



Kent Morrisey, Business Development Manager – Harmony Evolution NA

# Harmony Evolution Options For Process Industries Users

# Introduction

## Presenter – Kent Morrisey



- ABB Business Development Manager – DCS Evolution
- Atlanta, GA Area
- 25 Years with ABB in Engineering, Service, and Sales
- Worked with OIU's and COM Modules
- Acquired by ABB twice!
- Lived in Albany, NY

*“We’re going to reinvigorate  
the Elsag Bailey Product Line”*

**Joe Hogan, ABB CEO**

Keynote Address, Automation & Power World,

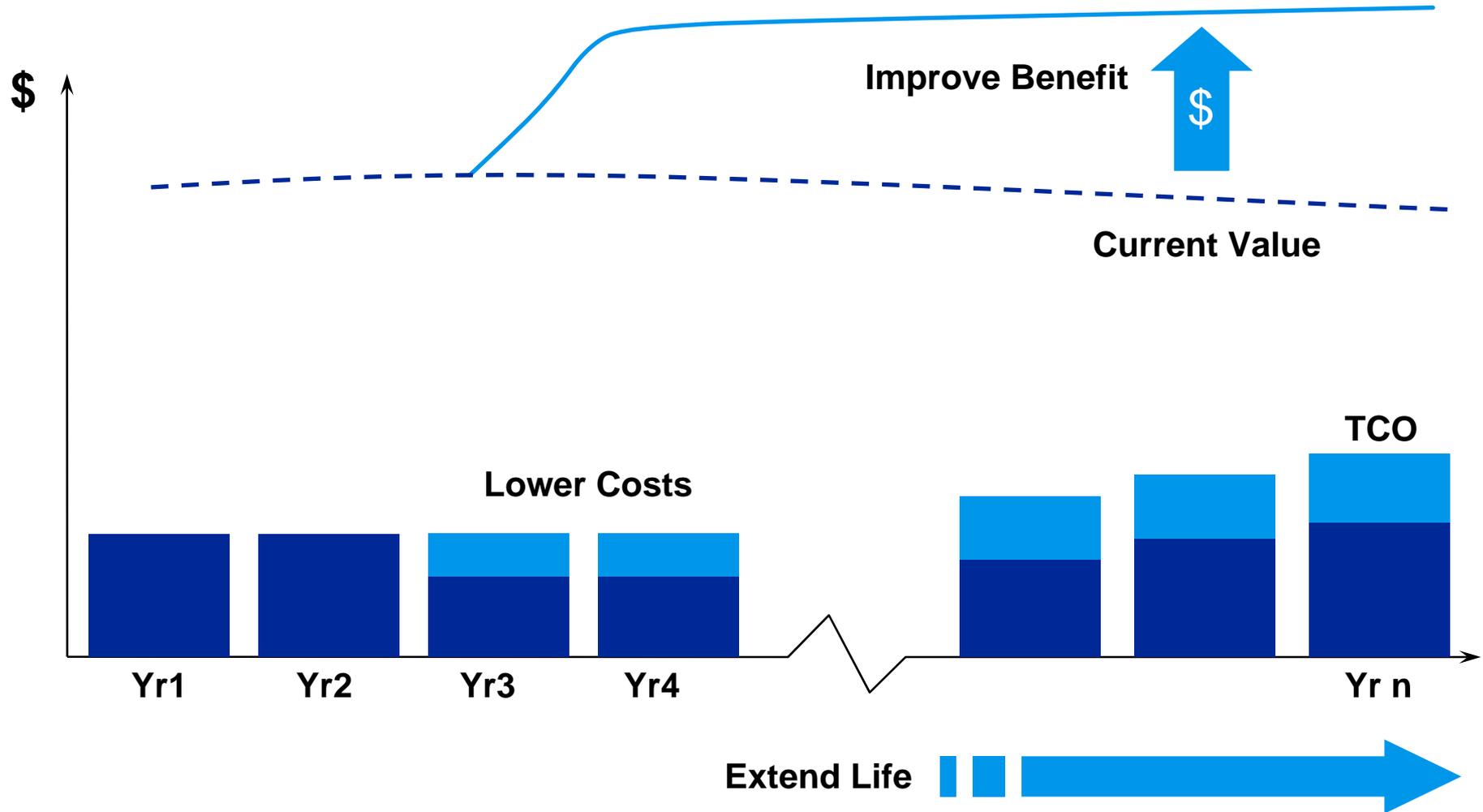
Orlando, FL April 2011

# System Update Agenda

- Lifecycle Update
- Evolution Path
  - I/O
  - Controller, Communications, and Engineering Tools
  - Operator Stations
- Summary

# How to Maintain an aging automation system.....

## Objectives



# Strategy Remains the Same Evolution Without Obsolescence



- No product will be removed from active sale until a compatible, equivalent or superior product is made available
- Investment Protection
  - Intellectual Property
  - Capital Equipment
- Incremental, stepwise execution

# What has Changed? Life Cycle Commitment



- Previous Support commitment Increased from 2025 to **indefinitely**
- Active investment
- New features and functions at all levels of the system
- Introduction of **Symphony Plus** Product Name

# Evolution Planning

## On-going collaborative process



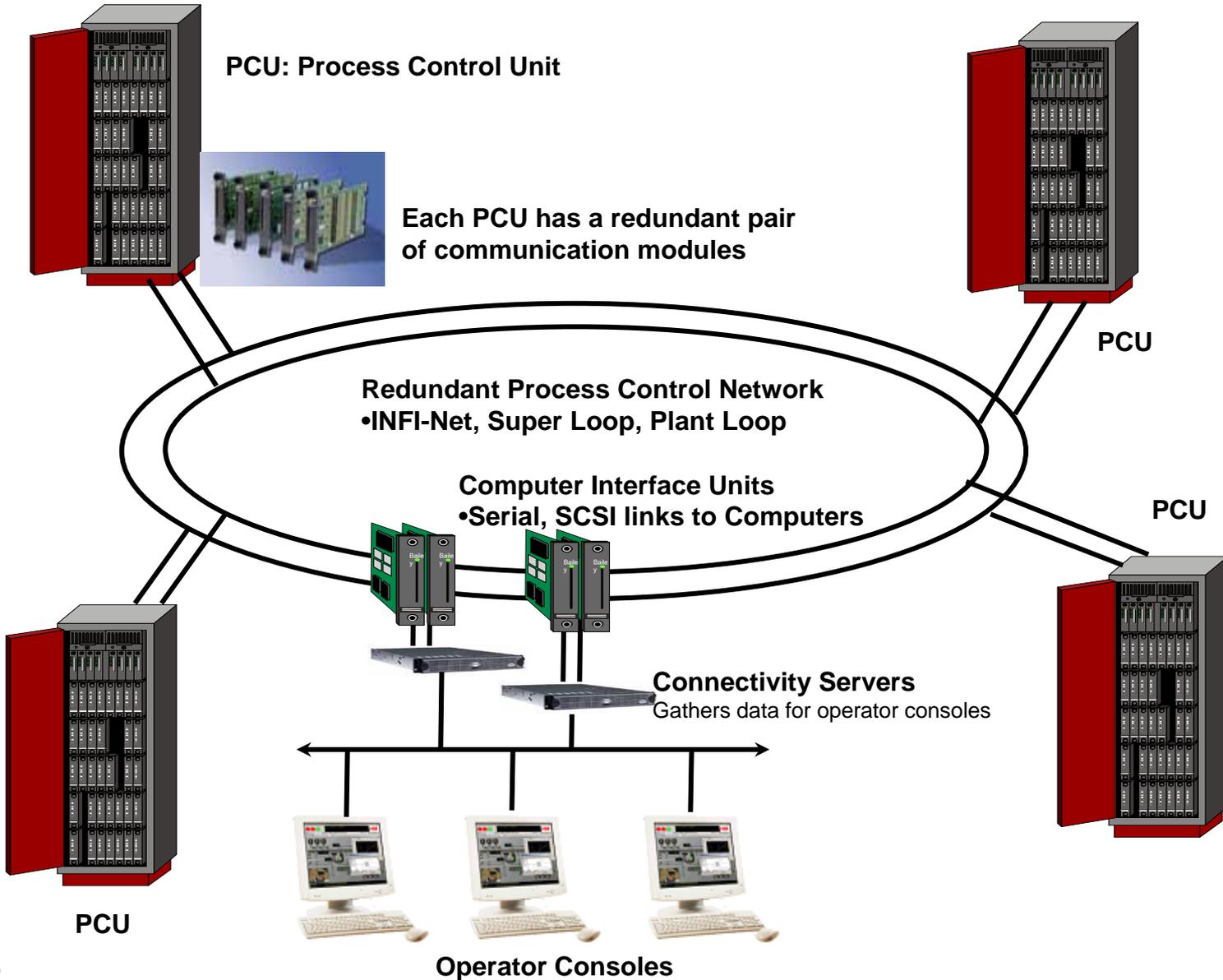
- Identifies business needs, goals, and priorities
- Insight into process/system risk areas
- Results in short and long term roadmap
- Continuous re-evaluation: business needs and solutions
- Recognition of new system functionality and solutions that add value
- Known timing for evolution action (2-5 years); assist budgeting process

ABC, Inc. Harmony System Overview				
Installed system description:		Lifecycle Status	Support Status	Comments
Controller type:	INF1 90 Controllers (MFP)	Limited	OK	MFP02 & 03 controller pairs can be readily replaced with BRC300 or BRC400 pairs.
I/O type:	Rack I/O	Active	OK	While some installed INF190 Rack I/O modules are in Limited phase, Active-phase direct-replacement modules are available.
	Network 90 I/O	Limited	OK	Active-phase direct-replacement modules are available.
System Communications:	INFINET	Active	OK	Active-phase replacements are available for all installed comm. equipment - slight difference in architecture (i.e.: MPI no longer required).
Cabinet Power Supplies:	INF1 90 Power System (MPS1)	Limited	Evolution Recommended	Most MPS1 components are no longer manufactured. Upgrades to MPSIII are strongly recommended.
Engineering Tools:	WinTools	Limited	Evolution Recommended	Support for WinTools software effectively ended in 2006. Users are strongly encouraged to move all WinTools-based configurations to Composer.
Operator Workstations:	OIS 20 Series	Limited	Evolution Recommended	OIS 20 was removed from sale in 1999. Recommend evolution to 800xA Process Portal.
	LAN 90 PCView	Classic	Evolution Recommended	Software will be in classic phase through 2010. Recommend maintaining software at latest revision, stocking sufficient hardware spares and planning for evolution to 800xA Process Portal.

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# Basic Overview of Bailey DCS



# Basic Overview of Bailey DCS

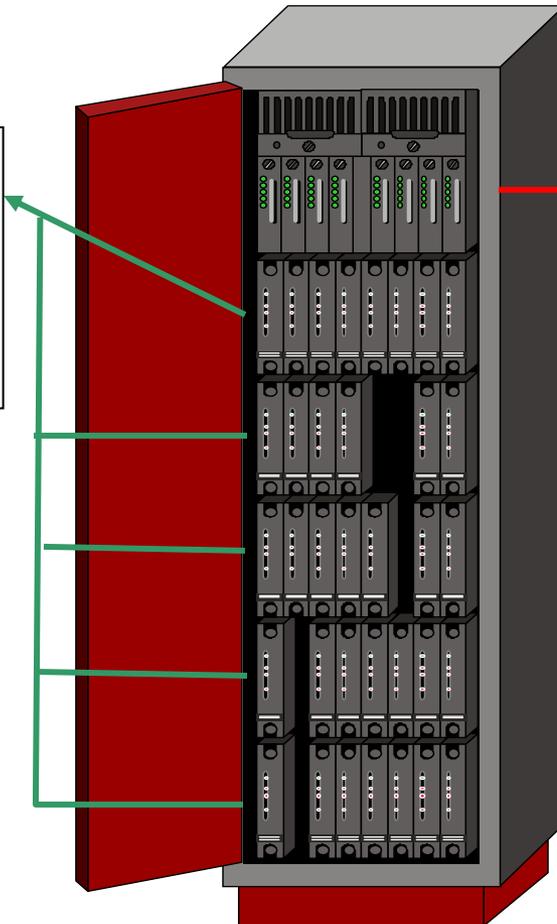
## PCU: Process Control Unit

### Module Mounting Units

Called "card cages" or racks  
Houses all DCS Modules

- Controllers
- Communications
- I/O

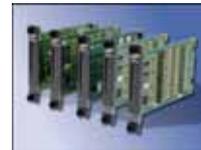
Max 8 per PCU



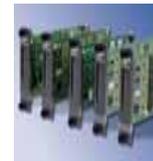
### Cabinet Power Supply



Controllers  
Execute control logic



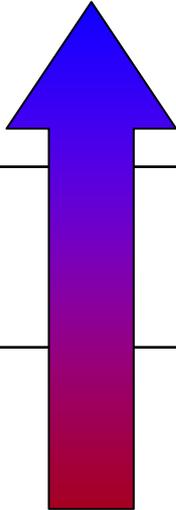
Communication Modules  
Pass information between devices  
i.e. PCUs, engineering tools, PI, etc



I/O  
Interact with real world devices

# Product Lifecycle Status Power Supplies

Active
Classic
Limited
Obsolete

Class: Power	Product Family	Remarks
	MPS III	MPSIII is in the “active” phase of its product lifecycle.
	MPS II	Transitioned to “limited” in January 2007. Recommend evolution to MPSIII.
	MPS I	Recommend evolution to MPSIII.
	Network 90 Power System	Based on vendor component availability, some Network 90 power components are obsolete. Recommend evolution to MPSIII.

# Power Supplies

## Harmony Power Supply - MPSIII

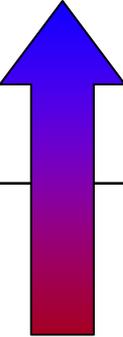


- Multi-Voltage DC Power System
  - System and Field Power
- 2N and N+1 Configuration
- System Monitoring
- “Slide-in” Design
- Evolution for Network 90, MPS I (PMU), and MPS II Supplies



# Product Lifecycle Status I/O Subsystem

Active
Classic
Limited
Obsolete

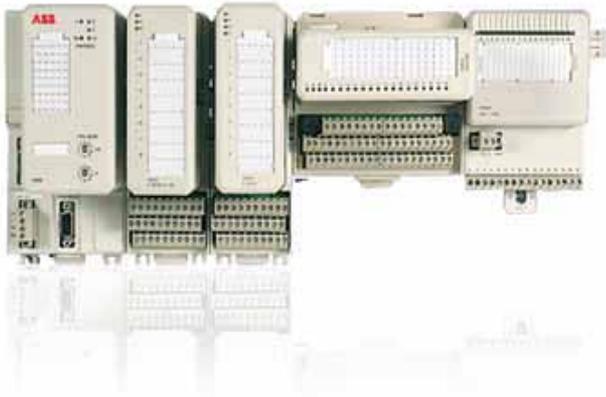
Class: I/O	Product Family	Remarks
	S800	S800 I/O is configured using Composer and standard function blockware.
	Harmony Rack (IMxxxxx)	Represents the latest version of Harmony Rack I/O and includes: IMASI23, IMASO11, IMCIS22, IMDSI13, IMDSI14, IMDSI22, IMDSM04, IMDSO14, IMDSO15, IMFEC12, IMHSS03, IMQRS22, IMSED01, & IMSET01.
	Harmony Block	Transitioned to Limited in January 2011. Recommend evolution to S800 I/O.  Exception: P-HB-IOR & P-HB-RMU, & P-HA-REP-RFO are "active."
	Network 90 I/O (Nxxxxx)	Recommend evolution to the latest members of the Harmony Rack I/O family (IMxxxxx).

# Symphony Harmony Comprehensive I/O system

Rack I/O



S800 I/O



- Modular to meet varying I/O requirements
  - Local and remote I/O options
  - Rack and DIN I/O options
- I/O Types
  - Analog Input
  - Analog Output
  - Pulse Input
  - Digital Input
  - Digital Output
  - Turbine Control
- SOE timestamp resolution of +/- 1 msec across the entire Harmony system

# Rack I/O & S800 I/O

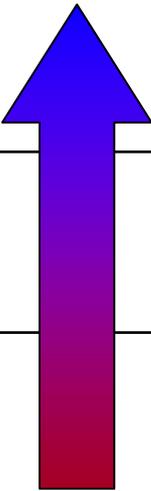
- Rack Form Factor
  - Supports most existing Net 90 and INFI 90 Modules
  - Designed for centrally located I/O
  - Current version available for most I/O types
  - Non Redundant
  - Cabinet Power system required
  - Flexible terminations
- DIN Rail Form Factor
  - Functions with BRC controllers and IOR Gateway
  - Ideal for Remote I/O Applications
  - Flexibility to Expand I/O Capacity
  - Redundant I/O Capability
  - 24VDC Power
  - Intrinsic safety applications
  - Smaller footprint
  - Flexible mounting and terminations
  - Improved Ability to “Force” I/O

# System Update Agenda

- Lifecycle Update
- Evolution Path
  - I/O
  - Controller, Communications, and Engineering Tools
  - Operator Stations
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# Product Lifecycle Status Controllers

Active
Classic
Limited
Obsolete

Class: Controller	Product Family	Remarks
	BRC	Current active family components include BRC300 & BRC400/410.
	HAC	Transitioned to "Limited" in January 2005. Recommend evolution to BRC 400
	MFP	Recommend evolution to BRC300 or BRC400.
	MFC, AMM, LMM & COM	Recommend evolution to BRC300 or BRC400.

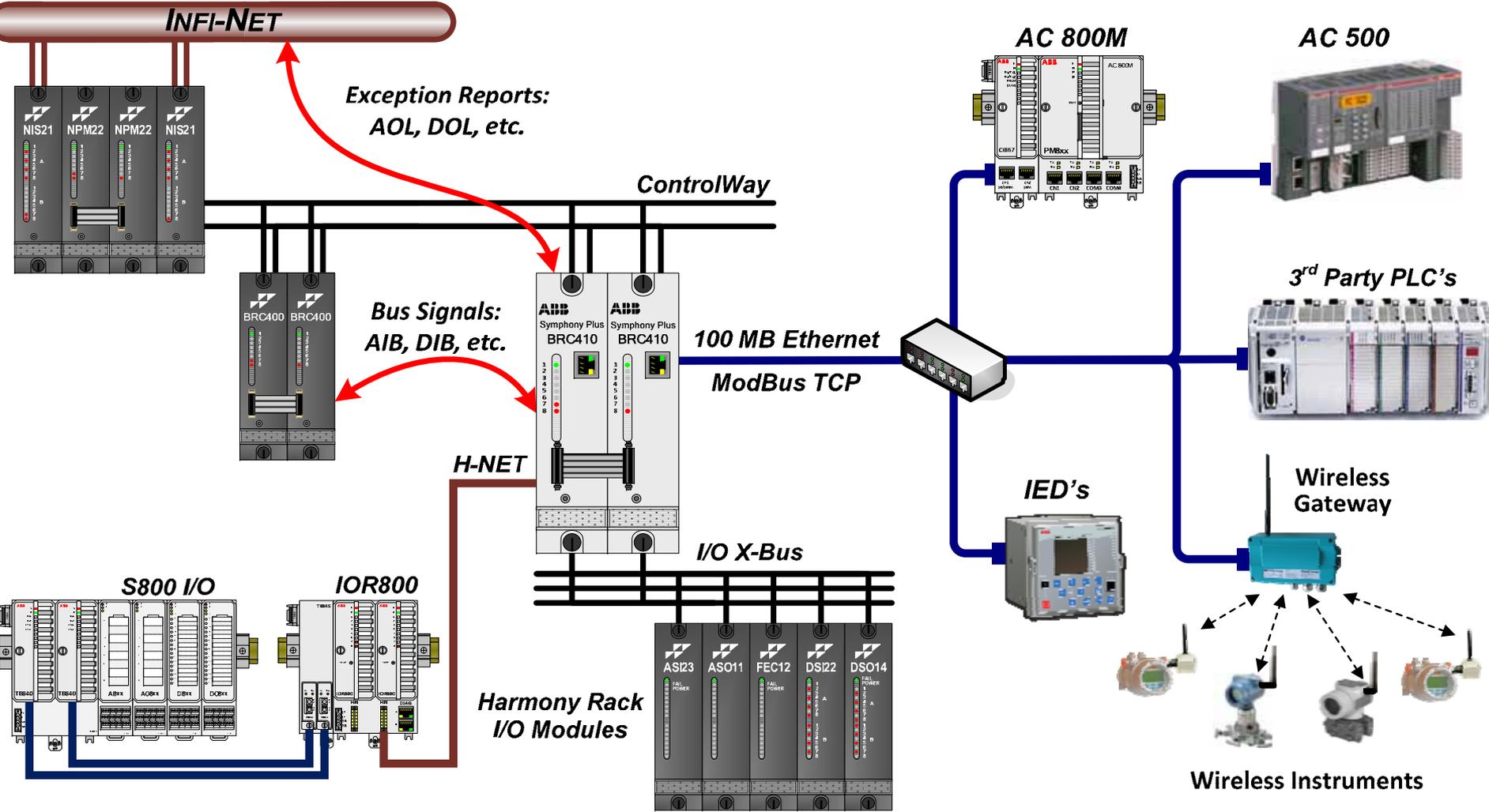
# Harmony Bridge Controllers

## BRC-300, BRC-400 & HPG-800/BRC-410



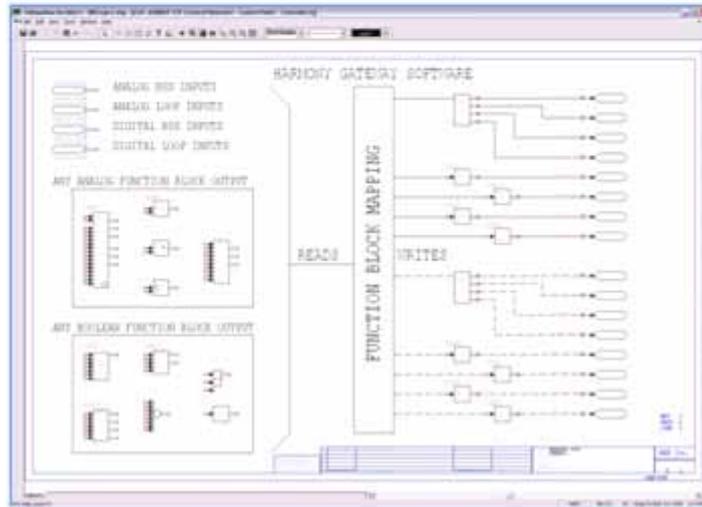
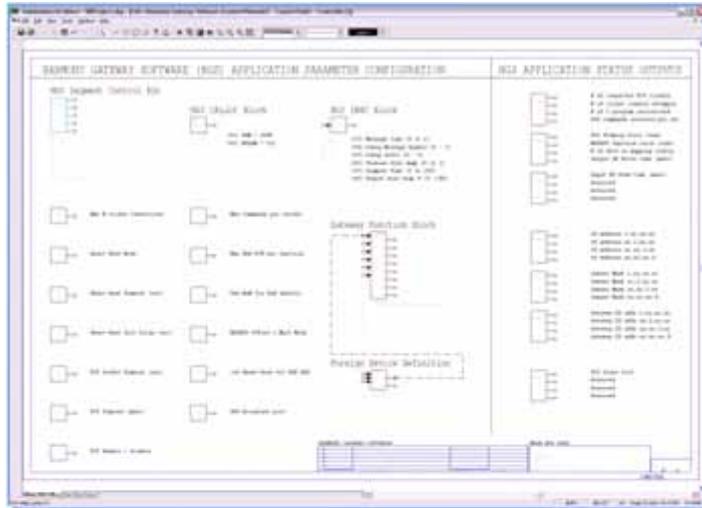
- Rack Form Factor
- Motorola 32-bit Coldfire microprocessor technology
- Forward Compatibility – BRC's retain controller (MFC, MFP, etc) hardware and software architecture
- Support for all Harmony I/O sub-systems
- Downloadable Firmware
- More than 10x more powerful than MFP's
- Modulebus Support
- BRC 400/410 specific enhancements:
  - Additional Memory (2MB NVRAM)
  - Support for 30,000 function blocks
  - Flexible on-line configuration capability
  - MODBUS TCP Ethernet Communication (BRC410 Only)

# Harmony Controllers Device Integration



# Function Block Configuration

## - FB' associated with ModBus TCP Interface

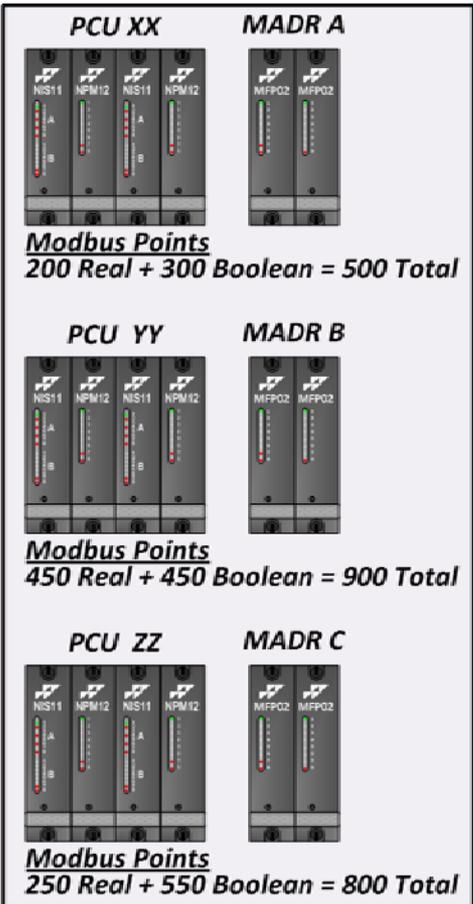


- Configured like any BRC300 or BRC400
- Supports On-Line Configuration!
- ModBus Interface can:
  - Read any INFI 90 Function Block
  - Write to any of the following:
    - AOL – FC 30
    - DOL – FC 45
    - BASROQ – FC 137
    - BASBOQ – FC 138
- INFI 90 Function Block to ModBus point mapping configured using Harmony Gateway Software (HGS)

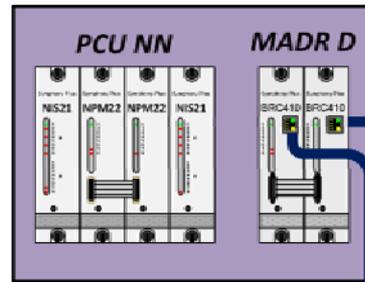
# Symphony Plus Controllers

## Use Case: Merge multiple Modbus RTU Interfaces

### Modbus RTU interfaces



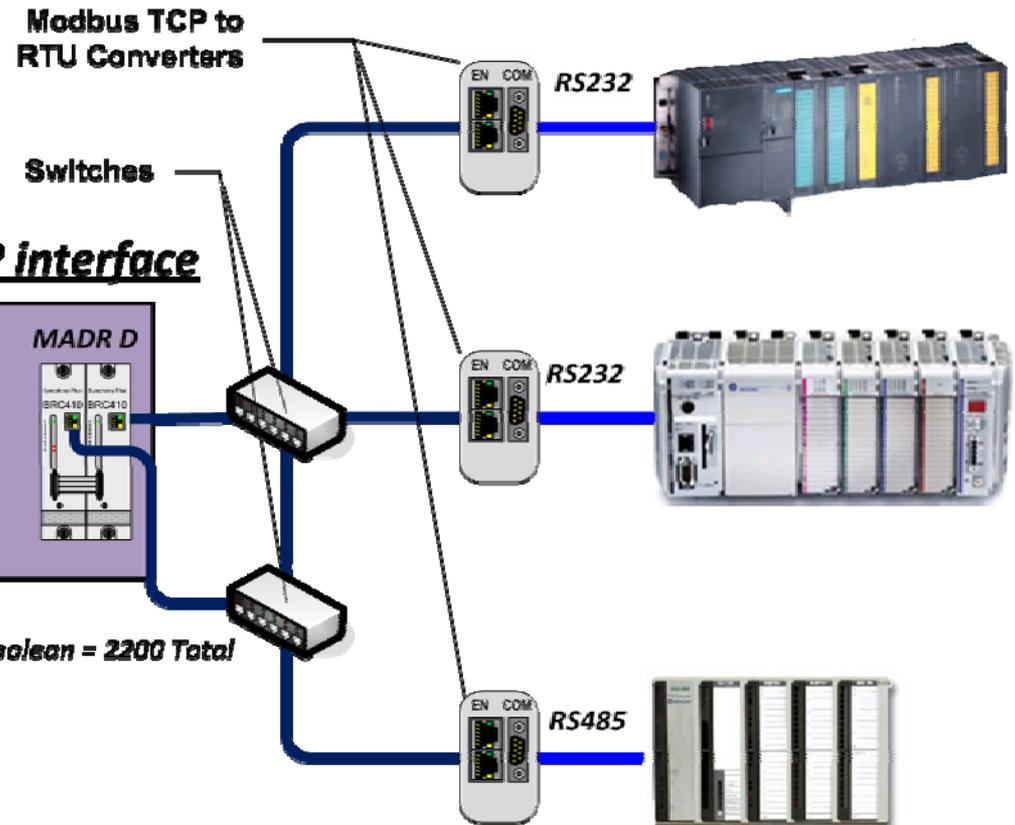
### Modbus TCP interface



**Modbus Points**  
900 Real + 1300 Boolean = 2200 Total

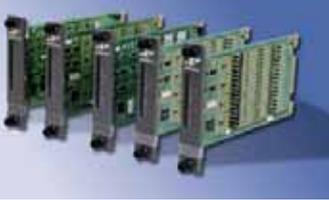
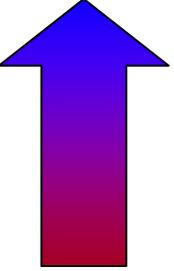
Modbus TCP to  
RTU Converters

Switches



# Product Lifecycle Status Communications

Active
Classic
Limited
Obsolete

Class:	Product Family	Remarks
<b>Communications</b> 	<b>INFINET (INxxxxx)</b>	Current active family components include: INNPM22, INNIS21, INICI03-SCIL, INICT13A, INIIL02-L, INIIR01-232L, INIIT13, INIIT12, INSEM11, INSOE01, & INTKM01.
	<b>Plant Loop (Nxxxxx)</b>	Recommend evolution of system network to INFINET communications.  If Plant Loop / Super Loop installed, PCU communications (controller to controller communications) should be inspected as well. Where Module Bus is used, Controlway communication evolution is recommended.

# Symphony Plus Communications

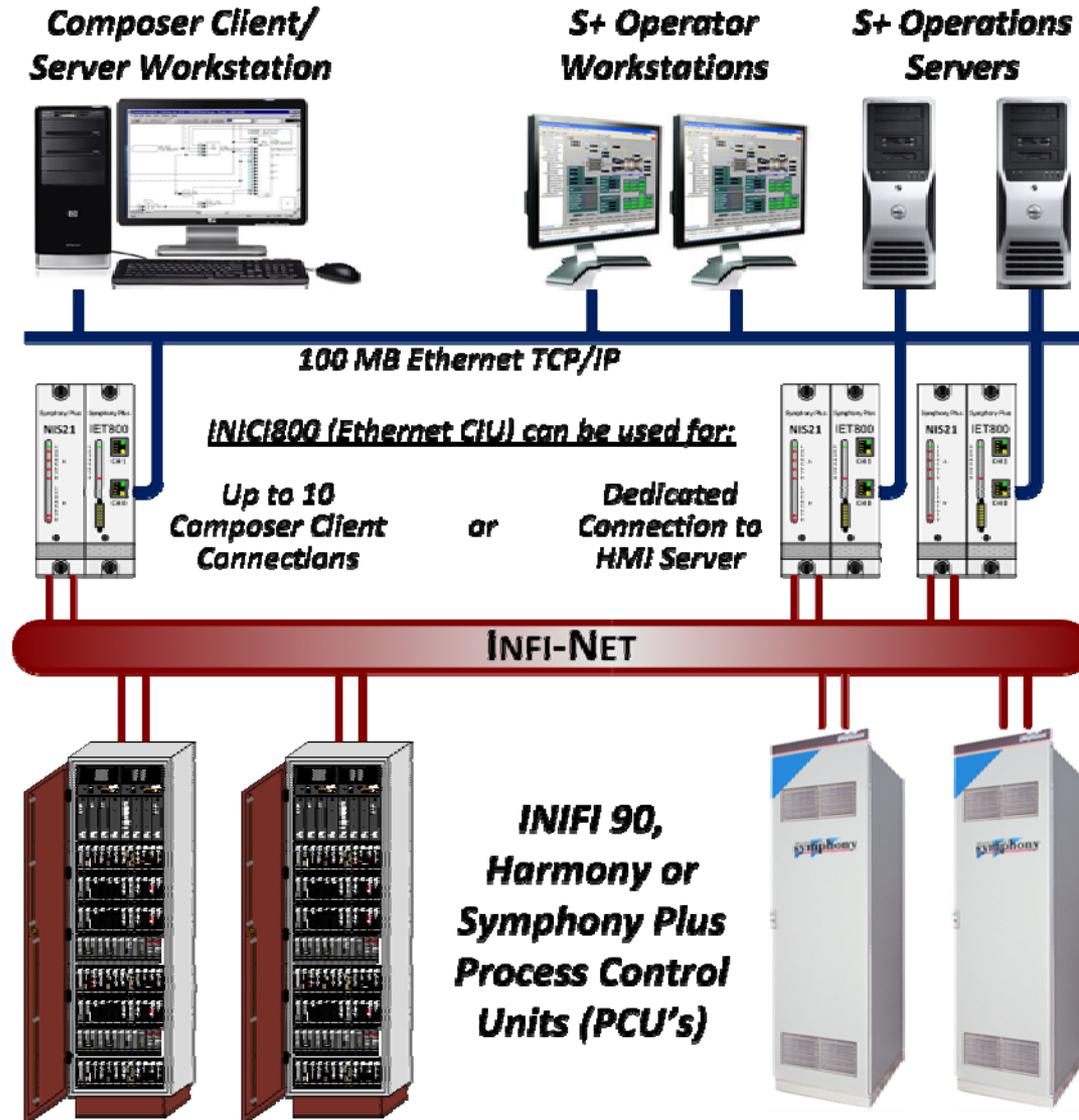
IET800:  
INFI-Net to  
Ethernet  
Transfer



- Ethernet interface to INFI-Net used by:
  - Composer 5.1
  - Harmony OPC
  - Harmony Connect (800xA Process Portal v. 5.1A)
  - S+ Operations
- Security Modes
  - **Basic** (Twofish) [Default]
    - 128 –bit block cipher
  - **Advanced** (TLS1/SSL3)
    - 256-bit encryption
- Supports up to 30,000 tags (Ethernet)

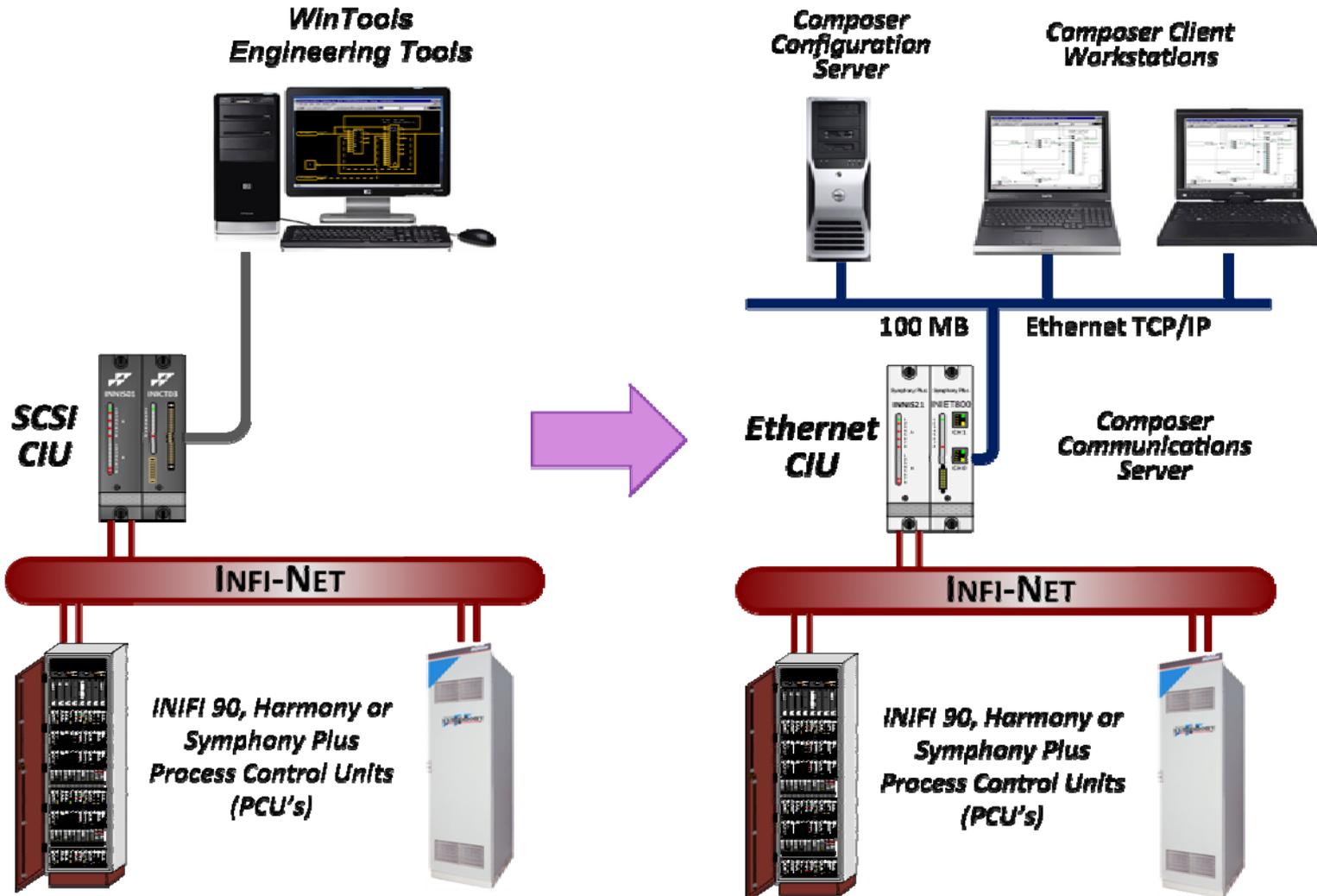
# Symphony Plus – Control and I/O

## S+ Harmony Communications: ICI800 / IET800



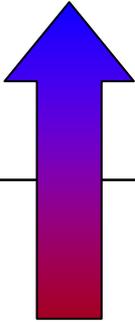
# Symphony Plus – Control and I/O

## Upgrading Serial or SCSI CIUs to Ethernet

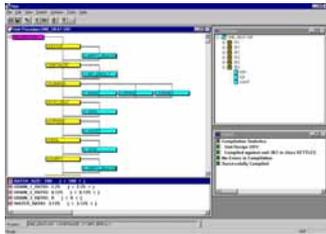
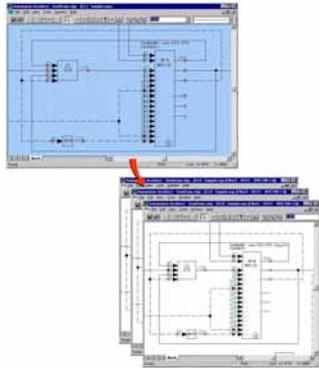


# Product Lifecycle Status Engineering Tools

Active
Classic
Limited
Obsolete

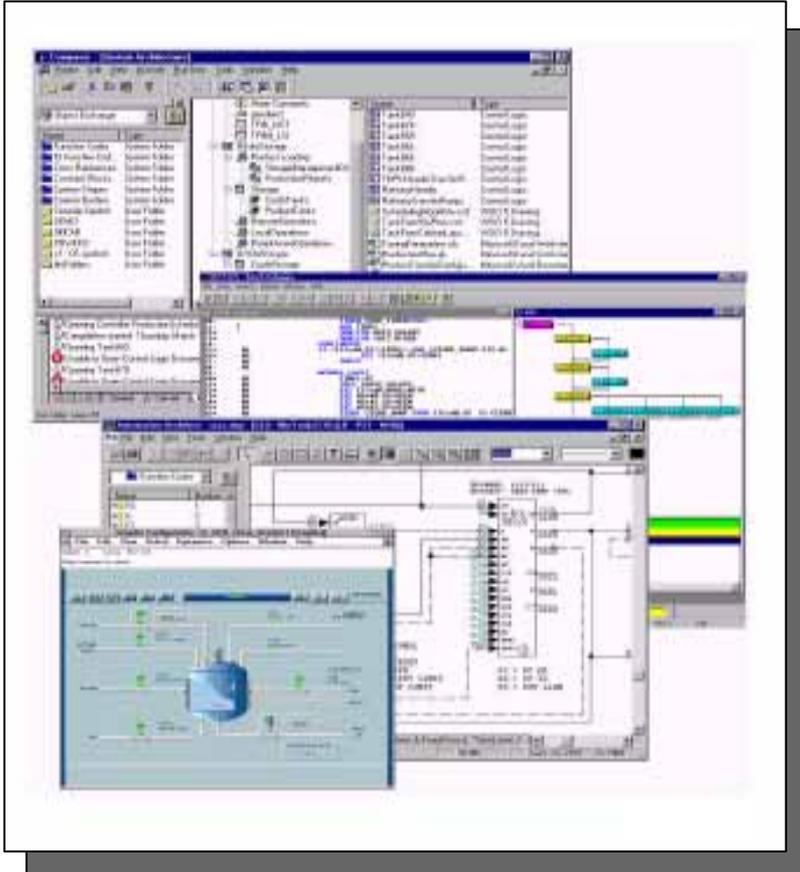
Class: Tools	Product Family	Remarks
	Composer	The active software version is Composer Version 5.1
	WinTools	Moved to “obsolete” in January 2009. Contains components not supported by newer PCs. Recommend evolution to Composer.
	DOSTools	“Obsolete” since December 31, 1999. Recommend evolution to Composer.

# Composer Engineering Tools Highlights



- “View and Monitor” mode
  - Browser based configuration viewing with live data
  - Available to Process Portal, CVMS clients, CNT or any network PC Browser
- Online Maintenance Tools
  - Provides users with the ability to troubleshoot, perform diagnostics, and maintain the operating Harmony system
- Stand-alone Configuration Viewer
  - Allows viewing and tuning of CFG files without requiring Composer software or projects
- Power Tools
  - Suite of applications that reduce engineering and configuration effort
    - Control Logic Editor
    - Revision Manager
    - Automatic Drawing Generator
    - Advanced Trend (runtime monitoring and tuning)
- Batch Data Manager
  - Family of engineering tools used to create, edit, manage, download, and debug batch, sequential, and user defined function code configurations

# Harmony System Update Composer Engineering Tools Software Version 5.1



- New Microsoft Operating Systems
  - Windows 7
  - 2008 Server (R1)
- ***IET-800 Ethernet CIU Support***
  - 10 Composer Clients
- Support for new FC's AOLDB & DOLDB
- Support for Symphony Plus

# System Update Agenda

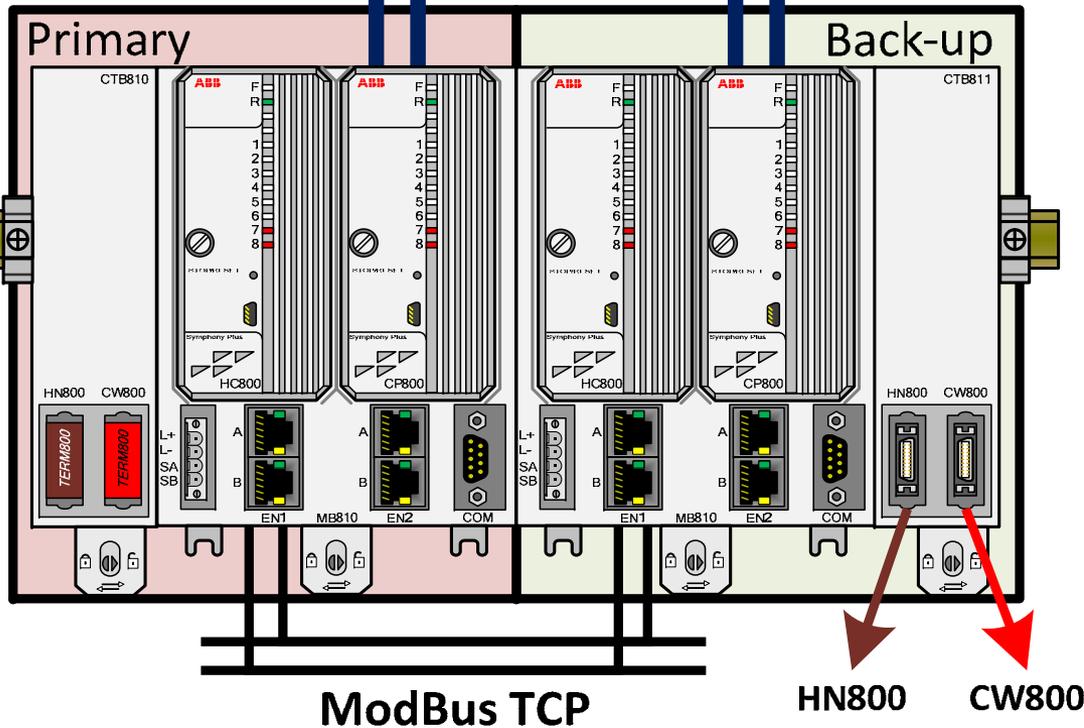
- Lifecycle Update
- Evolution Path
  - I/O
  - Controller, Communications, and Engineering Tools
    - Future Plans
  - Operator Stations
- Summary

# Symphony Plus Future Planned Release

## Harmony Control & Communications on a DIN-Rail

**S+NET**

**100MB Ethernet TCP/IP**



- **S+NET: Control Network**

- Protocol = “*INFI-NET over Ethernet*”
- Connects consoles (S+ Operations) and tools (S+ Engineering) to HC800/CP800 Controllers

- **HC800: Harmony Control Processor**

- Executes INFI 90 Function Codes
- BRC / HPG Functionality

- **CP800: Communications Processor**

- Combination of NIS / NPM modules
- Control Network Interface

- **CTB810/811: Comm. Term. Board**

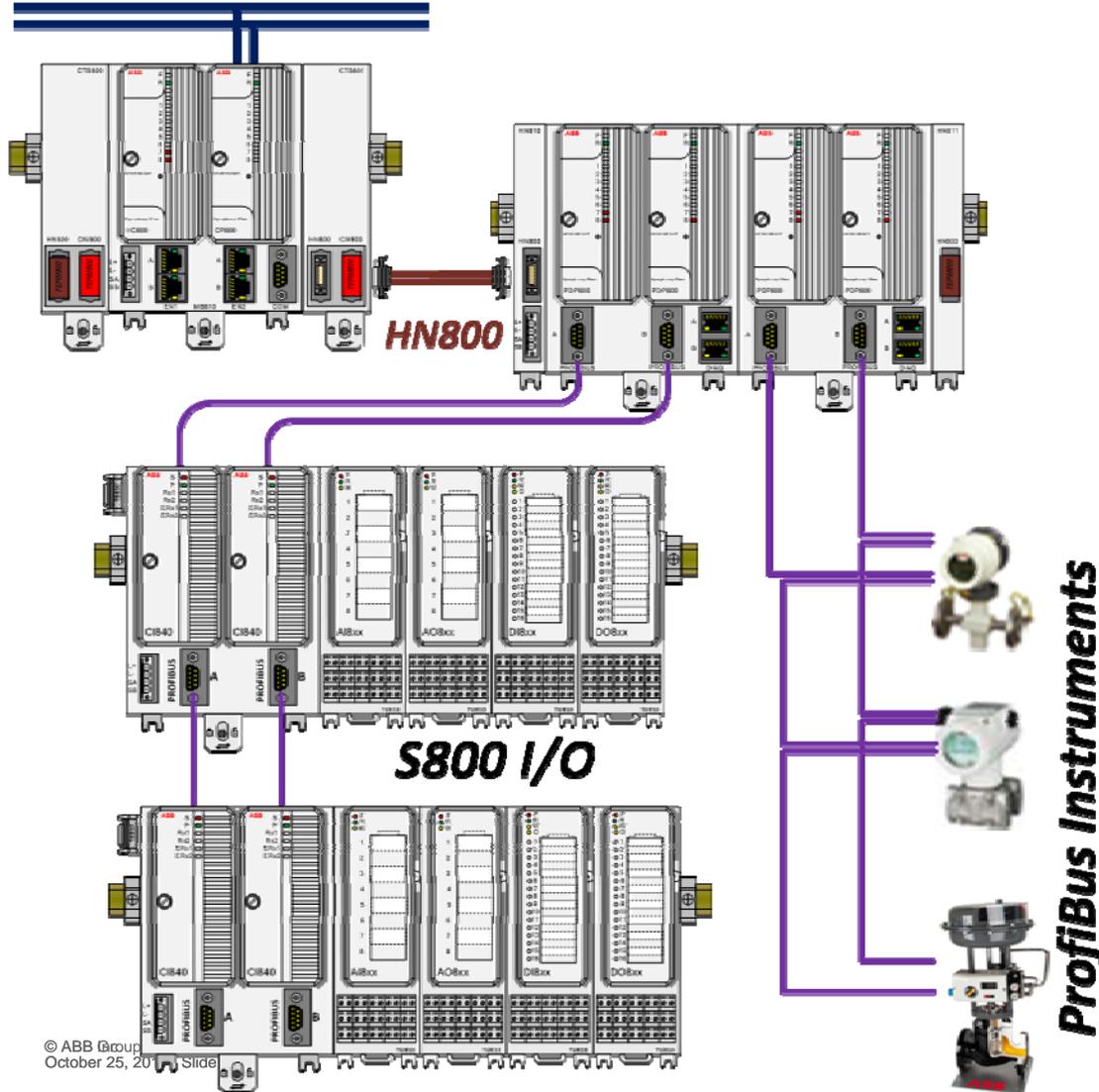
- **HN800** I/O interface for Rack I/O (via RIO22), S800 and new I/O

- **CW800** provides PTP communications between controllers

# Symphony Plus Future Planned Release

## PDP800: Profibus DP Master for Harmony

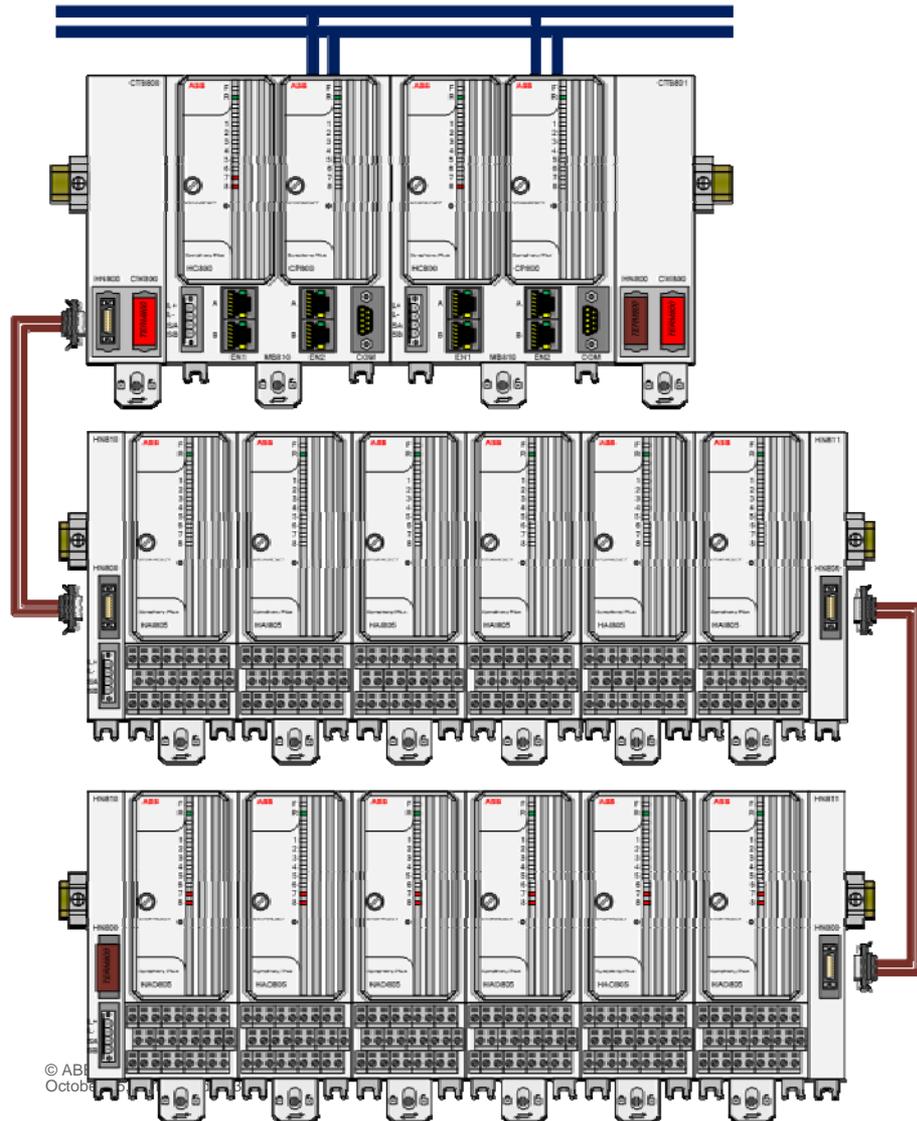
### Control Network



- Profibus DP V2
- SOE Time-Stamping
- Master & Line Redundancy
- Up to 120 Profibus Slaves per PDP800
- Communicates to Controller via [Redundant] HN800

# Symphony Plus Future Planned Release HAI805 & HAO805: HART AI & AO Modules

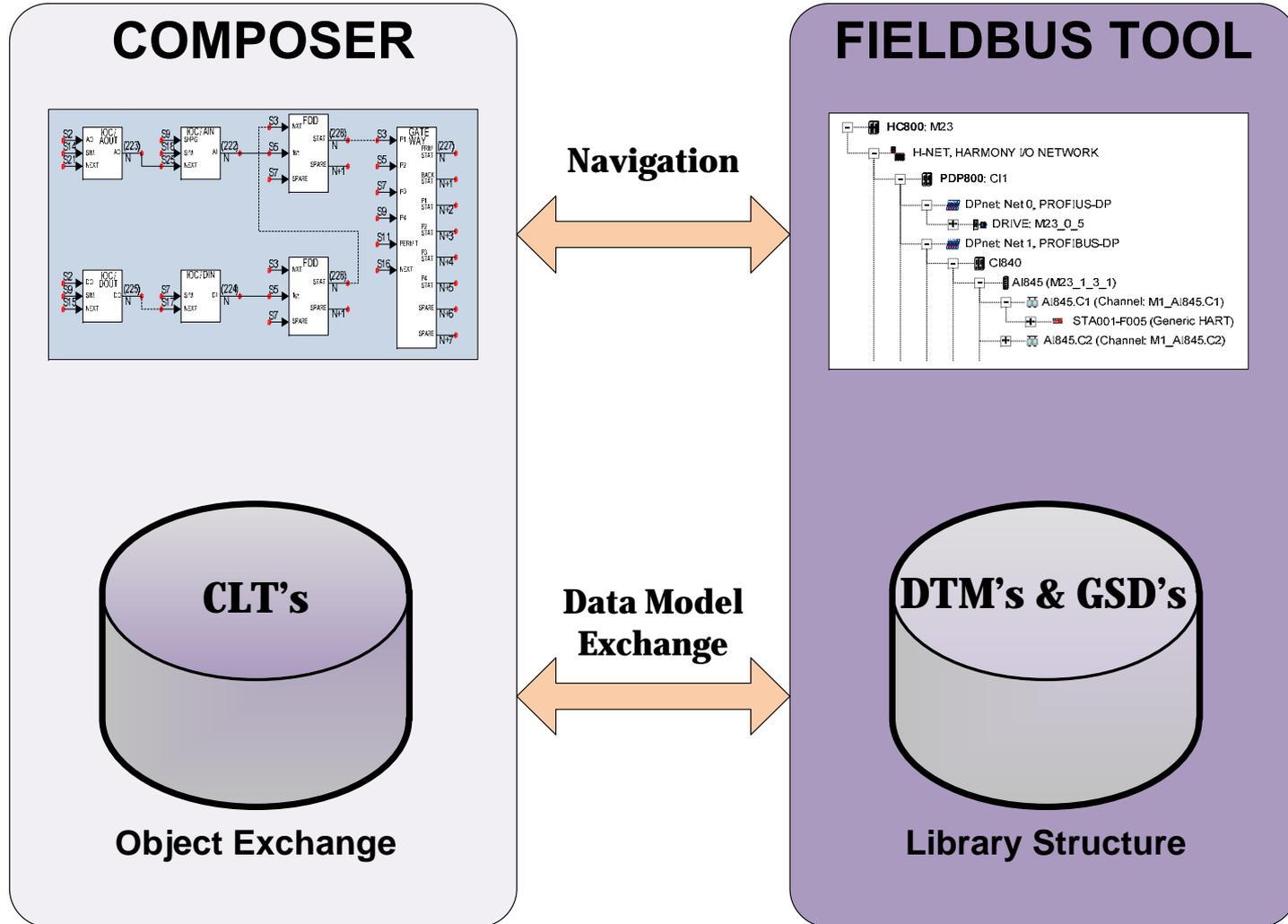
## Control Network



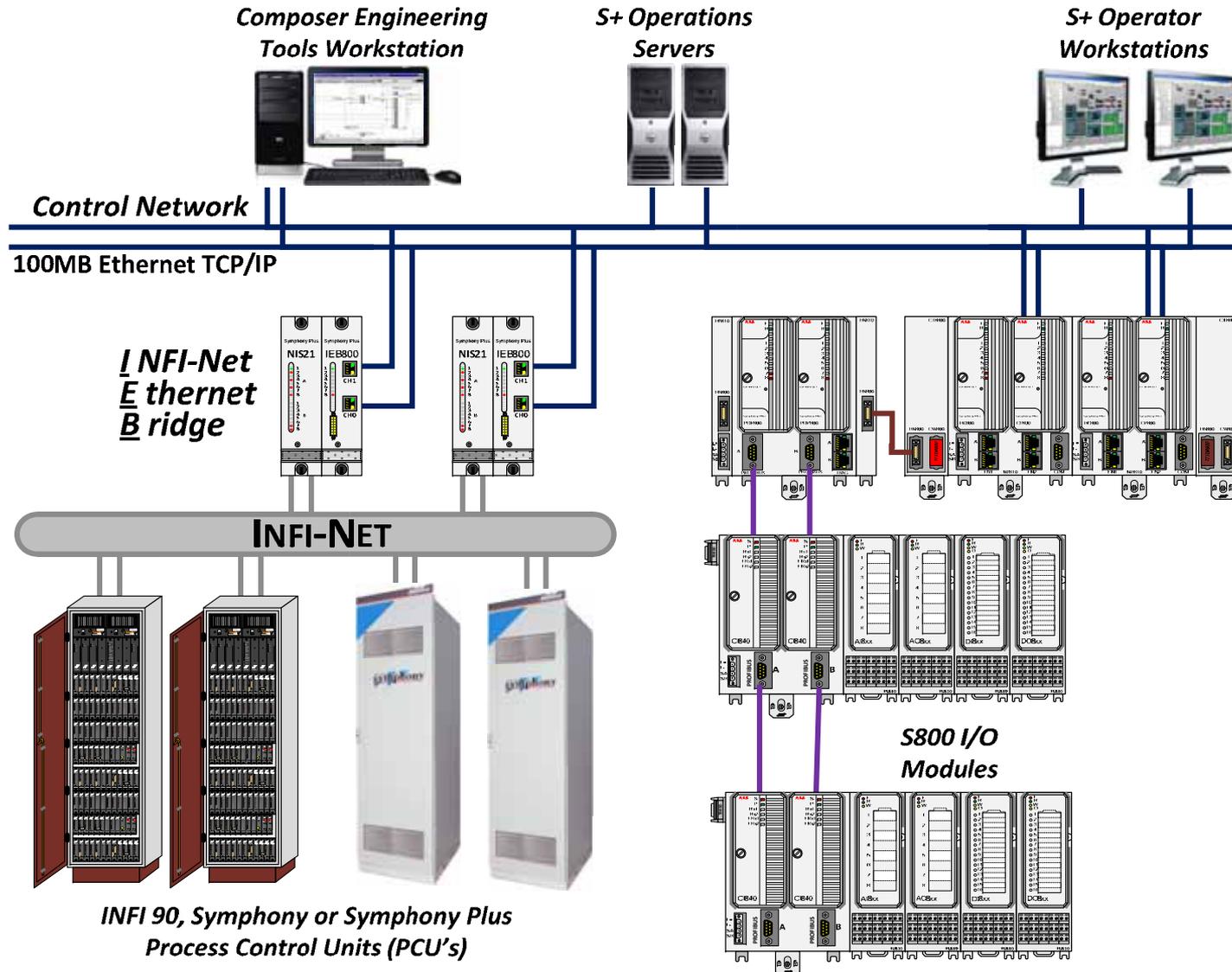
- Hart AI Modules
  - Initially with HC800
  - Eventually with BRC controllers
  - Secondary and Tertiary Values

# Symphony Plus Future Planned Release

## S+ Engineering: Tools integration with Composer



# Symphony Plus Future Planned Release IEB800: INFI-Net to Ethernet Bridge

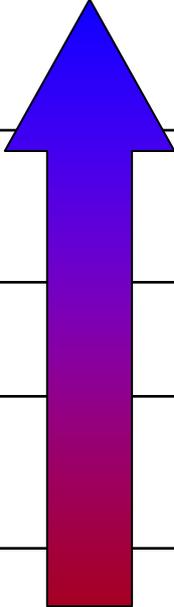


# System Update Agenda

- Lifecycle Update
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# Product Lifecycle Status Operator Consoles

Active
Classic
Limited
Obsolete

Class: Consoles	Product Family	Remarks
	800xA Process Portal	800xA Process Portal is in the “active” phase of its product lifecycle.
	S+ Operations	Symphony Plus Operations is in the “active” phase of its product lifecycle. Power and Water Industry focused.
	Conductor NT	Conductor NT entered the “classic” phase of its product lifecycle on April 1, 2010. Recommend evolution.
	Process Portal B	Entered “classic” product lifecycle phase in Dec. 2008. Recommend evolution.
	LAN 90 PCView	Recommend evolution.
	OIS 40 Series (includes CVMS software)	Hardware (limited) and Software (classic). Recommend evolution.
	OIS 20 Series (includes OIS 20 & OIS 25)	Recommend evolution.
	OIU	Recommend evolution.

# System 800xA Operations

- Integration Platform
  - Historical Data
  - Business Systems
  - 3<sup>rd</sup> Party Control Systems
  - Asset Optimization
  - Fieldbus Networks
- Personalized workplaces for focused information access
- Harmony diagnostic and management functions



*Industry's most complete user interface*



# Improving Operator Effectiveness

## Effective decision support environment

The screenshot displays the 'Demo System // DEMO Operator Workplace' interface. At the top, there is a status bar with process information, safety indicators, and a date/time stamp (3/11/2010 23:32). Below this, a table lists active alarms and events, such as '1112\_P10' with 'R11\_PTCalc' objects. The main workspace shows a process diagram with various components like 'Reactor Media Supply' and 'R1 Reactor'. A context menu is open over the 'R1 Reactor' component, listing various diagnostic and operational tools. Several callout boxes point to specific features: 'Consolidated alarms & events' points to the top status bar; 'Personalized Workplace based on operations philosophy' points to the main workspace; 'Filterable, separated asset alerts' points to a small window showing asset alerts; 'Right click access to integrated information' points to the context menu; 'Configurable Application Bar' points to the bottom of the interface; 'Seamless integration of data from multiple systems' points to the overall data flow; and 'Graphics based on MS WPF' points to a data trend display window.

Consolidated alarms & events

Personalized Workplace based on operations philosophy

Filterable, separated asset alerts

Right click access to integrated information

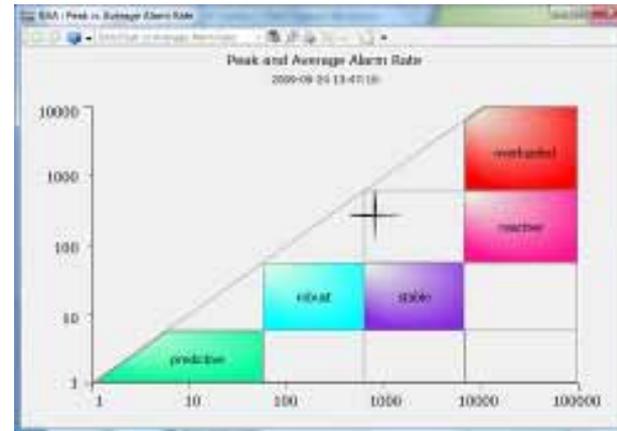
Configurable Application Bar

Seamless integration of data from multiple systems

Graphics based on MS WPF

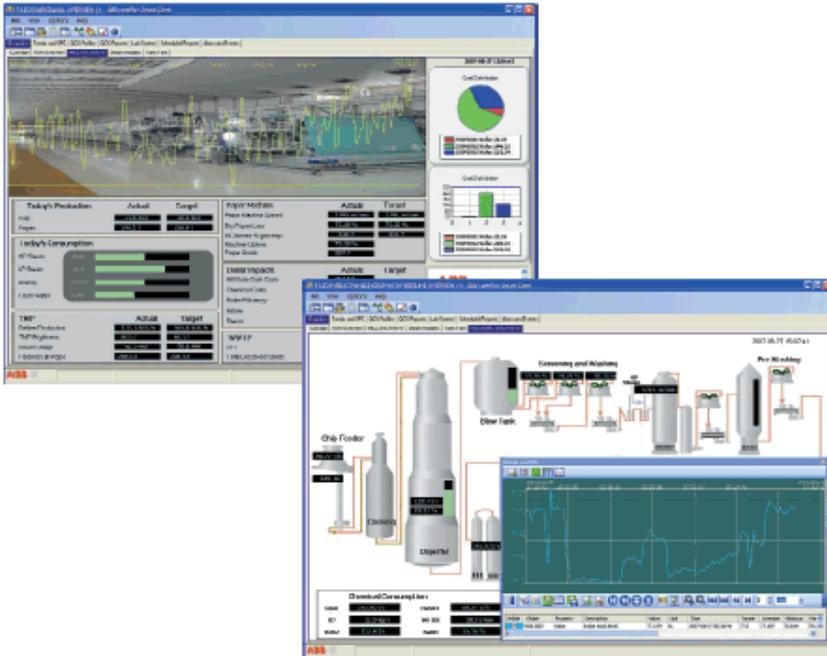
# System 800xA 5.1 Update Improved Operator Effectiveness

- Point of Control
  - Better control of responsibility
  - Improves control room collaboration
- Alarm Management
  - Alarm Shelving and Alarm Analysis
- Snap-shot reporting
  - Improved visibility into plant status information
- Sequential Function Chart Viewer Improvements



# System 800xA cpmPlus Smart Client

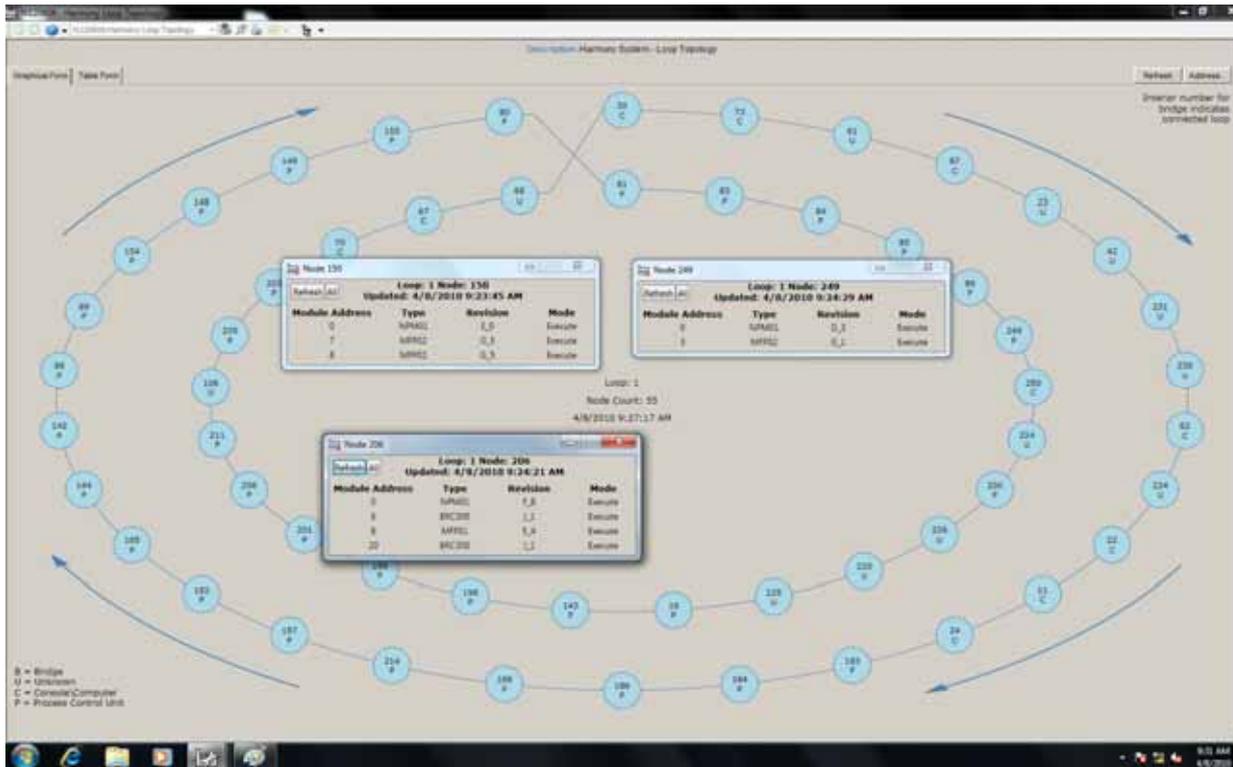
## Integrating information for improved visibility



- Provides users with a browser based thin client for displaying information from System 800xA
  - Thin client based graphical displays
  - Trending and Statistical Process Control
  - Alarm and Event Reporting
  - Excel interface
  - PG2 Graphics in SV5.1A

# System 800xA for Harmony Process Portal: Integrated Diagnostic Information

## Loop Topology Display:



- Enhancement from Table view
- Mimics feature from Conductor VMS
- Node details available by DBL-Click on node
- No engineering required

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# S+ Operations

## Primary objectives for development



- Simple to use
- Scalable
- Secure
- Based on proven technology
  - S+ Ops is next revision to PGP
  - Power Generation Portal (PGP): +2300 systems worldwide
  - S+ Ops integrates Power Gen Information Manager (PGIM)

# S+ Operations

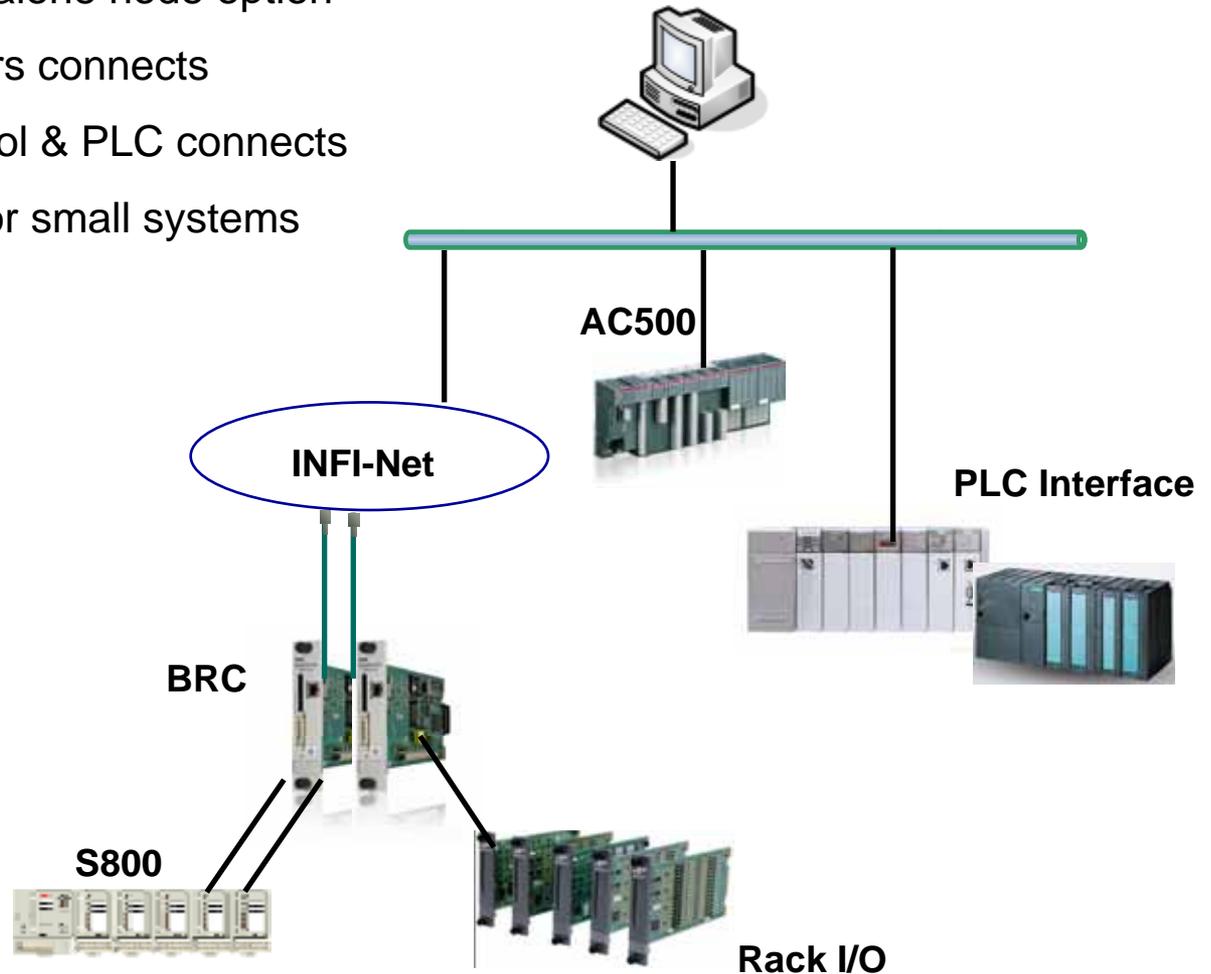
## Designed for high performance

- Flexibility & scalability– architecture requirements, systems small to large
- Reliability – unique fault tolerant architecture
- Security – support for NERC CIP compliance manager
- Integration – with all plant devices and systems
- Information management – advanced historian
- Operational efficiency – ergonomic operator workplace
- Alarm management tools - support for EEMUA 191
- Process optimization - Plant performance monitoring tools
- Migration – to evolve from earlier console platforms

# S+ Operations

## Scalable: serverless architecture

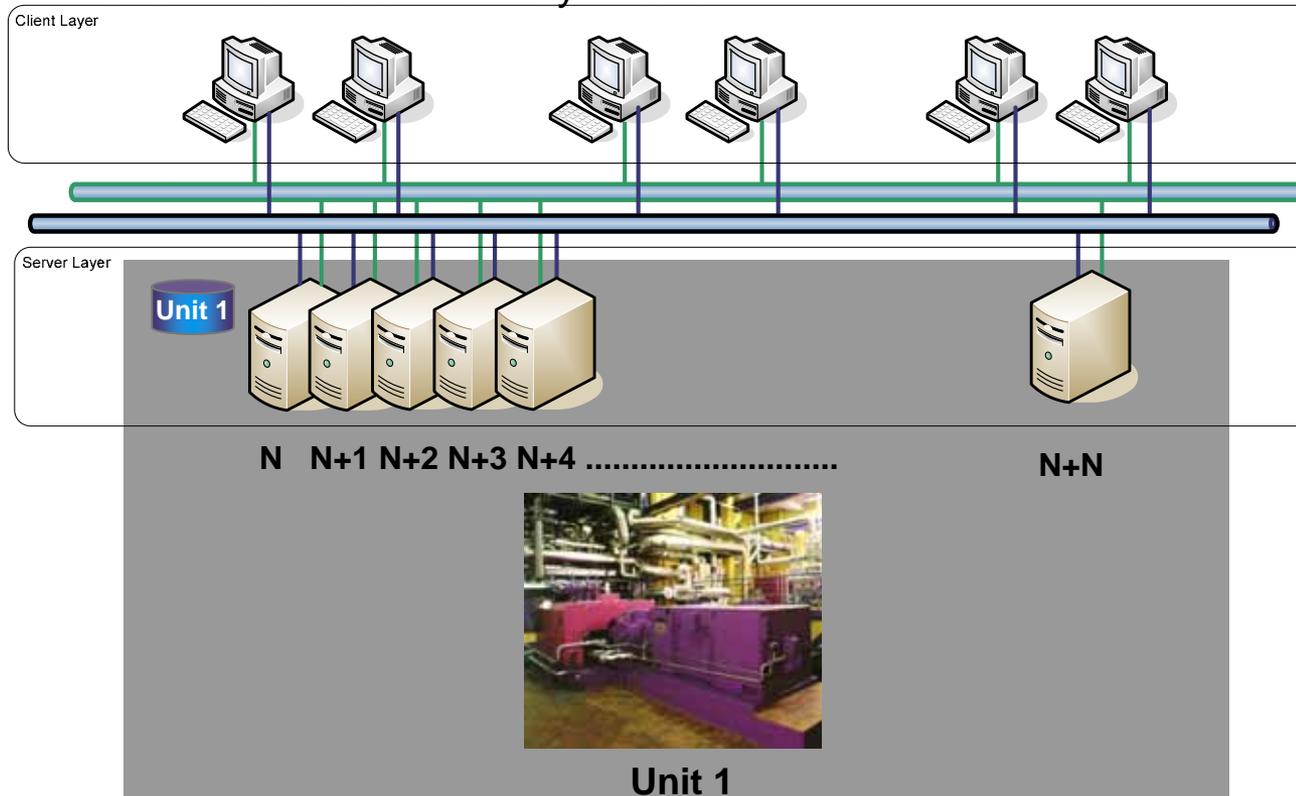
- Simple stand-alone node option
- ABB controllers connects
- 3<sup>rd</sup> party control & PLC connects
- Competitive for small systems



# S+ Operations

## Fault tolerant N+N server capability

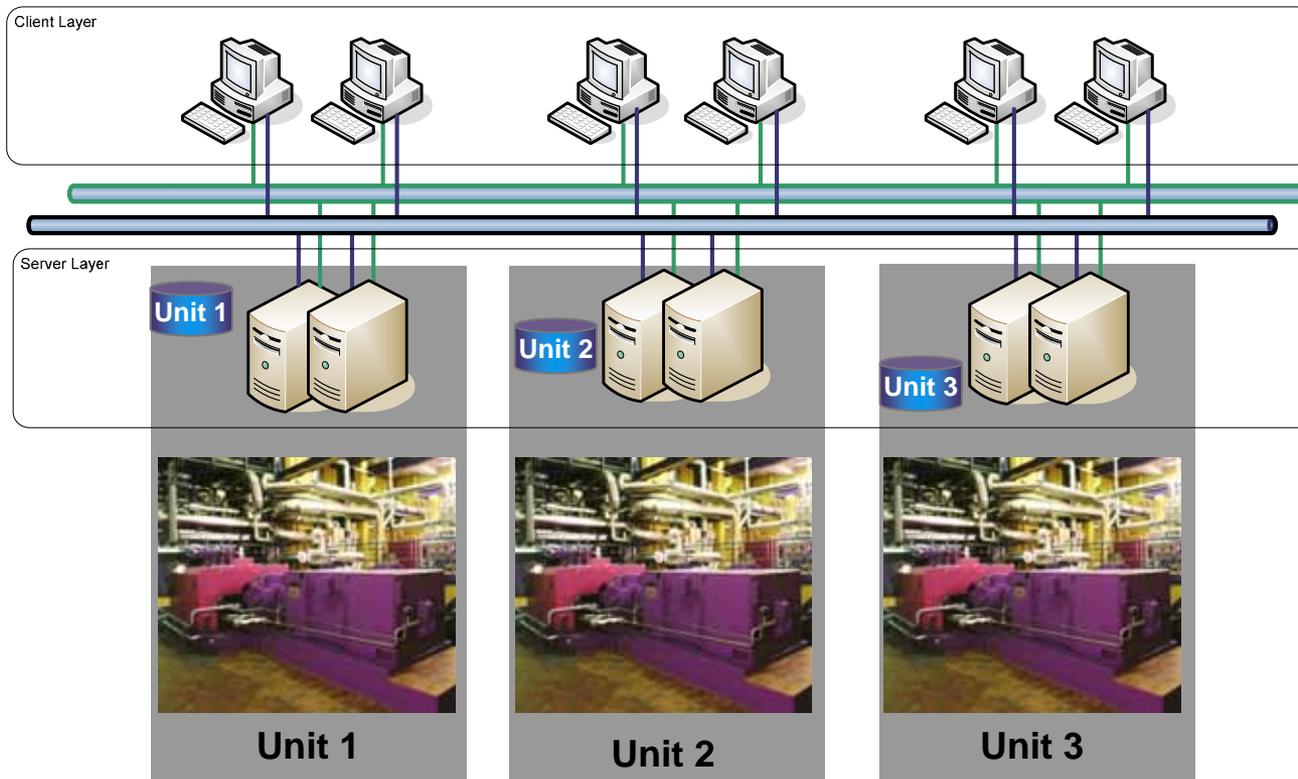
- Supports multiple servers with parallel data streams
- Provides N+N server redundancy
- Clients can connect to any server



# S+ Operations

## Flexible architecture: server segregation per unit/area

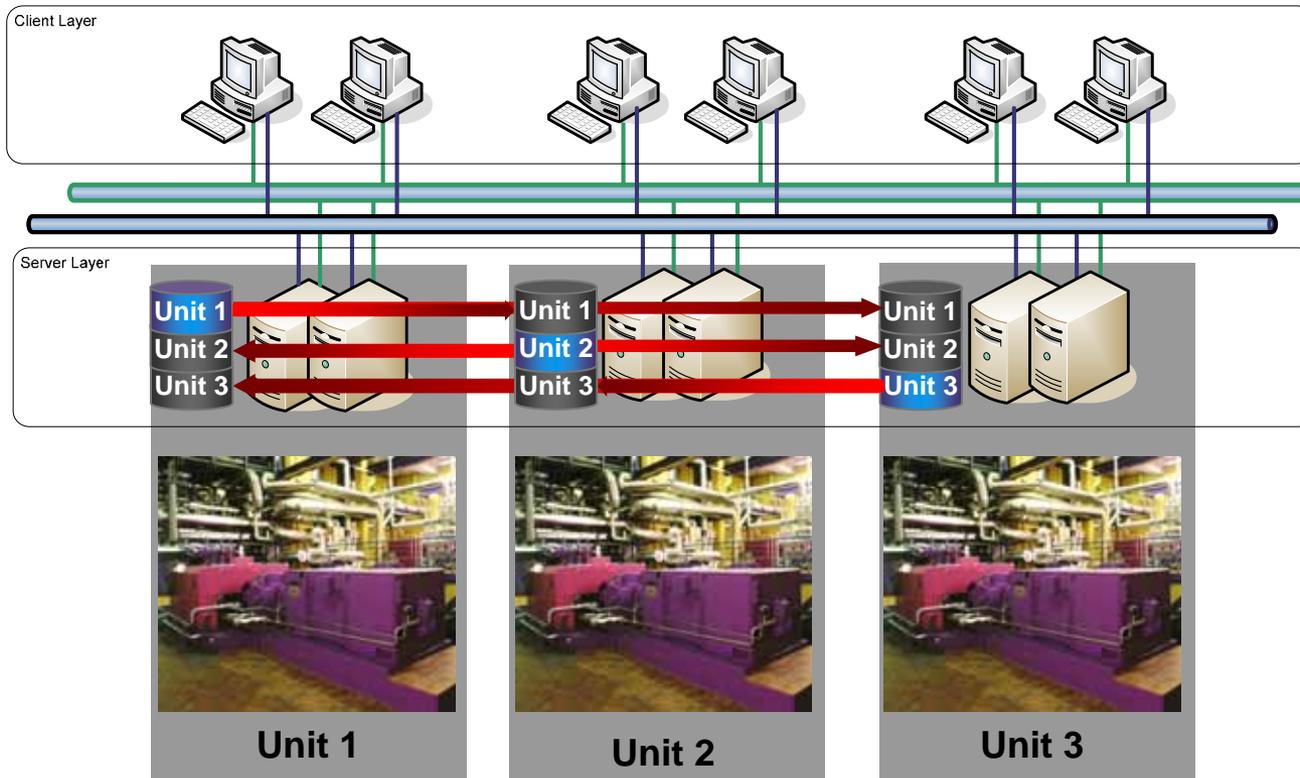
- Independent servers for each plant area / unit
- Each server only acquires data from the related plant area
- Clients logically connected to a server set
- **\*\*Provision for client graphical pages to include tags from other servers**



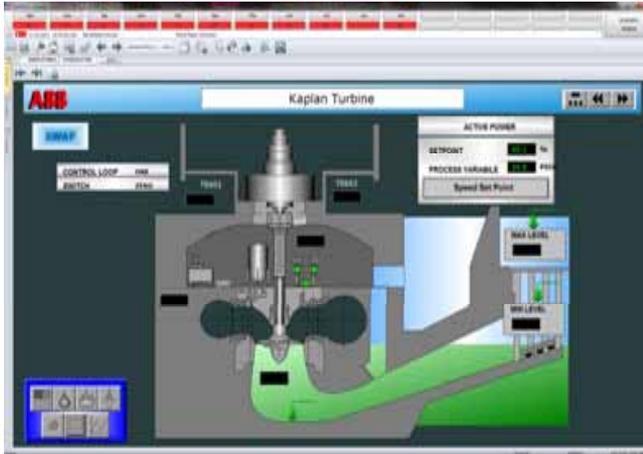
# S+ Operations

## Flexible architecture: composite server all unit data in each server

- Servers maintain a complete plant database
- Each server acquires data from the related plant area through connected controllers. Tags from other plant areas are acquired through the Server network
- Clients are logically connected to one server, and from that server they can see tags for all plant areas



# S+ Operations I/O scanners



CHATELONNA - ScanMonitor

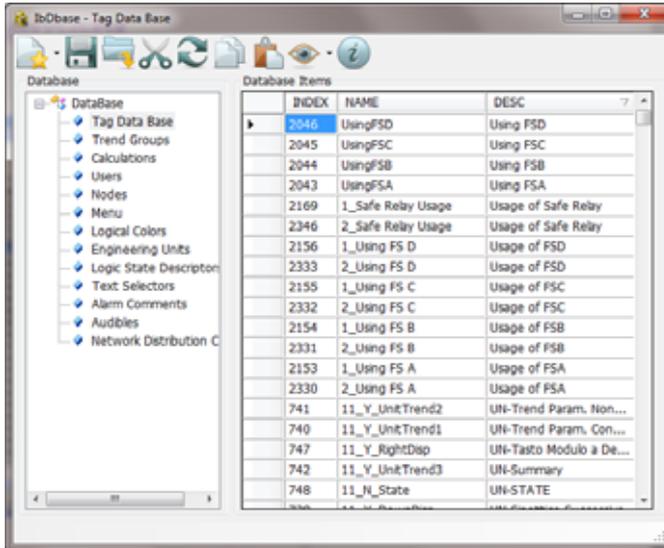
Driver name	Thread ID	Tags	LIFE cycle	Status
GRIV	0x659	0	0	Driver
SRCE_S01_APTAN...	0x1424	50	17156	Driver
SRCE_S01_AWSE	0x162C	0	0	Driver
SRCE_S03_AYMAN...	0x1570	159	17155	Driver
SRCE_S04_BARD	0x160C	125	17157	Driver
SRCE_S05_BARD...	0x15E1	88	17155	Driver
SRCE_S06_BKAUR...	0x1600	101	17155	Driver
SRCE_S07_BRELC...	0x1664	64	13017	Driver
SRCE_S08_BRUSSON	0x1674	152	17157	Driver
SRCE_S09_BUTHEER	0x1600	62	17155	Driver
SRCE_S10_BY	0x1604	39	17156	Driver
SRCE_S11_CHAMP...	0x1109	279	17156	Driver
SRCE_S12_CHAMP...	0x1624	0	0	Driver
SRCE_S13_CHATEL...	0x1FC1	221	17157	Driver
SRCE_S14_CHAWO...	0x1104	560	17125	Driver
SRCE_S15_CIGHANA	0x1644	91	17154	Driver
SRCE_S16_COVANO	0x14FC	406	17158	Driver
SRCE_S17_COVNO...	0x1654	22	17155	Driver
SRCE_S18_COVNET...	0x1694	106	17156	Driver
SRCE_S19_PENILLE	0x163C	77	17157	Driver
SRCE_S20_GABET	0xABB	0	0	Driver
SRCE_S21_GIGNOD	0x10D4	24	17156	Driver
SRCE_S22_GOSLLET	0x1090	92	17155	Driver
SRCE_S23_GRAND...	0x47D	63	17155	Driver

Connected to the scanner shared area.

- Plug-in drivers
  - Harmony/INFI (serial/SCSI/ethernet CIU)
  - Freelance 800F
  - 800xA AC800M
  - AC870P
  - Procontrol P13
  - OPC DA, AE, HDA
  - Modbus, Modbus TCP
  - IEC 870-5-101/103/104
  - DNP 3.0
  - Siemens Teleperm (XU)
  - General Electric GSM (Mark V/VI) (GE Standard Messages, GSM)
  - SPABUS
  - Text

# S+ Operations

## Tag data base



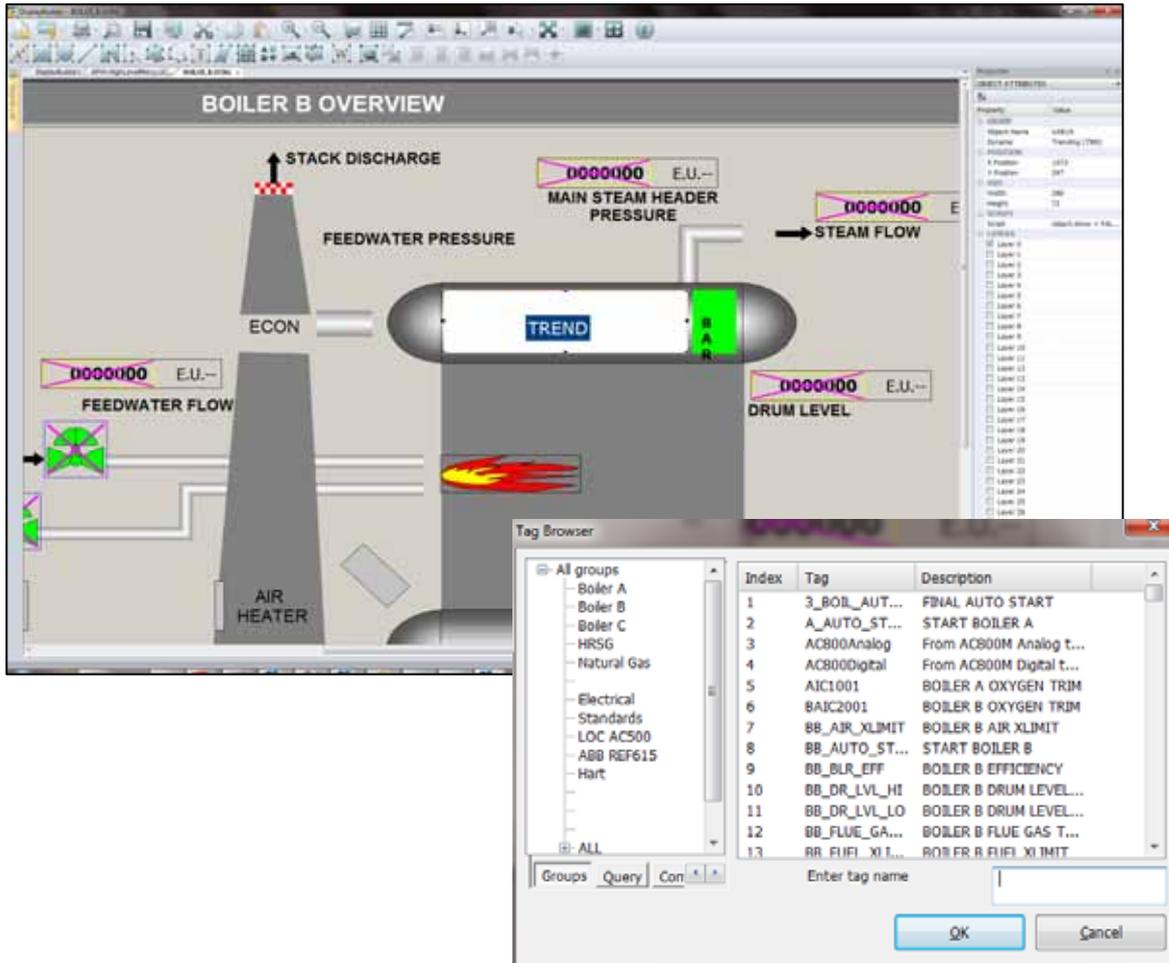
INDEX	NAME	DESC
2046	UsingFSD	Using FSD
2045	UsingFSC	Using FSC
2044	UsingFSB	Using FSB
2043	UsingFSA	Using FSA
2169	1_Safe Relay Usage	Usage of Safe Relay
2346	2_Safe Relay Usage	Usage of Safe Relay
2156	1_Using FS D	Usage of FSD
2333	2_Using FS D	Usage of FSD
2155	1_Using FS C	Usage of FSC
2332	2_Using FS C	Usage of FSC
2154	1_Using FS B	Usage of FSB
2331	2_Using FS B	Usage of FSB
2153	1_Using FS A	Usage of FSA
2330	2_Using FS A	Usage of FSA
741	11_Y_UnitTrend2	UNI-Trend Param. Non...
740	11_Y_UnitTrend1	UNI-Trend Param. Con...
747	11_Y_RightDisp	UNI-Tasto Modulo a De...
742	11_Y_UnitTrend3	UNI-Summary
748	11_I_State	UNI-STATE

- Supports large systems
  - Up to 512,000 tags per server
  - 256,000 boolean
  - 256,000 non-boolean
- Direct Harmony tag export Composer to S+ Operations
- Tag types include:
  - Native tags to Harmony
  - Analog
  - Digital
  - Calculated
  - Others
    - User configurable
    - Bit arrays
    - Text
    - LAB (manual entry)



# S+ Operations

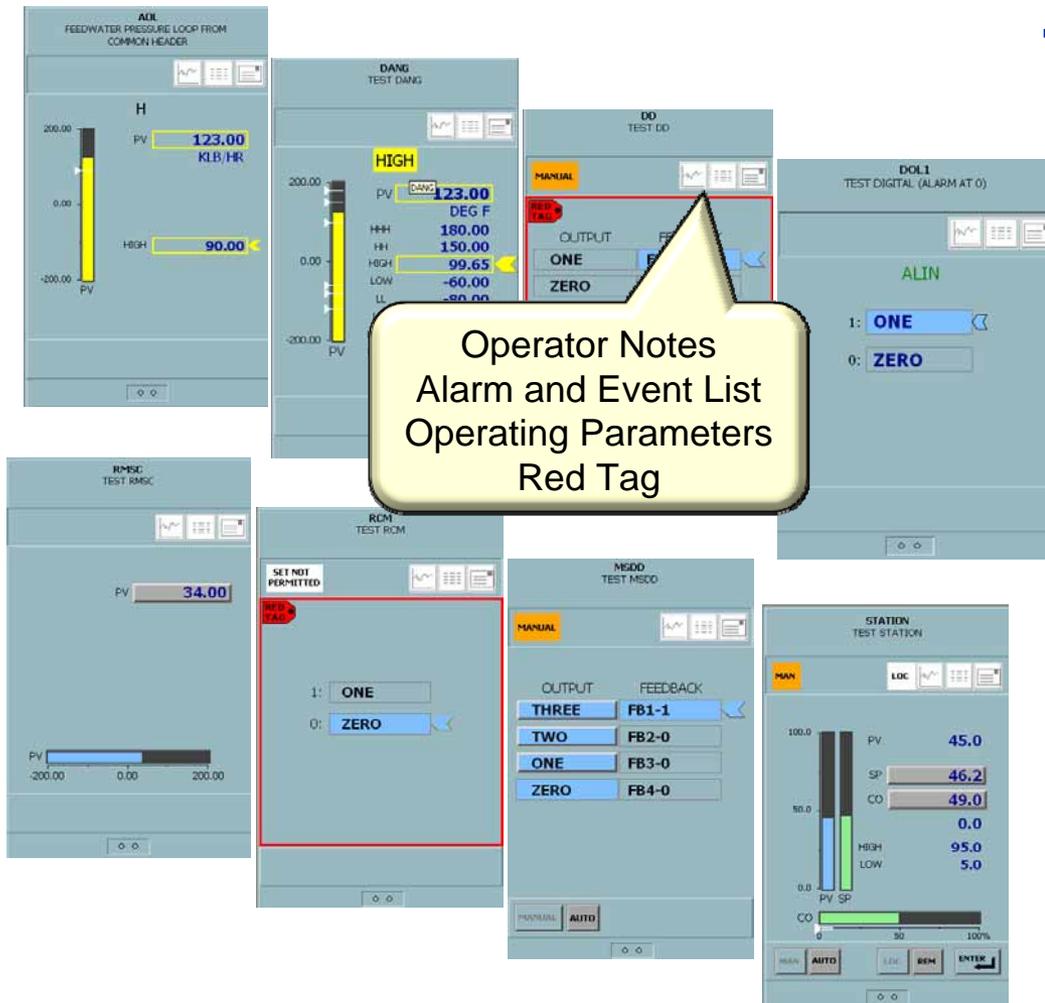
## High performance graphic editor



- Build Hi-Performance HMI
- Grayscale Graphics
- State of the art display builder
  - Toolbars
  - Tag Browser
  - Templates
  - Symbol Libraries
  - ActiveX
  - Pictures (GIF and JPEG)
  - Drag and Drop support
  - Support link of object classes with instances
  - SODG Display Translator

# S+ Operations

## Basic control faceplates for Harmony



### Faceplates

- DCS: Digital Control Stations
- DD: Device Driver
- MSDD: Multi-state Device Driver
- PV: Analog Control Station
- DI: Digital Input
- RCM: Remote Control Memory
- RMCB: Remote Motor Control Block
- RMSC: Remote Manual Set Constant
- TEXTSTR: Text Selector
- DAANG: Data Acquisition - Analog

# S+ Operations

## Supports extended control faceplates

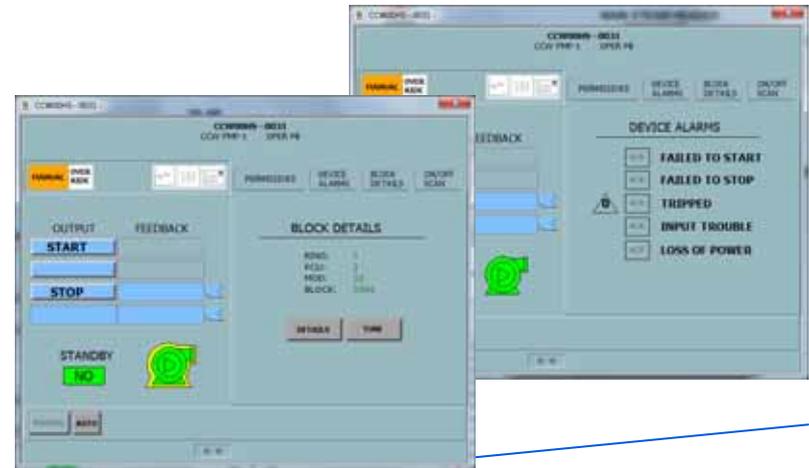
Extended faceplate  
tabbed menus with  
additional analysis  
information



Standard faceplate  
with additional  
information

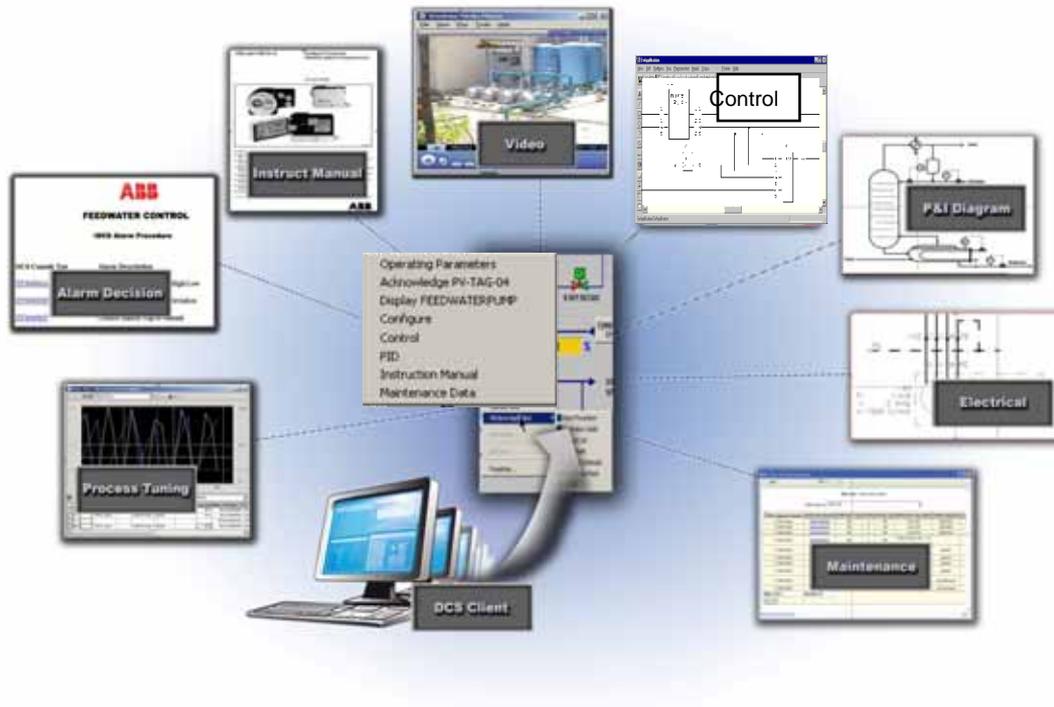


Basic faceplates  
with operations  
functions



# S+ Operations

## Navigation to important information using aspect links



- Aspect Links (Right Click)
  - Tags link to other Applications
  - Links are customizable per tag
  - Link to documents or launch applications:
    - Alarm & Event
    - Instruction Manuals
    - Maintenance Packages
    - Standard Operating Procedures
    - Web pages
    - Plant P&ID's
    - Operator Notes

# S+ Operations

## View control logic from graphic

The screenshot displays an industrial control system interface. At the top, a status bar shows 'Operations Explorer - BOILER\_B\_OVERVIEW - MALLPAGE1' and various system parameters like 'Boiler A', 'Boiler B', 'HRSG', 'Natural Gas', 'Electrical', 'Standards', 'LDC AC300', 'ABB REF145', 'Start', 'ALL', and 'System'. The main graphic area is titled 'BOILER B OVERVIEW' and shows a 3D representation of a boiler system with various flow rates and levels, such as 'STEAM FLOW' (0.00 KLB/HR), 'DRUM LEVEL' (0.00 IN H2O), and 'PLANT MASTER MIA' (0.00 PSIG).

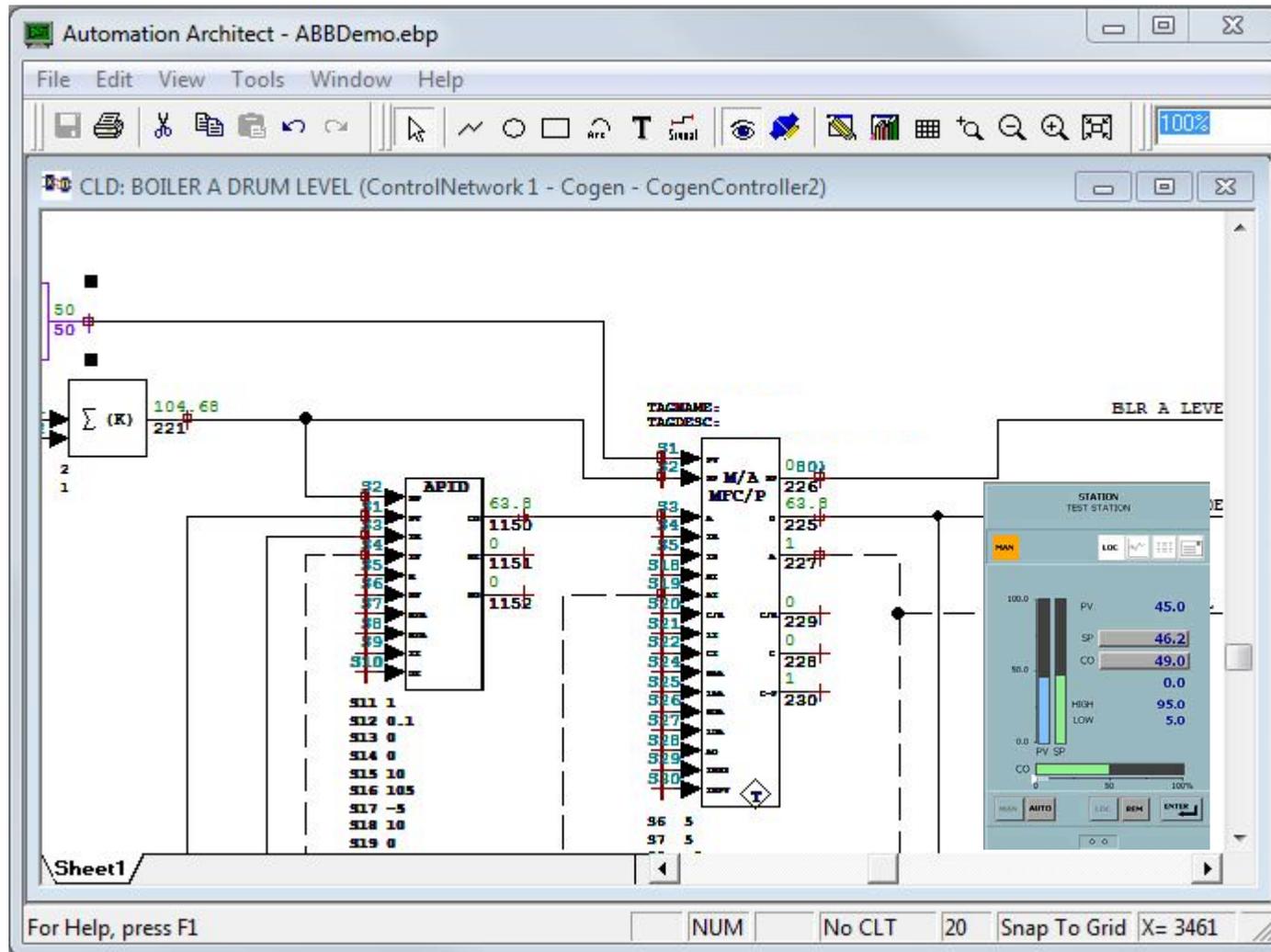
Overlaid on the graphic is a window titled 'Automation Architect - ABBDemo.ebp'. This window displays a control logic diagram for 'CLD: BOILER A DRUM LEVEL (ControlNetwork 1 - Cogen - CogenController2)'. The diagram includes a summing junction with a gain of 1.04 and a setpoint of 221. It features several control blocks, including an 'APID' block and an 'M/A MPC/P' block. The logic is connected to various process variables, such as 'BLR A LEVE', 'BLR A FW DE', and 'BLR A LEVEL'. A list of variables is shown at the bottom of the logic window:

- S11 1
- S12 0.1
- S13 0
- S14 0
- S15 1.0
- S16 105
- S17 -5
- S18 1.0
- S19 0

The bottom of the Automation Architect window shows a status bar with 'For Help, press F1', 'NUM', 'No CLT', '20', 'Snap To Grid', and 'X= 3461'.

# S+ Operations

## Faceplates from composer control logic

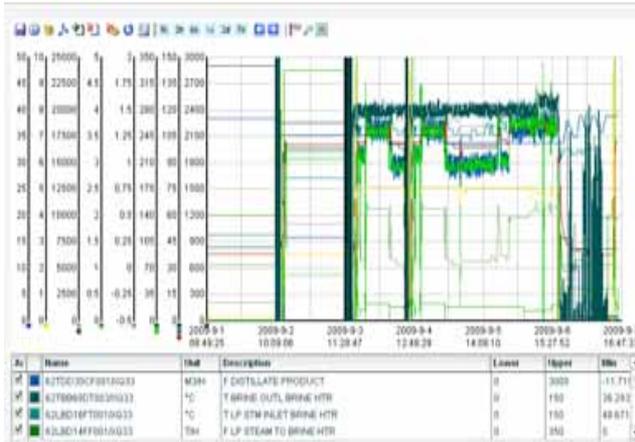


# S+ Operations Supports DBDOC call up hyperview

The screenshot displays the 'BOILER B OVERVIEW' interface. At the top, there are tabs for 'Boiler A', 'Boiler B', and 'Boiler C', along with various system status indicators like 'MSG', 'Natural Gas', 'Electrical', 'Standards', 'LOC AC300', 'ABB RTU113', 'Hart', 'ALL', and 'System'. The date and time are shown as 4/12/2011 17:33:14.313. The main area features a 3D model of the boiler with labels for 'STACK DISCHARGE', 'FEEDWATER PRESSURE', 'ECON', 'MAIN STEAM HEADER PRESSURE', 'PSDG', 'STEAM FLOW', and 'FD FAN'. A 'PURGE PERMISSIVES' panel on the left shows values of 20.00 and 10.00. Below it are buttons for 'BOILER B TRIP RESET', 'GAS PERMISSIVES', 'BOILER B GAS START/STOP', 'OIL PERMISSIVES', and 'BOILER B OIL START/STOP'. A 'GAS FLOW' and 'OIL FLOW' indicator is visible. A 'Module 1,01,10 Block Index' window is open, listing items such as 'TD\_000XATAGS\_ABBProject\_1.DBF', 'TD\_AW010\_ABBProject\_1.DBF', 'TD\_COGEN\_ABBProject\_1.DBF', and 'Boiler B Gas Flow Control: New sheets'. A 'P&ID' diagram is also visible on the right side of the interface.

# S+ Operations

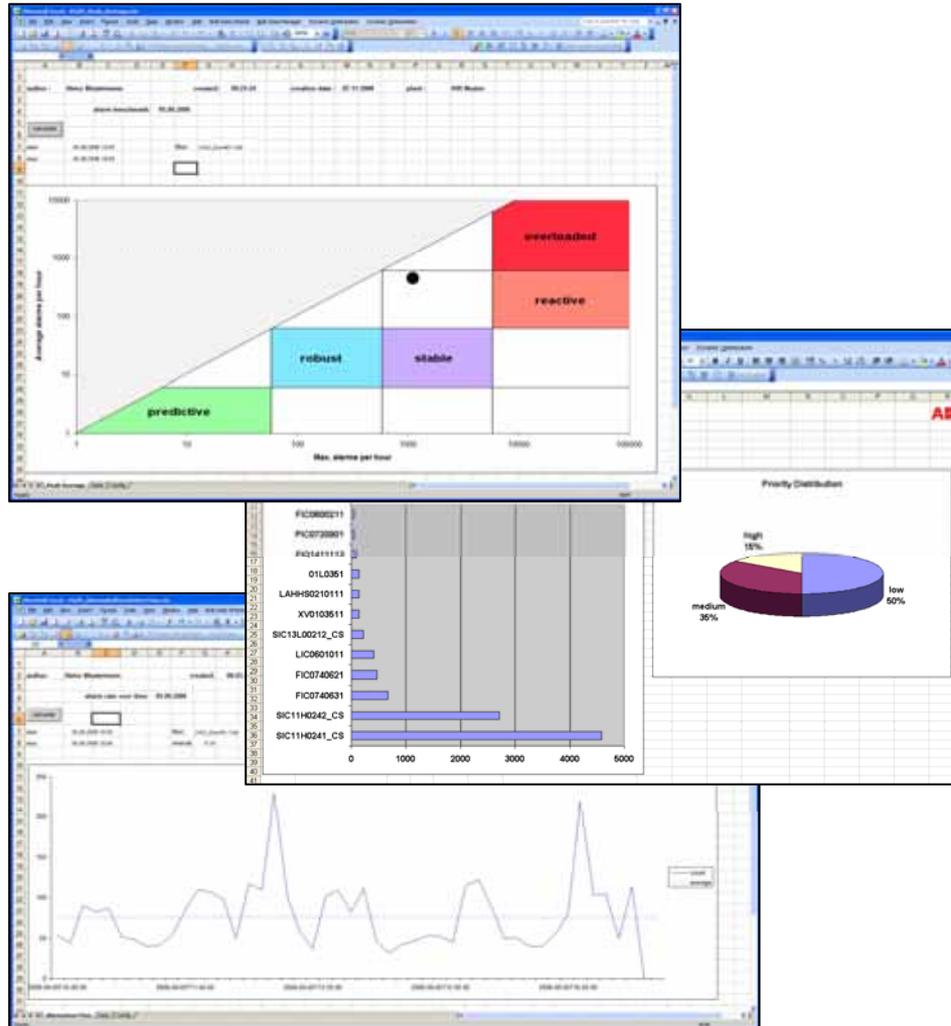
## Information Management: integrated historian



- Full featured historian integrated within S+ Operations
- Excel reporting and scheduled reports
- Calculation package / maintenance totalizers
- EEMUA 191 alarm management
- Process optimization platform used with OPTIMAX plant performance applications
- Supports thin client

# S+ Operations

## Integrated alarm analysis tools



### Supports EEMUA 191 Standard

#### Report types

At the moment the following report types are available:

- 1) Alarm and/or Event frequency
- 2) Alarms and Events over time
- 3) Priority Distribution
- 4) Alarm Duration
- 5) Time to Acknowledge
- 6) Alarm performance levels
- 7) Control loops in hand mode
- 8) Operator actions
- 9) Intervals exceeding threshold
- 10) Distribution in plant areas
- 11) Standing alarms
- 12) CoOPccurrences
- 13) Distribution
- 14) Detailed event sequence



# System Update Agenda

- Lifecycle Update
- Evolution Path
  - I/O
  - Controller, Communications, and Engineering Tools
  - Operator Stations
- Summary

# Summary

- Lifecycle Extended Indefinitely
- New Developments at all levels of the Symphony system
- System 800xA continues as an evolution path for the Process Industry
- Symphony Plus Operations is now an available option
- Evolution Planning Services Available

Power and productivity  
for a better world™

