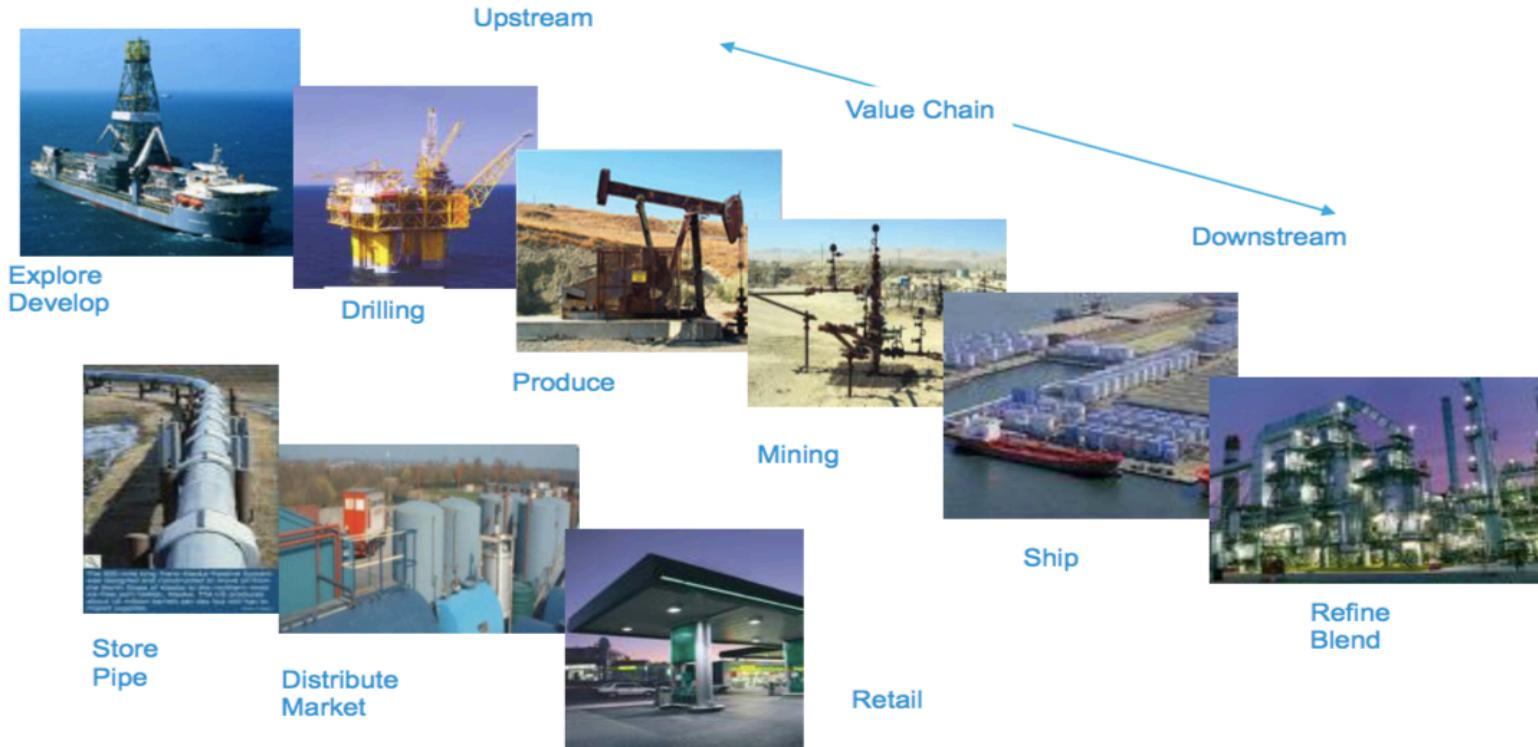




Industrial Wireless



Scope For Industrial Wireless : Petro Chem



Key Benefits

- **Reduced project costs**

- Can represent ~50% saving on cabling costs



- **Reduced project schedule and risks**

- Project execution time reduced by up to ~80%

- Mobile collaboration solutions reduce travel time



- **Do more by leveraging mobile computing**

- Real time access to information, increased efficiency, better informed decision making, faster troubleshooting. Free up operators.



- **Safety and security**

- Asset protection with location services

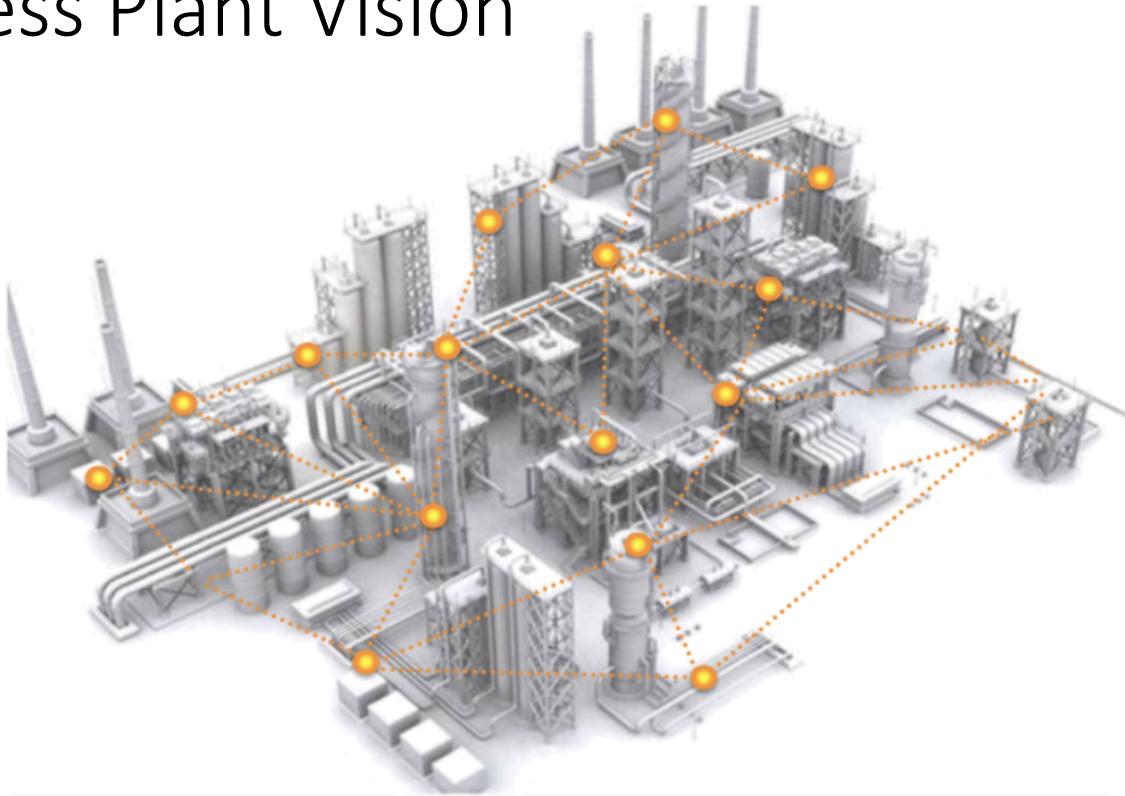
- Quickly deliver IP CCTV solutions



Applications



Wireless Plant Vision



Pervasive use of wireless to provide **Visibility, Flexibility** and **Control** to build and run **profitable** and **efficient** facilities



Eleven core requirements for wireless

1	Security	Flawless application of proven cryptography
2	Reliable communication	24x7 operation - High data integrity
3	Good power management	Long and deterministic battery life
4	Open	Select best in class from multiple suppliers
5	Multi-speed	Some devices report frequently, others not
6	Multi-functional	One network, many applications with different needs
7	Scalable	Scalable in numbers, space, and rate
8	Global usability	One technology legal everywhere
9	Quality of Service	Controlled latency, low error rate
10	Multi-protocol	Cleanly integrate with existing investment
11	Control ready	Solves real problems



What is the difference between Industrial Wireless and a standard Enterprise Wireless Solution?

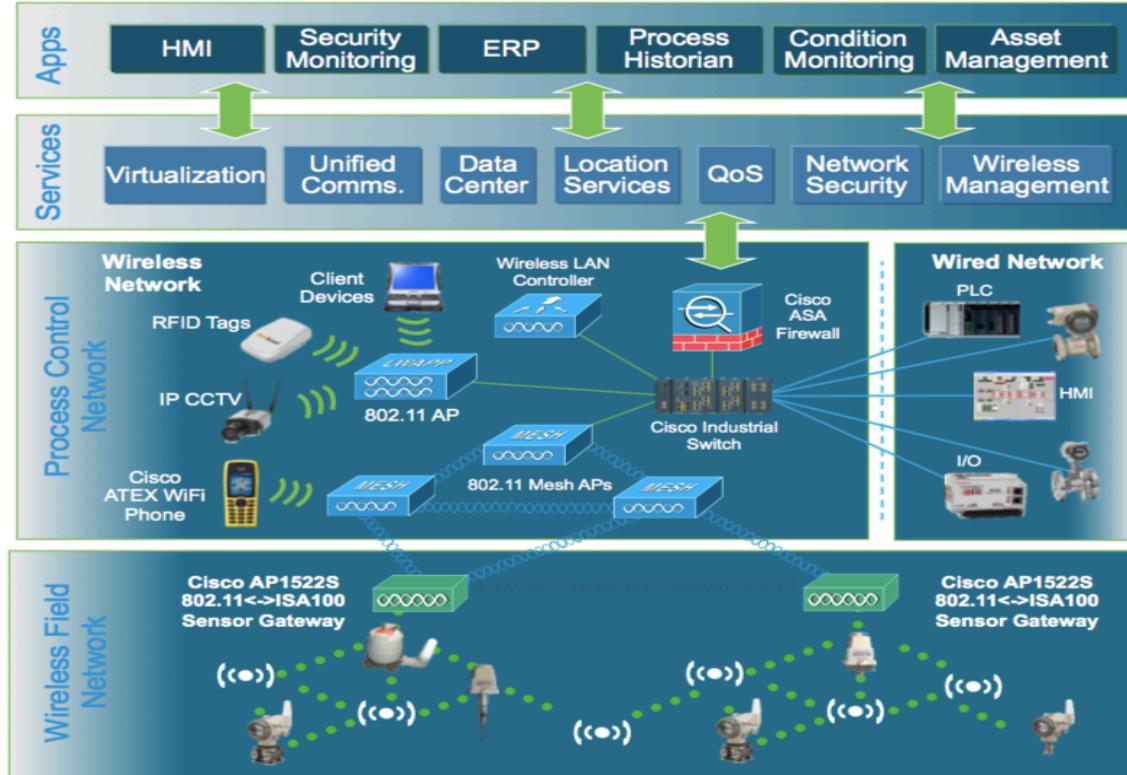
Not a Lot!

Fundamental architecture is the same.
But provision is made for specific conditions
and applications



Secure Architecture For Process Control

- Open architecture designed for process applications
- Industry leading performance and reliability with advanced QoS and Cisco CleanAir
- Simple, secure client connectivity with fast roaming
- Integration of advanced applications: video surveillance, voice, asset visibility
- Anywhere access of data collections, sensing data, and process status
- End-to-end security through device and architectural approach



Customer Need

Driver

Ensure personnel safety and easy evacuation of the administrative-area buildings should a toxic gas leak occur.

Solution Desired

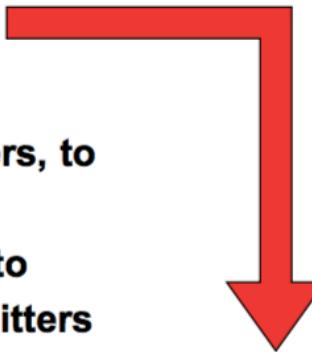
An area warning system with ability to generate audio-visual alarms alerting personnel in the administration area of the plant of any gas leaks.



3 Second Challenge

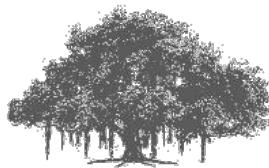
The system needs to consistently realize an activation time from the

- toxic gas detectors to**
- gas analyzer to**
- the system panel, through several converters, to**
- the RTU acting as MODBUS master to**
- the Wireless Device Manager and then out to**
- the XYR 6000 Universal I/O wireless transmitters**



3 seconds

within an activation time of 3 seconds with the horns and beacons activating simultaneously.



Vital Few Focus

Eleven core requirements for wireless

1	Security	Flawless application of proven cryptography
2	Reliable communication	24x7 operation - High data integrity
3	Good power management	Long and deterministic battery life
4	Open	Select best in class from multiple suppliers
5	Multi-speed	Some devices report frequently, others not
6	Multi-functional	One network, many applications with different needs
7	Scalable	Scalable in numbers, space, and rate
8	Global usability	One technology legal everywhere
9	Quality of Service	Controlled latency, low error rate
10	Multi-protocol	Cleanly integrate with existing investment
11	Control ready	Solves real problems

2. Reliable Communications

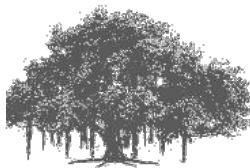
1. Leverage the high, speed IP backbone
2. Ensure authenticity and integrity
3. Deterministic and long battery life
4. Route adaptively
5. Deterministic, scheduled communication
6. Coexist with 802.11
7. Duo cast communications
8. Allow user to choose and evolve mesh architecture

6. Multifunctional

- Multiple subnetworks and multispeed allow users to
 - Setup networks to fit their application requirements
 - Deterministic, low latency for control
 - High density device network for monitoring
 - Mesh network to provide alternate communication route
 - Non-mesh to preserve battery life and meet data latency requirements
 - Scalable to thousands of devices
 - Match existing plant functional or physical layout

7. Scalable

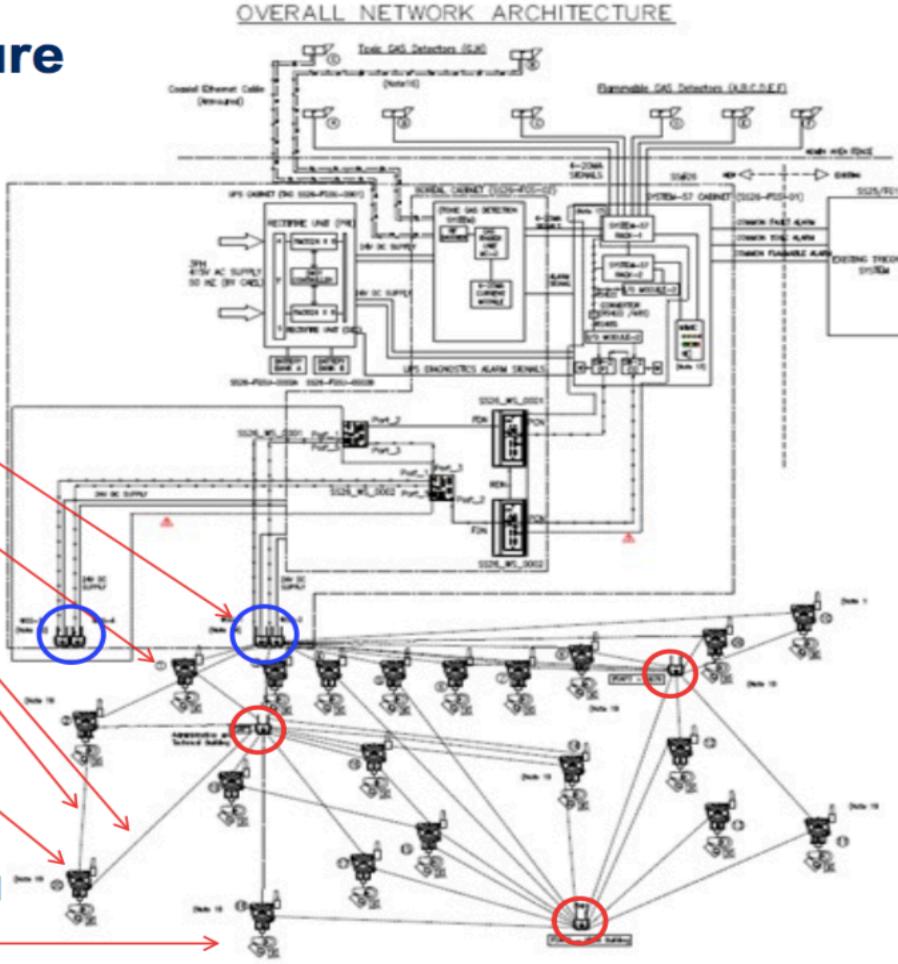
- IP addresses allow system to be scalable, just like the internet
- Organizing by subnetworks allow users to
 - Manage one central database but
 - Partition and organize to match their plant layout.
 - Design network for performance
- Mesh and non-mesh configuration choices
 - Low latency and determinism can be a problem for large meshing network and battery life performance



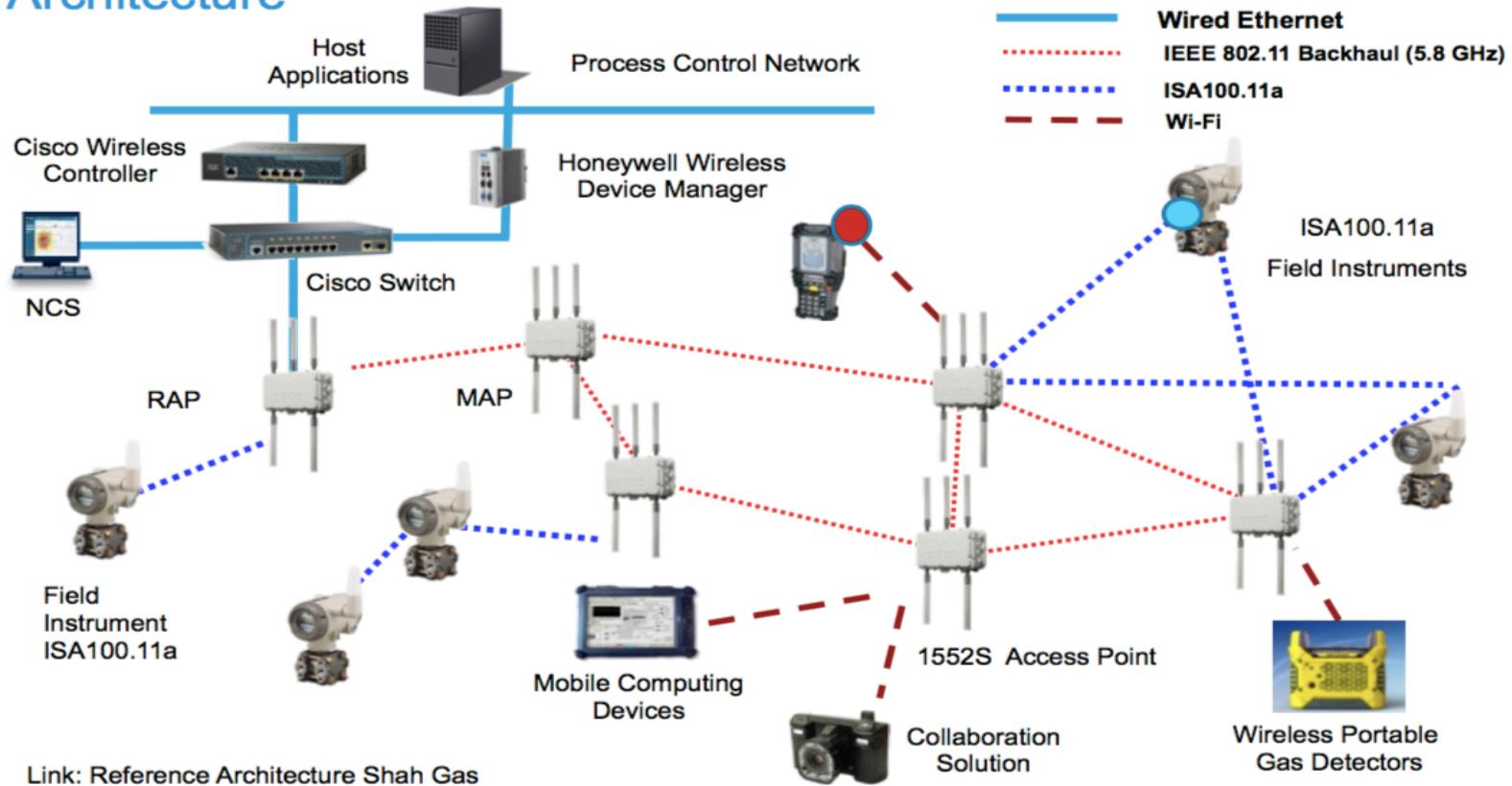
Network Architecture

ISA100 Wireless Technology

- Scalability
 - Access points
 - Red circle = field routers
 - Blue circle = BBRs
- IP addresses for all devices
 - IPv6
- Dual communication paths
- Mesh and non-meshing in one network
- Control ready
 - 1 second update rates and good battery life



Honeywell OneWireless with Cisco Architecture



Link: Reference Architecture Shah Gas

Challenges

- Alarming system for detection of gas leaks without extensive cabling.
- Meet 3 seconds alarm requirement.

Solution

- FDAP based ISA100 Wireless network with XYR6000 Universal Transmitters and solar power panels.

Results

- Improved site safety system within budget.
- 3 seconds alarming requirement met.
- Compliance to government regulations for HSE.



Power Challenge : Pipeline Monitoring



Field Devices Running Out Of Battery



Challenge The Obvious

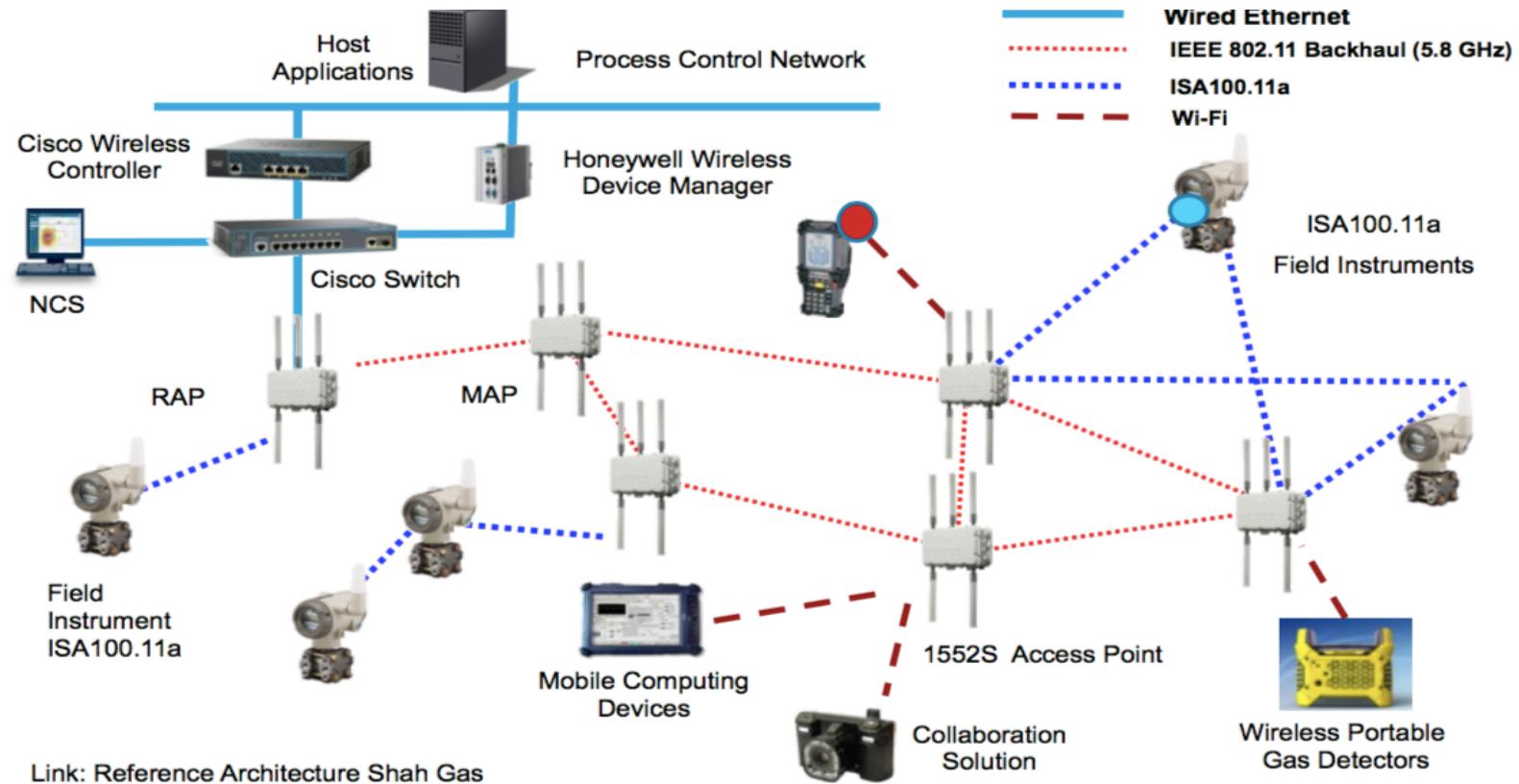
Honeywell



ISA100
Board



Re visit The Architecture



Link: Reference Architecture Shah Gas

Thank You

