Q&A for Tech Talk Topic: 15.4 Mesh Networking

Q: Please be sure to reference your evaluation kits and software platforms so we might be able to move ahead with an evaluation. thank you
A: Our Zigbee and Thread development tools can be found here: https://www.silabs.com/products/development-tools/wireless/mesh-networking

Q: Are there examples for a Zigbee prototype? I'm using the WGM160P but maybe it needs other hardware?
A: WGM160P is for Wi-Fi specifically. The 802.15.4 protocols (Zigbee and Thread) are supported on Silicon Labs EFR32MGxx devices and MGMxxx modules.

Q: What does HA, ZLL, SE, GP mean?
A: Home Automation, Zigbee Light Link, Smart Energy, and Green Power. These are different application layers that operate on the Zigbee PRO stack.

Q: How does Zigbee differ from Sub-gig? Is it only the band of operation 2.4Gz vs <1GHz. Thanks in advance
A: Correct, with the exception of a specific implementation for smart metering in the UK there is no sub-GHz PHY specified for Zigbee. It is only at 2.4GHz.

Q: Can you elaborate how Zigbee PRO is different from Zigbee Green Power?
A: Zigbee Green Power is a simplified protocol that allows lower power devices to still participate in the Zigbee network. This is a good reference of the specifics: https://www.silabs.com/documents/public/user-guides/ug103-15-green-power-fundamentals.pdf. ZGP is for batteryless or ultra-low power Sleepy End Devices. We typically see Zigbee Green Power used in switches that are battery-less and use energy harvesting devices.

Q: What is GATT configurator?
A: The GATT configurator is a tool used to define application profiles for BLE. When Zigbee and BLE are combined in one device, we call that a Dynamic Multi-protocol (DMP) configuration.

Q: Toward the end can he answer the question on Thread, Zigbee, BT LE comparison? Which one are more suitable for which application if you will.
A: Thread and Zigbee are mesh networks, where BLE is a star network. There is also a separate Bluetooth Mesh protocol defined by the BT SIG.   There is a good comparison of each of these networks in relation to mesh performance located here. https://www.silabs.com/products/wireless/learning-center/mesh-performance

Q: What does GATT stand for?
A: Generic Attribute Profile. This is what defines application layer profiles for BLE.

Q: Is Thread really available on ALL 802.15.4 devices…. I doubt that - some won't have the memory.
A: Yes, you are correct. Especially with OpenThread. An OpenThread image is larger that a Zigbee image.

Q: Is Thread supported in the sub-GHz band? On which devices?
A: Currently the Thread Group does not have a sub-GHz band defined for Thread.

Q: How to get the WWAH test harness? Is it available for download?
A: Customers need to engage Amazon for the WWAH test harness. Only the Amazon ecosystem currently requires WWAH certification.

Q: When will OpenThread be available for MGM210 modules, not just for EFR32MG21 SOCs?
A: We will be adding support for the MGM210 modules soon.

Q: Simplicity Studio will have Zigbee Stacks available to download and work on it?
A: The Zigbee SDK is downloaded as part of the Simplicity Studio IDE. A development kit serial # is typically required to activate the download.

Q: Network Analyzer also works with aris edge?
A: Network analyzer can capture any Zigbee traffic over-the-air.

Q: How good does ZB network work when a lot of data is sent over BLE?
A: In a DMP configuration the radio is shared between the two networks, so while listening to BLE it's possible that a Zigbee packet reception could be incomplete or missed. However, the Zigbee protocol will issue a retry if no ACK is received. Generally there is insignificant impact on Zigbee performance even while BLE is maintaining multiple connections.

Q: When using Sub-GHz with Mesh Networks, are there libraries or any software to manage the packets routing?
A: Zigbee and Thread don't have a sub-GHz PHY today so the only broadly adopted standard for sub-GHz mesh is Z-Wave. To learn more about Z-Wave see https://www.silabs.com/products/wireless/mesh-networking/z-wave/700-platform

Q: Does the Dynamic Multiprotocol operate in NCP mode in the current release ? Any side effects of timeslicing between Zigbee and BLE in DMP ?
A: DMP in NCP mode is not currently available but is planned as part of our roadmap.

Q: How does DMP handle asynchronous events on two different interfaces?
A: It is timesliced. The BLE stack will listen during connection intervals, and otherwise defaults to listening on Zigbee.

Q: Hello, I would like to ask whether the latest ZigBee spec supports sleeping routing nodes? Thanks
A: No, to be sleepy it must be a non-routing 'end device'.

Q: Can the MG22 operate the BLE-Mesh protocol stack?
A: It can, but only as a Low Power Node (LPN) which has no relay capability

Q: Do these parts have extra Flash area for a bootloader?
A: Some devices do have an extra Flash area for a bootloader, but not all. Please check the datasheet.

Q: Are all of your SoCs RoHS compliant?
A: Yes, you can get our environmental information at this website. https://www.silabs.com/about-us/corporate-responsibility/environmental-data-search

Q: Hi, is Silicon Labs going to integrate Z-Wave mesh network technology on hardware and software level with Zigbee and BLE and Thread?
A: We can only discuss future roadmaps under NDA. Please reach out to your local Silicon Labs contact.

Q: How can I learn to modify firmware?
A: All of our SDK's include example projects with Appnotes and Quick Start Guides. We also have an online Community with Knowledge Based Articles here: https://www.silabs.com/community

Q: In the last slide there wasn't any mention of US, only Japan, Taiwan, and S. Korea. Does this mean Silabs SoCs aren't certified for the US?
A: Not at all. All of our modules are FCC certified for operation in the US, as well as ISEDC certified for Canada.

Q: Where can I find info about Z-Wave?
A: https://www.silabs.com/products/wireless/mesh-networking/z-wave/700-platform

Q: Are the data rates similar amongst all of the displayed SoC and Modules?
A: Yes.

Q: What 's the 50%-off discount code for the Works With conference
A: Code is WWSH. Registration at https://workswith.silabs.com

Q: Do the modules come with preloaded Zigbee and Bluetooth stacks, and are they still required to have product certification for Zigbee
A: The modules do not ship with preloaded software, but we do provide pre-built binaries you can program. The only exception is our Bluetooth Xpress products (https://www.silabs.com/wireless/bluetooth/bgx13-wireless-xpress-modules). When using Zigbee modules you will still need Zigbee certification for your end product.

Q: What is the cost of an MG22 dev kit?
A: The kit is $99. See https://www.silabs.com/products/development-tools/wireless/efr32xg22-wireless-starter-kit

Q: What about interference from 802.11?
A: This is a good reference for that topic: https://www.silabs.com/products/wireless/learning-center/wi-fi-coexistence.

Q: What is the minimum flash size required for a BLE + BLE Mesh device?
A: BLE+BT Mesh requires a device with 512kB or larger flash.

Q: Can you run the MQTT / Wi-Fi application along with the same hardware using it as a Zigbee hub? How would this be architected out. I'm currently using WGM160P now with MQTT.
A: You will need to add an EFR32MG device to your design to support both Zigbee and Wi-Fi. In this architecture we strongly recommend using managed coexistence. See https://www.silabs.com/products/wireless/learning-center/wi-fi-coexistence.

Q: What level of security is supported? I hear all kind of leaks in home automation devices on the news. Does SL product support TLS?
A: I recommend you tune in on Tuesday, April 14 for a presentation about IoT security.

Q: Is it a custom BLE stack which SiLabs is using ? What if I want to use BlueZ stack ?
A: The BLE stack is developed, maintained and supported by Silicon Labs. We do support an 'NCP' mode where the application runs on a host and the stack runs on the SoC. We do not support an HCI mode which would be required to use BlueZ.

Q: Is it possible to have a dedicated storage space for the upgrade image with 768 MB internal flash when running BLE+BLE mesh?
A: Yes that is possible. You can also use an external SPI flash for storing upgrade images.

Q: Are any plans to make battery operated router on Zigbee or OpenThread?
A: While there are no restrictions in the protocol against battery-operated routers, router nodes must be listening full time, so you would lose the advantage of low-power sleep modes to extend battery life. Unless the batteries were large, battery life would not likely be practical.

Q: In the indoor lighting application, why is the Zigbee mesh network recommended over BLE mesh network technology?
A: We are not advocating one over the other. Both have their advantages. Perhaps a more important question is which ecosystem you need to connect to, since that will determine the protocol you need to support.

Q: Are Silabs devices created with a thought toward "physical security", including side channel attacks and code insertion.
A: Yes, absolutely. You can see a summary of our security features at https://www.silabs.com/security or you could tune in for a full hour dedicated to IoT security on April 14th.

Q: How can we get code sample for pulse count metering?

A: There is a GitHub site for pulse count example code:

https://github.com/SiliconLabs/peripheral_examples/tree/master/series1/lesense/lesense_multi_channel