

Total smart home solutions MATTER, Bluetooth® and Zigbee Mesh

Bluetooth LE + 802.15.4 SoC portfolio



What is  matter



Bluetooth Mesh  Bluetooth® 5



Zigbee Mesh



life.augmented



2.4GHz Bluetooth LE portfolio



STM32WBx

STM32WB55

STM32WB35

STM32WB15

STM32WB50

STM32WB30

STM32WB10

- Dual core & security (Arm® Cortex® M4 / M0+)
- Up to 1Mbytes flash/ 256Kbytes RAM
- Bluetooth® Low Energy 5.3, 2Mbps,
- Zigbee R22 & Thread, proprietary, Matter

- Dual core & security (Arm® Cortex® M4 / M0+)
- 320 Kbytes flash/ 48Kbytes RAM
- Bluetooth® Low Energy 5.3, 2Mbps (excluding 802.15.4)

STM32WBA5x

- Arm® Cortex® -M33 w/ TrustZone® @100MHz
- 1Mbyte flash / 128Kbytes RAM
- Up to +10dBm output power
- Bluetooth® Low Energy 5.3 (long-range, 2Mbps, advertising extension)
- Enhanced security
- LDO



BlueNRG System-on-Chip

BlueNRG-1

- Arm® Cortex®-M0
- 160Kbytes flash/ 24Kbytes RAM
- Bluetooth® Low Energy 5.2

BlueNRG-2

- Arm® Cortex®-M0
- 256Kbytes flash/ 24Kbytes RAM
- Bluetooth® Low Energy 5.2

BlueNRG-LP

- Arm® Cortex®-M0+
- 256Kbytes flash/ 64Kbytes RAM
- Bluetooth® Low Energy 5.3(long-range, 2Mbps, advertising extension)

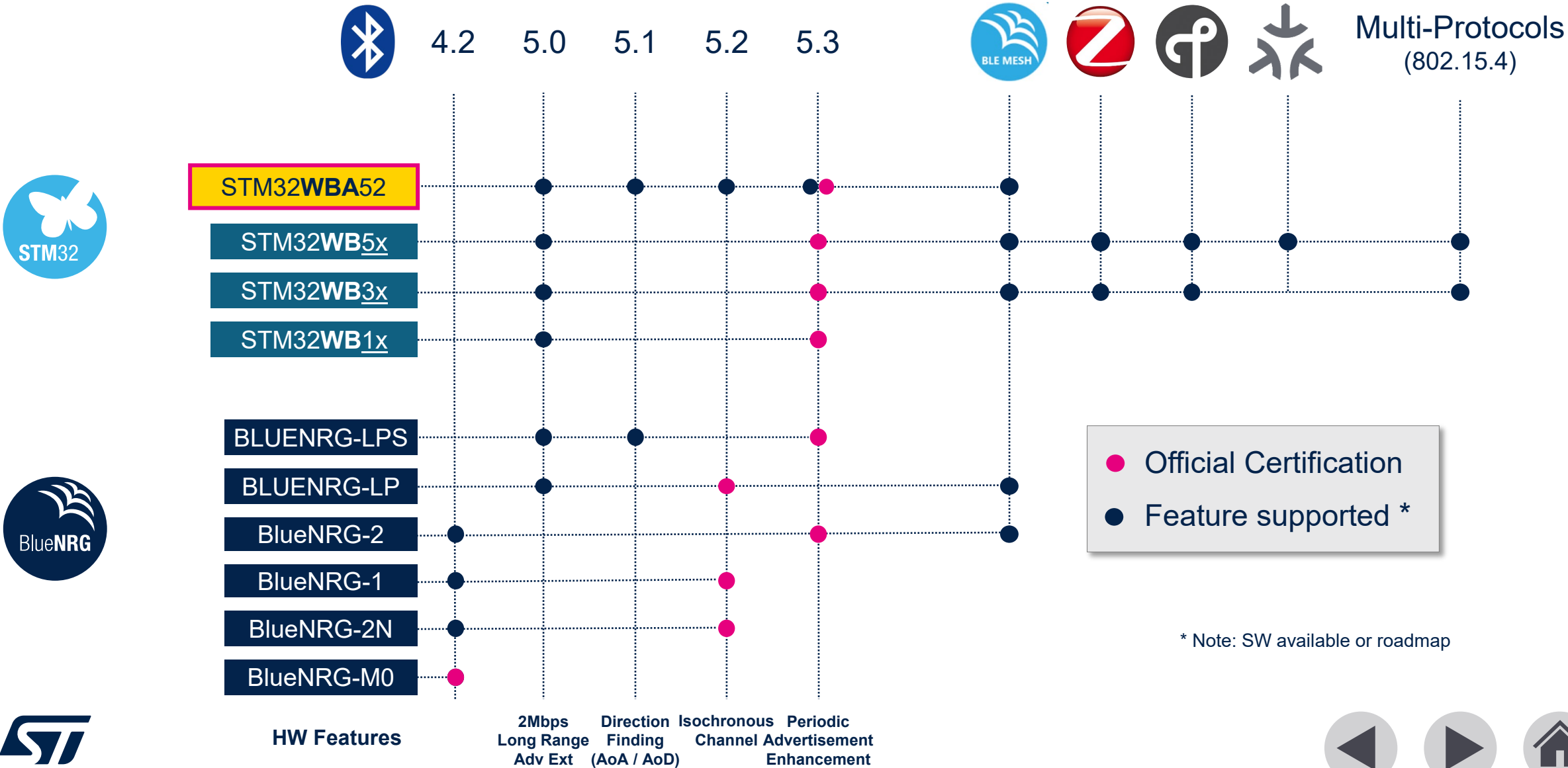
BlueNRG-LPS

- Arm® Cortex®-M0+
- 192Kbytes flash memory / 24Kbytes RAM
- Bluetooth® Low Energy 5.3 (long-range, 2Mbps, advertising extension, AoA/AoD)

Module Available



STM32 2.4GHz IoT Communication





arm
MBED



STM32WBx ecosystem recap



Software Tools

Embedded Software



Configure



Develop



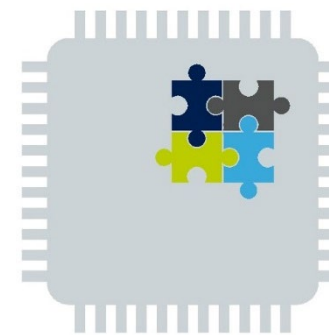
Program



Monitor



STM32CubeWB



STM32Cube Expansions
and Function Packs



OPENTHREAD
released by Google

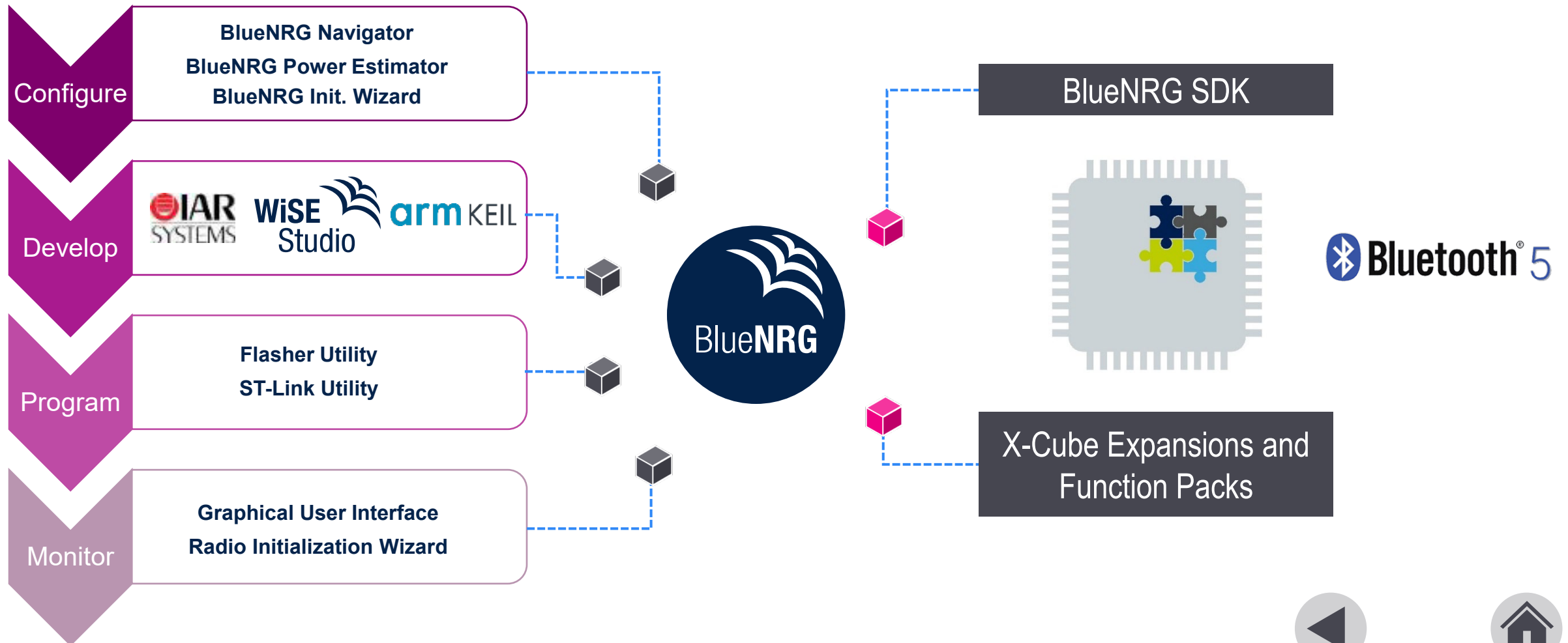


BlueNRG ecosystem recap



Software Tools

Embedded Software



Developed for Smart Home/Things Applications

“Smart home devices should be secure, reliable, and seamless to use.”

- A single, IP-based protocol
- Simplified development for manufacturers
- Increased choice & compatibility for consumers
- Rapid, global adoption & transformative impact
- A seal of approval that devices will work seamlessly and securely together

How MATTER stacks up



matter

TCP

UDP

IPv6

Wi-Fi

Thread

Bluetooth
Low Energy

commissioning
only

Ethernet

Additional future network layers



HVAC Controls



Window Coverings and Shades



Safety and Security Sensors



Lighting and Electrical



Door Locks



Media Devices



Controllers & Bridges

Common application layer

Interoperability, simplified setup & control

IP-based

Convergence layer across all compatible networks

Secure

Comprehensive, Layered, Resilient, Agile
AES-128-CCM encryption with 128-bit AES-CBC

Common protocol across devices

Extendible to cloud

Common data model

Core operational functions, multiple device types

Low overhead

MCU-class computation, <1.5Mbyte Flash



matter device release – Today and tomorrow

Currently Released Devices:

- Lighting and electrical
- Fan controls
- HVAC controls
- Door locks
- Sensors (inc. Safety and security)
- Window coverings/shades
- TVs
- Bridges

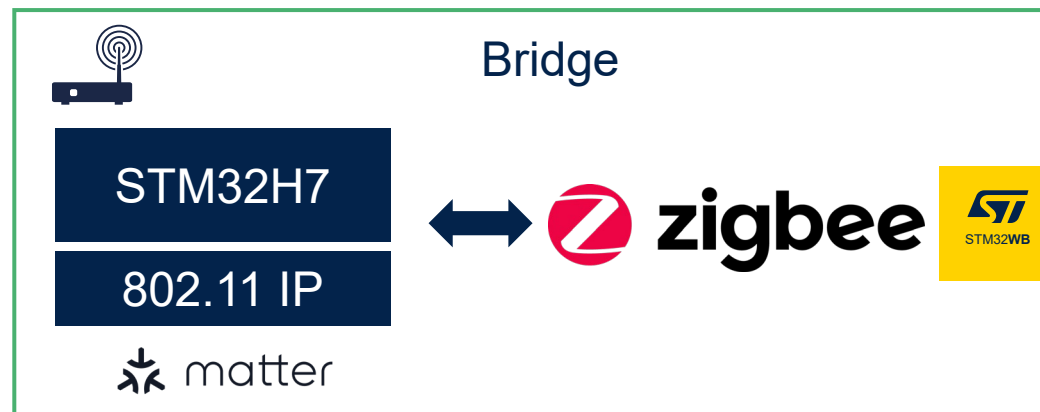
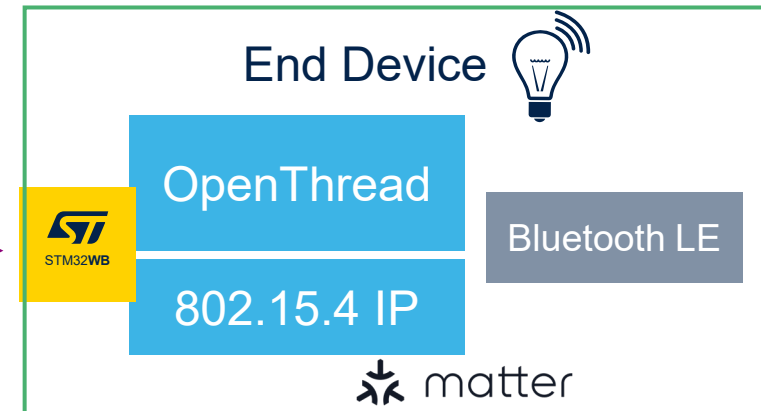
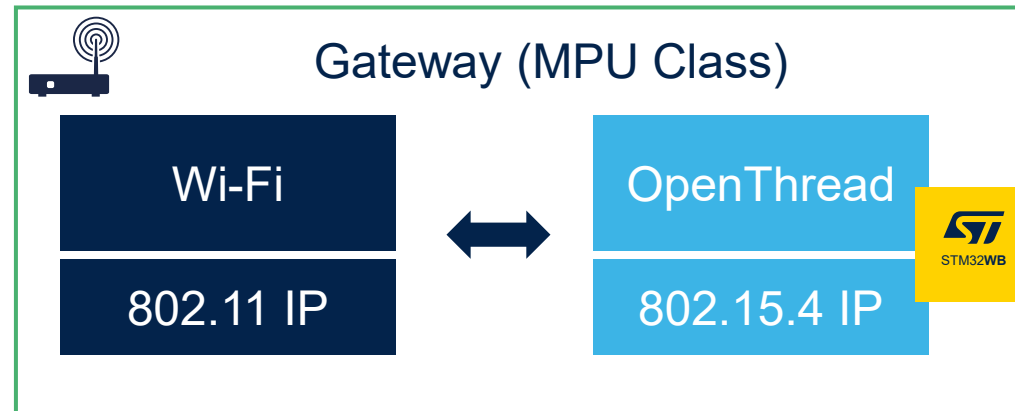
Next Set of Devices (active Use Case teams)

- Appliances (White goods)
- Robot vacuum cleaners
- Doorbells / Cameras
- Energy management (EV Charging +)
- Access points, Border Routers

 matter

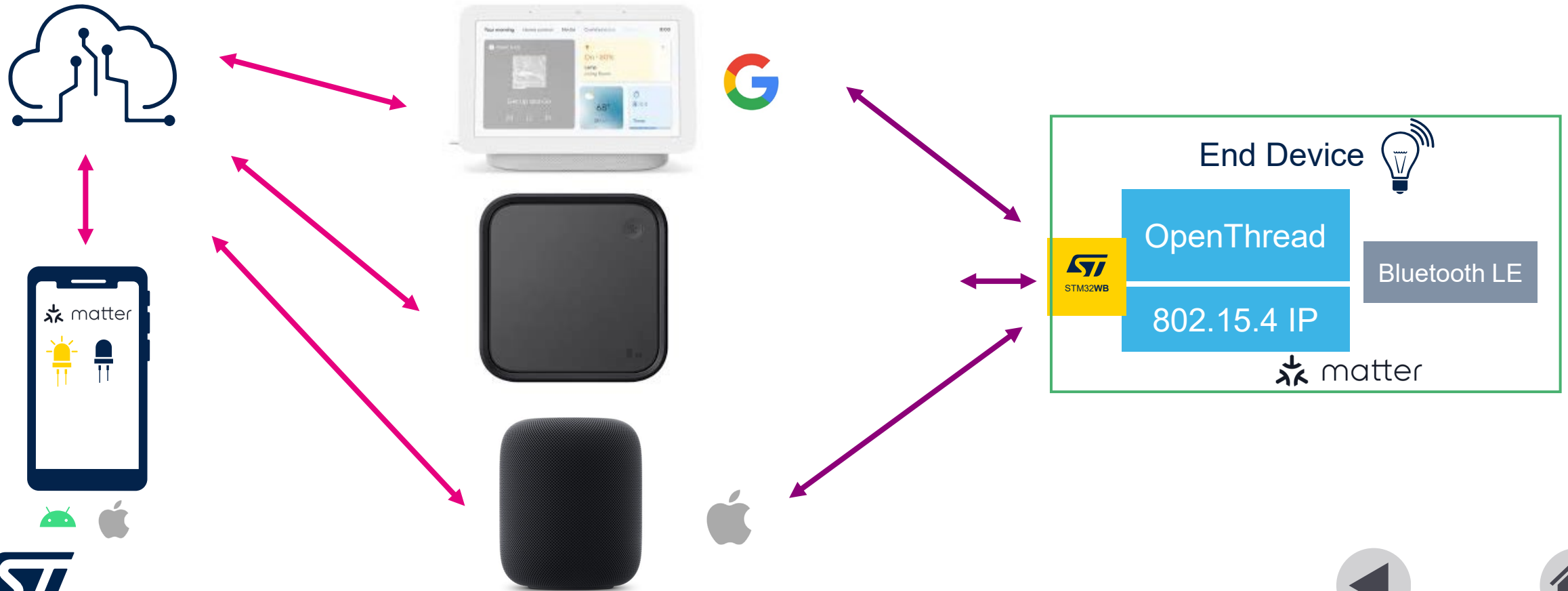
STMicroelectronics MATTER delivery today

Get started with STMicroelectronics MATTER delivery today!



STMicroelectronics MATTER tomorrow

Next developments in STMicroelectronics MATTER delivery



Bluetooth Mesh

Built on top of Bluetooth Low Energy features

PAIRING one-to-one



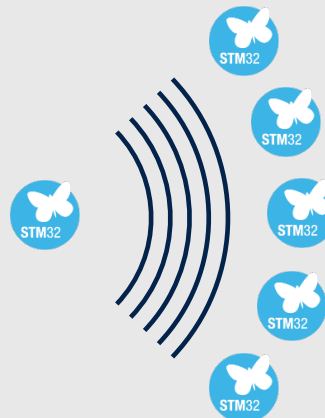
1 MASTER with
up to 6 SLAVES



DATA TRANSFER

- Sports & fitness devices
- Health and wellness devices
- Peripherals and accessories

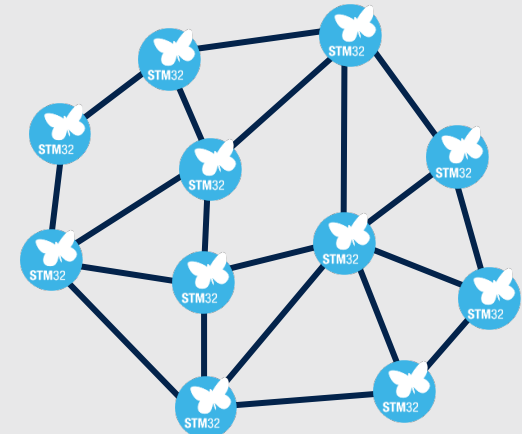
BROADCASTING one-to-many



LOCALIZED INFORMATION

- Point-of-interest beacons
- Item-finding beacons
- Way-finding beacons

MESH many-to-many

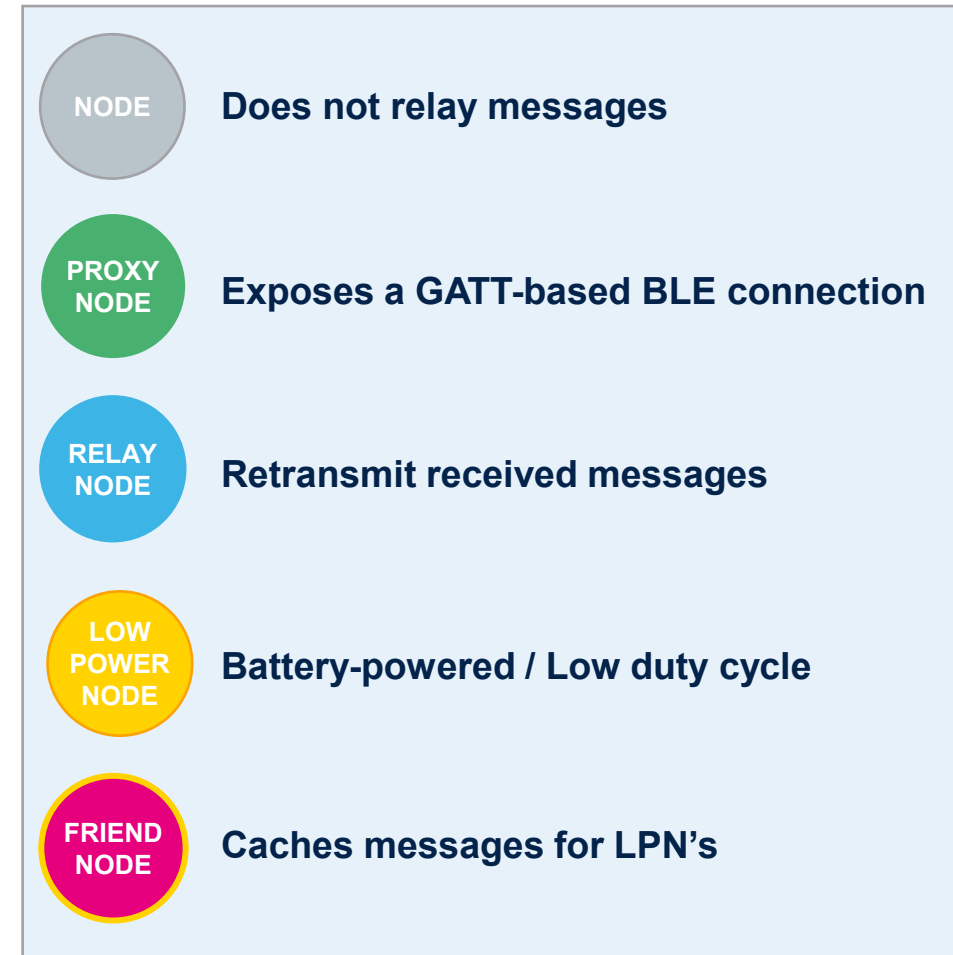
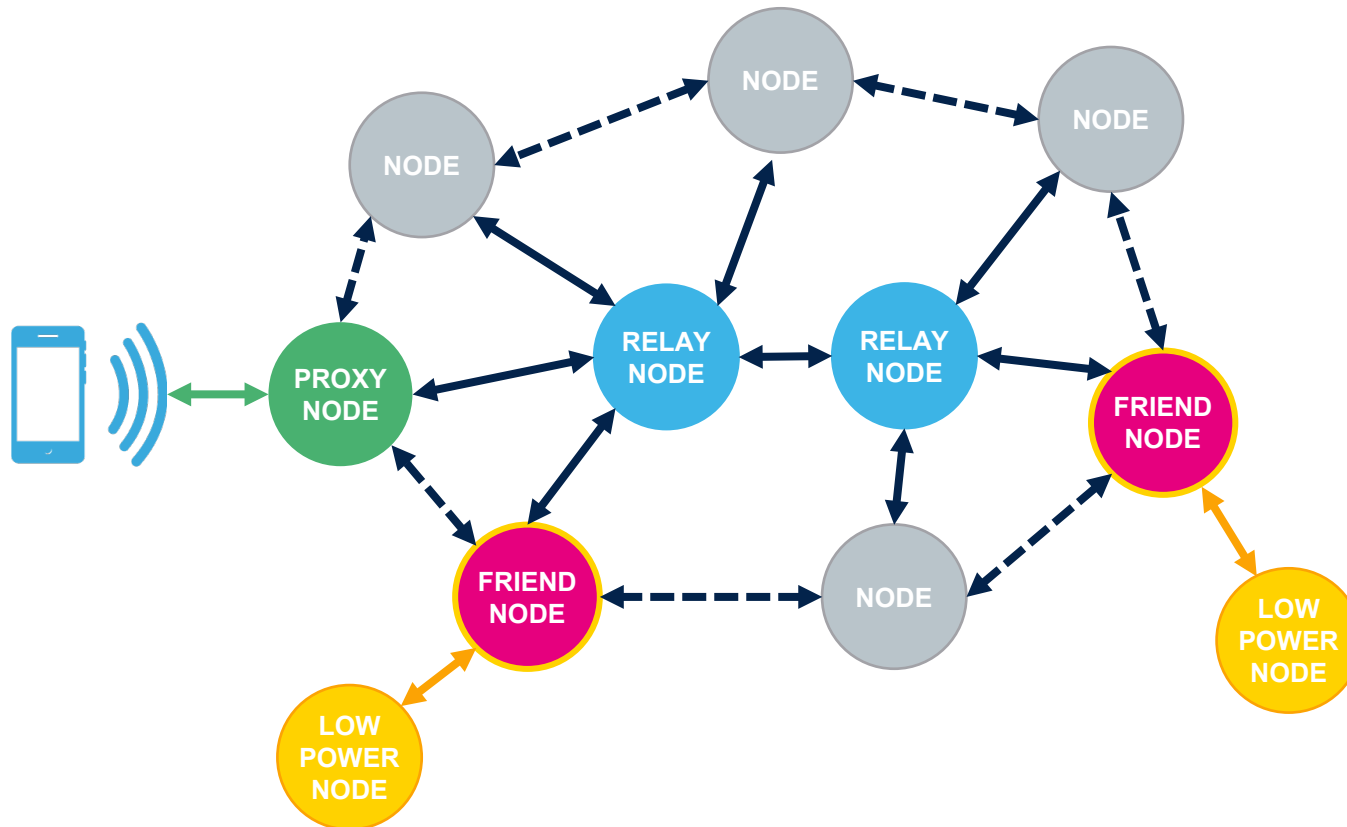


LARGE DEVICE NETWORKS

- Building automation
- Wireless sensor networks
- Asset tracking

Bluetooth Mesh topology

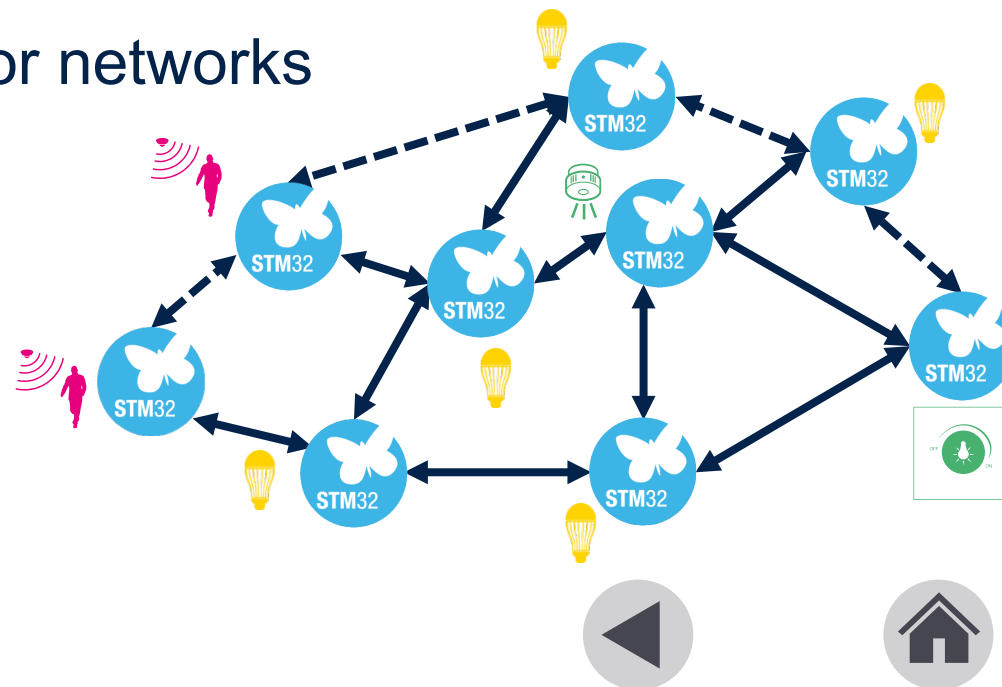
Managed flooding network – not a routed protocol



* Nodes can have multiple functions (e.g. Proxy + Relay + Friend)

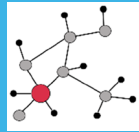
Bluetooth Mesh applications

- Lighting
- Home and Building automation
- Wireless sensor networks
- Asset tracking



What is Zigbee

Zigbee – consumer and industrial applications



Flexible self-organizing mesh



Ultra low-power



Library of applications

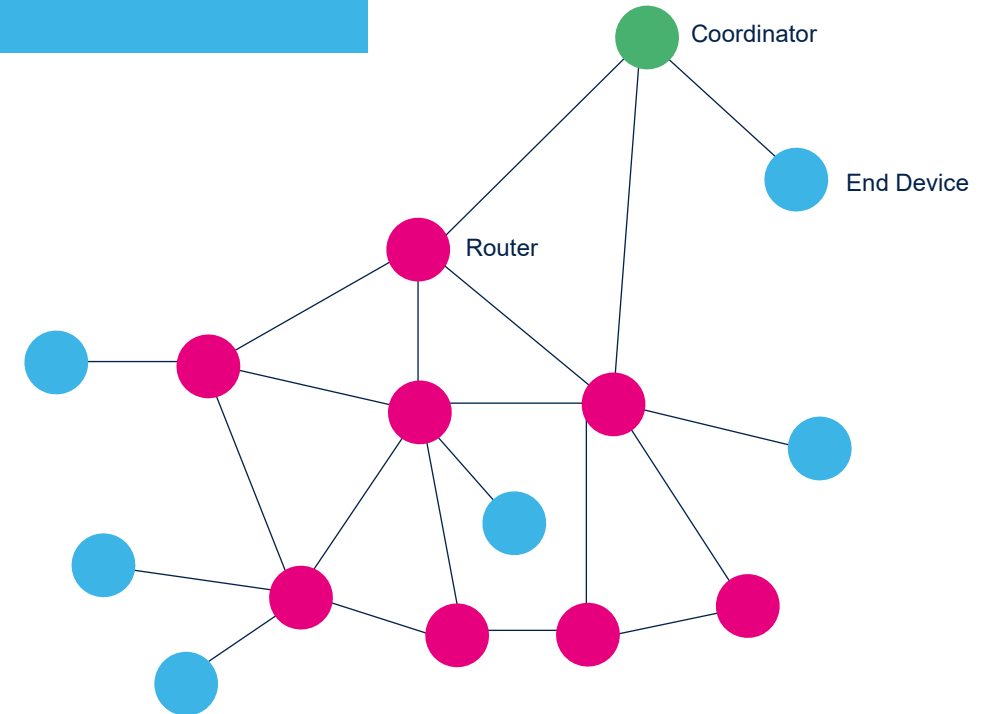


Zigbee roles

Simple network topology

3 basic roles are defined

- **Zigbee Coordinator – Full Function Device (FFD)**
A device responsible for associating and disassociating devices into its PAN
- **Zigbee Router – Reduce Function Device (RFD)**
A device that is capable of routing messages between devices and supporting associations
- **Zigbee End Device – FFD / RFD**
This class includes sleepy end devices



Zigbee applications



- Lighting / Shading / HVAC / Heating System
- Energy Management
- Security and Safety

