T91- Driving Positive Business Outcomes with Data and Analytics
Enabling the Industrial Internet of Things (IIoT)
What happened?
‘The motor failed…’

Why did it happen?
‘Overload fault on Motor 1’

What will happen?
‘Motor 1 will fail due from overload due to rising current’

What should I do?
‘Reduce load on Motor 1’

Source: Gartner
The challenge…

SIMPLIFICATION
A simple…

PREDICTIVE analytic
5 Key Insights of Big Data and Analytics
Applied to Industry

- Speed
- Compression force
- Weight
- Hardness and thickness of every tablet
- Cam filling depth
- Lubrication interval
- ...

[Image of pills in a hand]
ENTERPRISE
• Site to site benchmarking
• Operational analytics
• Integration to/from business systems
• Data visualization & discovery

SYSTEM
• Real-time optimization of machines, processes & plants
• Predictive maintenance
• Abnormal system awareness & action

DEVICE
• Information from smart assets
• Third party device integration
• Machine/fleet management for remote assets

CONNECTED SERVICES
• Design / Implementation / Integration
• Application Specific Support
• 24x7 Monitoring and Administration
• Onsite Response
Scalable Analytics - a Key Differentiator

**ENTREPRISE**
- **DESCRIPTIVE**
  - Which plant performed the best?
- **DIAGNOSTIC**
  - Why is Site A throughput behind plan?
- **PREDICTIVE**
  - I predict that Site A will be behind plan soon.
- **PRESCRIPTIVE**
  - What action should I take to avoid Site A from falling behind plan?

**SYSTEM**
- **DESCRIPTIVE**
  - Is Line 1 running ok?
- **DIAGNOSTIC**
  - Why is Line 1 quality poor?
- **PREDICTIVE**
  - I predict that Line 1 quality is moving out of tolerance.
- **PRESCRIPTIVE**
  - What action should the operator take to avoid poor quality?

**DEVICE**
- **DESCRIPTIVE**
  - Am I running ok?
- **DIAGNOSTIC**
  - Why did a fault happen?
- **PREDICTIVE**
  - I predict a fault will happen soon.
- **PRESCRIPTIVE**
  - What action should be taken to avoid the fault?
Scalable Analytics - a Key Differentiator
FactoryTalk Analytics for Devices (Project Shelby)

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MONITOR & INTERACT WITH IIoT DEVICES, IMPROVE PLANT HEALTH

- **Detect** your smart devices, automatically
- **Digitize** the data, allowing work to be done
- **Analyze** the data, perform calculations, transform the data
- **Act** on information, get to the right people, on the right device

Immediate value delivered as an Industrial Appliance; Self-contained and FactoryTalk Cloud aggregation options
PREVIOUSLY TO DO DIAGNOSTICS WITHOUT ANALYTICS...

>3 hours  >3 days  >1 week  >1 month

NOW IT’S DONE IN MINUTES
WHAT DOES IT DO?

• Monitors and improves MTTR (Mean Time to Repair)
• Detects Ethernet/IP devices automatically
• Performs analysis on device data
• If there is any issue with a device, notifies customers
• Learns what issues are important for a specific user
• Performs system level health & diagnostics to solve hard-to-discover issues
• New and intuitive ways to interact with analytics
Shelby is sold as a ready-to-use bundled product that includes hardware, subscription software and support on the eCommerce Portal.

- Seamless, automatic updates 3-4 times per year.
- Updates include: New device support, improved analysis.
- Cloud connectivity suggested, but not required.

http://commerce.rockwellautomation.com
On boot up, the appliance detects devices on the local network

- Locates any Ethernet/IP (CIP) devices automatically
- Customizable
  - You can specify ranges or specific IP addresses to include/exclude
- Communicates directly to devices, not thru controller
  - Low network impact, intelligent throttling
- Future: Add different protocols
ALL DONE AUTOMATICALLY!

DASHBOARDS

IDENTIFIES THE DEVICE
PEFORMS DIAGNOSTIC ASSESSMENT
IMPORTANT SUPPORTING DATA

SIGNIFICANT DIAGNOSTICS
WHAT DEVICES WILL BE SUPPORTED

- Any Ethernet/IP device responds with a default diagnostic status
- Over 2,000 devices have specific diagnostics built-in
- Capable of complex analysis based on the data from the devices
- Example: PowerFlex® 755 has over 80 points of data and then an extra 30 created by our analyzers
- Our most popular families will have coverage (Logix, PowerFlex, Kinetix)
- This is an area for future expansion, both in devices supported, 3rd party devices supported and customizability
ACTION CARDS

DELIVERED WHEN SOMETHING OCCURS AND SYSTEM FEELS ACTION IS REQUIRED
VOTING IN ACTION

ACTION CARDS

- The engine will “learn” what is important to a specific person
- If you choose to acknowledge the card with a swipe right, you’ll get more cards just like it
- If you do not want to see more information about a device, a swipe left will “down vote”
  - After repeated down votes, a specific user will not see more action cards from that specific device

ON PHONES, SWIPING RIGHT IS AN “UP VOTE” AND SWIPING LEFT IS A “DOWN VOTE”
CUSTOMER INTERACTION

NEXT GENERATION

- What to do when you do not have time to look for a dashboard? When you are on the go, not sure where the info is?
- What if you could just ask?
- Our appliance has a chat bot (we call the bot “Shelby”) built into it to answer questions about operations, devices, etc.
- Will be integrated to TeamONE chat
OUR SECOND LEVEL ANALYZER CAN PERFORM ANALYSIS ACROSS A MULTITUDE OF DEVICES, DETERMINING PATTERNS

VIEWED AS A FEED THAT TEACHES CUSTOMERS HOW TO USE THE PRODUCT AND PROVIDES DAILY INFORMATION
FactoryTalk® Analytics for Devices

- Action Cards
- Mobile Action Cards
- System Feed
- Chat
- Automatically Created Dashboards
Thank You!