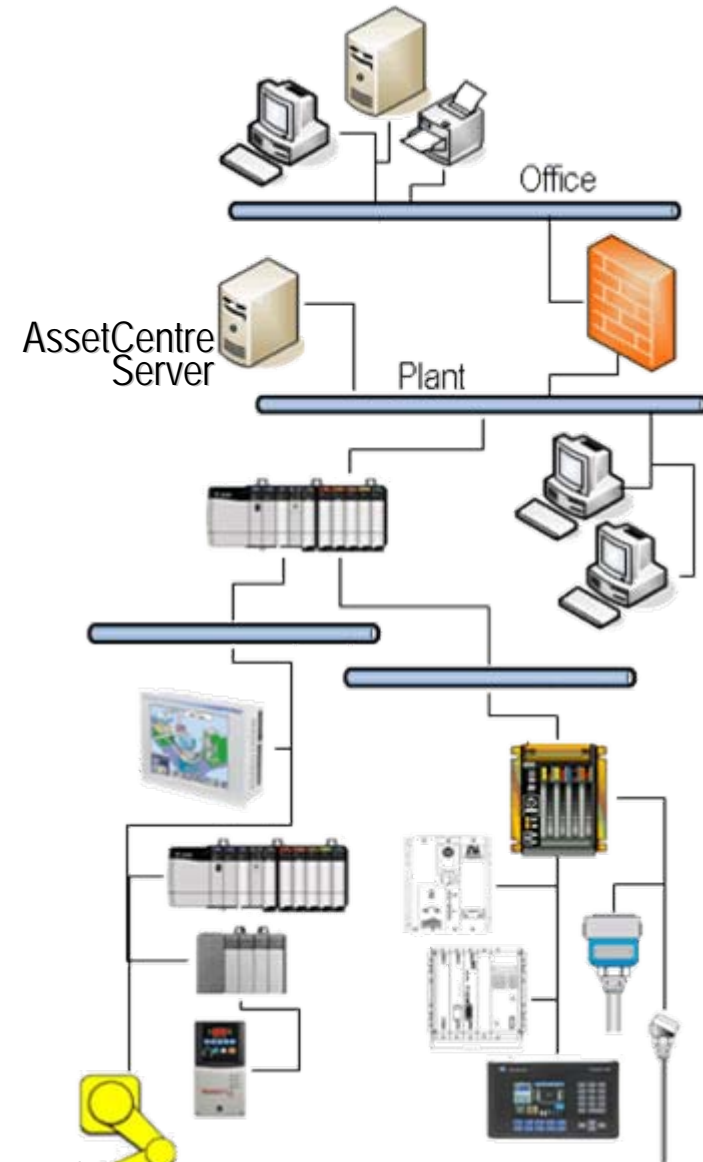
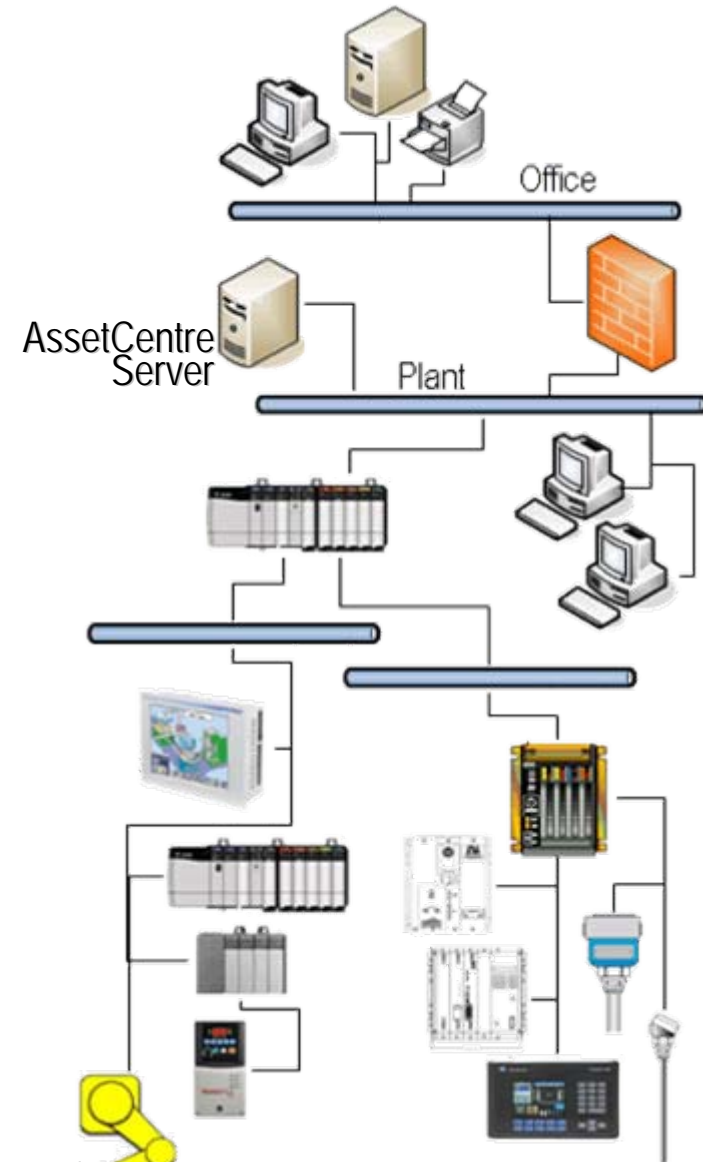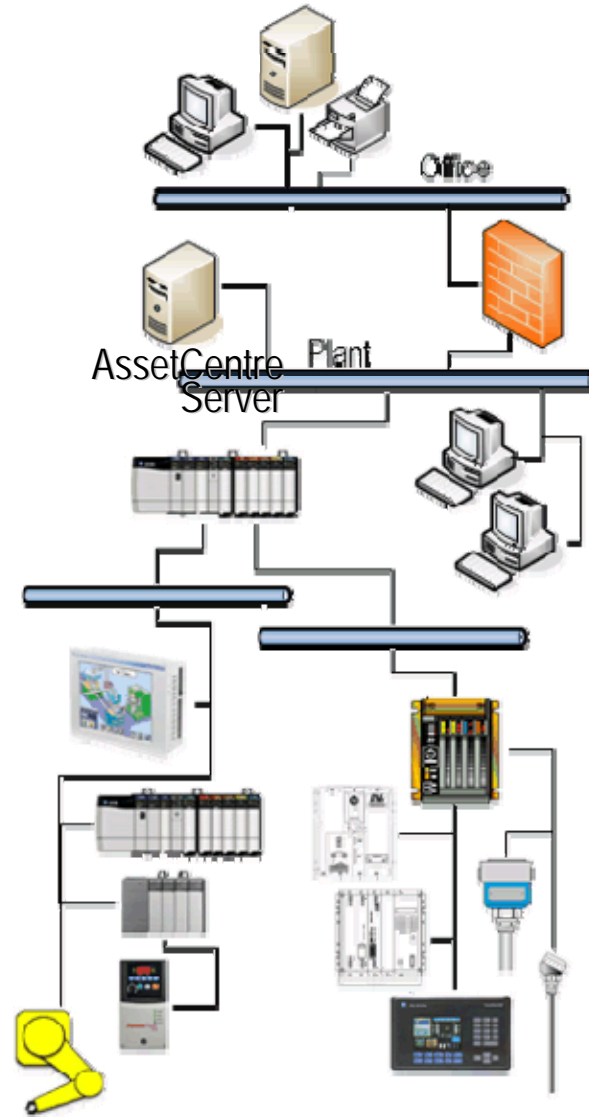# FactoryTalk AssetCentre – Product Preview: Disaster Recovery: Rockwell Automation

- Disaster Recovery
  - Rockwell Automation 🎧
    - ControlLogix, DriveLogix, GuardLogix
      - Ethernet, ControlNet, DH+
    - CompactLogix
      - Ethernet, ControlNet, DH+
    - MicroLogix
      - DH485, EtherNet
    - PLC-5
      - Ethernet, ControlNet, DH+
    - SLC-500
      - Ethernet, DH+, DH485
    - PLC-3
      - DH+
    - PLC-2
      - DH+
    - PanelView Plus*
      - Ethernet, ControlNet, DH+, DH485
    - PanelView Enhanced and Standard*
      - Ethernet, ControlNet, DH+, DH485, DeviceNet, RIO

- Drives supported include:
  - Products that support a DSI interface
    - PowerFlex 4 / PowerFlex 40
  - Products that support a DPI interface
    - PowerFlex 70 / 70EC, PowerFlex 700 / 700VC
    - PowerFlex 700H
    - PowerFlex 700S
    - PowerFlex 7000
    - SMC Flex
  - Products that support a SCANport interface
    - 1305 AC Drives
    - 1336 PLUS / PLUS II AC Drives
    - 1336 IMPACT AC Drives
    - 1336 FORCE AC Drives
    - 1336 REGEN Regen Brakes
    - 1397 DC Drives
    - 1557 Medium Voltage Drives
    - 2364F RGU Regen Bus Supplies
    - SMCs / SMPs
  - Products that support unique communication adapters
    - 1395 DC Drives

- Instrumentation Configuration
  - Core server functions
  - Centralized Database
  - Source Control
  - Audits ✔
  - Events
  - Security
  - Notification
  - Software Delivery System
  - Scheduler

- Ability to work with several vendors devices in one common platform

Office

AssetCentre Server

Plant

FactoryTalk AssetCentre – Product Preview: Instrumentation Configuration

- Instrumentation Configuration ✋
  - FDT (Field Device Tool) Host System
    - Host for Device DTMs from 3rd party vendors
    - Host for Communications DTMs

AssetCentre
Configuration Management

Device DTM
(Device Type Manager)
Vendor "A"

Device DTM
(Device Type Manager)
Vendor "B"

Communications DTM

AssetCentre Server

Office

Plant

- Instrumentation Configuration 🖐
  - FDT (Field Device Tool) Host System
    - Ability to work with several vendors devices in one common platform
    - Integrated with FactoryTalk® AssetCentre platform

Office

AssetCentre Server

Plant

AssetCentre Configuration Management

Device DTM
(Device Type Manager)
Vendor "A"

Communications DTM
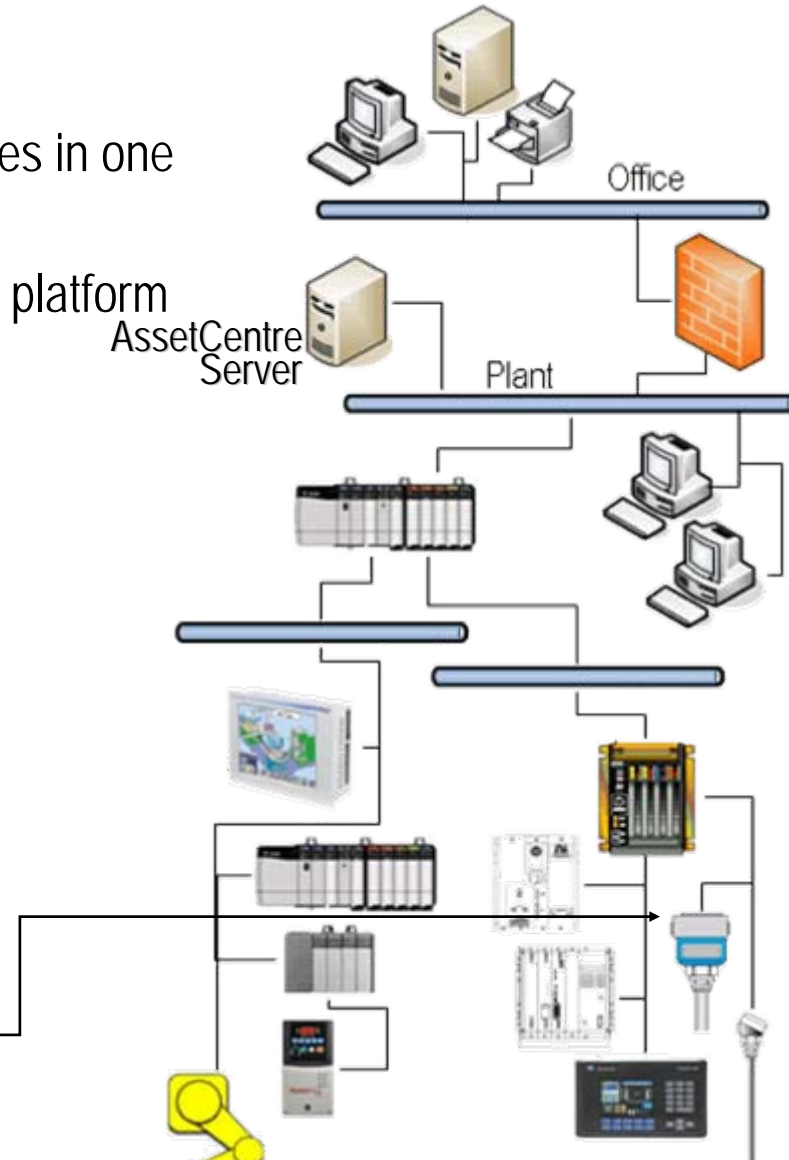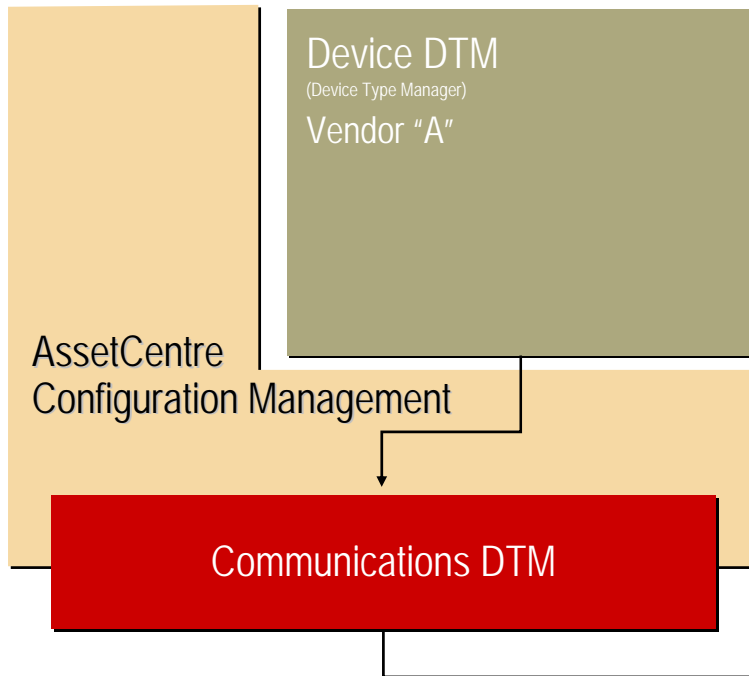
FactoryTalk AssetCentre – Product Preview: Vendors Offering FDT Technology

Shell Global Solutions   **Zhejiang University**

FactoryTalk AssetCentre – Product Preview: Calibration Management

- Calibration Management 〜
  - Efficiently manage calibration data associated with process instruments
    - Scheduling, reporting, and tracking
    - Enable FDA 21 CFR Part 11 compliance
      - Supports E-signatures
      - Paperless record keeping
    - Certificate capable
    - Incorporates traceability and security features
    - Maintains record histories such as last calibrated, "as left, as found"
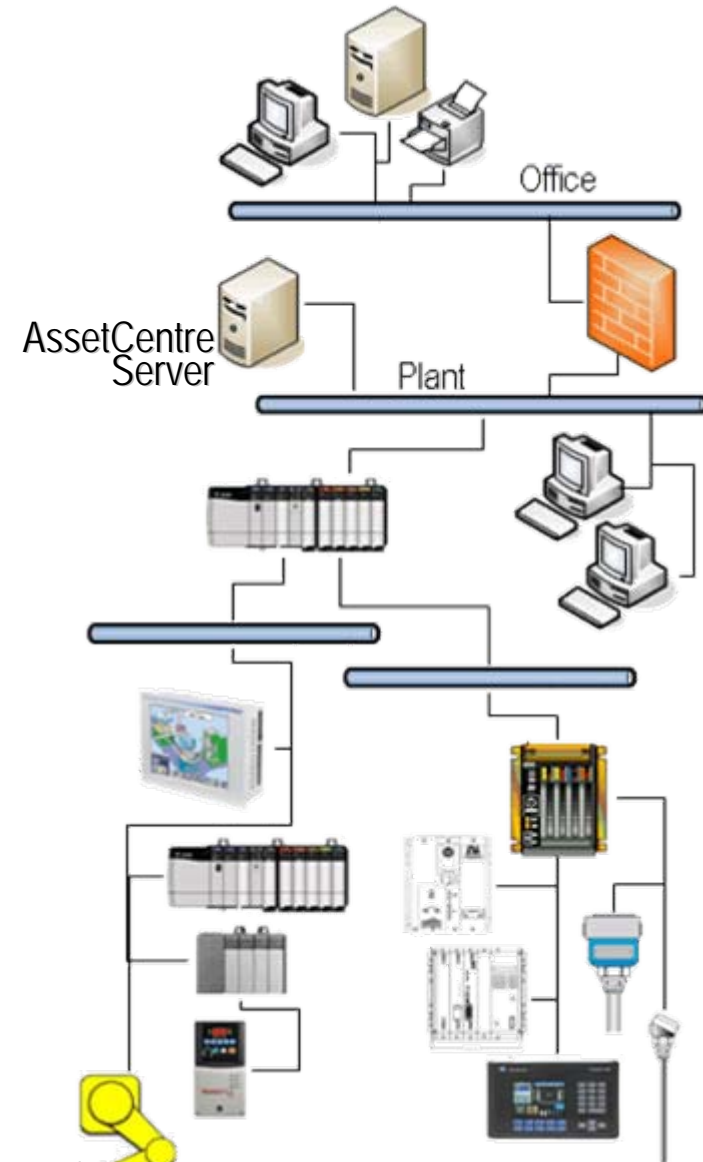
FactoryTalk AssetCentre – Product Preview: Customer Benefits

- Automatic version control on the masters and allows copies so we do not lose code or comments again
  - Stores many types of files including documents, CAD drawings, controller programs, network and instrument configurations, and more
- Automatically uploads and compares files, robots, controllers and drive configurations to the master files
  - When differences are found, it generates a report and notifies the appropriate person in e-mail,
    - It can store it in Source Control as a new version and notify us also
- Operators can only view code – changes are not allowed
- Reports are created automatically now at the end of each shift
- Real-time audit messages from editors including the user, connected to which device, using which editor, on which computer and what exact changes were made
  - This would have recorded the tag the operator changed
- Centrally manage distributed process device configuration through FDT/DTM technology
- Calibration management – ensures quality of process data by managing instrument calibration workflow requirements and history
- Centrally manage process device configurations

Change Management – FactoryTalk AssetCentre

Section 3:
FactoryTalk AssetCentre
Strategic Direction

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Rockwell Automation

FactoryTalk AssetCentre Strategic Direction:

- Reduce Total Cost of Ownership
  - Client-side configuration is automatic
  - Reduced infrastructure requirements
  - Field-extensible solution
- Increased Technical Capabilities
  - Scalable design, allows for easy growth
  - Improved notification
- Broaden market
  - Process oriented functions
  - 3rd party connectors
- Better Asset-Centric Focus
  - Lessen functional differentiation
  - Common client for all capabilities
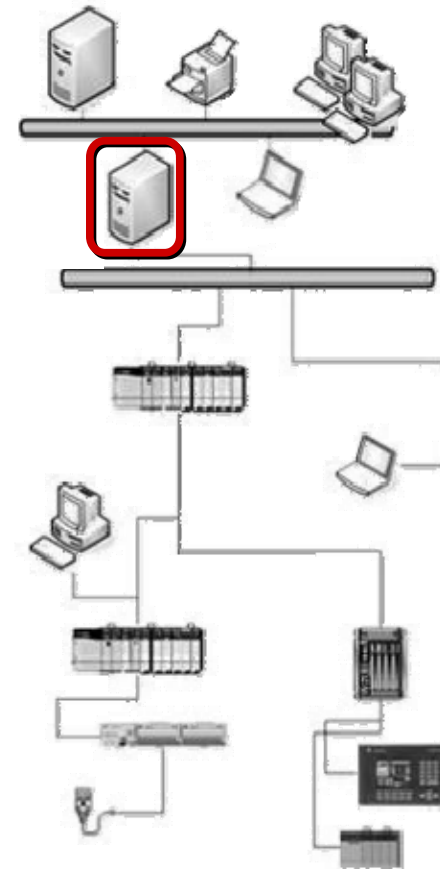
FactoryTalk AssetCentre Strategic Direction: GEPA Acquisition

- May 9th, 2006 – Deal closed
- GEPA mbH
  - Located in Landau, just outside of Karlsruhe, Germany
  - Approximately 16 employees
- VersionWorks
  - Data management for Design and Maintenance of multi-vendor automation systems

Overview

- Client-Server architecture
  - Domain independent
  - Supports 1,500 components (devices)/ server
  - Cluster servers support 4,000 components
- Data management functions
  - Access control
    - Native security system
  - Source Control
  - Versioning
  - On-demand Comparator
  - Workflow/ E-sig
- Backup
  - Automated
  - Walk-about collection

Supported Devices

- PLCs
  - Rockwell Automation
  - Siemens
  - Beckhoff
- HMIs
  - InTouch
  - ProTool
  - WinCC
  - WinCC Flexible
  - Citect SCADA
- Robots
  - Kuka
  - Adept
  - ABB
- Drives
  - Danfoss
  - Indramat DDS
  - Indramat Drivetop
  - SEW Movidrive
- CNC
  - Sinumerik 840D
  - Indramat CLS
- Files
  - Universal ASCII

FactoryTalk AssetCentre Strategic Direction: Product Roadmap

Asset Information Service

GEPA VersionWorks

3rd Party Assets

INTRODUCTION

FactoryTalk® AssetCentre

CA 07

CA 08/09

CA 09

RSMACC EOL

Emonitor

Asset Centric

Process & Predictive Centric

Information Centric
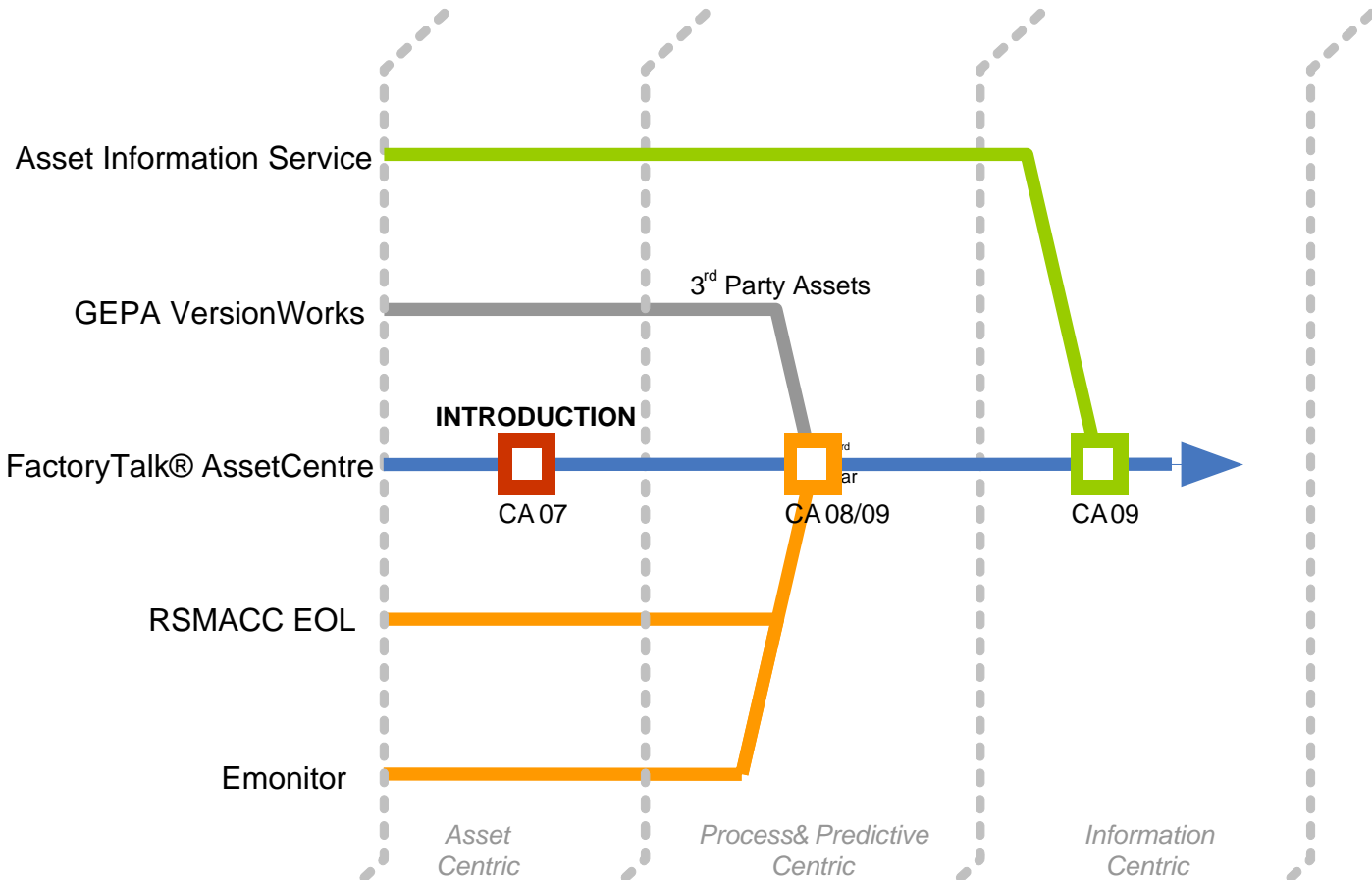
Expand the Rockwell Automation Asset Management offering

FactoryTalk AssetCentre Strategic Direction: Process Centric Roadmap

- Event-triggered schedules
  - Boolean expressions using
    - FactoryTalk® LiveData tags
    - Internal FactoryTalk® AssetCentre events
- Enhanced Notification
  - Inter-lock schedule with actual process using FactoryTalk® LiveData tags
- Support Oracle database
- Additional Disaster Recovery capabilities
  - Process Instruments
  - 3rd party assets
  - Additional Rockwell Automation assets
- Extend calibration management capability

FactoryTalk AssetCentre Strategic Direction: Predictive Centric Roadmap

- Expand predictive offering within FactoryTalk® AssetCentre
  - Condition Based Monitoring
    - XM Configuration toolset adopts FDT/DTM
    - RSMACC EOL
    - Emonitor®
    - Additional predictive capabilities . . .

FactoryTalk AssetCentre Strategic Direction: Release Schedule

- FactoryTalk AssetCentre v2.21 (May 2008)
  - Coordinated Product Release (CPR) 09 Compatible Releases
  - Adds PanelView PLUS to Disaster Recovery for Rockwell Automation capability
  - Adds new Calibration Management Capability
  - Eliminates Software Delivery System (SDS) subsystem
- FactoryTalk AssetCentre v2.31 (July 2008) (CPR9)
  - Adds new Process Device Configuration capability
- FactoryTalk AssetCentre v3.00 (Early Calendar 2009)
  - Disaster Recovery for Siemens S5/S7
  - Other functionality that may be included in this release:
    - Disaster Recovery for ABB robots
    - Disaster Recovery for Remote Computers. This will provide retrieve and compare for files and folders on other computers.

Change Management – FactoryTalk AssetCentre

Section 4:
FactoryTalk AssetCentre
Product Demonstration (Optional)

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Change Management – FactoryTalk AssetCentre

Section 5:
Questions ???

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Rockwell Automation