ISA100 WIRELESS COMPLIANCE INSTITUTE™

Your webinar time:
10am Houston, Chicago, Mexico City
11am New York, Santiago
12pm Rio de Janeiro, Buenos Aires
4pm London, Dublin, Edinburgh, Lisbon
5pm Paris, Amsterdam, Berlin, Rome, Stockholm, Vienna
6pm Athens, Bucharest
7pm Abu Dhabi, Muscat

ISA100 WCI Webinar

Webinar date & time:
Wednesday 28 July 2020 at 10 am Houston, Chicago, Mexico City

ISA100 Wireless™ Scalable, Secure and Ready for Process Control!

Audio for the Webinar:

Audio can be heard through your computer speakers. If you have audio issues, you may dial 1 (866) 545-8204.

If you have any trouble seeing or hearing this presentation, please call technical support at 1-888-364-8804.

Presenter: Honeywell
Vibhor Tandon
vibhor.tandon@honeywell.com

About the Speaker

Vibhor Tandon

Marketing Team Member
ISA100 Wireless
Compliance Institute

Global Offering Manager
Field Instruments
Honeywell Process Solutions

Vibhor Tandon is a member of ISA100 WCI – Marketing Team. Vibhor is actively involved with industrial wireless since 2012 when he took over as product manager for Honeywell OneWireless Network and Solutions offerings. He has led and introduced significant products and enhancements leveraging ISA100 Wireless in the portfolio. Currently he is responsible for wired and wireless field instruments and instrumentation related software offerings at Honeywell Process Solutions.
Vibhor has been with Honeywell for more than 19 years. Prior to his marketing stint, he has held growing engineering roles in the field of smart instruments and device integration technologies. An industry known expert, he has represented Honeywell on HART, EDDL and FDI and FDT technology standards. He has been instrumental in defining the ISA100 Wireless profile for FDI.

Agenda

1. Introduction Industrial Wireless
2. ISA100 Wireless™ Industry Standard
3. ISA100 Wireless™
    - Scalability
    - Security
    - Ready for Process Control
4. User Stories
5. Summary
6. Q&A

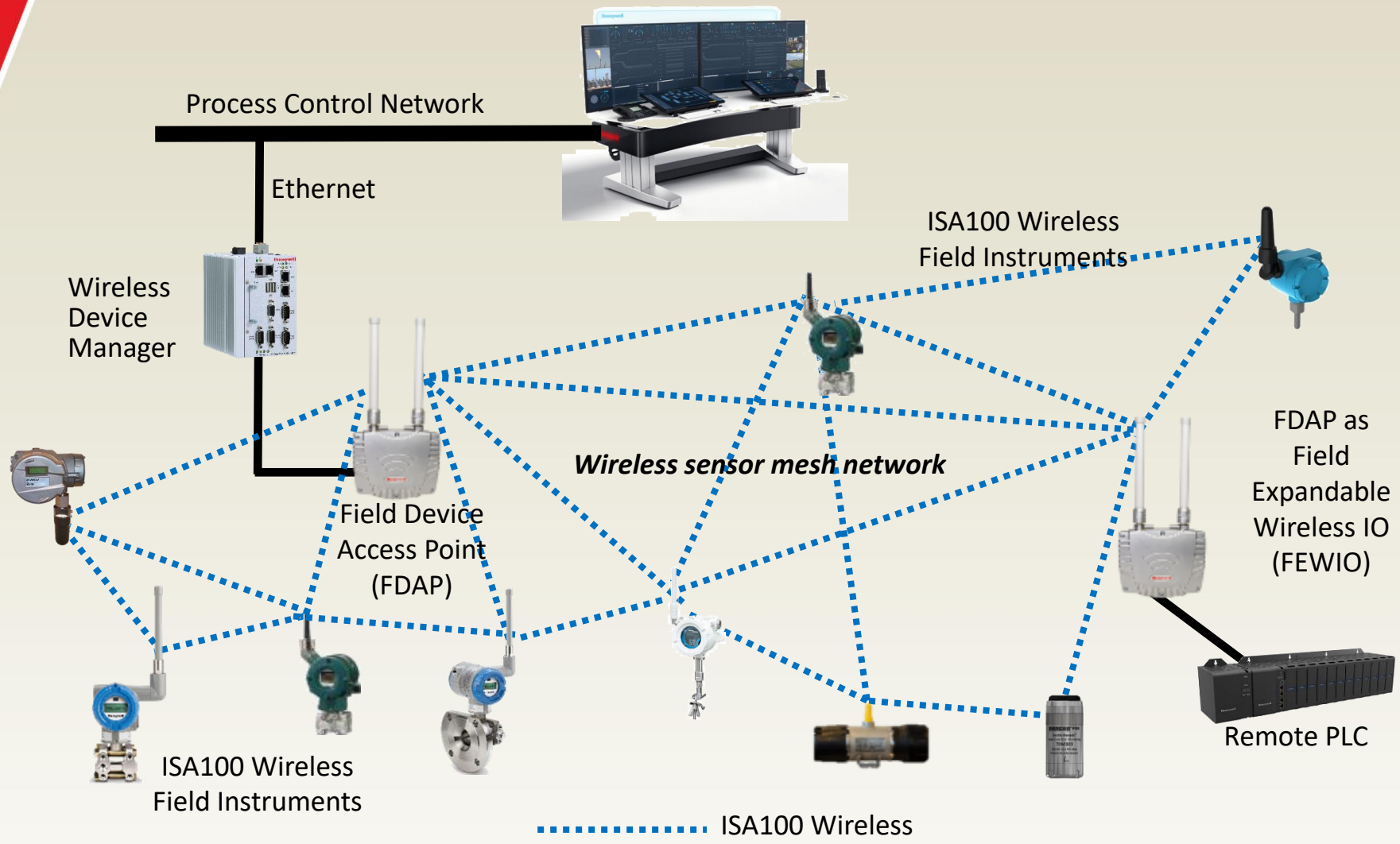
Honeywell

Agenda

1. Introduction Industrial Wireless
2. ISA100 Wireless™ Industry Standard
3. ISA100 Wireless™
    - Scalability
    - Security
    - Ready for Process Control
4. User Stories
5. Summary
6. Q&A

Honeywell

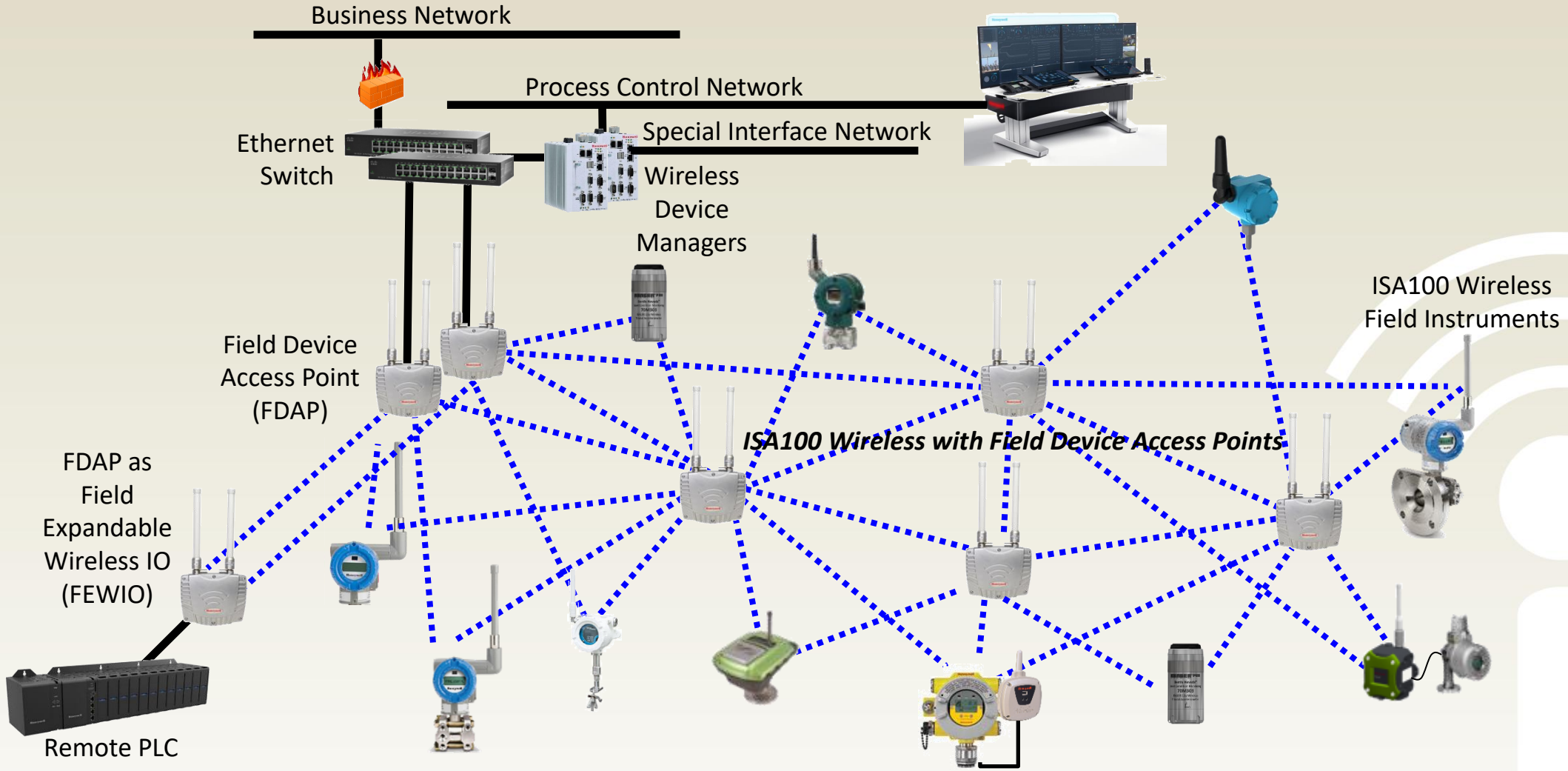
Introduction to industrial Wireless



Applications examples

- Machine health monitoring
- Basic process control
- Monitoring of well heads
- Remote process monitoring
- Leak detection monitoring
- Diagnosis of field devices
- Condition monitoring of equipment
- Environmental monitoring
- Tank level monitoring
- Gas detection
- Fuel tank gauging
- Steam trap monitoring
- Open loop control
- Stranded data capture
- And more

ISA100 Wireless with Field Routers



OneWireless versus sensor mesh network

Wireless sensor mesh network

- Signal latencies of up to a minute
- Battery costs up to 30 times more

Transmitter

Transmitter

Transmitter

Transmitter

Transmitter

Gateway

0.5 km

Transmitter

- Real time performance
- Maximum battery lifetime

Gateway

ISA100 Wireless with Field Device Access Points (FDAPs)

Different solution …… Different performance

Agenda

1. Introduction Industrial Wireless
2. ISA100 Wireless™ Industry Standard
3. ISA100 Wireless™
    - Scalability
    - Security
    - Ready for Process Control
4. User Stories
5. Summary
6. Q&A

Honeywell

ISA100 Wireless Fast Facts

- International standard IEC 62734 since 2014
- Complies with ETSI EN 300 320 v1.8.1 (LBT)
- End-User Driven Standard - meeting all current and future industrial needs
- Sensor routing or field routers for best performance – Freedom of choice
- Broad Multi-Vendor Portfolio of ISA100 Wireless Devices
- ISA100 Wireless enables SIL-2 Certification
- Ensured Interoperability - best-in-class solutions from best-in-class suppliers
- Readily available ISA100 Wireless Modules and Stacks
- Enable fast-track development and go to market

Benefits of ISA100 Wireless Instrumentation

Cost Savings	• Up to 90% of installed cos of conventional measurement technology can be for cable conduit and related construction • Typically: 1/2 the costs, 1/5 of the time • New and scaled applications are now economically feasible
Improved Reliability	• Wired sensors may be prone to failure in difficult environment • Wireless can add redundancy to a wired solution
Improved Visibility	• Condition monitoring of secondary and remote equipment • Process monitoring, fast additional data for trouble shooting
Improved Control	• Add wireless to existing processes for more optimal control
Improved Safety	• Safety related alarms - end to end SIL2 certifiable

ISA100 Wireless Product Portfolio

Infrastructure

Independent Gateway
- Honeywell, Yokogawa

Access Point (AP)
- Honeywell, Yokogawa

Integrated Gateway/AP
- Honeywell, Yokogawa, CDS, Nexcom

GW/AP + Recorder
- Yokogawa

Adapter (HART, etc.)
- Honeywell, Yokogawa

Measurement & Control

Temperature
- Honeywell, Yokogawa

Pressure / Flow
- Yokogawa, Honeywell

Level
- Honeywell, Yokogawa

DI/DO, AI
- Honeywell, Yokogawa

Valve Position
- Eltav, Flowserve

HSE + Life cycle

Corrosion
- RCS

Steam Trap
Spirax Sarco, TLV, Armstrong, Bitherm

Vibration
- GE's Bently Nevada, Divigraph

Gas
- GasSecure, Scott Safety, New Cosmos, Riken Keiki

pH
- Honeywell, Yokogawa

Online Resources

www.isa100wci.org

- Learning Center with White Papers
- Articles, End-user stories, Forum
- Receiving over 20,000 web views per month
- Full list of certified/registered ISA100 Wireless devices
- And more useful content for you and your business

ISA100 Wireless Interest Group

- Latest news, end-user and expert discussions, insights
- 800 members and growing; please join and invite your peers to join as well !
- Receiving over 5,000 web views per month
- Limited Time Offer: Join the group and you will be entered in a prize draw to win a new iPad

ISA100 Wireless LinkedIn Interest group

Limited Time Promotion

SCAN ME

Scan the QR code and join the ISA100 Wireless Linkedin group. **If you join during our limited time offer**, you will be entered in a prize draw to win a new iPad!

Agenda

1. Introduction Industrial Wireless
2. ISA100 Wireless™ Industry Standard
3. ISA100 Wireless™
   - Scalability
   - Security
   - Ready for Process Control
4. User Stories
5. Summary
6. Q&A

Honeywell

From Limited to Virtual

Limited

Control Edge RTU with Wireless IO

Limited number of devices

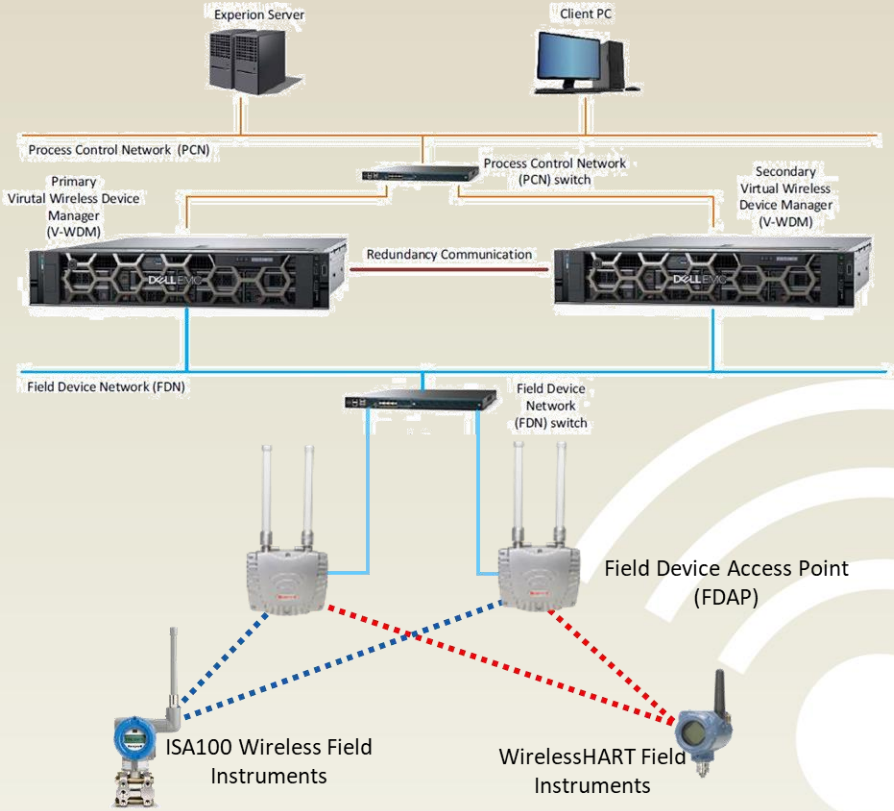
Wellhead monitoring applications

500

Wireless Device Manager (WDM)

500 devices

Various applications across the site



3000

Virtual WDM (vWDM)

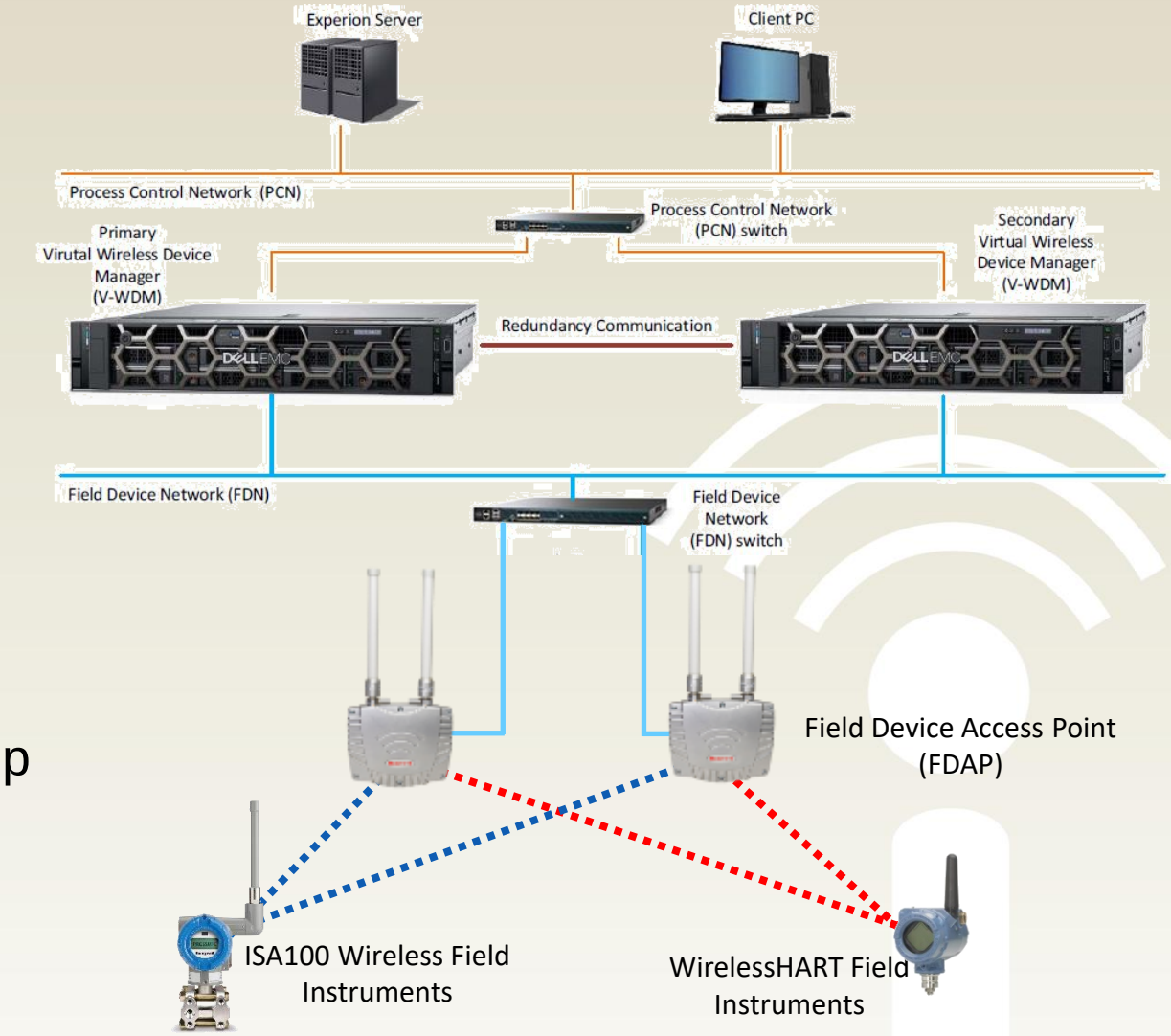
3000 devices

Site-wide coverage

Honeywell OneWireless – Virtual WDM

Virtual Wireless Device Manage (vWDM)

- Provides highly scalable OneWireless solution
- vWDM can support up to **3000 devices**
  - Single vWDM = 6 WDM
- Capacity managed via 500-device bundles
- Improved WDM OPC performance
- Hardware options for vWDM
  - Purchase new virtual appliance hosts
  - Leverage existing virtual host capacity
- Single Sign-On (SSO) to manage network of up to 3000 wireless IO



Other UNIQUE FEATURES

Special Interface Network (SIN)

- Segregate Data From PCN Network – IIOT and Asset Management solutions
- External Interfaces allowed over SIN – Modbus, Enraf, OPC, GCI, HART

Field Expandable Wireless IO (FEWIO) - a new device type

- FDAP as router can be converted to a Field Expandable Wireless IO (FEWIO)
- Data collected over RS485 & transmitted to control room over wireless
- FEWIO Supports
  - Modbus RTU
  - RS-485 serial Interface used for connecting to serial interface devices
  - Modbus TCP

Agenda

1. Introduction Industrial Wireless
2. ISA100 Wireless™ Industry Standard
3. ISA100 Wireless™
   - Scalability
   - Security
   - Ready for Process Control
4. User Stories
5. Summary
6. Q&A

Honeywell

ISA Secure Level 1 Certified

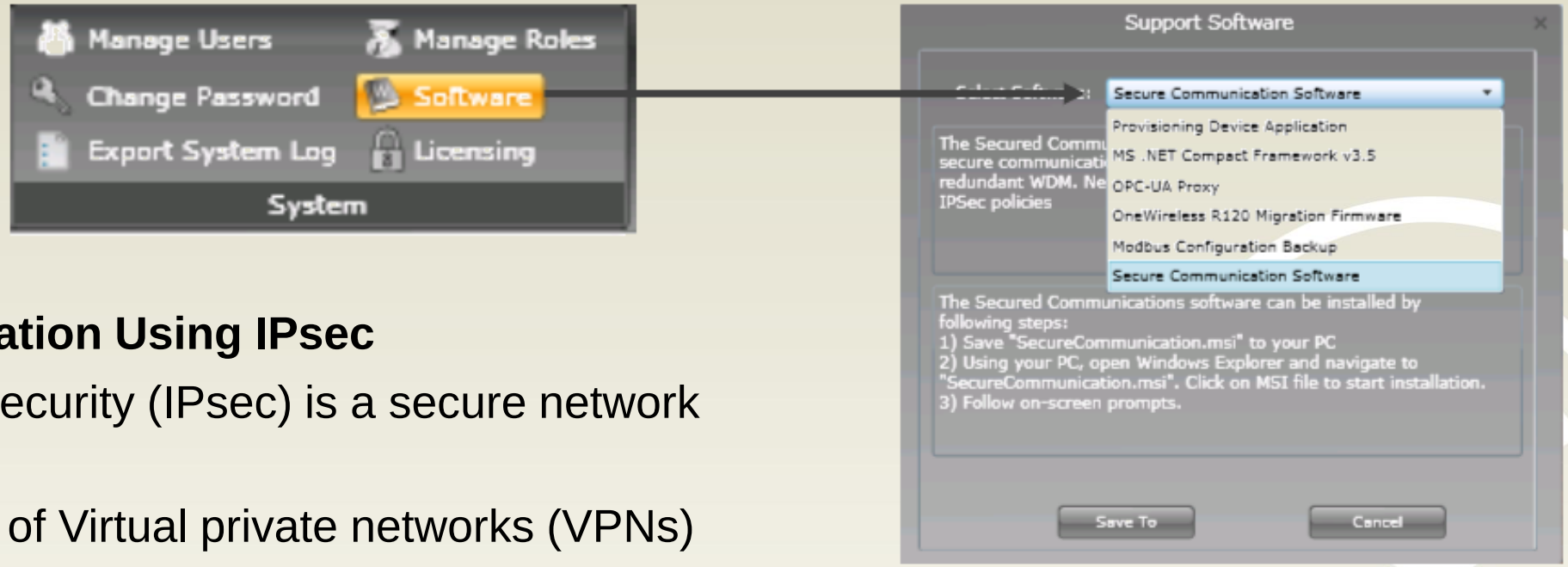
Industry First!

Security Level 1

- Comprehensive, end-to-end integrated security system
  - Confidentiality
  - Data Integrity and Authenticity
  - Source Authentication
  - Protection to Reply Attacks
  - Advanced Key Management Service
  - Wi-Fi data goes to IT via Firewall

- Independently reconfirmed by a comprehensive hackathon
- WDM continuously and automatically logs all modifications, events, and changes
- Log file provides transparent network status end-to-end, offering additional protection and prevention of unwanted events

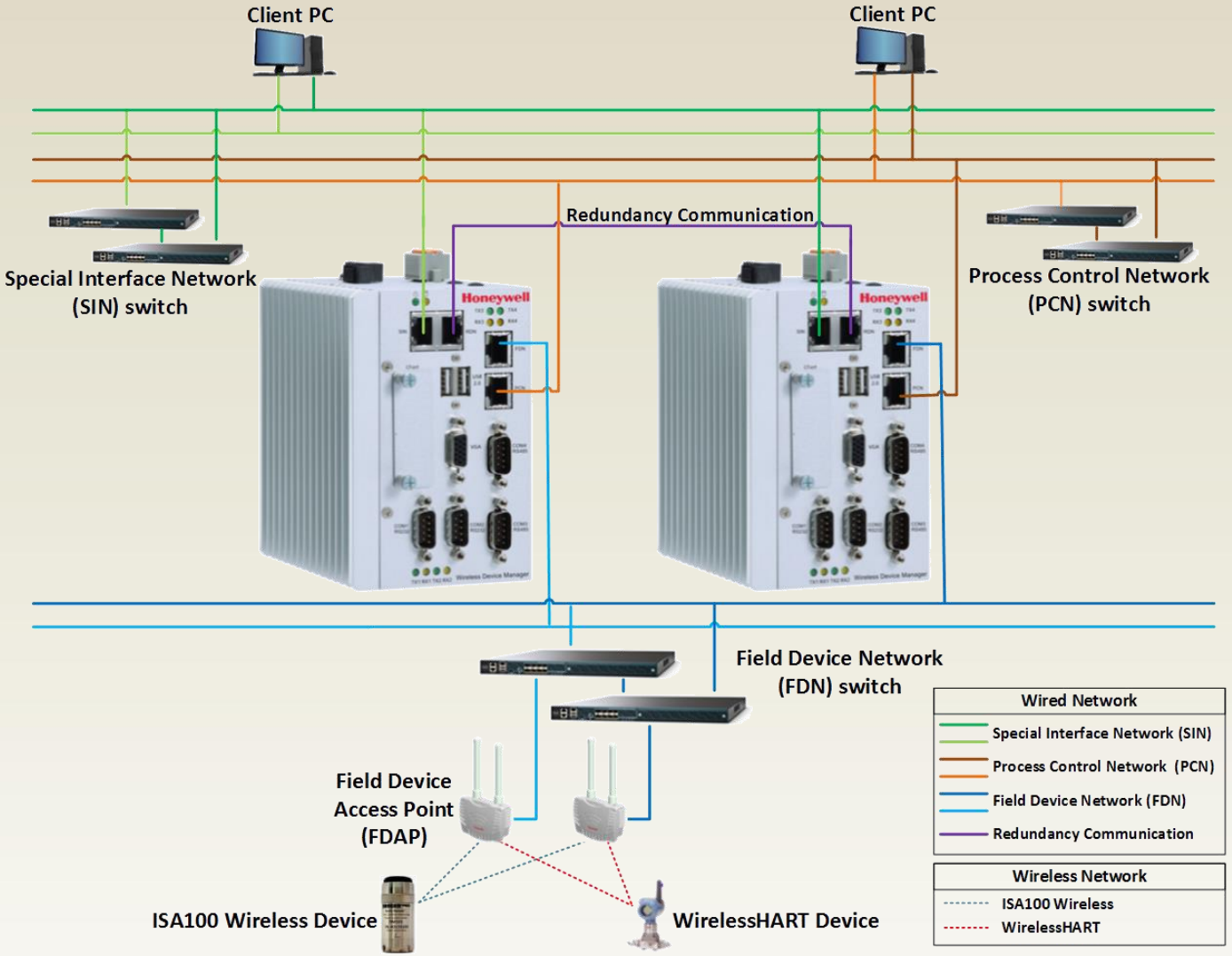
Secure Communications - IPsec



Secure Communication Using IPsec

- Internet Protocol Security (IPsec) is a secure network protocol
- Similar to principle of Virtual private networks (VPNs)
- Authenticates and encrypts packets of data
- IPsec enables secure communication between WDM and Windows node on Process Control Network (PCN) and Special Interface Network (SIN)

Special Interface Network (SIN) Redundancy



- Instant Seamless Automatic Switchover

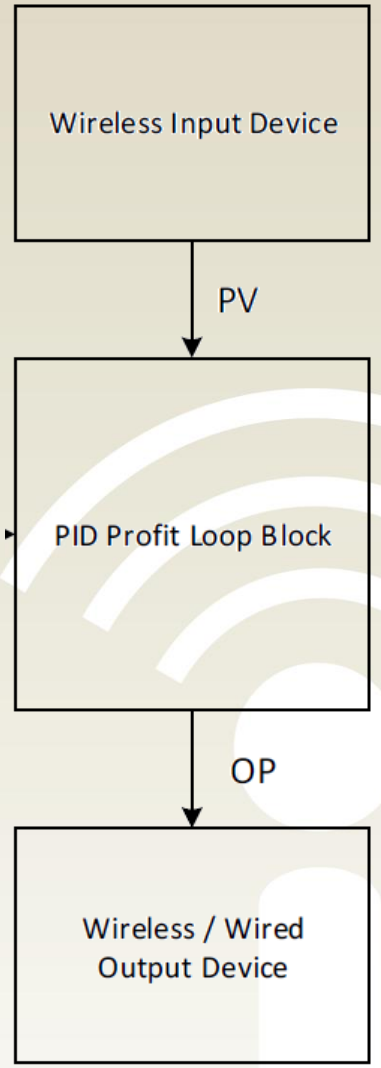
Agenda

1. Introduction Industrial Wireless
2. ISA100 Wireless™ Industry Standard
3. ISA100 Wireless™
   - Scalability
   - Security
   - Ready for Process Control
4. User Stories
5. Summary
6. Q&A

Honeywell

Control over Wireless

- OW systems can be used for control applications
- ISA100 Wireless AO devices supported
- For PID loops
- Input device can be wireless
- Output device can be wireless



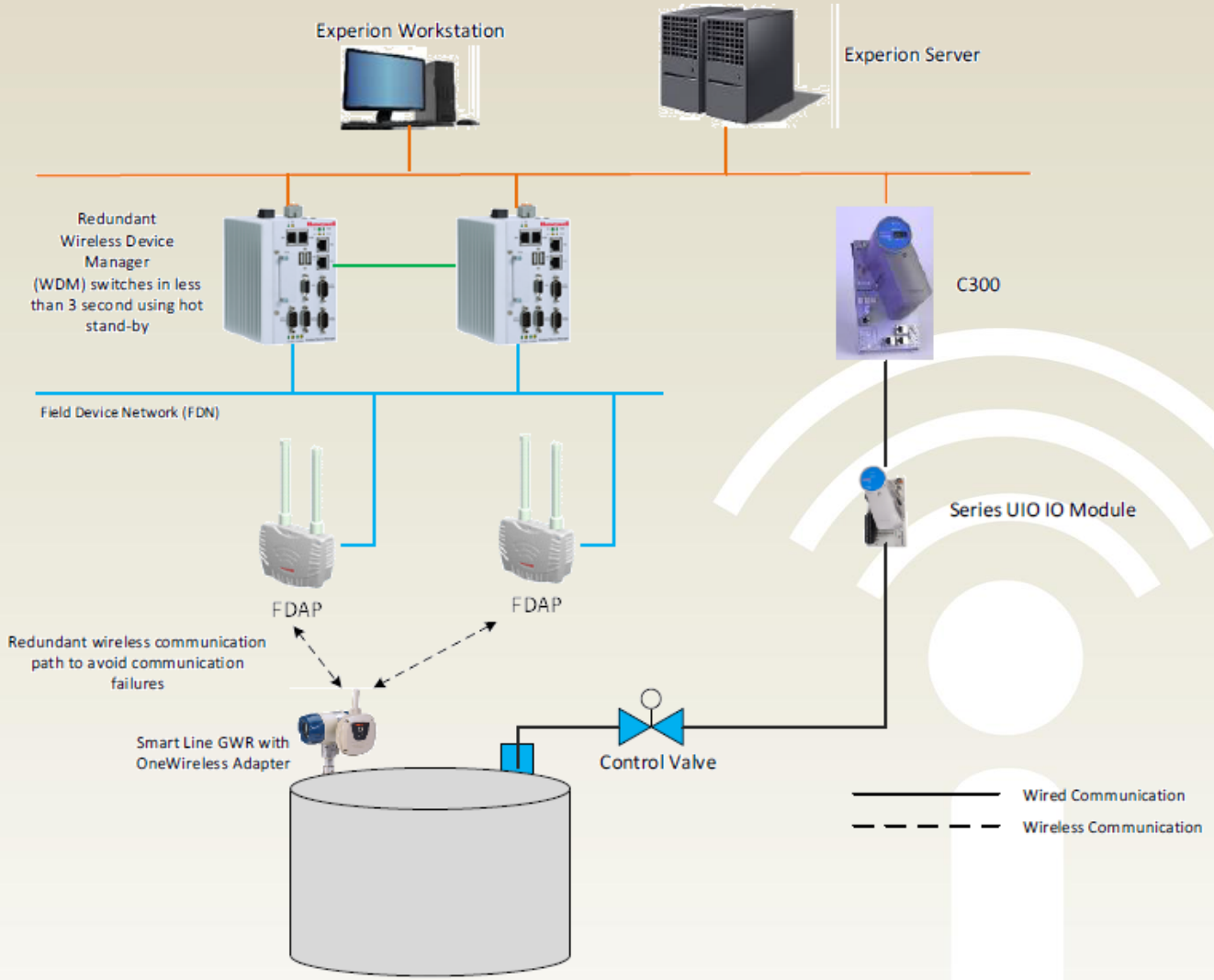
Type	Class	Type Based on Industry	Recommendation
Control	1	Closed loop Regulatory Control (Critical control loops)	Not Recommended
	2	Closed Loop Supervisory Control (Set Point Change, Process Optimization)	Recommended
	3	Open Loop Control (Based on Requirement/ Operator In-Person)	Recommended
Monitoring	4	Event Action/ Sequence based (Based on Event /Small operation task)	Recommended
	5	Uploading/Downloading (Requirement based Task/ Action)	Recommended

Control over Wireless

Topology Example I

4 Seconds or Faster Loops

- Multi HOP network
- Input is Wireless
- Output is Wired

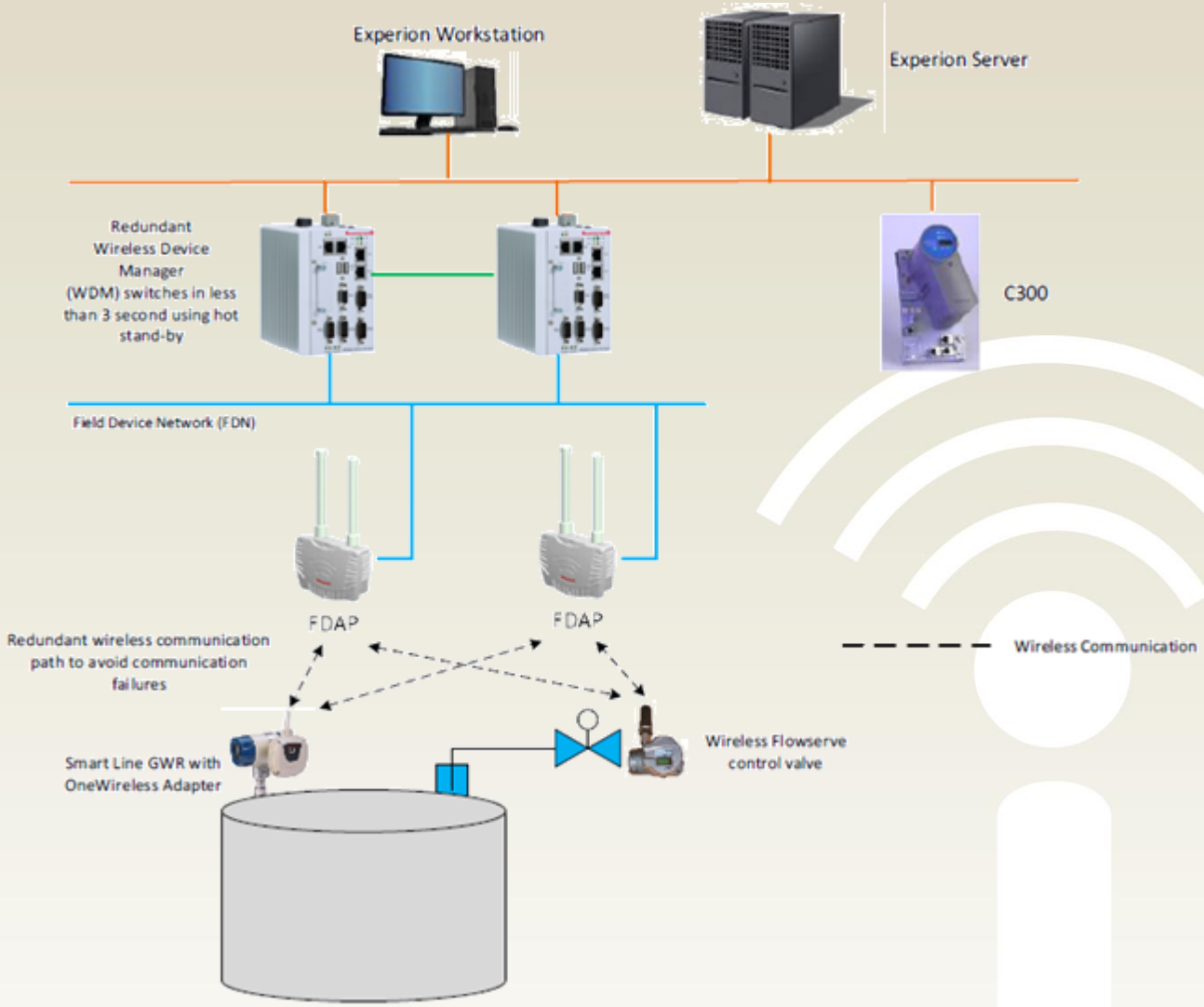


Control over Wireless

Topology Example II

1 Second or Faster Loops

- Single HOP network
- Input is Wireless
- Output is Wireless



Latest Innovations in OneWireless R32X

- Virtual WDM – 3000 Wireless IO
- Control over wireless
- ISASecure Certification
- Secure Communications - IPsec
- SIN Redundancy
- WDM Improvements

WDM Improvements

WDM Redundancy

- Improved redundancy switchover time to <= 4 sec between primary and secondary
- Meets control over wireless application needs

WDM Duplication or Recovery

- Easy process to generate bootable ISO file back-ups
- Enabling easy configuration duplication or recovery by USB back-up

Agenda

1. Introduction Industrial Wireless
2. ISA100 Wireless™ Industry Standard
3. ISA100 Wireless™
    - Scalability
    - Security
    - Ready for Process Control
4. User Stories
5. Summary
6. Q&A

Honeywell

Reduce Project Costs, Increase Safety and Efficiency

Challenges	• Provide an engineered, secured, managed & integrated wireless network into Alcoa Alumina refineries process areas. • Supporting ISA100 Wireless instruments and sensors • Supporting mobile operators using handheld devices • Allow for wireless connectivity of mobile PCS/EHM equipment • Enabling IIOT and IOT in the future
Solution	• Site wide OneWireless networks at 7 refineries around the globe • Light weight wireless pressure transmitters • Wireless safety shower panic buttons • Wireless push button for operator rounds timestamping • ISA100 wireless FEWIO to connect remote PLCs
Results	• Typical conservative cost saving of $10k per wireless instrument over traditional hardwired installation • Speed of deployment – process data in just one day. • Mobility of sensors and instruments to be moved around to troubleshoot or perform trials as required • Support mobile operators out in the refinery process areas • Monitor moving equipment now possible with standard devices • New opportunities waiting to be found

ALCOA

World's largest bauxite mining and a leading alumina producer

ISA100 WIRELESS COMPLIANCE INSTITUTE™

“Installing to having process data: duration one day”

Perimeter Monitoring – Time Critical

LNG Facility in Middle East - Brownfield

Challenges

- Cost effective alarming system for detection of gas leaks
- Quickest deployment time
- Limited to no cabling
- Meet 3 seconds end to end alarm requirement.

Solution

- OneWireless network based on FDAPs
- Solar power panels
- XYR6000 Universal Transmitters
- Sounders, beacons

Results

- Improved site safety system on time and within budget.
- 3 seconds alarming requirement consistently met.
- Compliance to government regulations for HSE within given timeframe.

Cost-effective Modbus Data Acquisition

Challenges

- Transfer multiple parameters from remote Flow Meters to Experion DCS
- Meet tight project budget
- Execute project in days rather than weeks

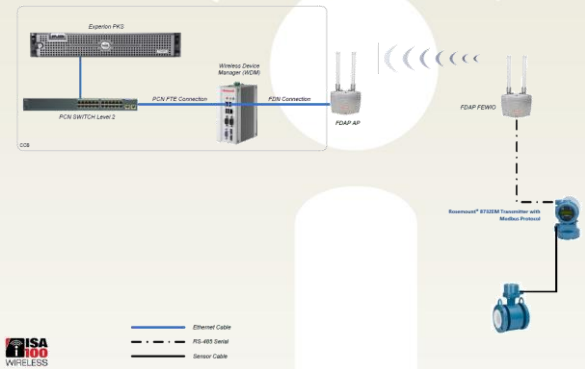
Solution

- OneWireless Network
- Field Expandable Wireless IO (FEWIO)
- Existing flow meter with Modbus transmitter connected to FDAP (FEWIO) via RS-485 Serial

Results

- 50% Project Cost Saving relative to traditional wiring
- Project execution completed in 1/5th of the time relative to a traditional wired project
- Increased Speed of Data to the operator – hours to milli-seconds.
- Increased situational awareness

Liquefied Natural Gas (LNG) plant in the Northern Territory of Australia



ISA100 WIRELESS COMPLIANCE INSTITUTE™

Tangible Project and Recurring Operational Cost Savings

Reduce project costs, increase blending performance

Challenges	• Maintenance and obsolescence issues of
	  • Tank gauging equipment and
	  • Inventory management system
	• Tank farm spread over large 7 square miles area
	• Migrate to new system under 48 hour cutover

Solution	• OneWireless Network • 147 Wireless FlexLine Radar & Servo Gauges • 137 XYR 6000 Multi-channel transmitters • 60 Floating roof Tuning Fork & Float Switches • Mobile Station enabling operator mobility
Results	• 30% Project Cost Saving relative to traditional wiring • Increased System Reliability • Increased Speed of Data to the operator - minutes to seconds • Blending Performance Increased 18% (# of Blends per week)

PHILLIPS 66

Borger- TX Refinery

ISA100 WIRELESS COMPLIANCE INSTITUTE™

Tangible Project and Recurring Operational Cost Savings

Agenda

1. Introduction Industrial Wireless
2. ISA100 Wireless™ Industry Standard
3. ISA100 Wireless™
    - Scalability
    - Security
    - Ready for Process Control
4. User Stories
5. Summary
6. Q&A

Honeywell

Summary

Costs

- Typical conservative cost saving of $10k per wireless instrument

Speed

- Project execution in 1/5th of the time - data in just 1 day

Performance

- ISA100 Wireless enables near real time performance

Choice

- Large portfolio of ISA100 Wireless devices by multiple vendors

Innovation

- Up to 3000 IO
- Certified for Cyber Security
- Process Control Qualified
- Supports Legacy (FEWIO)

For Your Attention!

Questions?

www.isa100wci.org

ISA100 Wireless Interest Group

800+ members and growing; please join and invite your peers to join as well !

Vibhor Tandon

Vibhor.Tandon@honeywell.com

www.onewireless.com

www.honeywellprocess.com

Honeywell