

Presentation Will  
Begin Shortly

4:00

#### APRIL SESSIONS

DATE	TIME	SESSION
THURS, APRIL 3 <sup>RD</sup>	10 AM CT	Beyond Metering: Silicon Labs and Digi - Unlocking New Potential with Wi-SUN
TUES, APRIL 15 <sup>RD</sup>	10 AM CT	Expand Wi-Fi Development Support with Ezurio's Veda SL917 Module

#### FUTURE DATES

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<b>MAY:</b> THURS, MAY 1 <sup>ST</sup> & TUES, MAY 13 <sup>TH</sup>	10 AM CT
<b>JUNE:</b> THURS, JUNE 5 <sup>TH</sup> & TUES, JUNE 17 <sup>TH</sup>	10 AM CT

# Beyond Metering: Silicon Labs and Digi - Unlocking New Potential with Wi-SUN

Chad Steider – Silicon Labs  
Quinn Jones – Digi International  
Travis Lubbers – Digi International

2025  
**tech talk**  
WEBINAR SERIES



LPWAN

# Why Wi-SUN?



- **Standards based LPWAN technology**
  - Makes deployment of interoperable devices easier than other LPWAN topologies
- **Enables both line and battery powered devices**
  - Battery powered devices can be easily added to existing infrastructure
- **Inclusion of OFDM and FSK modulations**
  - Allows for increased data rates, better network performance, and network optimization
- **Self-Forming and Self-Healing Mesh Topology**
  - Easy to deploy and maintain networks as devices are added or removed from the network
- **Governed by Wi-SUN Alliance**
  - Alliance members are leaders in infrastructure and focus application segments
- **Highly secure mesh network**
  - Significantly reduce vulnerability to cyber security threats



# Wi-SUN Value Propositions



## SCALABILITY

**Easily expandable to  
hundreds of thousands  
of nodes**



## SELF FORMING / SELF HEALING

**Eliminates single point of  
failure networks and  
simplifies deployment**



## HIGHLY CONFIGURABLE

**Multiple modulation schemes  
and different modes to  
optimize network**



## INTEROPERABLE

**Standards based  
solution allows for  
multi-vendor networks**

# What is FAN 1.1?



- **FAN 1.1 is an extension of FAN 1.0 to address higher bit rates and low power nodes**
  - Keeps the basis of FAN 1.0
- **Indeed, these new topics are optional in FAN 1.1 specification, so we get 3 pieces:**
  - **FAN 1.1 Core (aka FAN 1.0+)**
    - Only one feature added: PAN-wide Information Element
  - **FAN 1.1 High Performance option (HP)**
    - Introduces SUN-OFDM PHYs
    - Introduces mode switch
  - **FAN 1.1 Low Energy option (LE)**
    - Introduces Limited Function Nodes (LFN)

# Why Silicon Labs for Wi-SUN?

## OFDM AND FSK SUPPORT

- **Portfolio to support both OFDM and FSK modulations with FG25 and FG28**
  - Support for up to 2.4 Mbps data rates with OFDM on FG25
- **Optimized solution for LFN nodes with FSK support**
  - FG28 provides best in class RF and low power performance
- **Support for mode switch on FG25 for multi-use network optimization**
  - Simplifies mixed modulation network architecture

## ADVANCED FEATURES

- **Concurrent Detection**
  - Eliminates needs for signaling packet within transmission
- **Support for OFDM data rates up to 3.6 Mbps**
  - Future proof for addition of MCS7 to Wi-SUN specification
- **Additional modulation support for longer range capability**
  - MR-OQPSK modulation improves link budget over FSK and OFDM
- **PHY Flexibility**
  - Tools to enable custom PHY creation to address additional network configurations

## CERTIFICATIONS

- **PHY Certification on multiple devices**
  - FSK and OFDM certification with FG25
  - FSK certification on FG12 and FG28
- **Stack certification to cut down on development time and risk**
  - Tested and proven to work on all Silicon Labs devices
- **Certified Border Router reference design**
  - Customers passed certification using this design
- **Certified Test Bed Unit as part of Wi-SUN certification plan**

## REFERENCE DESIGNS AND TOOLS

- **Certified Reference Designs:**
  - Border Router (FG12, FG25)
- **Reference Designs:**
  - Router Node (FG12, FG25)
  - LFN Node (FG28)
- **Development Kits:**
  - Wi-SUN specific kit for FG25 Router Nodes (Wi-SUN-PK6015A and Wi-SUN-PK6016A)
  - FG28 Pro Kit for LFN development (FG28-PK6025A)



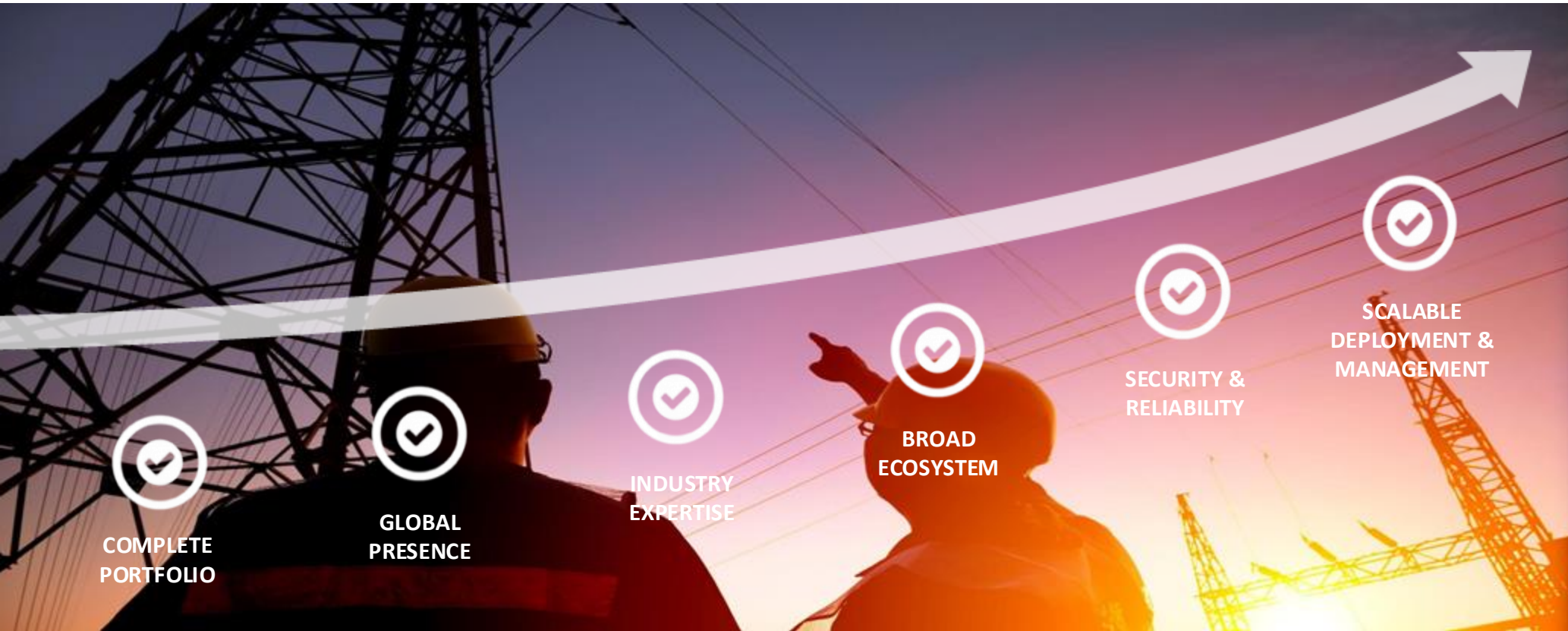


# Unlocking New Potential with Wi-SUN

April 3, 2025



# What's Next for Digi



**1985**  
Founded

**DGII**  
NASDAQ

**35K+**  
Customers

**\$455M**  
Revenue



Digi XBee®

## Build

- Reduced time-to-market
- Lower costs and risks
- Future-proof and secure



Gateways/Border Routers

## Deploy

- Quick deployment
- Built-in security
- Third party integration



Digi Remote Manager®

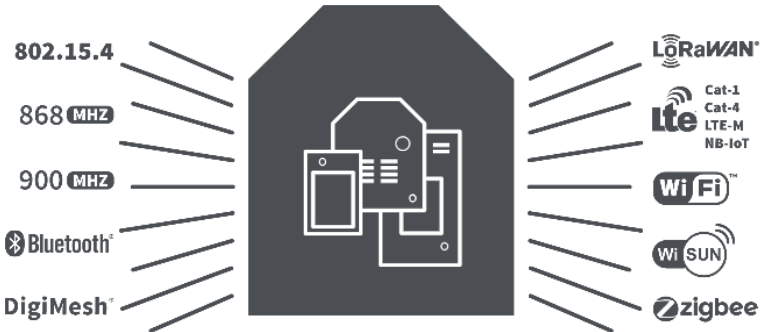
## Manage

- Scalable device and configuration management
- Remote software updates
- Cloud integration



# Digi XBee® delivers flexibility, security, and scalability

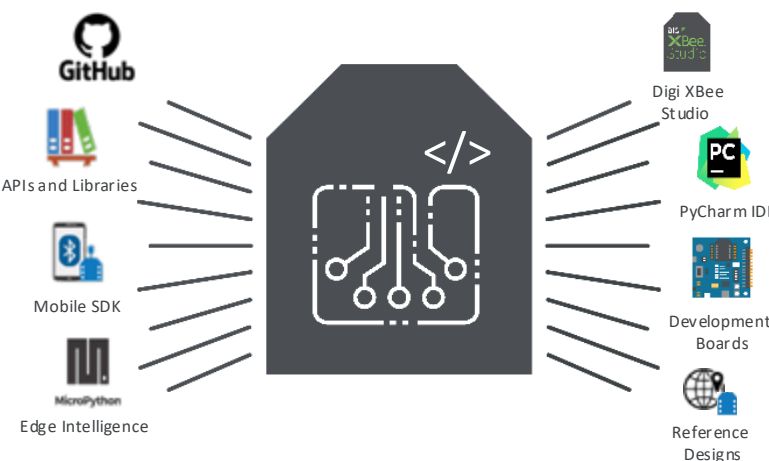
## FLEXIBLE AND FUTURE-PROOF



## SECURE AND SCALABLE



## OPEN DEVELOPMENT TOOLS



OVER 25 MILLION DEPLOYED GLOBALLY



# Why Wi-SUN?



Smart Meters  
(Electric, Water, Gas)



Street Lighting



EV Charging



Public Infrastructure



Renewable Energy



Agriculture

## ■ Standards-based mesh networking

- Governed by Wi-SUN Alliance since 2012
- Based on IEEE 802.15.4g standard
- Interoperability with robust certification program

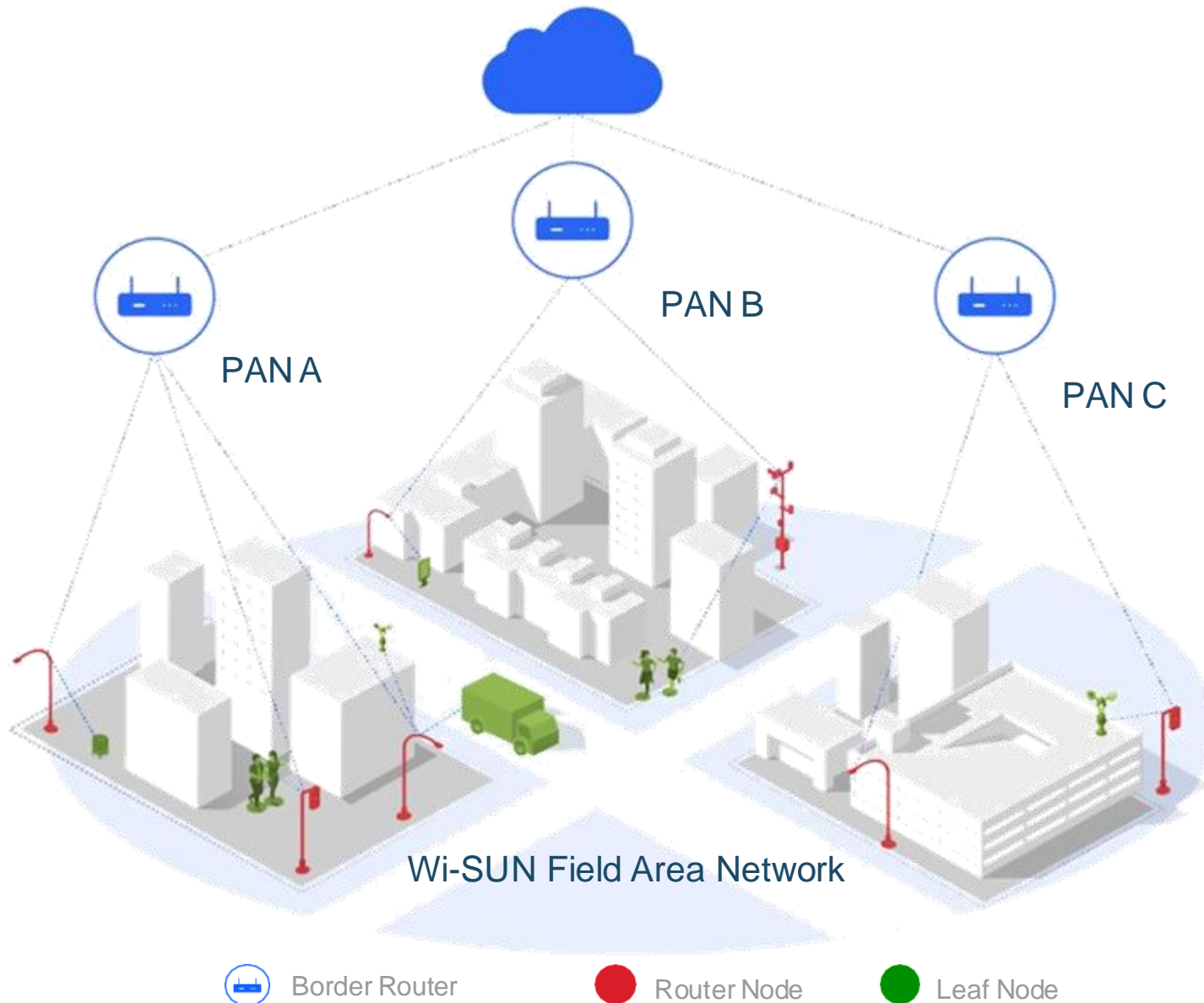
## ■ Reliable, secure, and easy to deploy

- Self-forming / self-healing mesh network
- Proven technology with 100M+ devices deployed
- Strong built-in enterprise security mechanisms
- Digital certificate-based node authentication
- Endpoint IPv6 connectivity with seamless integration into existing IT infrastructures

## ■ Suitable for uses cases across industries

- High performance, low latency links up to 2.4 Mbps
- Battery-powered “leaf” node capabilities





- **Border Router**
  - Provides WAN connectivity
  - Maintains source routing tables
  - Disseminates PAN-wide information such as broadcast schedules
- **Router Nodes (Full Function Nodes)**
  - Packet forwarding in a PAN
  - Services for relaying security and address management protocols
- **Leaf Nodes (Limited Function Nodes)**
  - Discover and join a PAN
  - Battery powered devices
  - Send/receive IPv6 packets

# Deploy and manage your Wi-SUN<sup>®</sup> network from end to end

## Wi-SUN RF MODULES



### Digi XBee<sup>®</sup> for Wi-SUN

- Multiple standard form factors
- Sub-GHz connectivity with up to 2.4 Mbps bandwidth
- Support for battery powered applications
- Local edge logic (MicroPython)
- Cisco OpenCSMP interoperability
- Wi-SUN CERTIFIED<sup>™</sup>

## BORDER ROUTER



### Digi XBee<sup>®</sup> Hive Border Router

- Cost-effective design with support for 200-300 nodes
- Cellular, Wi-Fi, and Ethernet backhaul
- Built-in IPv6/v4 address translation
- Linux Containers for applications
- Wi-SUN CERTIFIED<sup>™</sup>

## NETWORK MANAGEMENT



### Digi Remote Manager<sup>®</sup>

- Cloud-based Wi-SUN network configuration + management service
- Device life cycle management with Over-the-Air (OTA) updates
- Digital certificate management

Prototype enclosure shown. Not final design.





# Connectivity for all use cases

## Digi XBee® for Wi-SUN Routing Node Module

- EFR32FG25 with Secure Vault™
- Maximum output power: + 16 dBm
- Routing node capabilities
  - Full Function Node – FFN
- Support for high-performance and low-power links
  - FSK data rates 50 to 300 Kbps
  - OFDM data rates 12 Kbps to 2.4 Mbps
- Line-powered operation only
  - No low-power sleep
- Local edge intelligence
  - Custom MicroPython scripts

## Digi XBee® for Wi-SUN Leaf Node Module

- EFR32FG28 with Secure Vault™
- Maximum output power: +20 dBm
- Sleeping node capabilities
  - Limited Function Node – LFN
- Support for long-range, low-power links
  - FSK data rates 50 to 300 Kbps
- Bluetooth LE support
  - Local provisioning, sensor connectivity
- Support for battery-powered applications
  - "Leaf" node with 10-20 years battery life
- Local edge intelligence
  - Custom MicroPython scripts

- All modules are pre-certified for US, Canada, Europe, India, and Japan

- Available in surface mount (MMT, SMT) and through-hole form factors with U.FL and RF pad antenna options

# Cost-effective deployment flexibility

## Digi XBee Hive Border Router

- Cost-effective with multiple connectivity options
- Supports 200-300+ Wi-SUN nodes
- Full Digi Remote Manager integration

## Intelligent edge platform

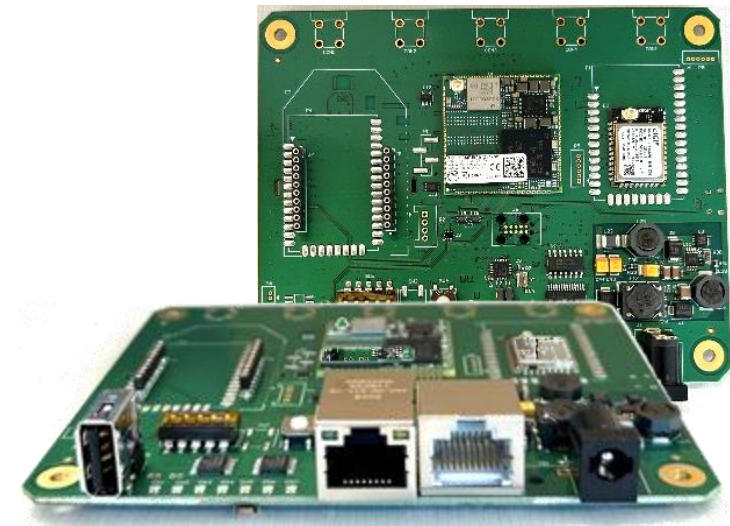
- Dual Cortex-A7 @ 650 MHz with Cortex-M4 @ 209 MHz
- Full routing capabilities, including IPv6/v4 translation
- Container support for customer specific applications

## Two form factor options

- Enclosed and PCB only

## Expansion options

- LTE-M/NB-IoT, LTE Cat 1 / 4
- Wi-Fi, Ethernet, Bluetooth
- Additional Digi XBee population options



Prototype enclosure shown. Not final design.



# Configure, deploy, and manage your Wi-SUN network

## Digi Remote Manager for Wi-SUN

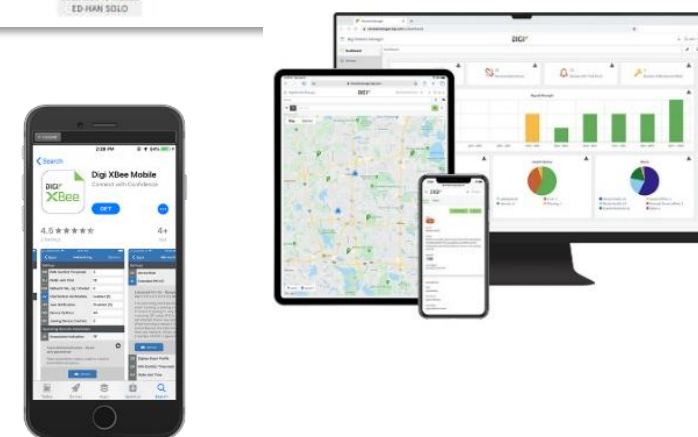
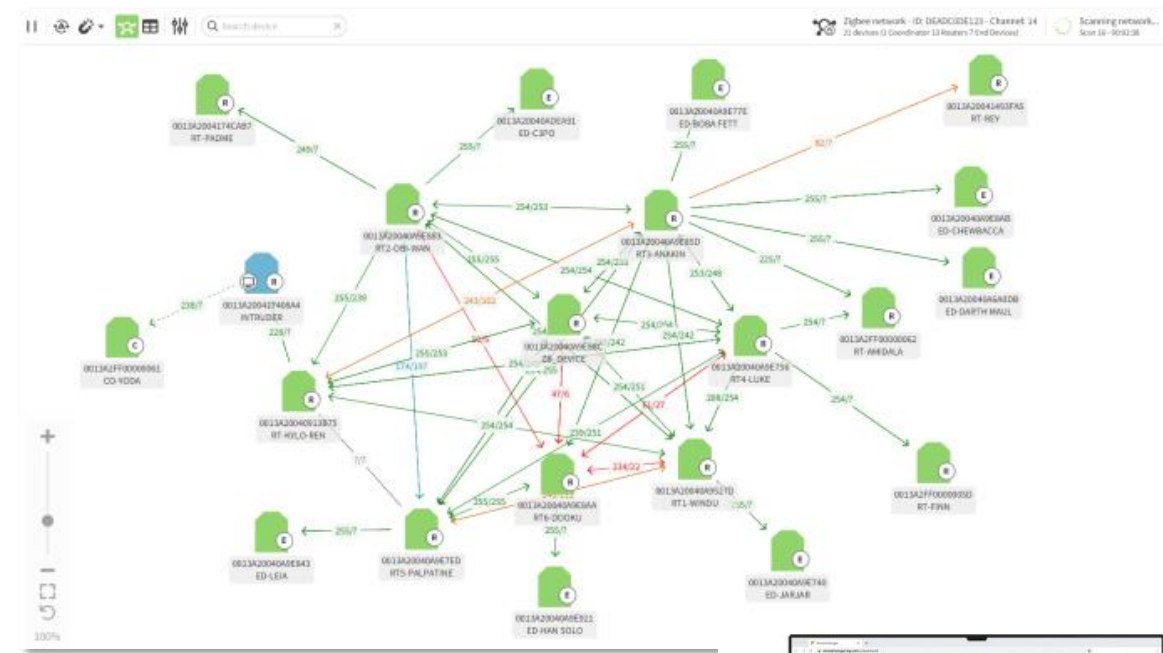
- Cloud-based Wi-SUN network configuration and management platform
- Device lifecycle management with Over-the-Air (OTA) updates
- End-to-end digital certificate management (PKI)

## Digi XBee Studio

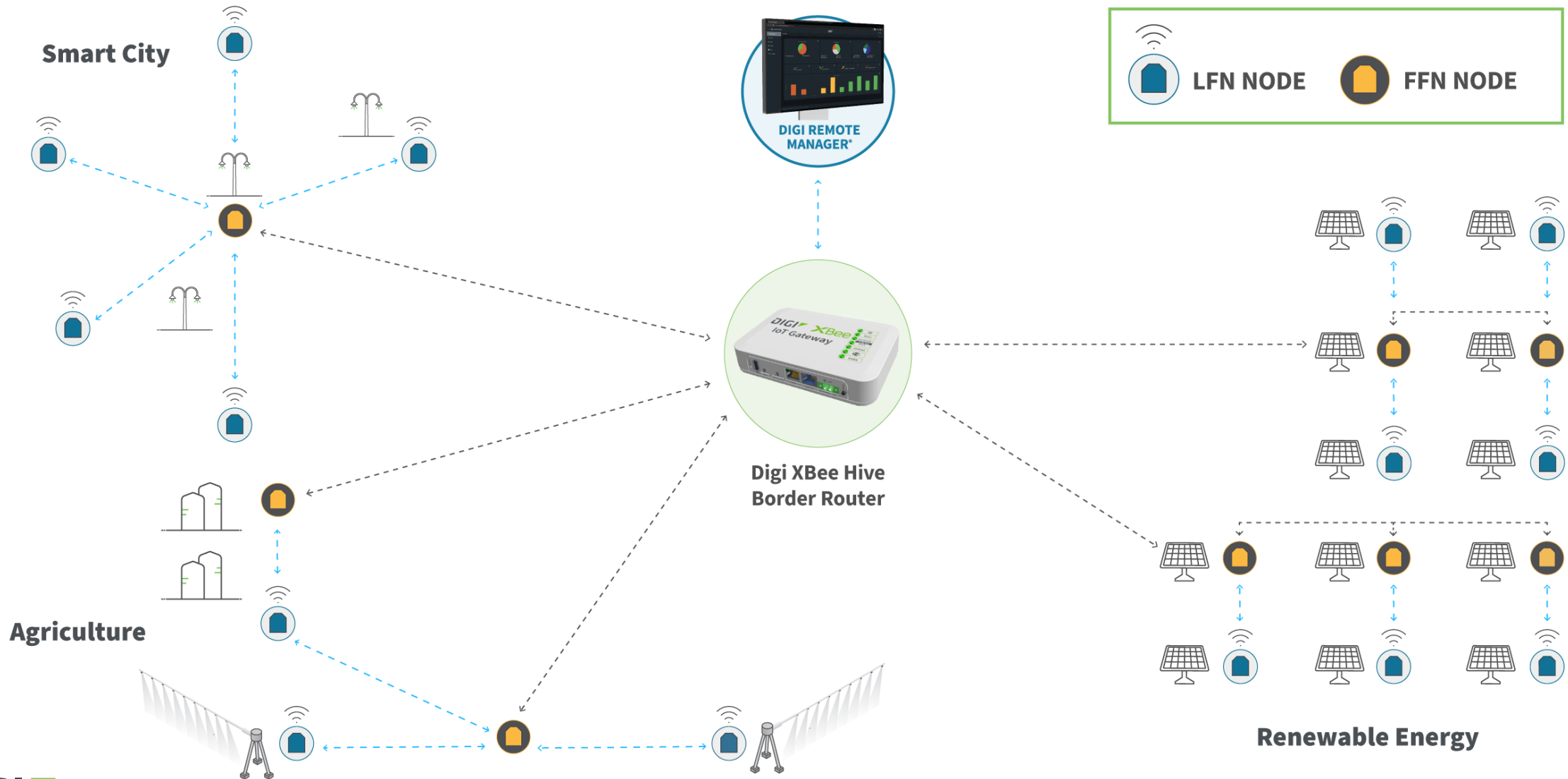
- Wi-SUN support for network configuration
- Quick Setup, Quick Actions
- Firmware updates

## Digi XBee Mobile App

- Mobile field configuration & commissioning
- Ease-of-use experience for Digi XBee & Wi-SUN
- Connectivity option via Bluetooth Low Energy



# Example FAN 1.1 XBee Wi-SUN Solution Overview





# Creating business value with Wi-SUN® across Industries



**Build smart connected products faster with Digi XBee® for Wi-SUN®**



**Quick deployment options with Digi XBee® Hive Border Router for Wi-SUN®**



**Built-in security with Digi TrustFence® protection and digital certificate mangement**



**Scalable management and deployment with Digi Remote Manager®**



**Connect to your backend systems with open third party integration options**

**Wi-SUN® delivers scalable, secure, and interoperable IP-based wireless mesh networking with **100+ MILLION** devices already deployed worldwide**



# Q&A





# Thank you

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