

Less Wires, More Data: Harnessing new technology at the network edge

Presented by **Martin Davis, Vice President of IT, J.D. Irving Ltd**
Keith Flynn, President & Founder, RtTech Software Inc.





J.D. IRVING, LIMITED

*Quality Service
Quality Products
Customer Satisfaction
Since 1882 - 135 Years*



Over 15,000 engaged employees





A diversified group of companies, vertically integrated to support each other, committed to the future and continued business growth.



forest products

J.D. Irving, Limited

Largest private reforestation program in Canada.

A full range of forest products:

- lumber
- pulp
- paper
- corrugated medium



consumer products

Irving Tissue

Leading manufacturer of premium quality tissue products - branded and private label.

Irving Personal Care

Private label diaper and training pants for North American retailers.



transportation

Midland Transport

Sunbury Transport

Kent Lines

Atlantic Towing

RST Industries

NB Southern Railway

Harbour Development



food products

Cavendish Farms

Processor of frozen potato and appetizer products in North America.

Cavendish Produce

Fresh potato specialists serving retail and food service.



shipbuilding, industrial & construction

Irving Shipbuilding

Kent Homes

Modular buildings -
commercial & residential

Irving Wallboard

Gulf Operators

Irving Equipment/

Industrial Rentals



retail & distribution

Kent Building Supplies

Chandler

Universal Truck & Trailer

Cavendish Agri Services

Plasticraft

...and more

Operational Excellence

Built on

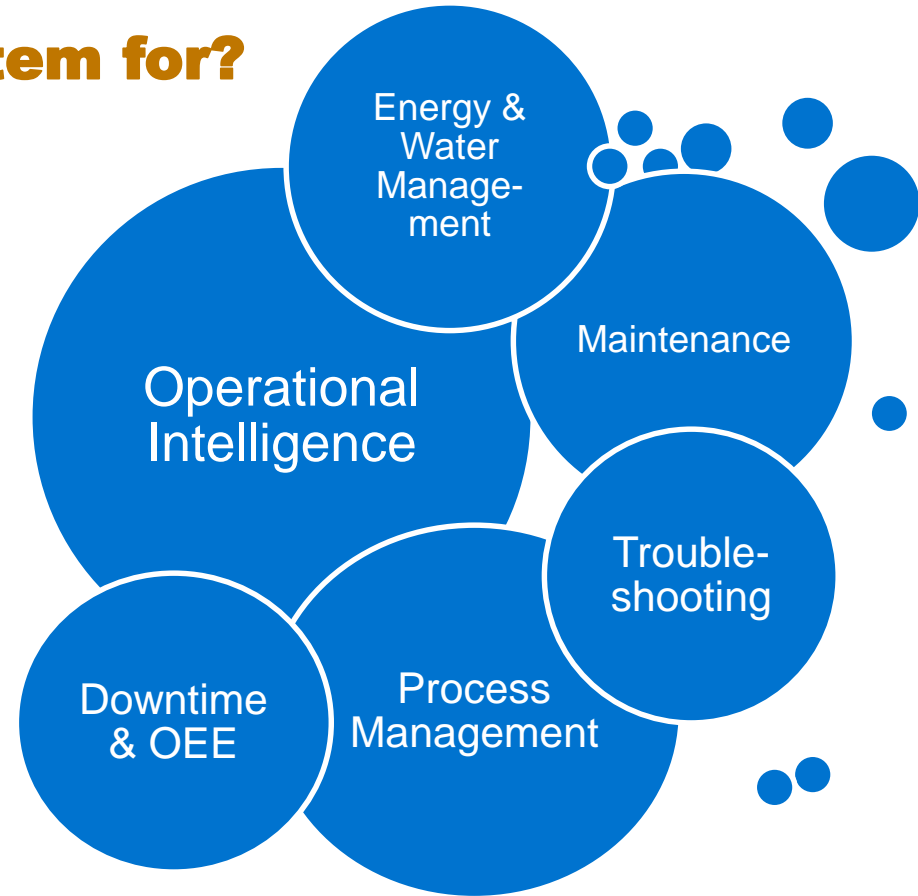
Operational Intelligence

Powered by The PI System

IoT & OSIsoft – J.D. Irving & RtTech

What do we use the PI System for?

- Used across our Manufacturing plants
- Includes:
 - Paper Mills
 - Tissue converting
 - Diaper
 - Frozen Food

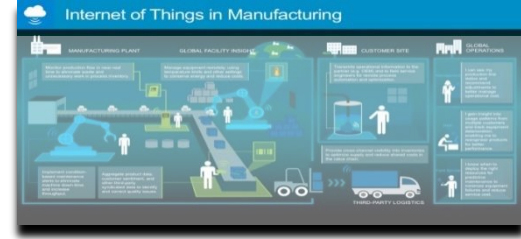


Internet of Things in Manufacturing



IoT & OSIssoft – J.D. Irving & RtTech

Opportunities



- Capturing information, from anywhere, in real-time
- Optimizing production flow
- Condition-based maintenance automatically creating work orders
- Adjusting production speeds automatically to maximize production while minimizing energy
- Automated vehicles making data-driven decisions
- Transportation and Marine operations

IoT & OSIsoft – J.D. Irving & RtTech

Common Challenges



- Assets not connected to the PI System have no real-time visibility
- What about limitations?
 - Isolated areas of a plant or in the field (outside the plant)?
 - Poor network quality?
 - Mobile assets?
 - Remote Meters?
- Or aging or outdated controls with low connectivity?
 - Upgrades are costly. Rip and Replace
 - Networking and installation significant

IoT & OSIsoft – J.D. Irving & RtTech

RtTech Relationship

- RtTech and JDI are long term partners
- JDI helped design & develop RtDUET
- RtDUET and RtEMIS key components of our architecture
- Piloting Cipher
 - Scalable IIoT solution
 - Connect more to PI

RtDUET

**INCREASE ASSET
UTILIZATION.**

RtEMIS

**ELIMINATE
ENERGY WASTE.**



CIPHER

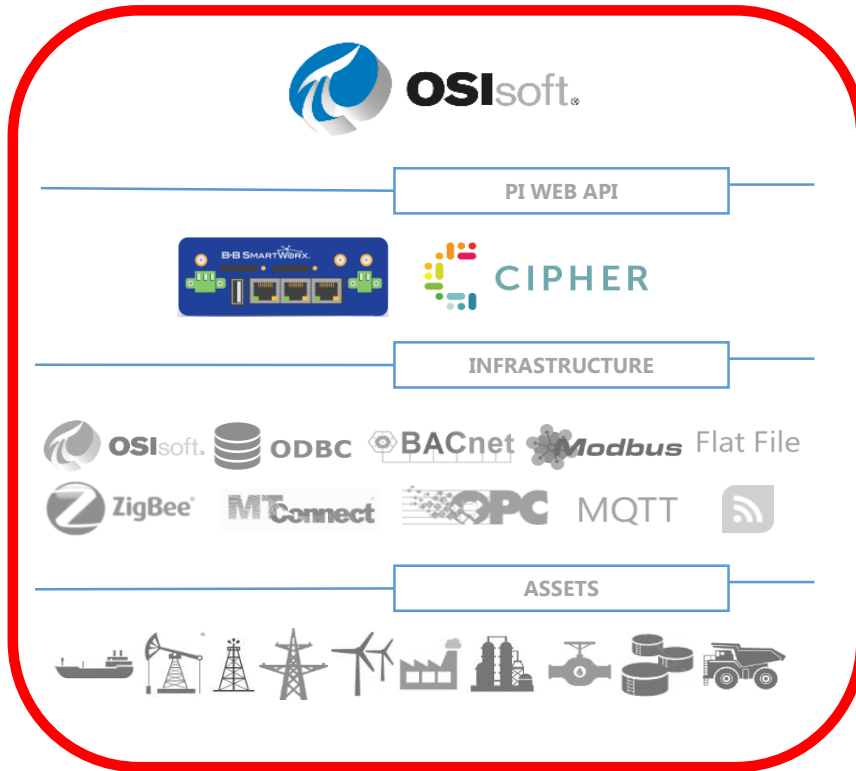
POWERED BY  **RtTECH
SOFTWARE**

IoT application Software

- Cipher is a drop-in Industrial IoT solution
 - Cost effective “No Rip and Replace”
 - Data from remote assets, integrated in real-time into the PI System
 - **Seamless integration to your existing PI system**

IoT & OSIsoft – J.D. Irving & RtTech

Solution: Less Wires, More Data

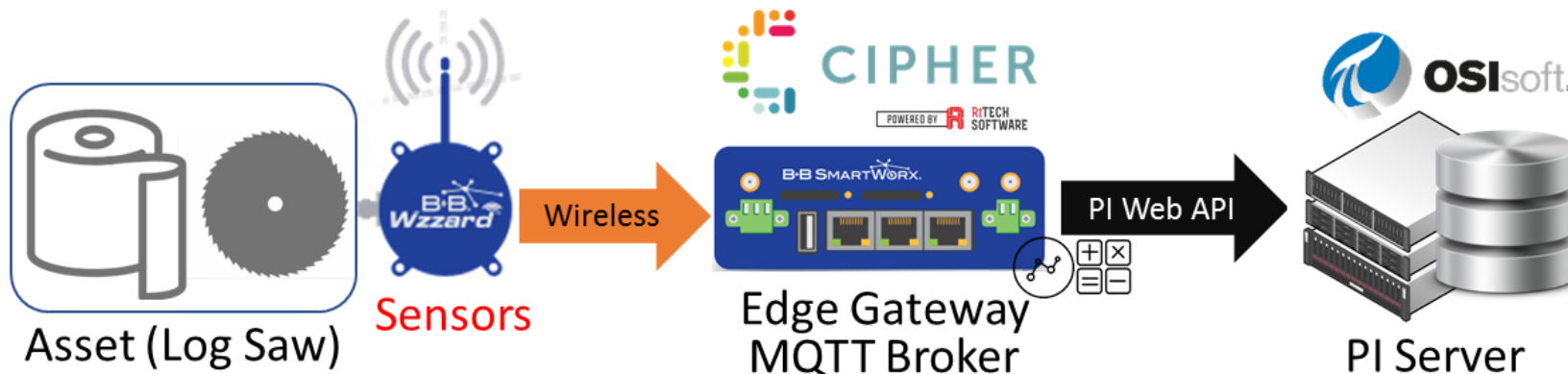


“Simplifying the Industrial Internet”



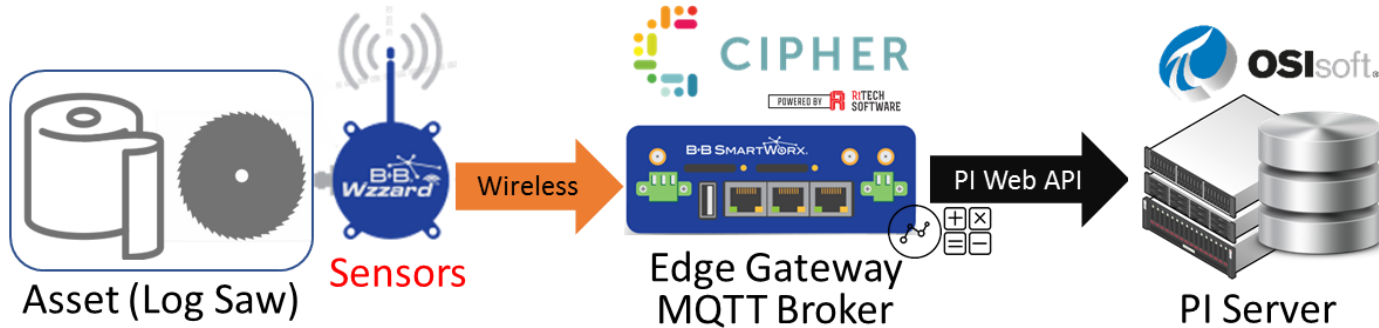
IoT & OSIsoft – J.D. Irving & RtTech

Solution: Less Wires, More Data



IoT & OSIsoft – J.D. Irving & RtTech

Solution: Less Wires, More Data

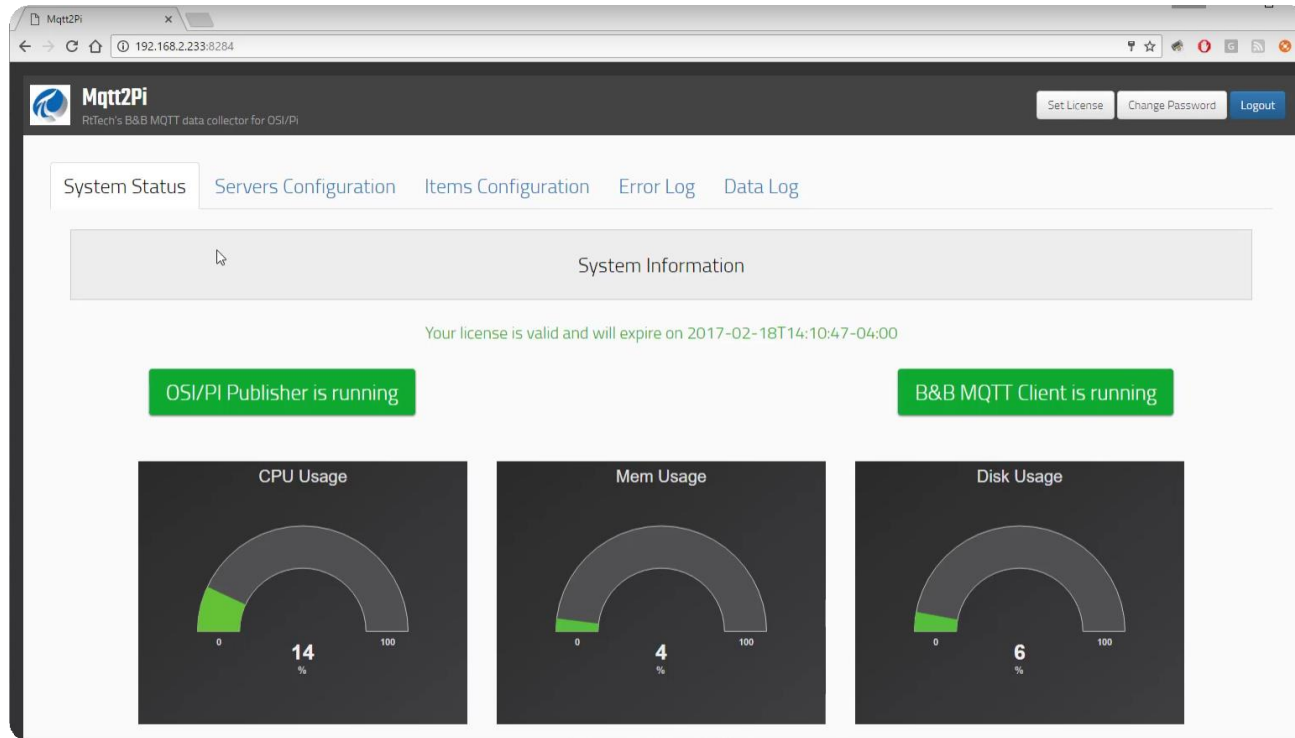


Scalable for future expansion



IoT & OSIssoft – J.D. Irving & RtTech

Cipher Connect Embedded Web



Dashboard
for status

IoT & OSIssoft – J.D. Irving & RtTech

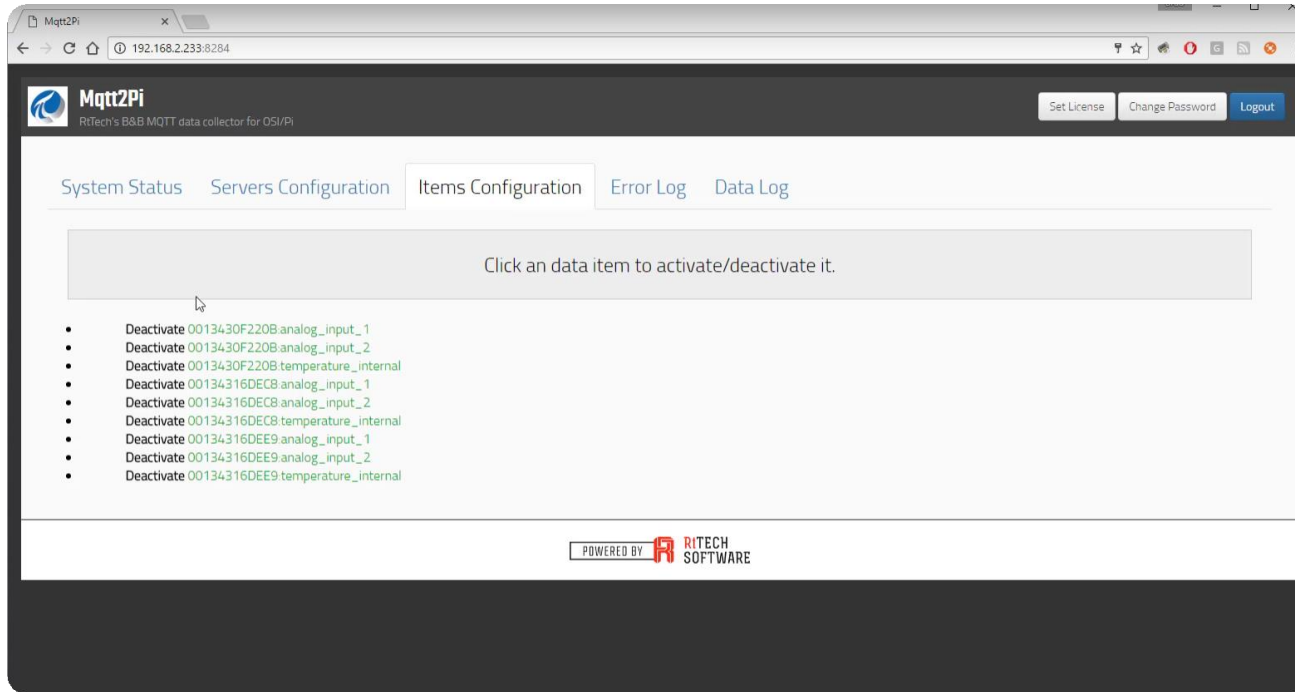
Cipher Connect Embedded Web

A screenshot of a web browser displaying the Mqtt2Pi web interface. The browser's address bar shows the URL "192.168.2.233:8284". The page has a dark header with the "Mqtt2Pi" logo and the text "RtTech's B&B MQTT data collector for OSI/Pi". In the top right corner of the header are buttons for "Set License", "Change Password", and "Logout". Below the header is a navigation bar with tabs: "System Status", "Server Configuration" (which is selected), "Items Configuration", "Error Log", and "Data Log". The main content area has a light gray background with a message: "Enter the configuration of the MQTT Broker and Pi Web API Server you want to use to collect and report data." Below this message are two green status boxes: "OSI/Pi Publisher: OK" and "B&B MQTT Client: OK". The configuration fields include: "MQTT Broker URL" (127.0.0.1), "MQTT Broker Port" (1883), "Pi Server URL (OMF or Web API)" (192.168.2.148), a checkbox for "Use OMF", "Pi Web API Data Server Name" (brad-vm), "Pi Web API Username" (Administrator), and "Pi Web API Password" (masked with dots).

Endpoint
configuration

IoT & OSIssoft – J.D. Irving & RtTech

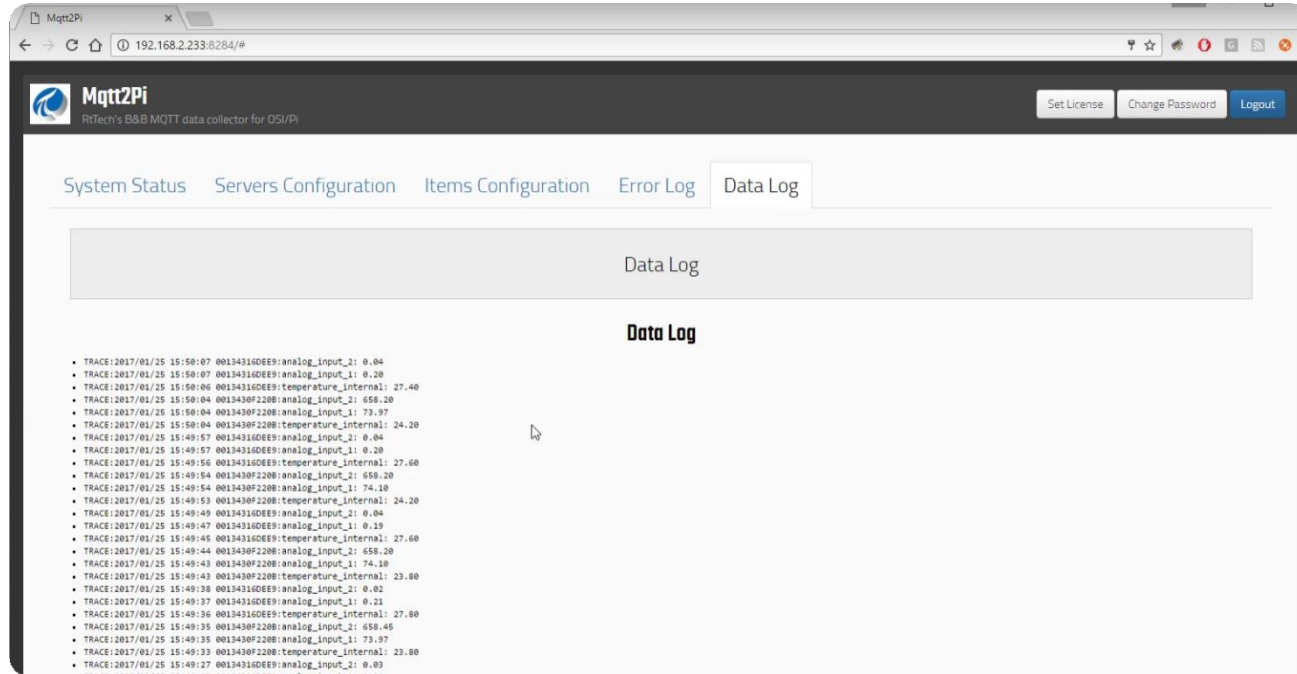
Cipher Connect Embedded Web



Item
configuration

IoT & OSIsoft – J.D. Irving & RtTech

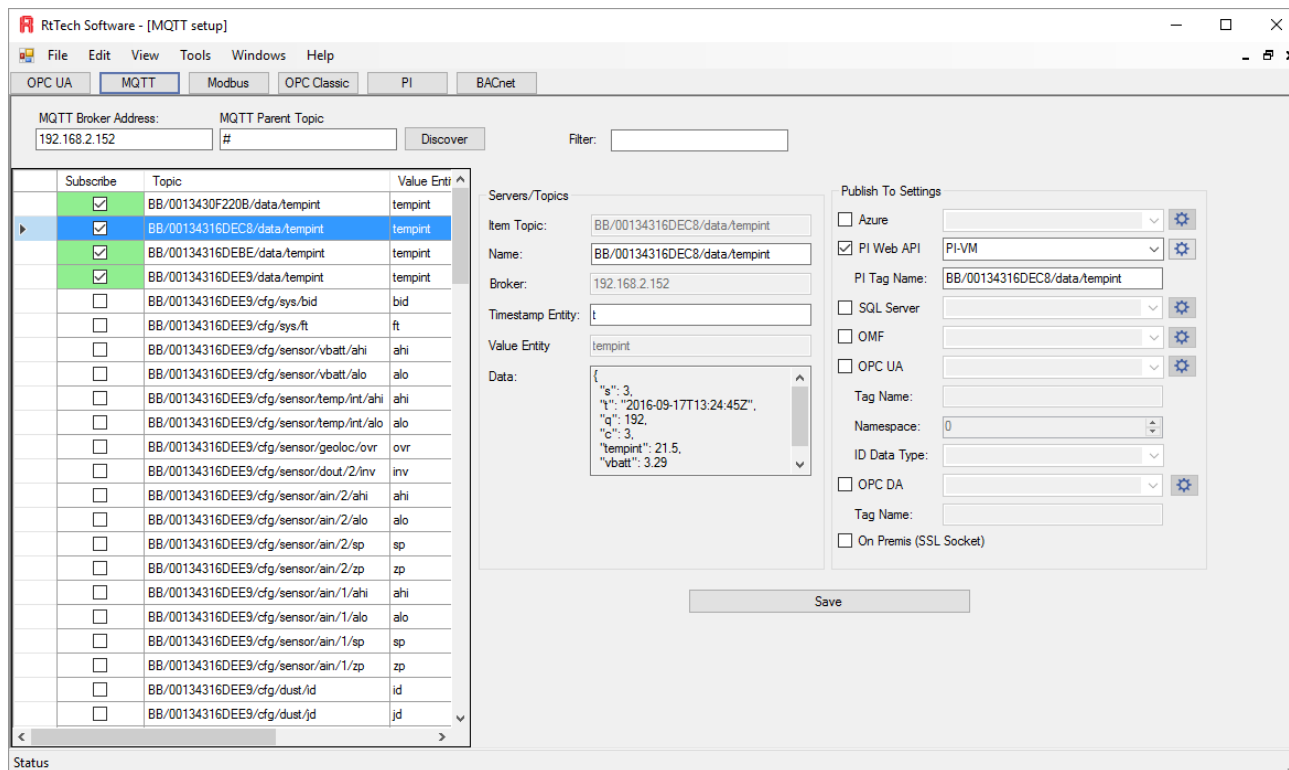
Cipher Connect Embedded Web



Live Data
Monitor

IoT & OSIsoft – J.D. Irving & RtTech

Cipher Configuration Toolkit



IoT & OSIsoft – J.D. Irving & RtTech

Cost of a conventional “Wired” system

Monitor 10 Assets:

\$1000 per PLC CAPEX

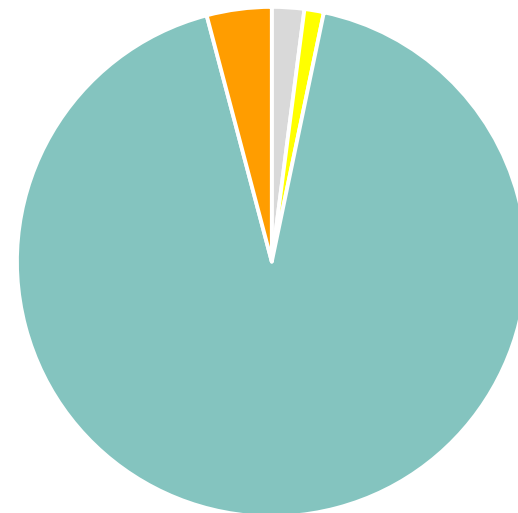
\$300 per device installation

\$15/ft cabling/conduit & installation

\$1000 System commissioning/test

Total Project = \$31,500

“The main cost of an asset monitoring system isn’t the system itself, but the cabling deployment costs.”



- PLC
- PLC Install
- Cabling & Installation
- System Commissioning/Test

Wired vs Wireless: Savings

Monitor 10 Assets:

\$600 Wzzard Gateway

\$300 Gateway Installation

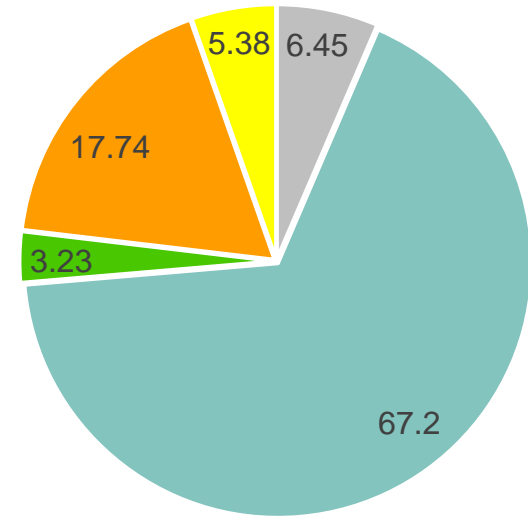
\$6250 – 13 Edge Nodes

\$1650 Edge Node/Sensor Install

\$500 commissioning/ test per site

Total Project = \$9,300

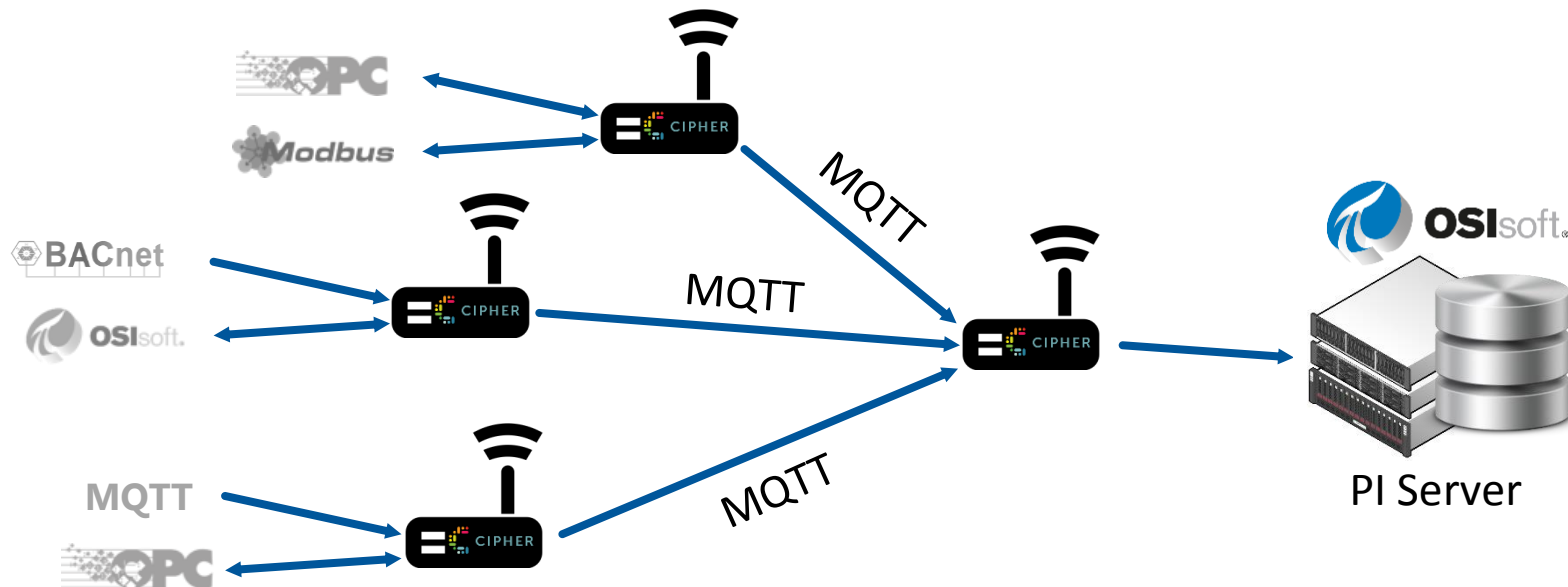
\$22,200 in savings, nearly 70% !



- Wzzard Gateway
- Gateway Installation
- System Commissioning/Test
- Wzzard Edge Nodes
- Edge Node & Sensor wiring

IoT & OSIsoft – J.D. Irving & RtTech

Cipher Mesh



IoT & OSIsoft – J.D. Irving & RtTech

Cipher Connect Roadmap



CIPHER

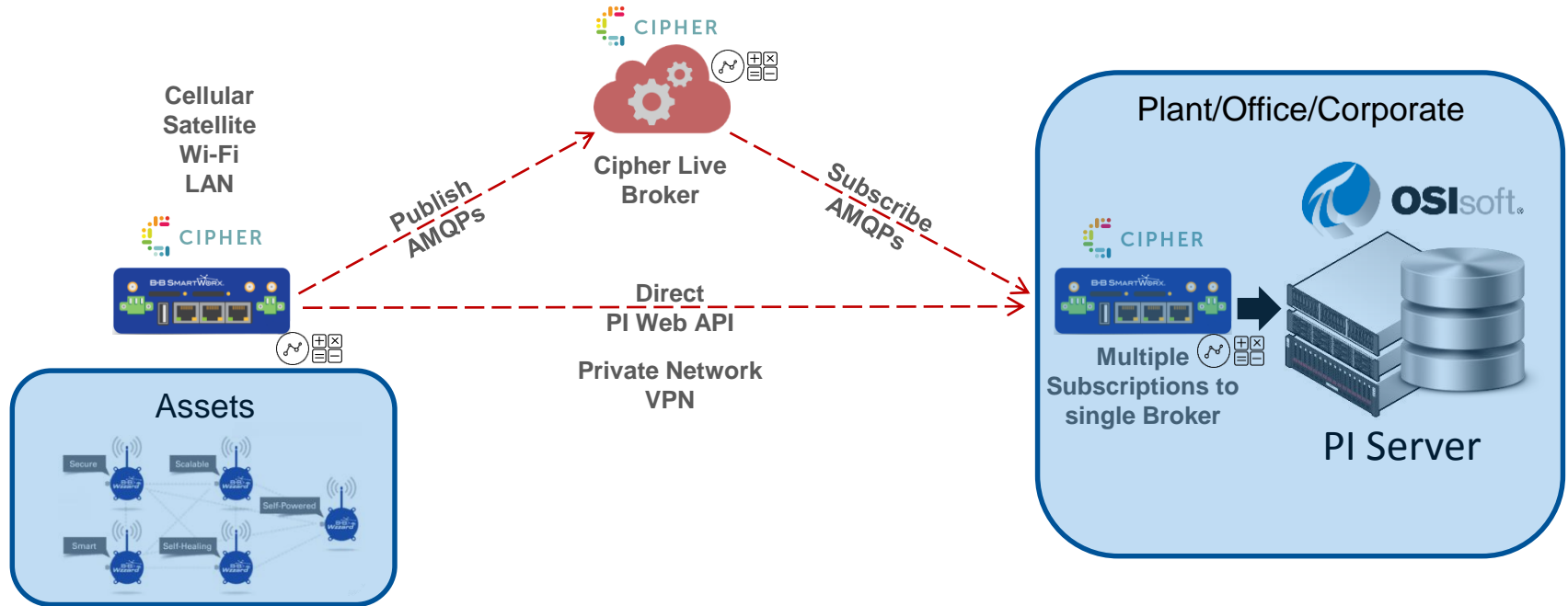
POWERED BY RTTECH SOFTWARE



Protocols/Features		Connect-E (Linux/Embedded)		Connect-W (Windows)	
Group	Detail	Input (Read From)	Output (Write To)	Input (Read From)	Output (Write To)
ModBUS	Serial (RTU, ASCII)	✓	Q2	✓	•
	TCP	✓	Q2	✓	•
Cipher Portal	Azure	•	✓	•	✓
MQTT	Advantech JSON	✓	Q2	✓	✓
	Generic JSON	✓	✓	✓	•
	Sparkplug	✓	Q2	✓	✓
BacNET	IP	Q2	Q2	✓	Q2
	Generic	Q2	Q2	✓	Q2
OPC	UA	✓	Q2	✓	✓
	DA	•	•	✓	✓
CAN-BUS	Standard ISO15765-4	Q3	•	Q3	•
D2B / OBD-II	Standard Vehicle	Q3	•	Q3	•
MTConnect	Standard	Q3	Q3	✓	•
EtherNet/IP	Standard	Q2	Q2	Q2	Q2
ZigBee	Standard	Q2	Q2	Q2	Q2
OSISoft PI	Web API	Q2	✓	✓	✓
	OMF	•	✓	•	✓
Database/File	ODBC	Q2	•	✓	✓
	Excel	Q2	•	✓	•
	Flatfile	•	•	✓	✓
Weather	OWM	✓	•	•	•

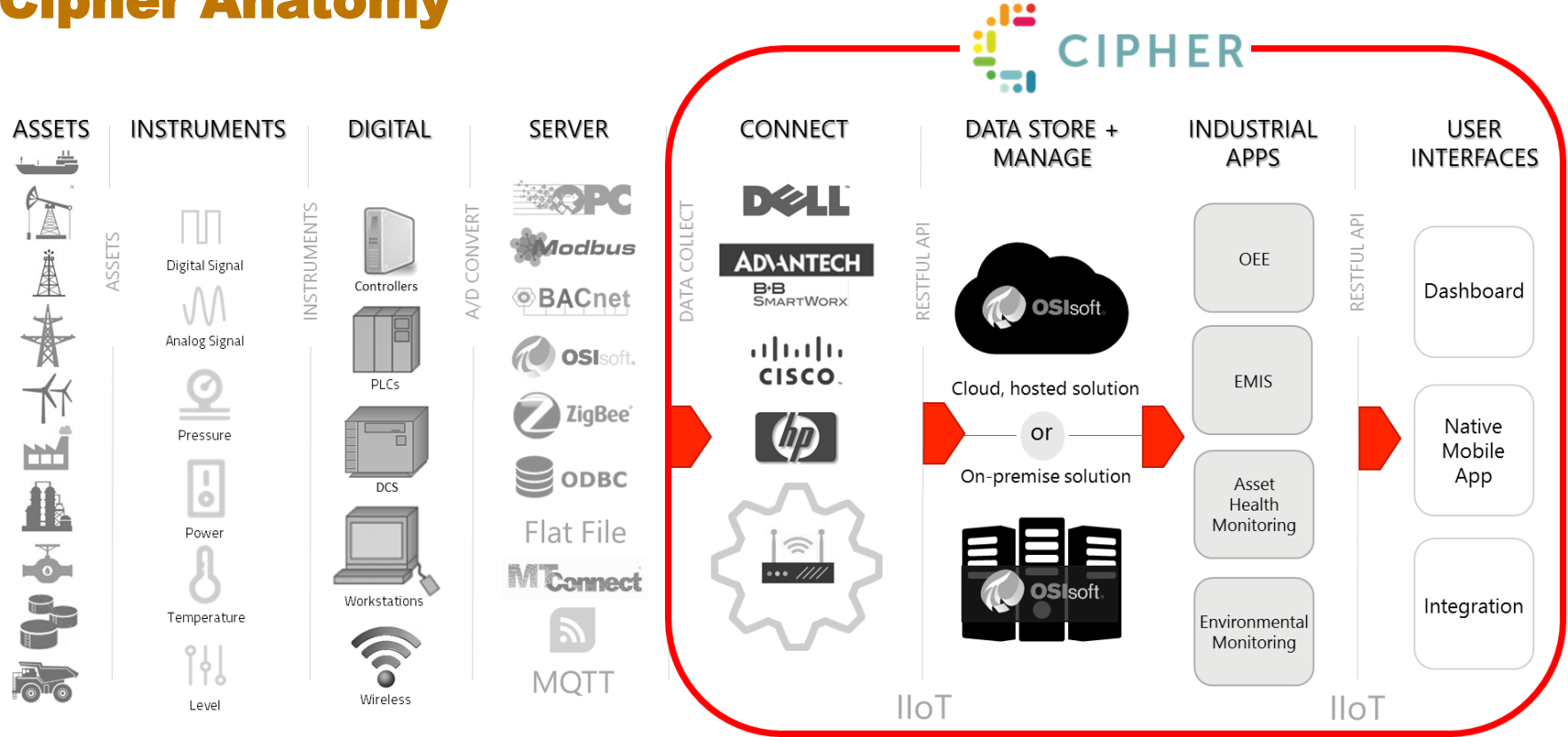
IoT & OSIsoft – J.D. Irving & RtTech

Cipher Live



IoT & OSIsoft – J.D. Irving & RtTech

Cipher Anatomy



Contact Information

Martin Davis

Davis.Martin@JDIrving.com

Vice President of IT

J.D. Irving Ltd



Keith Flynn

Keith@RtTechSoftware.com

President and Founder

RtTech Software Inc.

