



Honeywell Users Group 2010

Dynamic Solutions. Endless Possibilities.

Herman Storey

ISA100 Wireless Standards Update

Honeywell

Wireless Standards Update

- This Presentation Discusses Activities of Several Organizations
 - Based on Personal Experience
 - Not an “Official” Slide Set
- Who is Doing What?
 - Activities Within ISA100
 - Joint Activities Between Groups
- Focus Topics
 - Sensor Mesh Standards
 - Wireless Compliance Institute
 - Wireless Backhaul Networks
 - Sensor Mesh Convergence

ISA100 Activities

- Structure
 - Standards Committee
 - Main Voting and Administrative Body
 - Working Groups
 - Produce and Approve Work Products
 - Task Teams
 - Interest and Study Groups
- Products
 - Standards (Normative)
 - Usually Submitted to ANSI for IEC or ISO
 - Recommended Practices (Informative)
 - Technical Reports (Informative)
 - Guidelines, or Tutorial Content

ISA100 Working Groups

- WG1 – Integration and Ongoing Study Groups – Dan Sexton / Rick Enns
- WG2 - TREC - Tom Phinney / Sicco Dwars
- ★ • WG3 - ISA100.11a - Pat Kinney / Dan Sexton
- WG5 - Co-existence - Pat Kinney / Peter Fuhr
- WG6 - Interoperability - Hesh Kagan
- WG7 - Networking - Jose Gutierrez
- WG8 - Users - Dick Caro / Jim Reizner
- WG9 - User Guide - Marty Zielinski
- WG10 - Marketing - Paul Sereiko / Larry Pereira
- ★ • WG12 - Wireless HART Convergence - Paul Sereiko / Dick Caro

ISA100 Working Groups

- WG14 - Trustworthy Wireless - Wayne Manges
- ISA100 JWG / ISA99 WG9 - Joint Working Group - Jeff Potter, Ian Henderson
- ★ • WG15 - Wireless Backhaul Backbone Network - Penny Chen / David Glanzer
- WG16 - Factory Automation - Jim Reizner / Cliff Whitehead
- WG17 - Zigbee - Israel Radomsky / **Greg LaFramboise**
- WG18 - Power Sources - Roy Freeland / Sicco Dwars
- WG21 - People and Asset Tracking and Identification - Peter Fuhr / Sicco Dwars
- Application Profiles IG - Dave Kaufman / Herman Storey

WG3 ISA100.11a

- Tactical Cost Driven Technology
- Low Energy (Battery) Sensor Mesh Standard
- IEEE 802.15.4 Radios in 2.4 GHz ISM Band
- Approved Standard
 - Overwhelming Majority Approval
 - 23 of 24 End Users Approved
- Maintenance Update Initiated
 - Scope Limited to Corrections and Clarifications
 - Input Requested Until June 13
 - Enhancements and Major Changes Deferred (for now)
 - Will be Submitted to IEC with Approval Expected 1Q 2011

ISA100.11a Standard Contents

1. Scope
2. Normative references
3. Terms, Definitions, Abbreviated Terms, Acronyms, and Conventions



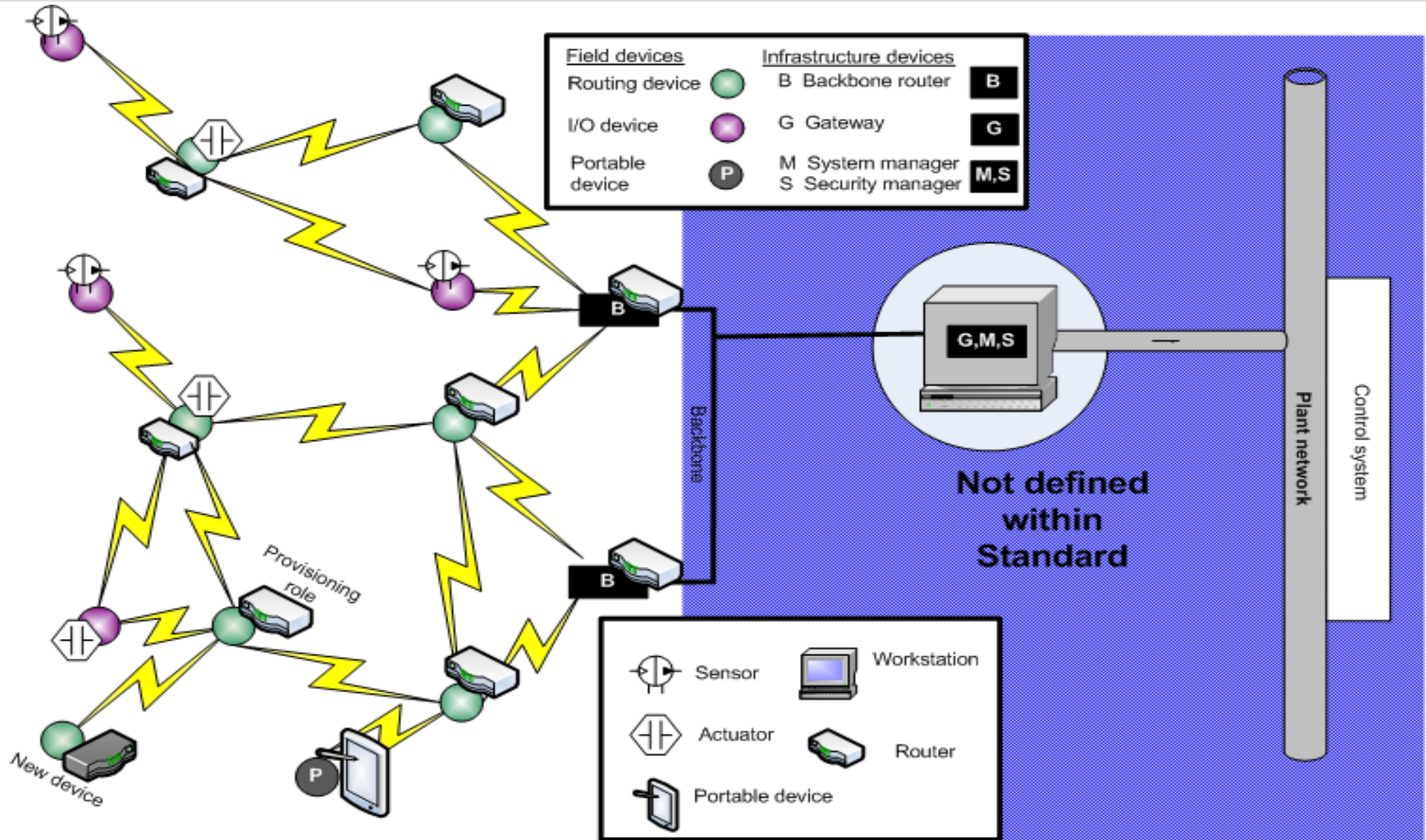
4. Overview (**Informative**)

Good Explanation of the Entire Standard

5. Through 14. Detail Specifications

Annex A Through S Normative and Informative Appendices

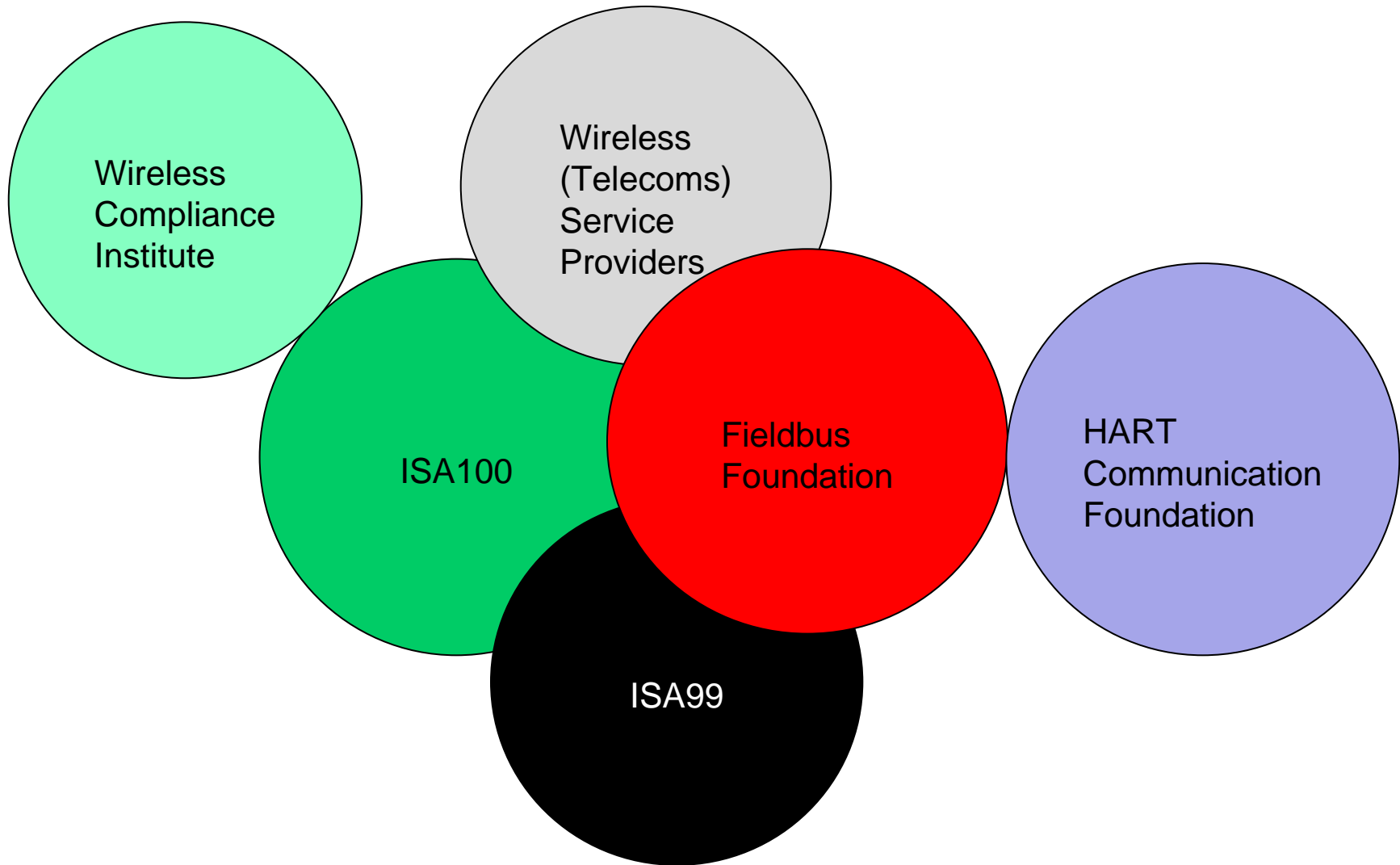
ISA100.11a Scope



Key Attributes of ISA100.11a

- **Interoperable**
 - Device to gateway vendor independent communications
 - Device to device vendor independent communications
- **Scalable**
 - Supports a few to thousands of field devices in a single network and viewed and managed from a single network manager
- **Future proof**
 - Based on current and widely followed open industry standards
 - Modular technology building blocks, allowing easy updates as new technologies evolve such as radios, security and addressing
- **Designed for industrial performance**
 - Part of family of standards formed with input from end-users, customers and technical experts
 - Designed for process measurement as well as monitoring providing for fast update times

(Mostly) Intersecting Groups



Related Wireless Activities

- Wireless Compliance Institute
 - ISA100 Compliance Certification
- Backhaul
 - New Capability and Functionality
 - Fills Technology Gaps
 - Integrates Corporate Wired Architecture with Wireless Capability
 - ISA100.15
 - Fieldbus Foundation
- Convergence
 - ISA100.12
 - WirelessHART®
 - Effort Driven by User Cost

Wireless Compliance Institute Structure

ISA
(Shareholder of ASCI)



**Automation Standards
Compliance Institute (ASCI)**
(Non-profit company owned by ISA)



ISA100 Wireless Compliance Institute (WCI)
(Interest group within ASCI with its own rules and governing board)

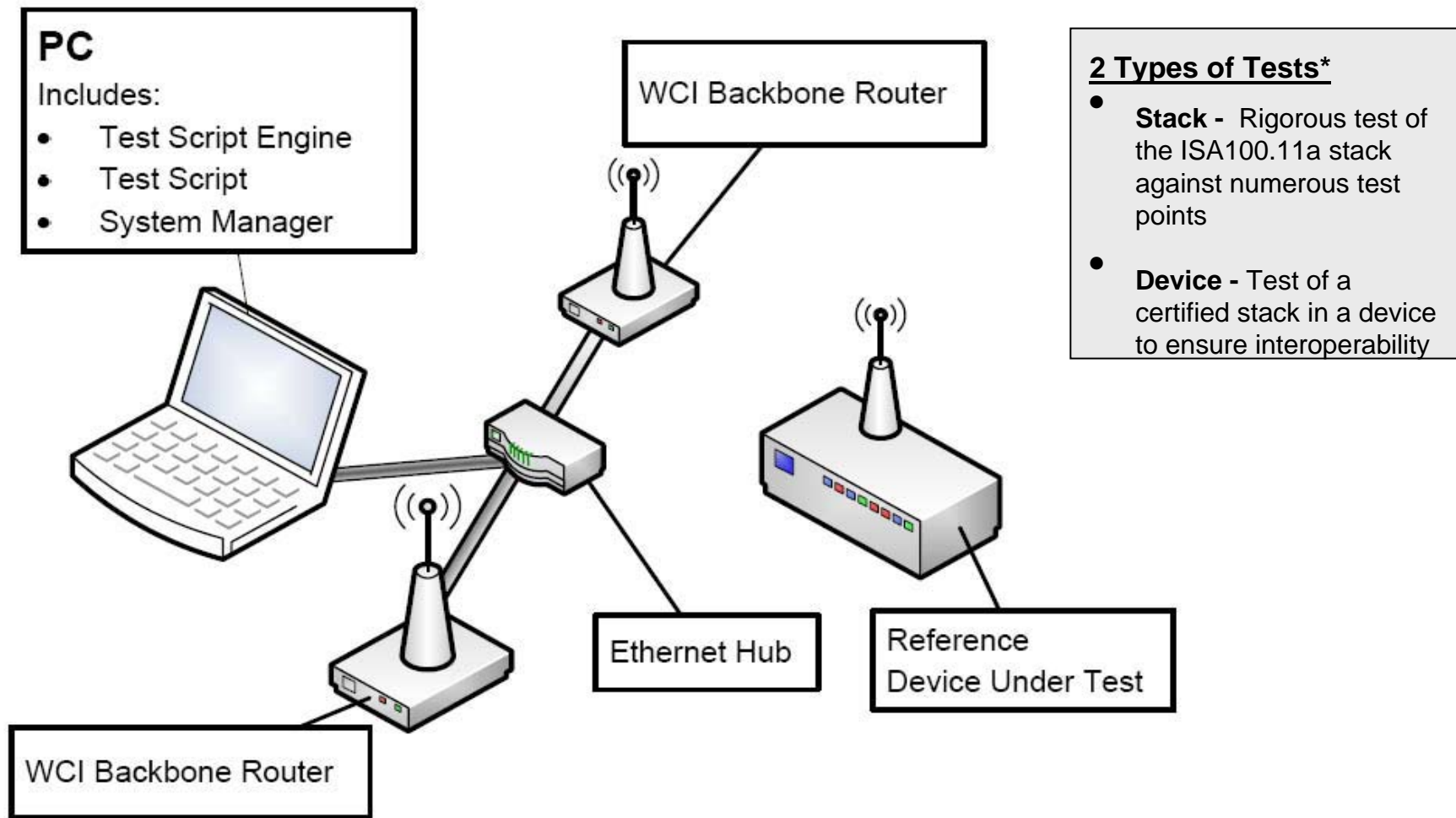


*The WCI is Operated as an ASCI Interest Group to
Lead the Wireless Compliance Initiatives*

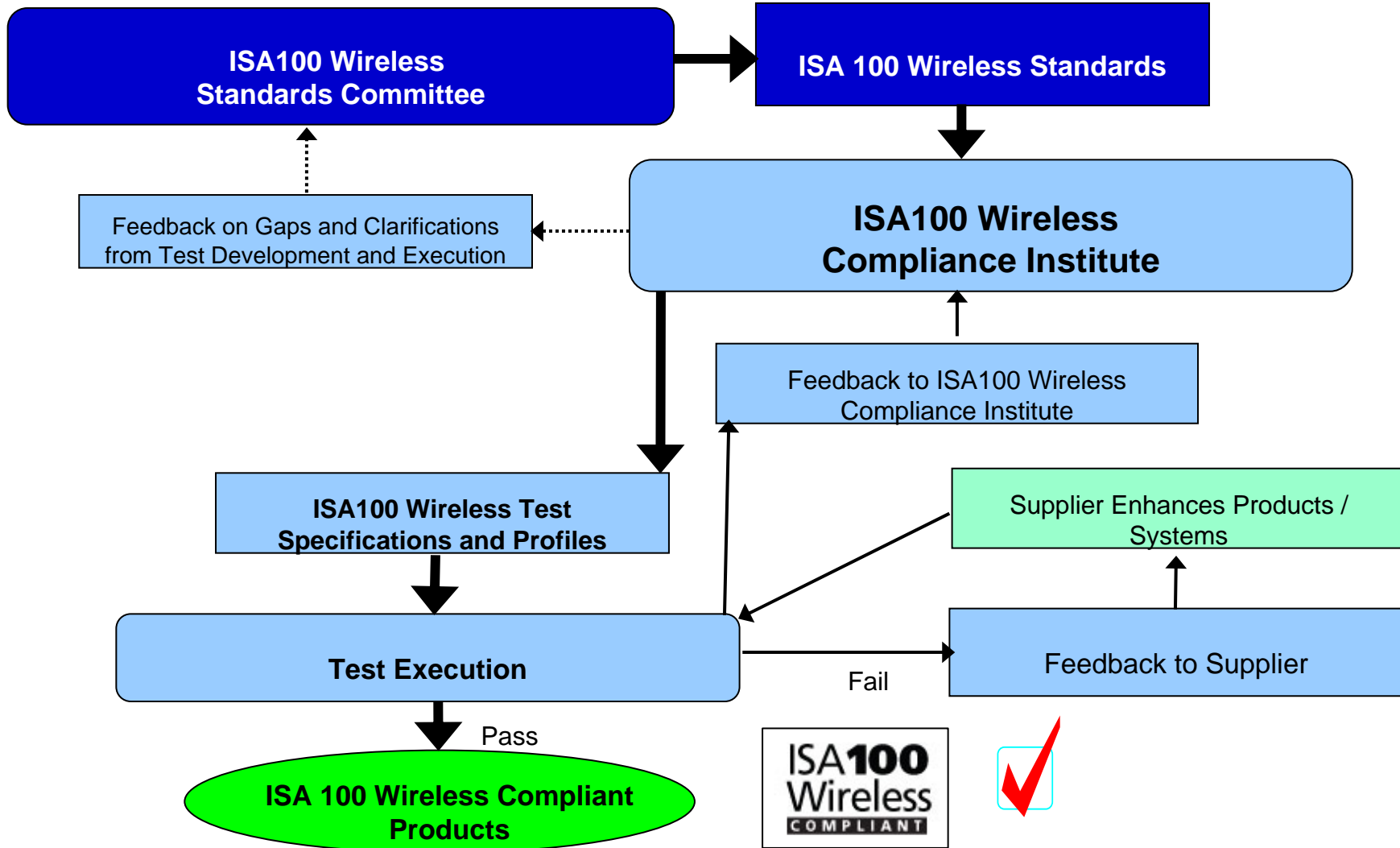
Wireless Compliance Institute Activities

- Profiles
 - Standard Options
- Test Kits
- Feedback to Standards Committee
 - Continuous Improvement
- Conformance Test Services
 - Certification Check Mark
 - Listing of Certified Devices
- User Test Site
 - Arkema Chemical

Wireless Compliance Institute Tests




Wireless Compliance Institute Work Flow



Wireless Compliance Institute Schedule

- Test Kits Available (For Sale) June 2010
 - Same Kits Used by Certification Lab
- ISA100.11a Product Certification Testing Available in June 2010
 - Provided by independent ISO/IEC 17025 Lab
- ISA100.11a Certified Devices will be Registered on the WCI Website www.isa100wci.org

Wireless Backhaul

- Unique Strategic User Driven Effort
- Fieldbus Foundation Initiative
 - Remote I/O and Control in the Field (RTU)
 - Multiple Sensor Mesh (Field Instrument) Integration and Support
- Other Needs
 - Mobile Worker (IT / Desktop)
 - Mobile Worker (Operator / Maintenance)
 - VOIP
 - Video
 - Fire and Gas
 - People and Asset Tracking
 - Emergency Responder Support
 - Temporary Internet Access for Vendors and Contractors
 - Cyber Security
 - Short Haul / Long Haul
 - User Owned / Service Provider
-  Backhaul is a Shared Resource

Wireless Backhaul Gaps

- User Provided Architecture
 - System Vendors / Service Providers Needed
- Cyber Security
 - ISA100 Compliance Methods
 - Implementation Through Communication Standards
 - ISA99 and ISA100 Modeling & Terminology
 - Certification Planned
- Low Bandwidth / High Latency
- Quality Of Service (Priority)
 - No Standard
- Gateways
 - Partly Proprietary Now
 - Will Be Standardized

Wireless Backhaul Solution

- ISA100.15 Provides
 - Implementation Recommended Practices
- Fieldbus Foundation Provides
 - RTU and Standard Gateway Specification
 - Integration Test Lab
- Vendors Provide
 - Volunteers
 - Equipment
 - Need More of Each
- Initial Integration Tests 3Q 2010
- Released Product??

Sensor Mesh Convergence

- Convergence Scope
 - ISA100.11a
 - Wireless HART (IEC 62591)
 - Not Zigbee
 - Not Chinese Submission (IEC 62601)
- ISA100.12 Convergence Working Group
 - Dual Boot White Paper
 - Differences Spreadsheet
 - CURT Task Group

ISA100.12 Convergence

- Dual Boot
 - Cheap and Dirty
 - Users Would Have to Deal with 2 Incompatible Mesh Standards
 - A Device Could Work With Either Mesh Standard
 - Not Optimum Long Term Cost
- CURT Goal One Mesh Standard
 - Higher Short Term Cost
 - Optimum Long Term Solution
 - Strong User Support

ISA100.12 Convergence

- CURT Task Group Activities
 - Define Use Cases (Business Need) & Technical (Functional) Requirements
 - Define Importance Rating for Each Requirement
 - Need User Help Now!
 - Contact Dick Caro or Herman Storey
 - Request for Proposal
 - Evaluation & Recommendation 3Q 10
 - Scheduled Completion 1Q 11
- NAMUR & WIB Participation
 - Collaborating with CURT on Requirements
 - Shared Goal of Single Standard

User Requirements

- Single Interoperable Network
 - Single Configurable Communication Stack that Supports Multiple Application Environments (Fieldbusses)
 - Common Network and Security Management in Physically Secure Area
- Efficient Operation
 - Minimize Retransmission to Conserve Bandwidth and Power Consumption
- Ease of Integration
 - Utilize Common Tools and Data Structures to facilitate Integration with Hosts Systems and Minimize Training Requirements

User Requirements

- Application Flexibility
 - Local Field Control
 - Different Subnets Serve Applications with Different Profiles or Application Environments while Remaining an Integrated Network
 - Move Large Files Efficiently
 - Manage Data Priority (Quality of Service)
- Future Proof Technology
 - Minimize Regretted Investment by Managed Migration and Easy Upgrade

ISA100 Wireless Standards Update

- Questions?
- For More Information