



## Cisco & Rockwell Automation Alliance

Mr. Loo Hun Leng  
Solutions Architect – Integrated Architecture  
Sg and Pakistan  
Rockwell Automation



# An Alliance that provides Seamless Solutions



TOMORROW  
starts here.



- Network Infrastructure
- Remote Access
- Wireless
- Security
- Unified Communications
- TelePresence
- Data Center



Enterprise



Manufacturing / Industrial

**Rockwell**  
Automation



- Integrated Architectures
- Software
- Controllers
- I/O
- Drives
- HMI
- Services



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Connect The Unconnected

# Addressing Converged Communications: Reference Architectures



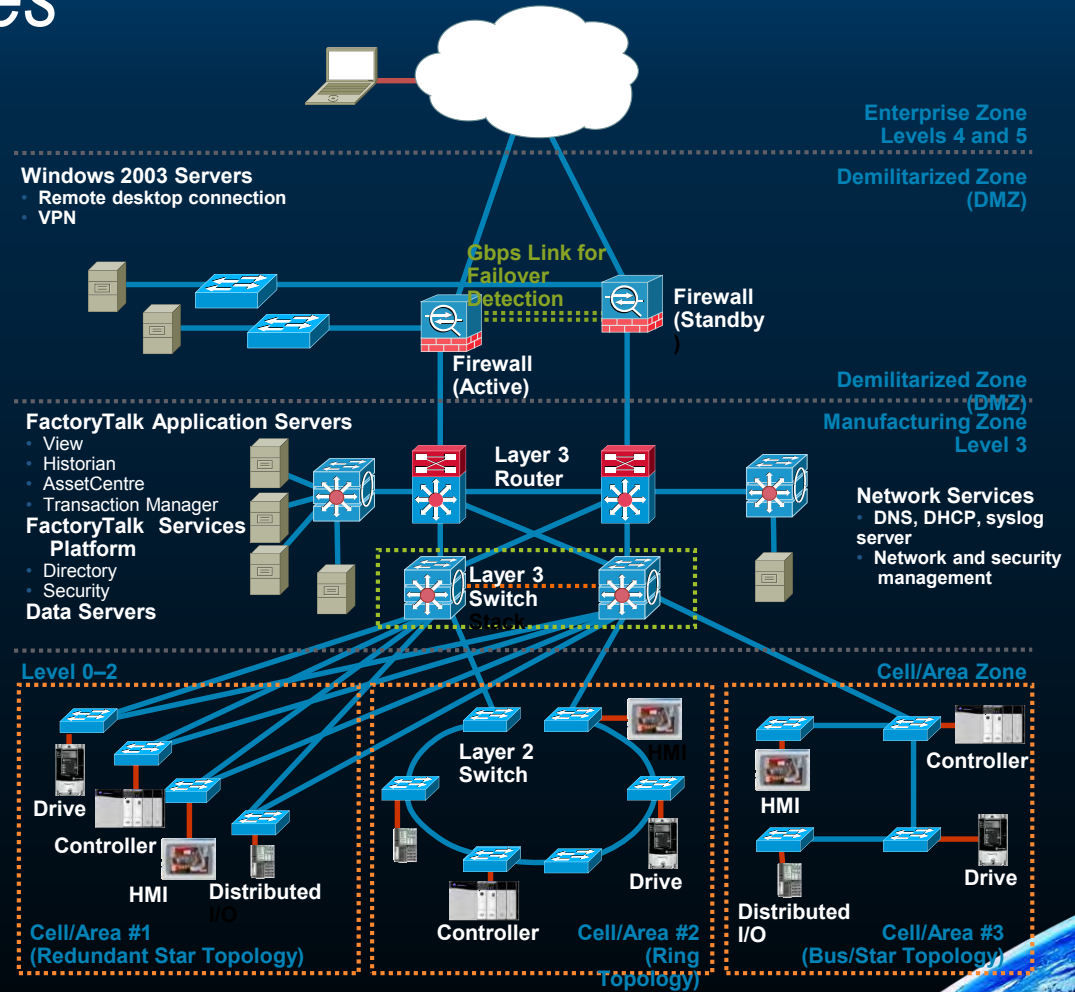
TOMORROW  
starts here.

## Design guidance

- Methodology – built on Industry Standards
- Best practices and recommendations
- Documented configuration settings
- Tested with Industrial Applications
- Cisco “Validated” network design

## “Future-ready” network foundation

- CIP Safety, CIP Sync, CIP Motion
- Voice, Video



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# Joint Product Collaboration: Allen-Bradley Stratix 8000 / 8300 / 5700



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## • Best of Cisco

- Cisco IOS™
- Catalyst™ switch architecture and feature set
- CLI and Device Manager
- Secure integration with enterprise network



## • Best of Rockwell Automation

- Common Industrial Protocol (CIP) interface to Rockwell Automation Integrated Architecture™
- RSLogix 5000™ for configuration via Add-on Profile (AOP)
- Predefined Logic tags for diagnostics
- FactoryTalk™ View Faceplates



## • Best for the Plant Floor

- Compact Flash for “zero-config” replacement
- Industrial environmental ratings
- Default configurations for Industrial Automation



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# RA Network & Security Services at a Glance



## ASSESS

- Assess the current state of the security program, design, policy
- Assess the current state of the network design, implementation



## DESIGN/PLAN

- Design and plan a network infrastructure
- Design and plan security program, policy, infrastructure, business continuity plan



## IMPLEMENT

- Installation and configuration of a network
- Implementation of a security program, infrastructure design, policy training



## AUDIT

- Audit current architecture compared to governing body (ODVA, IEEE, ANSI/TIA)
- Audit security program compared to governing body (NERC CIP, ISA -99, NIST 800-53, NIST 800-82)



## MANAGE/MONITOR

- Manage, maintain and monitor uptime and issues on the network
- Managed Security Services (Incident response, disaster recovery, monitoring)

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**Rockwell Automation is a Cisco Solution Technology Integrator (STI) partner**



# Integrated Architecture Midrange System

Mr. Loo Hun Leng  
Solutions Architect – Integrated Architecture  
Sg and Pakistan  
Rockwell Automation



# Midrange Architecture System



*TOMORROW  
starts here.*



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# Integrated Architecture

The Convergence of Control and Information



- Multiple Disciplines
- Real time information

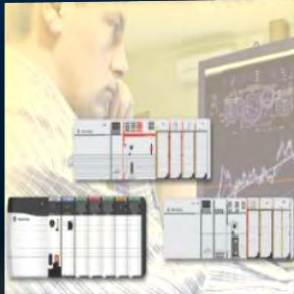
- EtherNet/IP

- Scalable Dimensions

- Knowledge Integration



# Integrated Architecture Industry Needs



**Scalability**



**Simplification**



**One Network**



**Sustainability**

**Standardize on a single, scalable control platform**

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# Integrated Architecture Industry Needs



**Performance**



**Safety**



**Security**



**Globalization**

**Right-sized control for machine performance**

# Midrange Architecture System

Connected  
Components



Midrange Architecture System



Large Architecture System



Lowest Total Cost to Design, Develop and Deliver Machines

# Midrange Architecture System Evolution

## Sustainable Platform

- 7-10X system performance
- 50% smaller footprint
- 30% reduction in Bill of Materials

## Differentiation

- 50% reduction in integration costs
- 10% higher machine OEE
- 15% savings in safety systems

## Productivity

- 40% less develop time
- 25% more diagnostics
- 25% shorter start up time

**2006**

Intro

Compact Logix

**2008**

Wave 1

Midrange System Introduction

**2010**

Wave 2

Scalable Integrated Safety

**2012**

Wave 3

Scalable Integrated Motion

**2014**

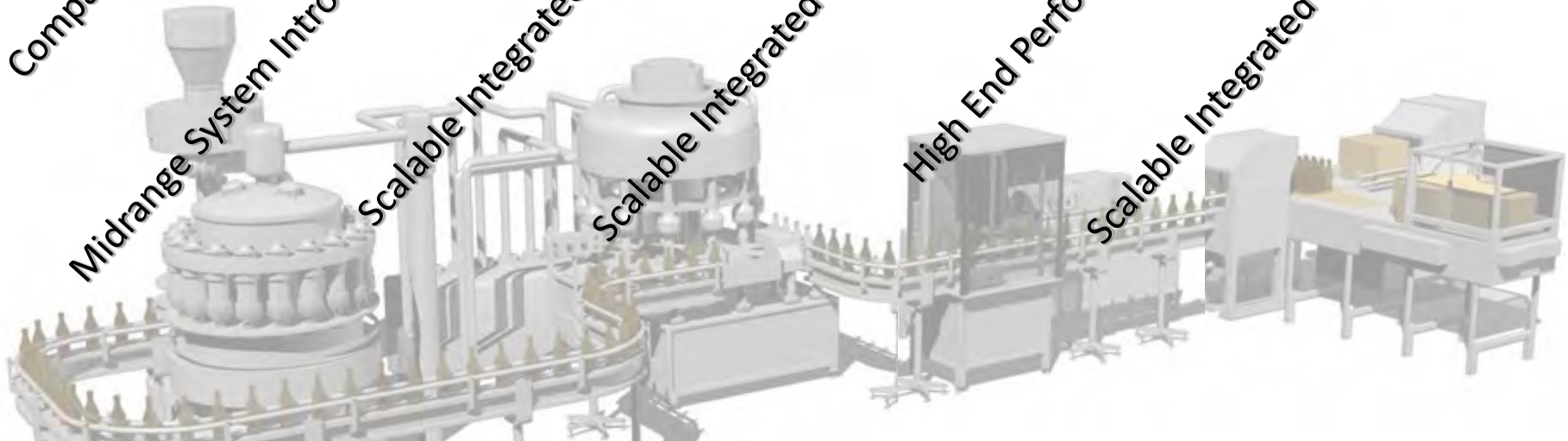
Wave 4

High End Performance

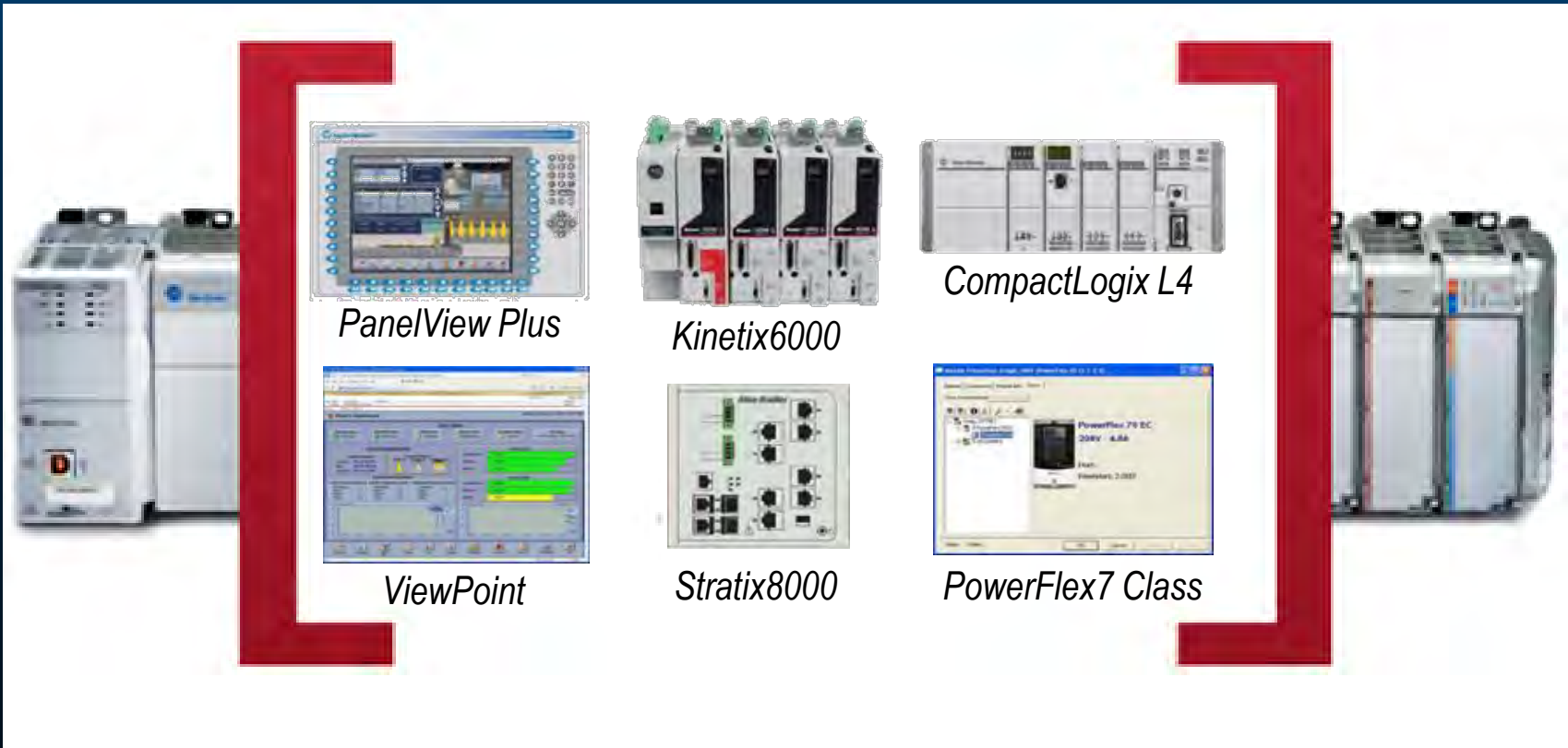
**2016**

Wave 5

Scalable Integrated Process



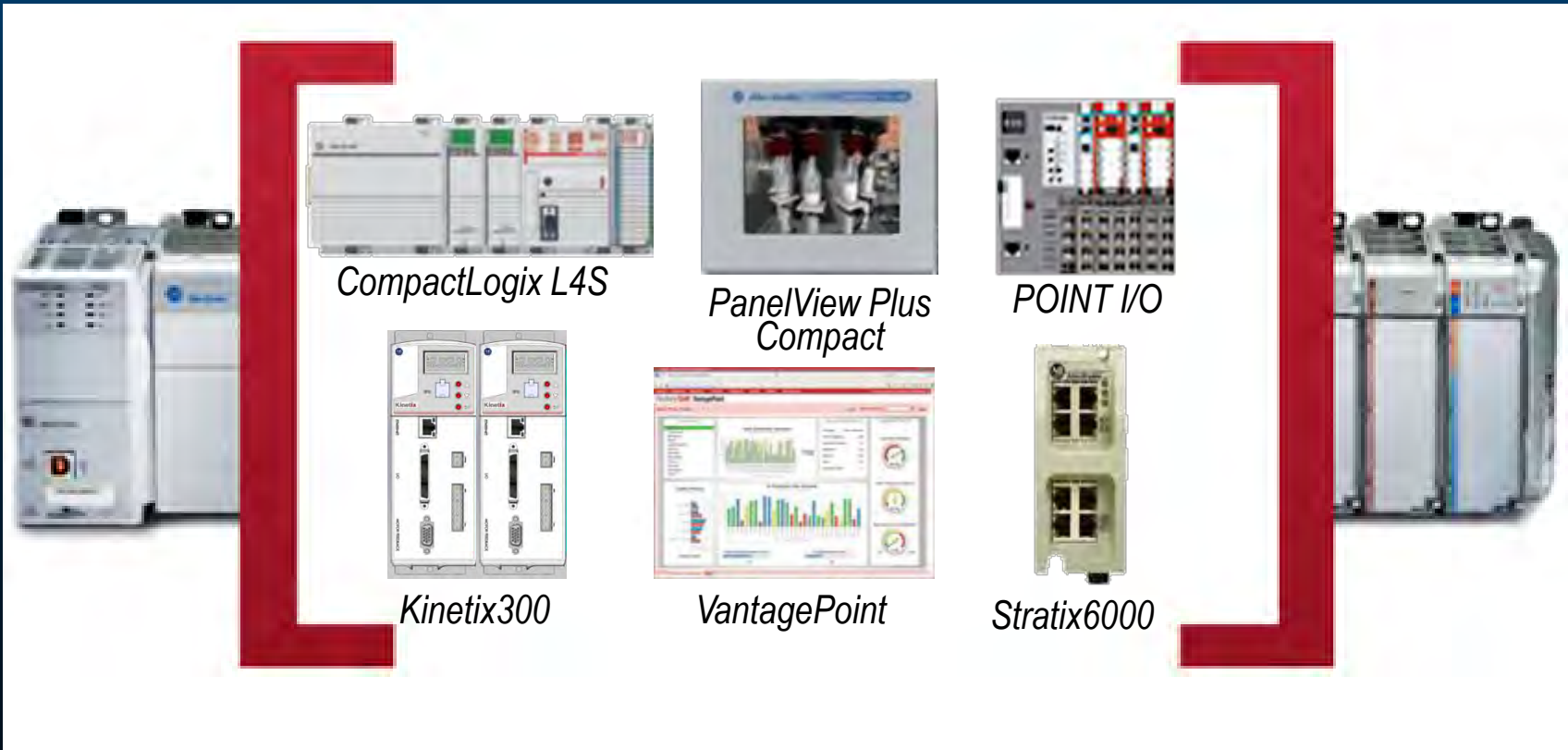
# Midrange Architecture System – Wave 1



- Scaled Logix architecture
- Premier integration
- SERCOS integrated motion

- Network convergence
- Remote visualization
- Design productivity

# Midrange Architecture System – Wave 2



- Scaled system view
- Integrated Safety Control
- Network Safety I/O

- Embedded Safe-off
- Device Level Ring
- Low axis motion

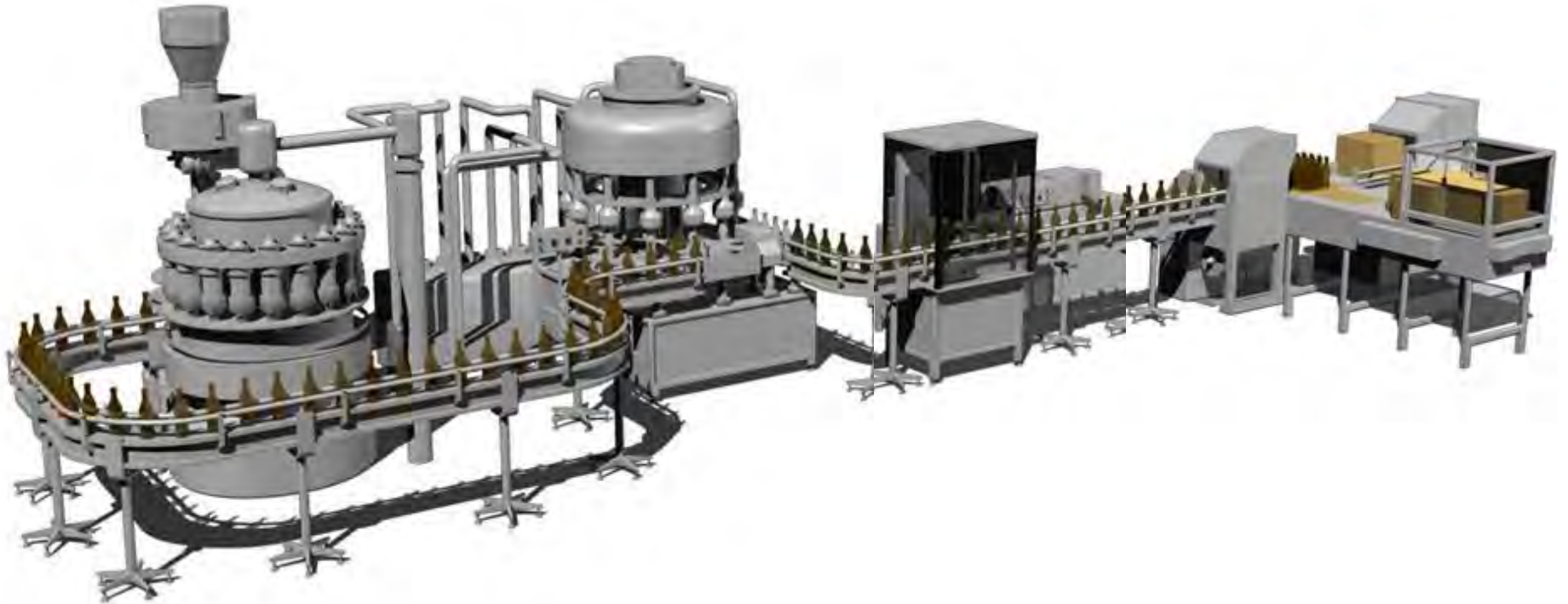
# Midrange Architecture System – Wave 3



- Smallest Logix System
- EtherNet/IP integrated motion
- Real time information
- Integrated visualization
- Information software suite
- Simplified mechatronics

# Design, Develop and Deliver a Better Machine

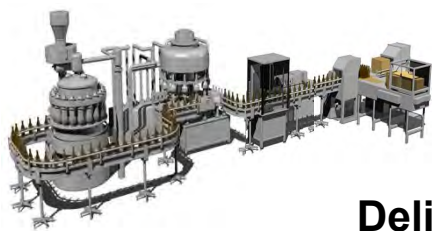
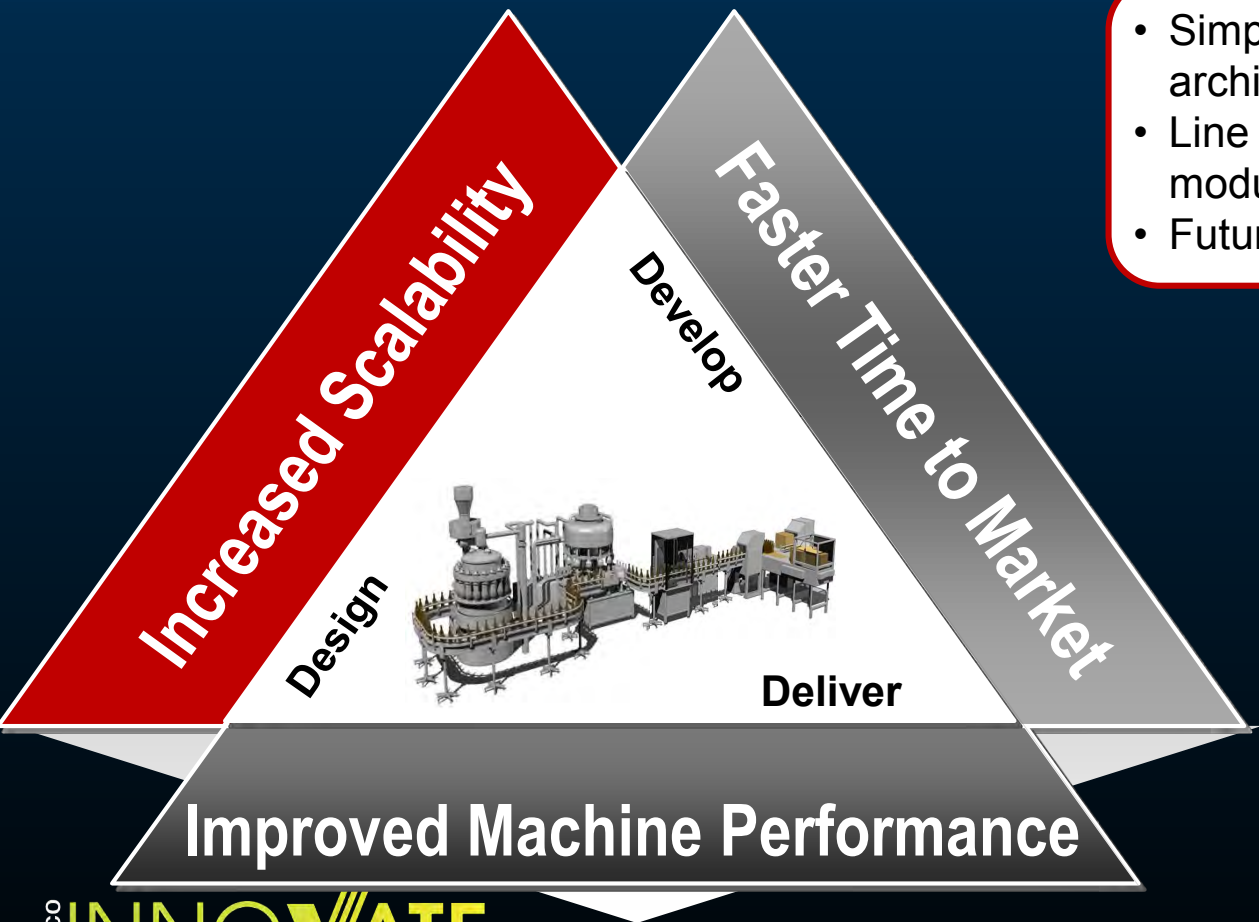
- Increased Scalability
- Faster Time to Market
- Improved Machine Performance





# Increased Scalability

- Simplified network architecture
- Line integration provides modular programming
- Future ready



# Increased Scalability

- Simplified network architecture
- Line integration provides modular programming
- Future ready

- Common programming & configuration tools
- Add value with third party devices

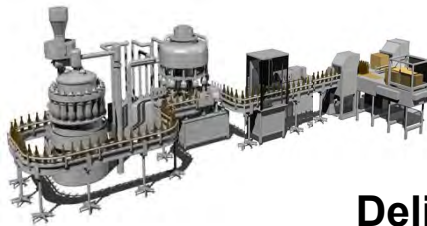
**Increased Scalability**

**Faster Time to Market**

Design

Develop

Deliver



**Improved Machine Performance**

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# Increased Scalability

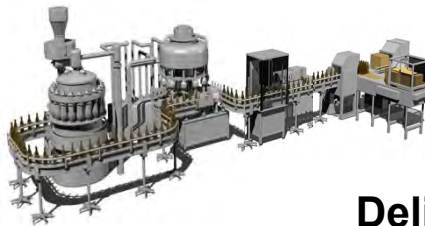
**Increased Scalability**

**Faster Time to Market**

**Design**

**Develop**

**Deliver**



**Improved Machine Performance**

- Simplified network architecture
- Line integration provides modular programming
- Future ready

- Common programming & configuration tools
- Add value with third party devices

- Seamlessly scale your motion control application on EtherNet/IP
- One development environment for all machines
- High performance servo system for smaller machine

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# Faster Time to Market

- Mitigate risks with a common control platform
- Enhance machine performance

Increased Scalability

Faster Time to Market

Design

Develop

Deliver

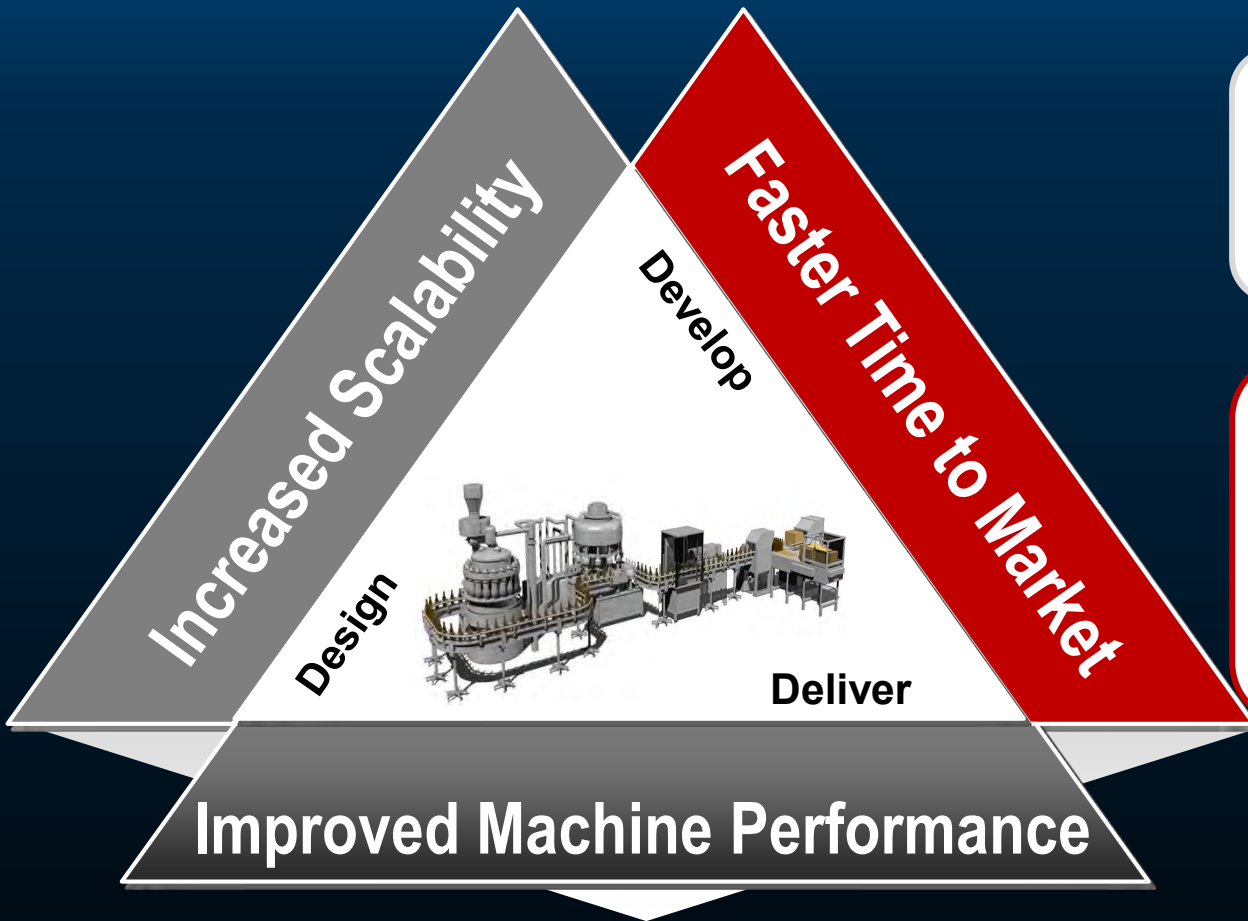


Improved Machine Performance

  
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# Faster Time to Market



- Mitigate risks with a common control platform
- Enhance machine performance

- Reduce the time to design, develop and configure
- Simplify plant-wide integration
- Open access to real-time information



# Faster Time to Market



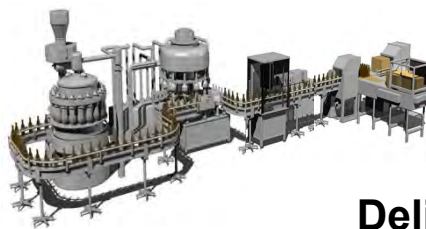
TOMORROW  
starts here.

Increased Scalability

Design

Develop

Faster Time to Market



Deliver

Improved Machine Performance

- Mitigate risks with a common control platform
- Enhance machine performance

- Reduce the time to design, develop and configure
- Simplify plant-wide integration
- Open access to real-time information

- Improve machine design using mechatronic modeling & simulation tools
- Reduce design and start-up time with accelerators

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# Increased Machine Performance

- Performance needed in a compact design
- Built on proven technology

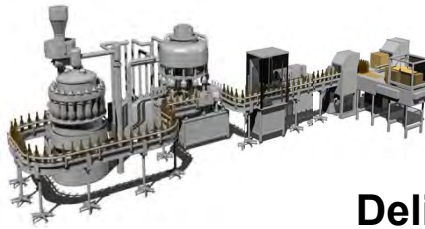
**Increased Scalability**

**Faster Time to Market**

**Design**

**Develop**

**Deliver**

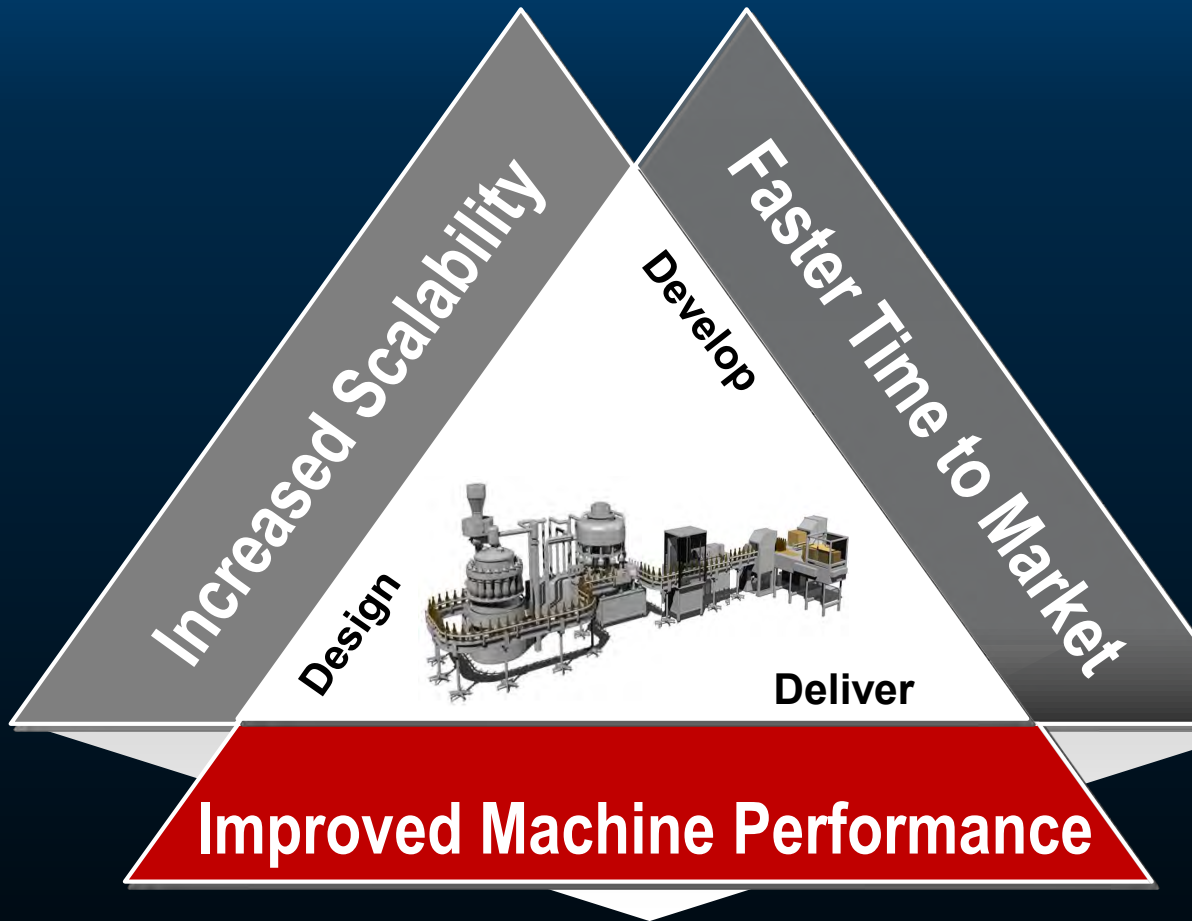


**Improved Machine Performance**

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# Increased Machine Performance



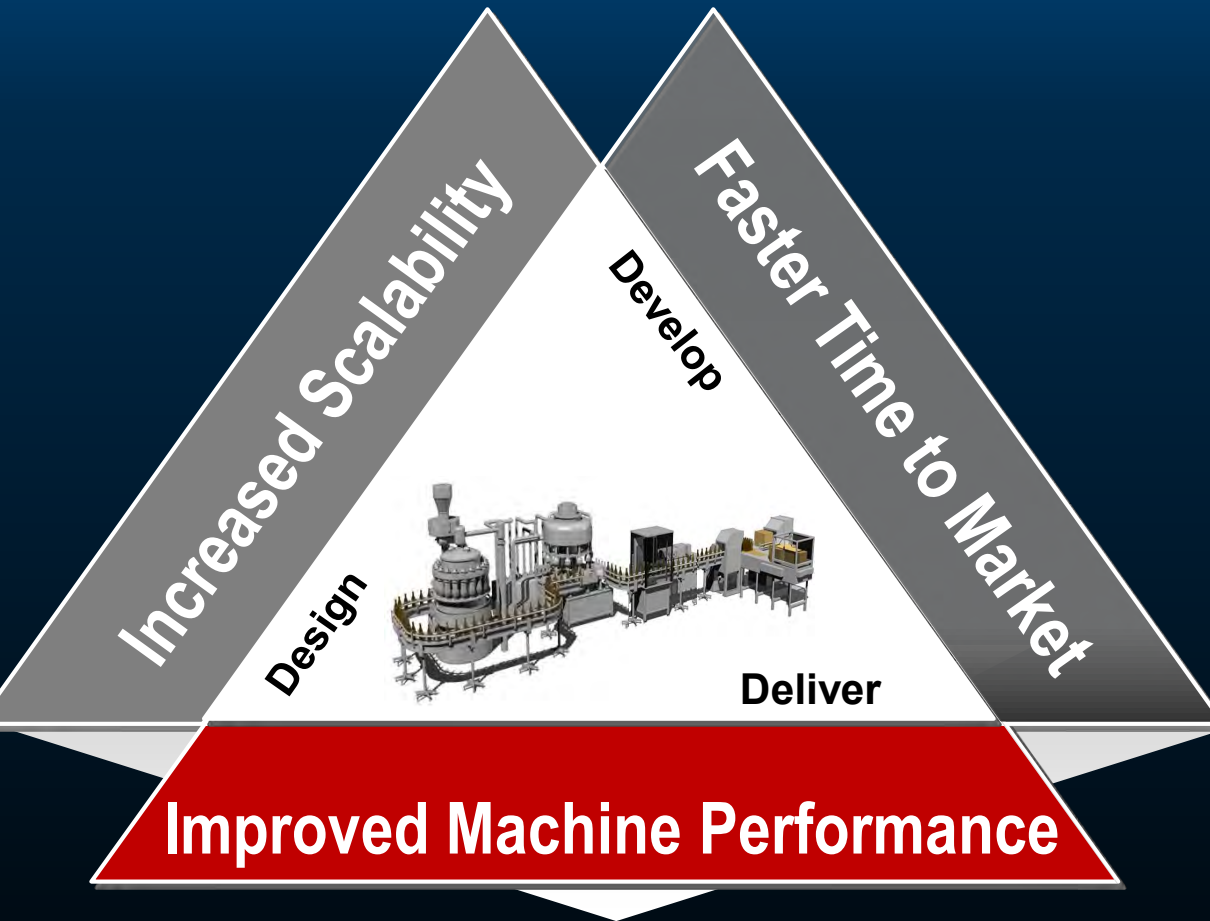
- Performance needed in a compact design
- Built on proven technology

- Improve machine reliability with linear products
- Greater machine availability with safe torque-off
- Optimize machine design and sustainability with mechanical and electrical integration





# Increased Machine Performance



- Performance needed in a compact design
- Built on proven technology

- Improve machine reliability with linear products
- Greater machine availability with safe torque-off
- Optimize machine design and sustainability with mechanical and electrical integration

- Accuracy needed for the most demanding applications
- Real time information enables better decision making

# Midrange System Product Portfolio

Wave 1

Wave 2

Wave 3

## Network



Stratix8000



Stratix6000



Stratix5700

## Visualization



PanelView Plus



PanelView Plus Compact

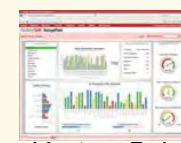


PanelView 5000

## Information



ViewPoint



VantagePoint



FactoryTalk Suite

## Control



CompactLogix L4



CompactLogix L4S



CompactLogix L3,2,1

## Power



Kinetix6000



Kinetix300



Kinetix350

## Design



PowerFlex7 Class

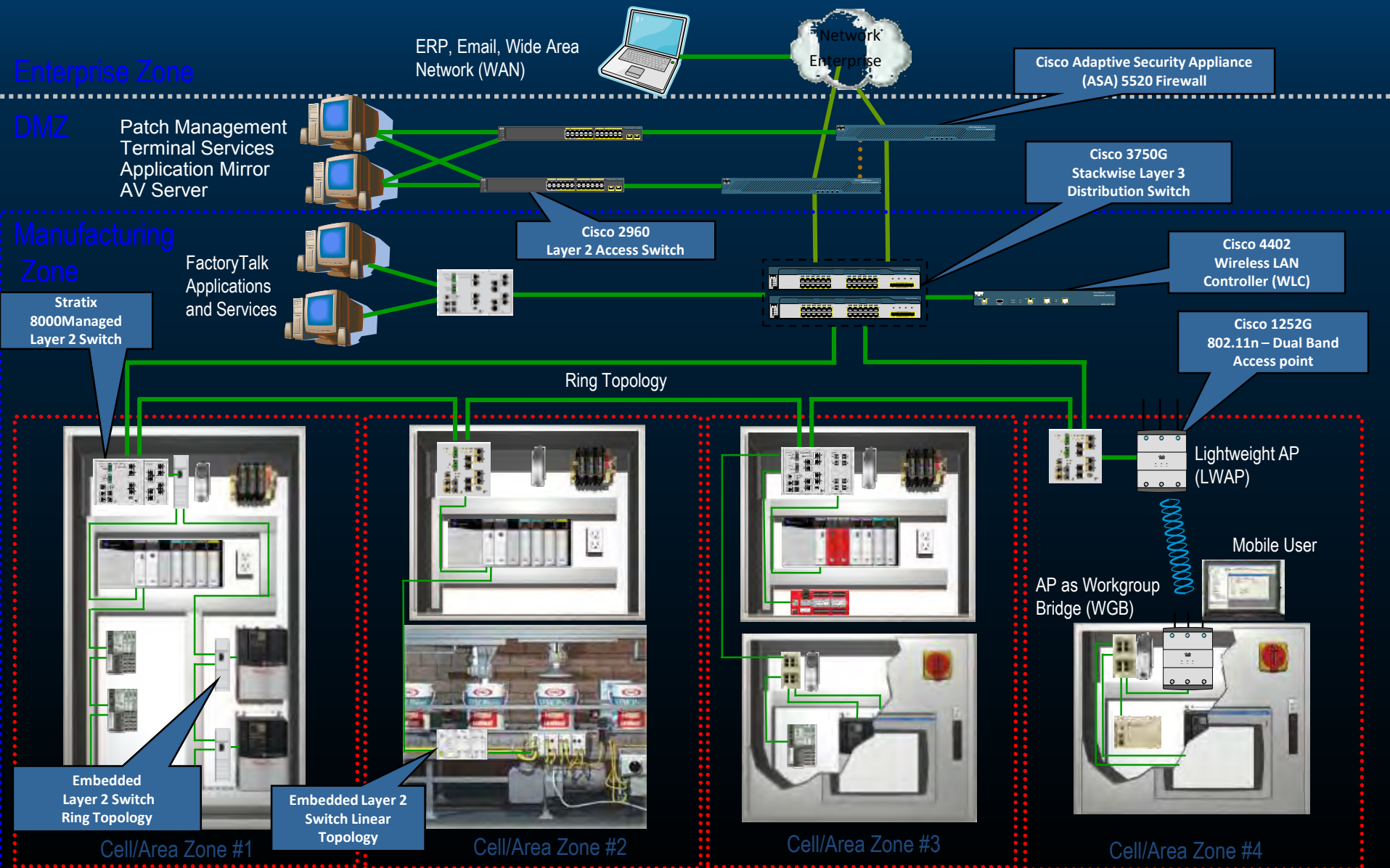


POINT I/O



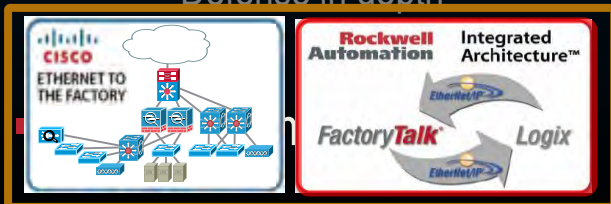
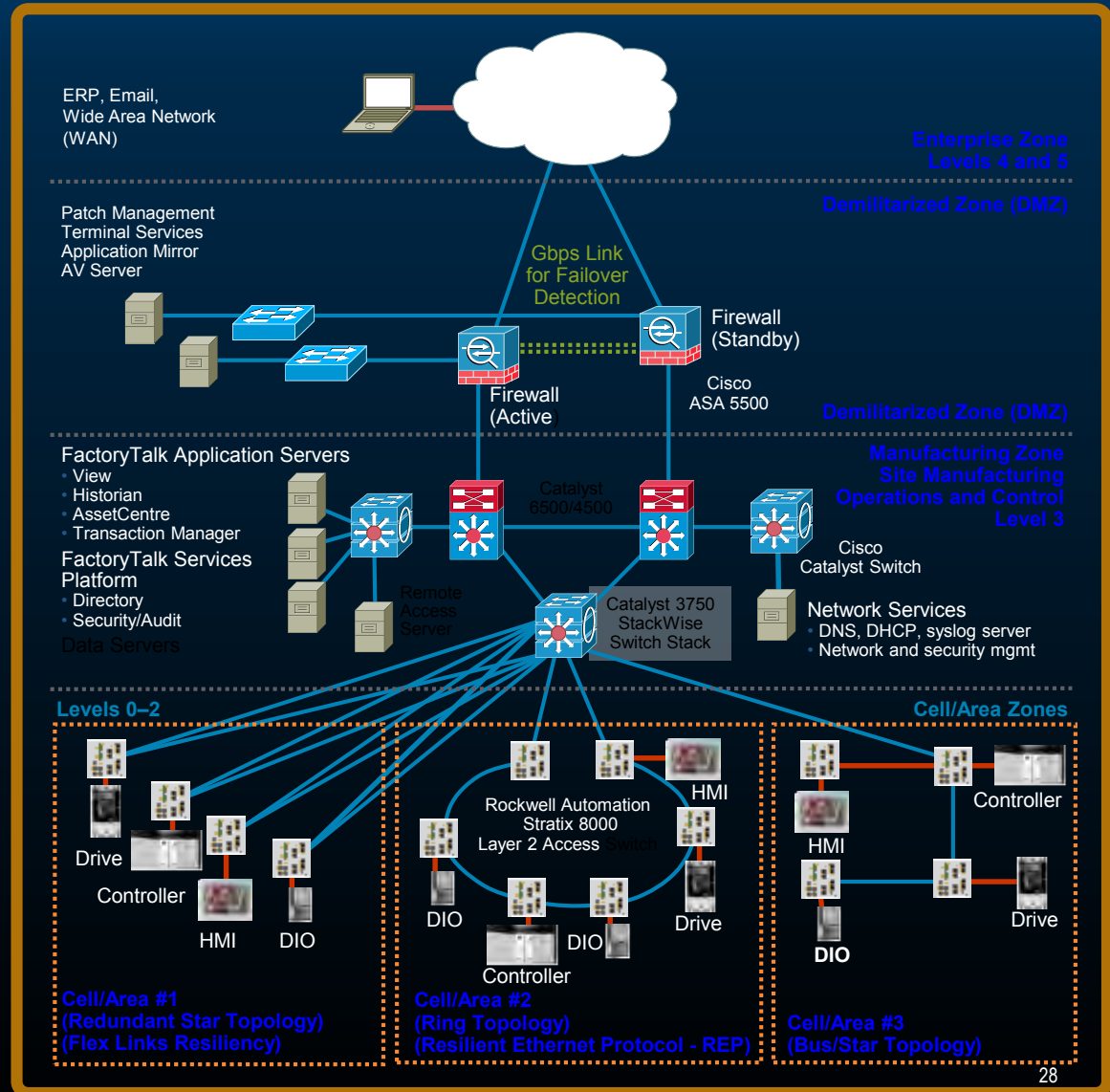
Motion Analyzer 6

# Representative Configurations



# Converged Plantwide Ethernet Architectures

- Logical framework
- Industrial and IT network convergence
- Hierarchical segmentation
  - Scalability
  - Resiliency
  - Traffic management
  - Policy enforcement
- Security policies
  - Defense in depth



# Summary

## Converged Plantwide Ethernet Architectures

- Establish an open dialog between Manufacturing and IT
- Understand your network protocols/devices, IP addressing, VLANs, QoS, Security
- Defense-in Depth Security: no single methodology nor technology fully secures industrial networks
- Utilize standards, reference models and reference architectures
  - Foundation for success when deploying the latest, innovative technologies
  - Documented - less trial and error – reduced equipment costs and commissioning time – risk mitigation
  - Robust and secure network infrastructure providing low latency & jitter delivery and high availability
- Work with Rockwell Automation and Cisco Network and Security Services

# A New Compact Machine Control Platform...



*TOMORROW  
starts here.*

A large, thick red bracket is centered on a white background. Inside the bracket, the text "...that has it all." is written in a bold, dark red, sans-serif font. On either side of the bracket, a compact, silver-colored machine control unit is visible. Each unit has a front panel with various ports and a small display. The units are positioned as if they are the components being highlighted by the bracket.

**...that has it all.**

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**High Performance. Scalability. Integration. Single network.**

# Multimedia Resources

- [Network & Communications - Rockwell Automation & Cisco Systems](#)
- [Cisco Systems – Building Manufacturing & IT Network Architecture & Products to Address Network Convergence](#)
- [Rockwell Automation & Cisco Systems Alliance Profile](#)
- [Convergence Plantwide Ethernet \(CPwE\) Design and Implementation Guide](#)
- [Achieving Secure, Remote Access to Plant floor Applications and Data](#)
- [10 Recommendations for Plantwide EtherNet/IP Deployments](#)
- [Aberdeen Group - Building the Case for Industrial Ethernet](#)

# Multimedia Resources

- [http://www.cisco.com/web/strategy/manufacturing/mfg\\_remote\\_access\\_demo.html](http://www.cisco.com/web/strategy/manufacturing/mfg_remote_access_demo.html)



# Questions?

Thank You



*TOMORROW starts here.*