Planning for Tomorrow, Today

Paul Anderson, Technical Manager

How should manufacturing trends affect my automation decisions today?

Trends in Manufacturing

Underlying Concepts

Data

Trends in Manufacturing
Underlying Concepts

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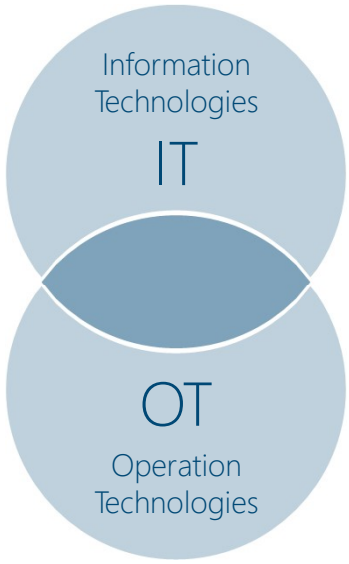
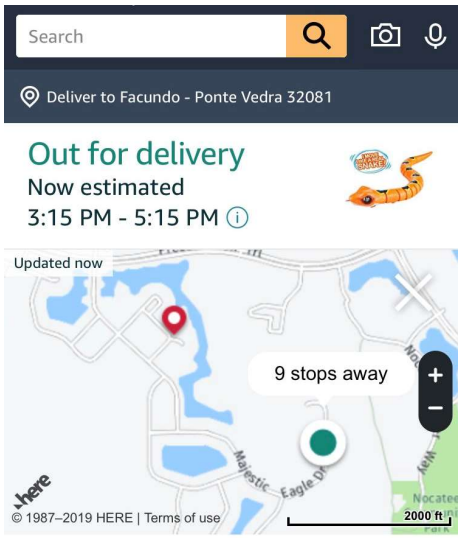
Trends in Manufacturing
Underlying Concepts

Data





Trends in Manufacturing
Underlying Concepts

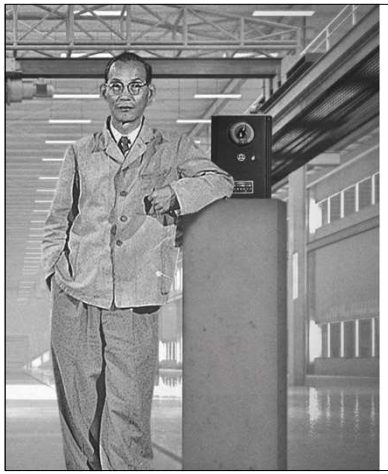
Flexibility

Lot size of one
Mass Customization

Flexibility over equipment lifespan

Trends in Manufacturing
Underlying Concepts

Changing Labor Dynamics



> To the machine, the work of the machine. To man, the thrill of further creation.

- Kazuma Tateishi
Founder of Omron

Trends in Manufacturing

Underlying Concepts

Changing Labor Dynamics

Lights out Factory

Audit all human interaction with process

Redirect from manual labor to value add creativity

Infrastructure to support remote interaction

Three Principles for Automation Decisions

- Focus on Machine Performance
- Develop Simple Robust Solutions
- Always Choose More Data

Principles for Automation Decisions

Focus on Machine Performance

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Focus on Machine Performance

CPU Design Approach

Network Architecture

Program and Network Synchronized

Principles for Automation Decisions
Focus on Machine Performance

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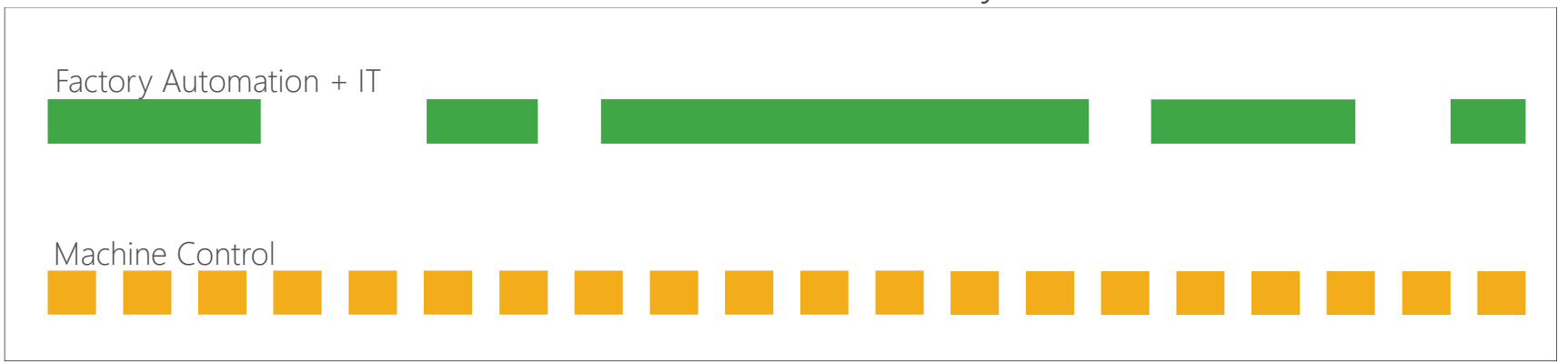
Principles for Automation Decisions
Focus on Machine Performance

Network Architecture - Communication Needs by Function



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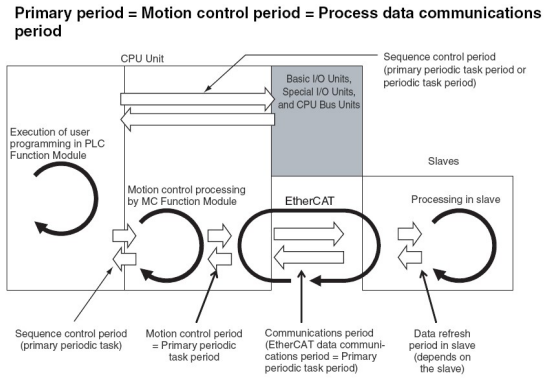
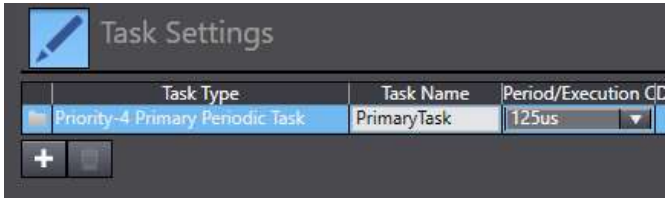
Focus on Machine Performance

CPU Design Approach

Network Architecture

Program and Network Synchronized





Principles for Automation Decisions

Develop Simple Robust Solutions

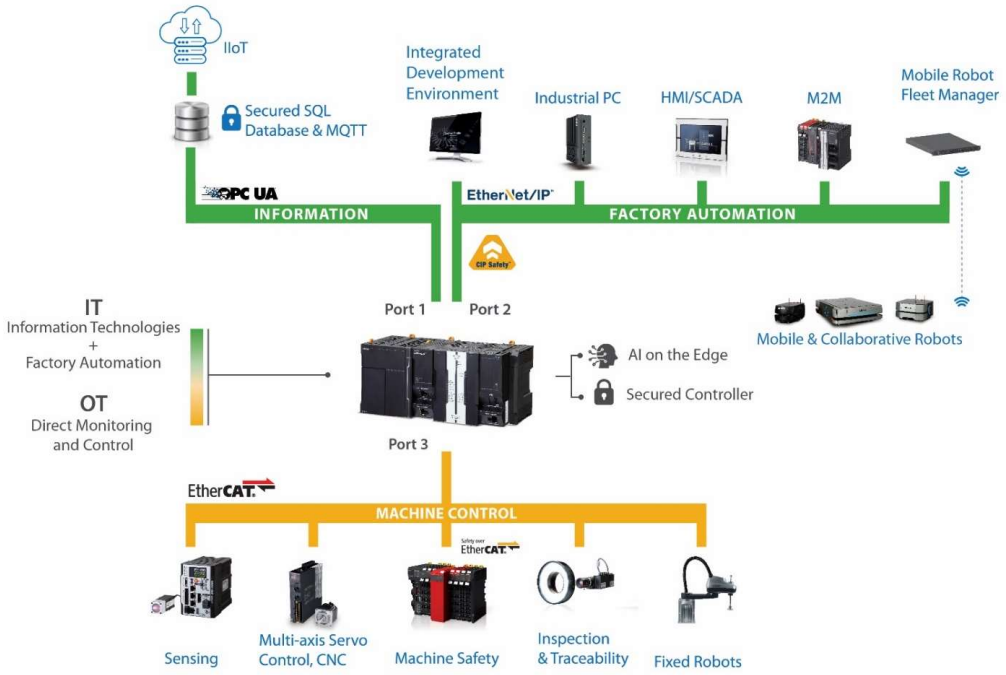
Principles for Automation Decisions

Develop Simple Robust Solutions

IT/OT Architecture

Out-of-the-box Features

Backwards Compatibility



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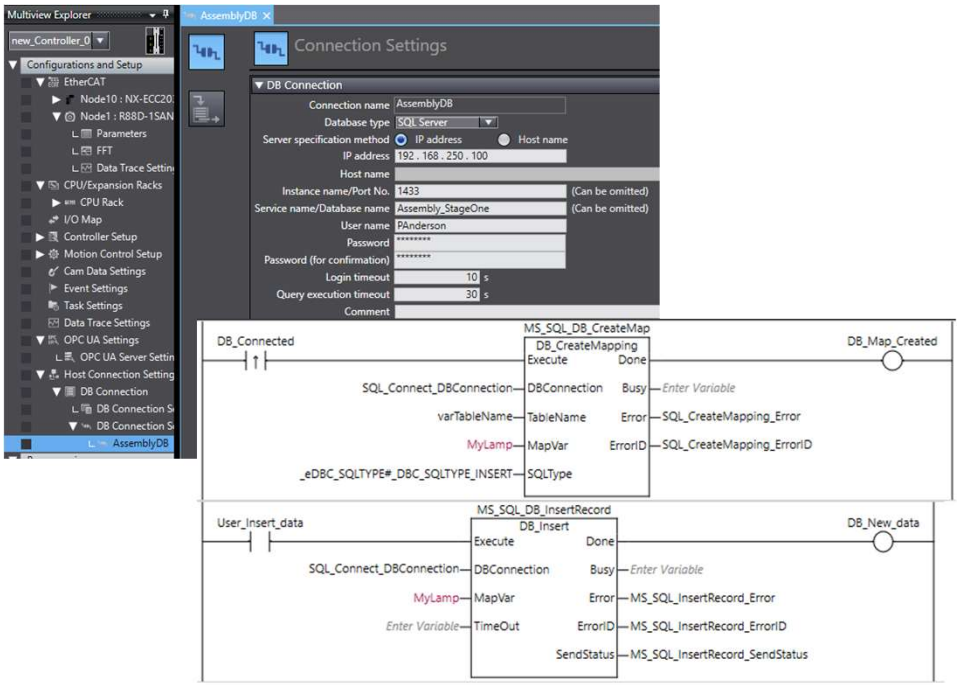

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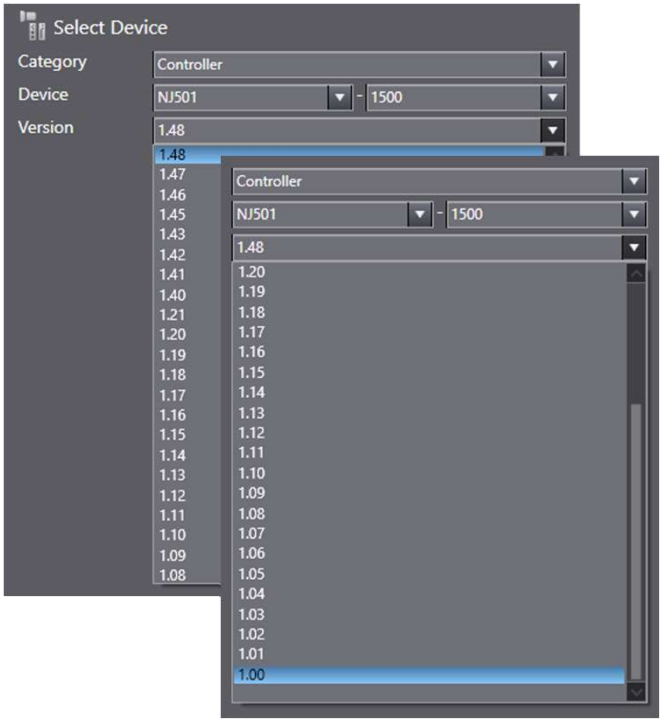

Principles for Automation Decisions
Always Choose More Data

Networked Sensors

AI + Edge Computing

Bandwidth Mindset

Principles for Automation Decisions

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Networked Sensors

AI + Edge Computing

Bandwidth Mindset

AI on the Edge

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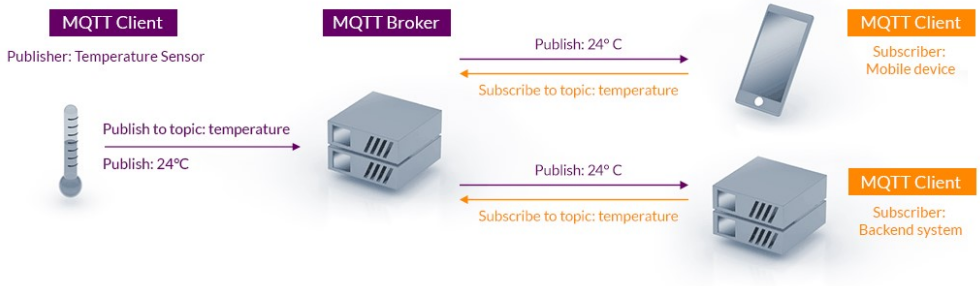

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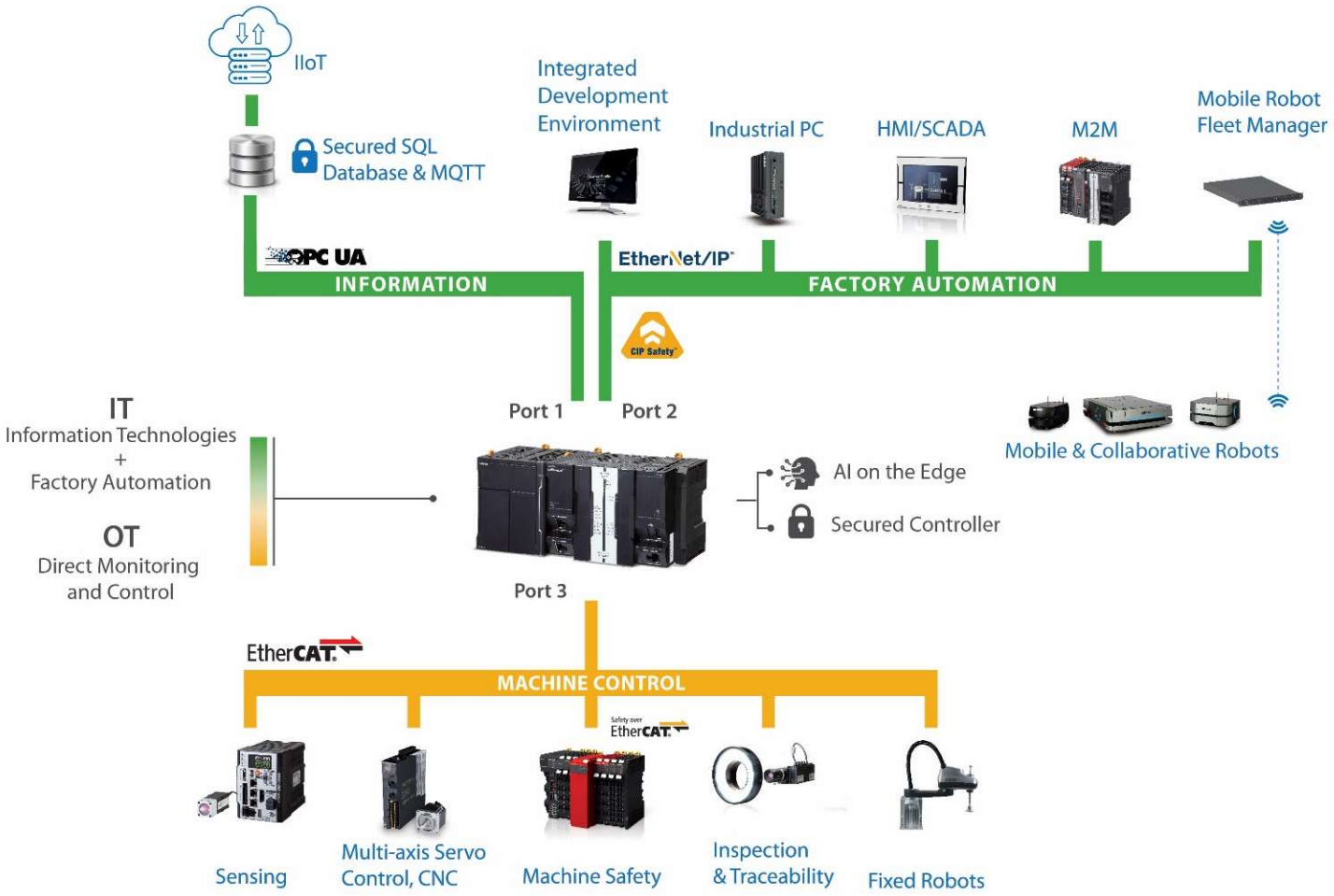
- Develop Simple Robust Solutions
- Always Choose More Data


IIoT
Secured SQL
Database & MQTT
Integrated
Development
Environment
Industrial PC
HMI/SCADA
M2M
Mobile Robot
Fleet Manager
OPC UA
INFORMATION
EtherNet/IP
FACTORY AUTOMATION
CIP Safety
IT
Information Technologies
+
Factory Automation
OT
Direct Monitoring
and Control
Port 1
Port 2
Port 3
AI on the Edge
Secured Controller
Mobile & Collaborative Robots
EtherCAT
MACHINE CONTROL
Safety over EtherCAT
Sensing
Multi-axis Servo
Control, CNC
Machine Safety
Inspection
& Traceability
Fixed Robots

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