Thread Networking

Tyler Potyondy,
6-27-24

What is Thread?

Thread can support many application layer protocols

| Application |
| TCP / UDP |
| IP Routing |
| 6LoWPAN |
| IEEE 802.15.4 MAC |
| IEEE 802.15.4 PHY |

Low power, low latency IPv6 mesh network.

Ideal for IoT wireless sensor networks.

Border Router   Thread Leader

Why did we choose Thread?

> **Tock has kernel support for 15.4, IPv6, 6LoWPAN, UDP.**

> **Popularity of Thread in Matter and widespread device support.**

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Apple revolutionized personal technology with the introduction of the Macintosh in 1984. Today, Apple leads the w...
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IPHONE / APPLE / TECH

Here's why Apple put a Thread radio in the iPhone 15 Pro

/ Yes, Thread has some cool smart home uses, but the wireless protocol could also replace Bluetooth in other parts of Apple's ecosystem.

By Jennifer Pattison Tuohy, a smart home reporter who's been testing connected gadgets since 2013. Previously a writer for Wirecutter, Wired, Dwell, and US News.
Sep 14, 2023, 6:00 AM PDT

Home / Tech / Computing / Tablets / iPad

There's a secret smart home radio in these Macs and iPads - does yours have one?
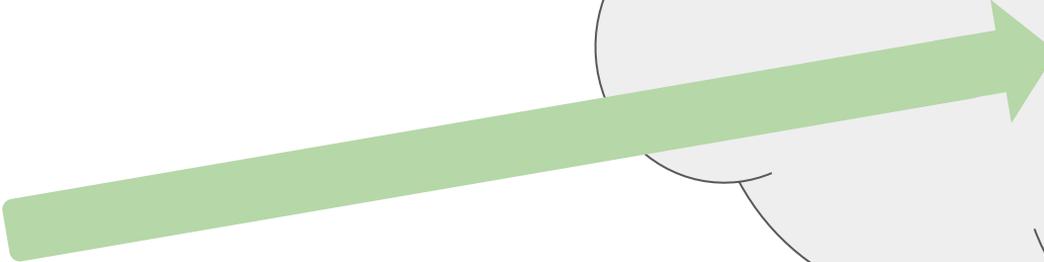
Will Apple turn all its devices into Thread border routers for seamless integration with smart home networks? Here's what we know so far.

Written by **Maria Diaz**, Staff Writer
June 6, 2024 at 11:18 a.m. PT

csa connectivity standards alliance
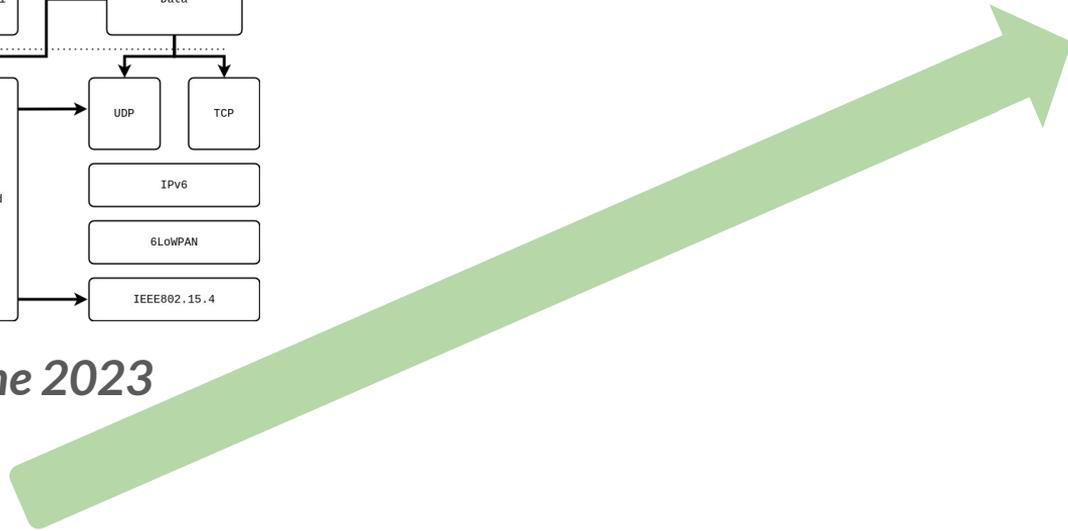
matter
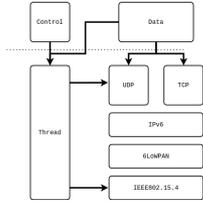
The past 15 months…

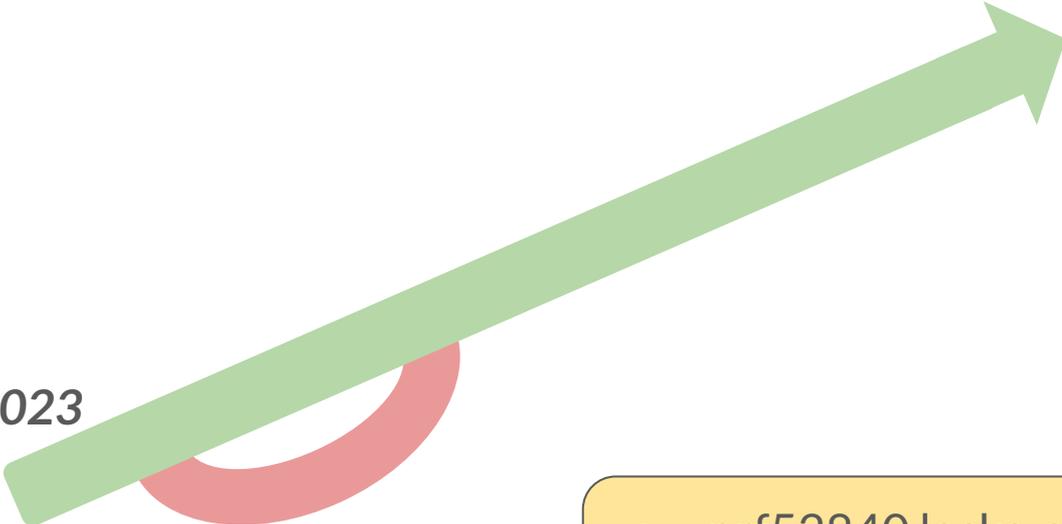April 2023

Thread Capsule
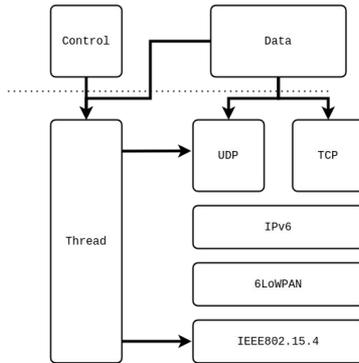
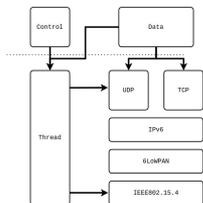June 2023

nrf52840 Radio Driver

June 2023

August 2023

- nrf52840 lacks support for ACK.
- Driver needs to be rewritten.
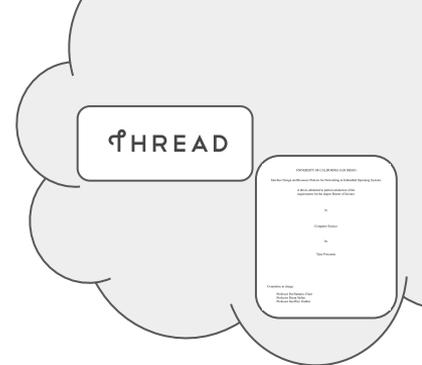
nrf52840 Radio Driver

June 2023

August 2023
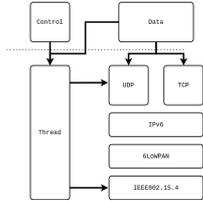
Rewritten nRF52840 802.15.4 driver adding software ACK on receive #3615

Merged **alevy** merged 19 commits into `tock:master` from `tyler-potyondy:15.4-ACK` on Aug 24, 2023

- nrf52840 lacks support for ACK.

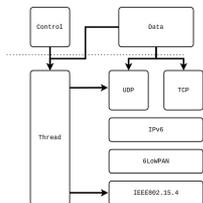- Driver needs to be rewritten.
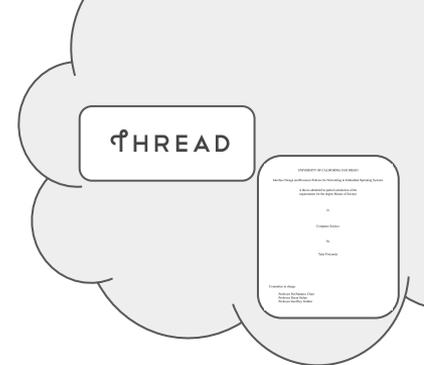
Thread Support?

October 2023

June 2023

August 2023

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15.4 link layer security - encryption/decryption #3652

Merged ppannuto merged 9 commits into tock:master from tyler-potyondy:15.4-Link-Layer-Security on Sep 8, 2023

Thread Support?

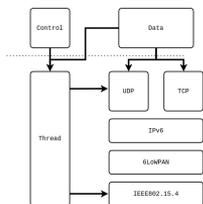*October 2023*

June 2023

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6LoWPAN Packet Filtering #3660

Merged ppannuto merged 2 commits into `tock:master` from `tyler-potyondy:6LoWPAN-filtering` on Sep 8, 2023
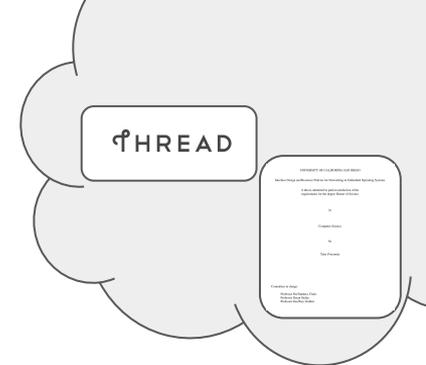
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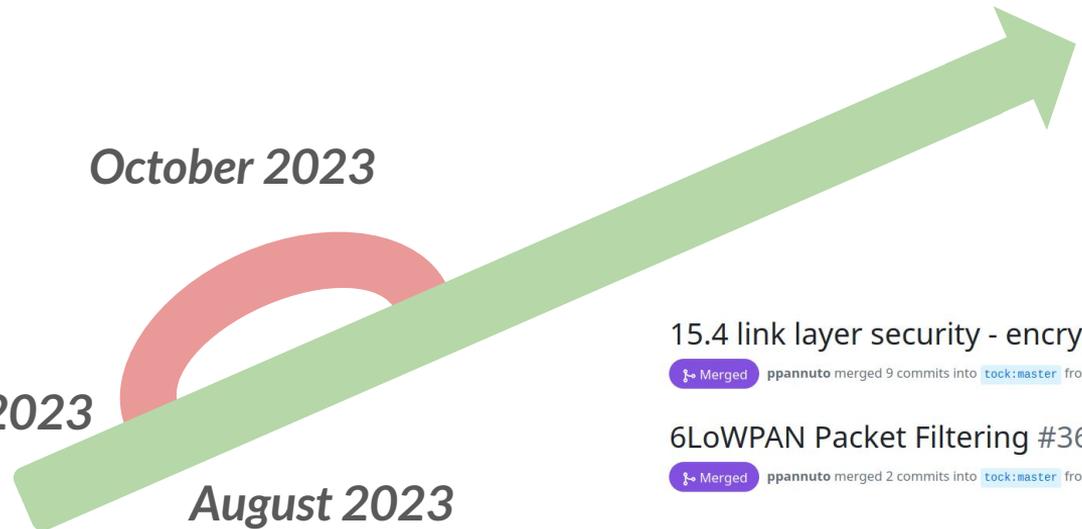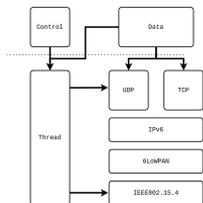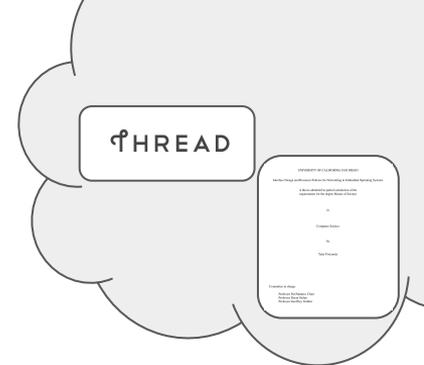
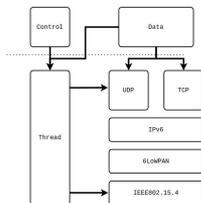6LoWPAN Packet Filtering #3660

Merged · ppannuto merged 2 commits into tock:master from tyler-potyondy:6LoWPAN-filtering on Sep 8, 2023

Thread Network Child Device #3683

Merged · brghena merged 37 commits into tock:master from tyler-potyondy:sleepy-end-device on Oct 23, 2023

Tock "Thread" Capsule
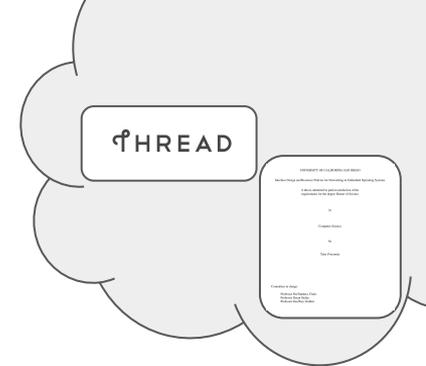
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November 2023

Can we support OpenThread?

November 2023
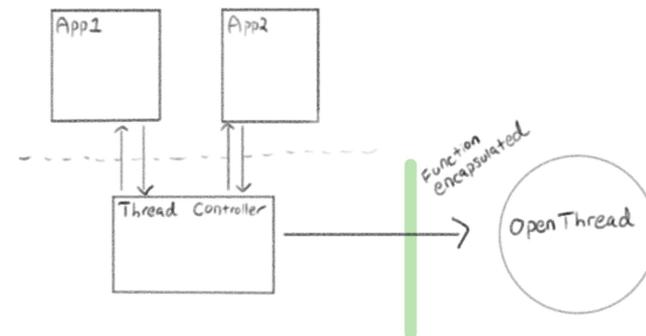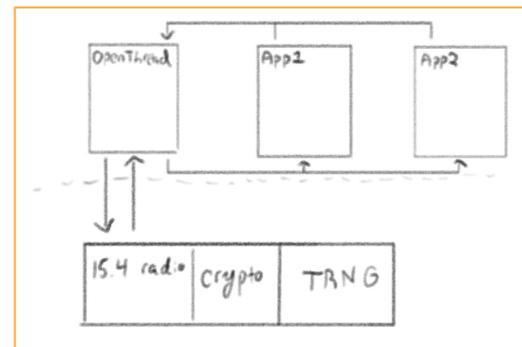
October 2023

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Thread Network Child Device #3683

nrf52840 lacks support for ACK
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libtock-c OpenThread

OPENTHREAD
released by Google

November 2023

October 2023

June 2023

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Thread Network Child Device #3683

January 2024

Building/linking OpenThread in libtock-c

Implement libtock-c platform abstraction layer

libtock-c *15.4* ringbuffer

Challenges receiving many packets in short succession.

February 2024

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November 2023

January 2024

Building/linking OpenThread in libtock-c
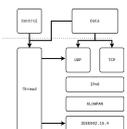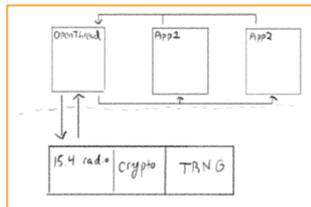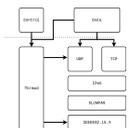Implement libtock-c platform abstraction layer

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libtock-c timers

OPENTHREAD
released by Google

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February 2024

November 2023

April 2024

Numerous timer bugs...

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Thread Network Child Device #3683

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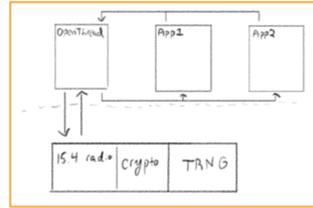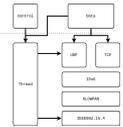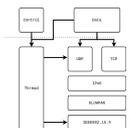nrf52840 lacks support for ACK
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OpenThread Support

OPEN THREAD
released by Google

May 2024

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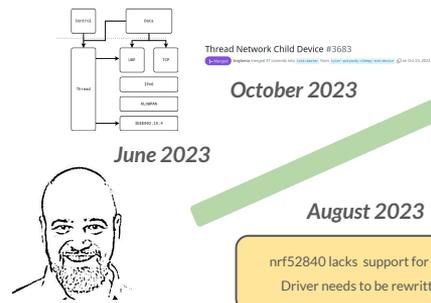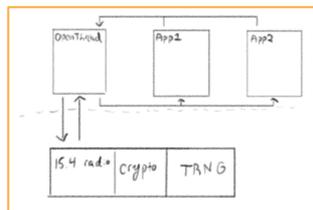
Next Steps…

- **Building scale network / CI integration.**

- Obtain Thread certification?

- Encapsulated Functions?

- Add ring buffer allow syscall?

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