Internet of Things - update

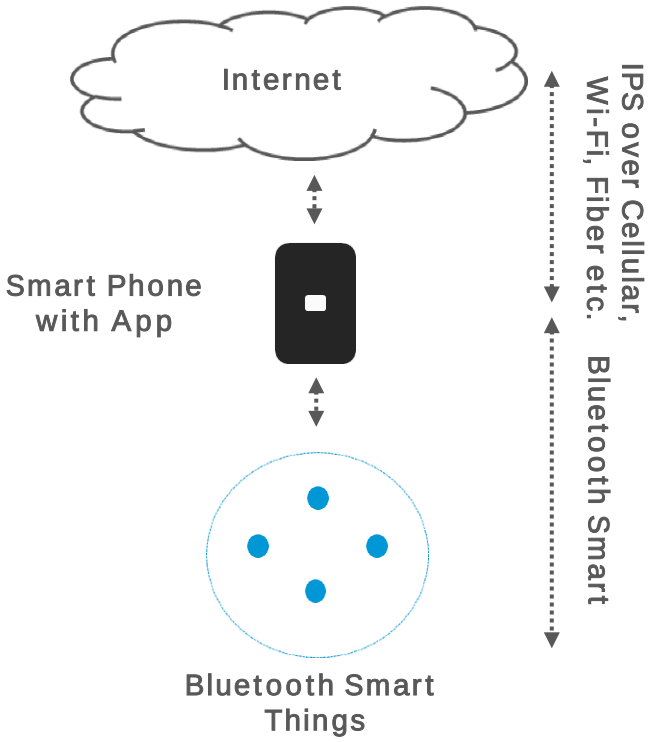
Global Tech Tour 2015

Bluetooh Smart IoT Overview

nRF51 IoT SDK

Summary

IoT with *Bluetooth*® Smart today



Bluetooth Smart between phone and Thing

Phone/App provides a bridge to the cloud

Bluetooth Smart to IPS

Phone is personal device

Excellent for connecting “my” things

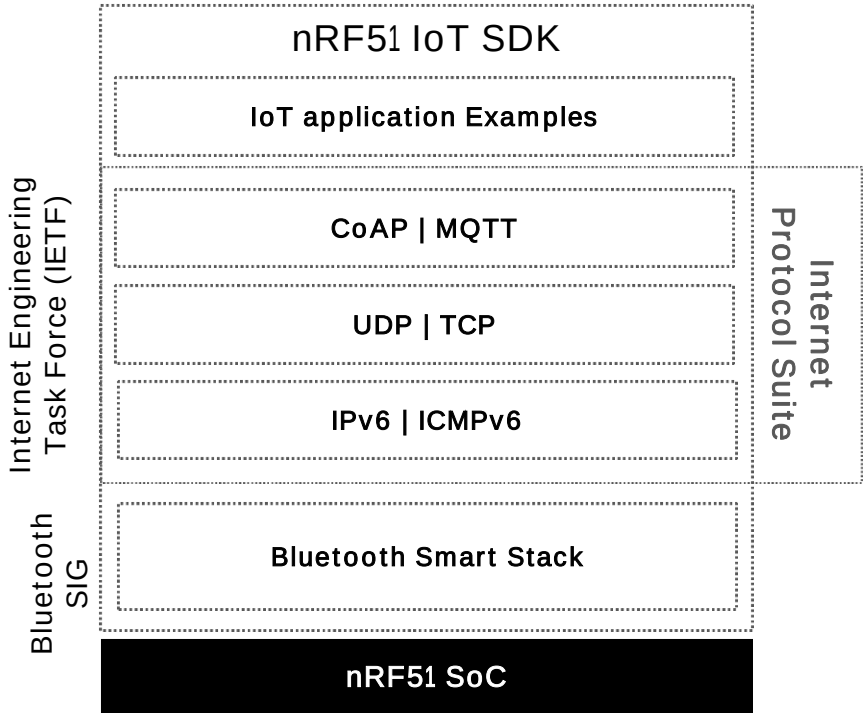
Things we wear, use and carry

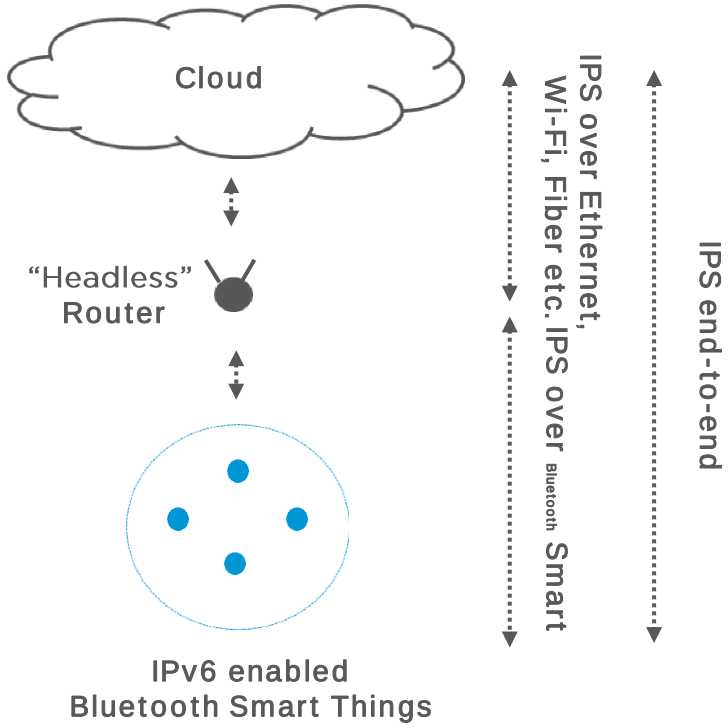
No Thing-to-cloud interoperability

No connectivity when phone is not around

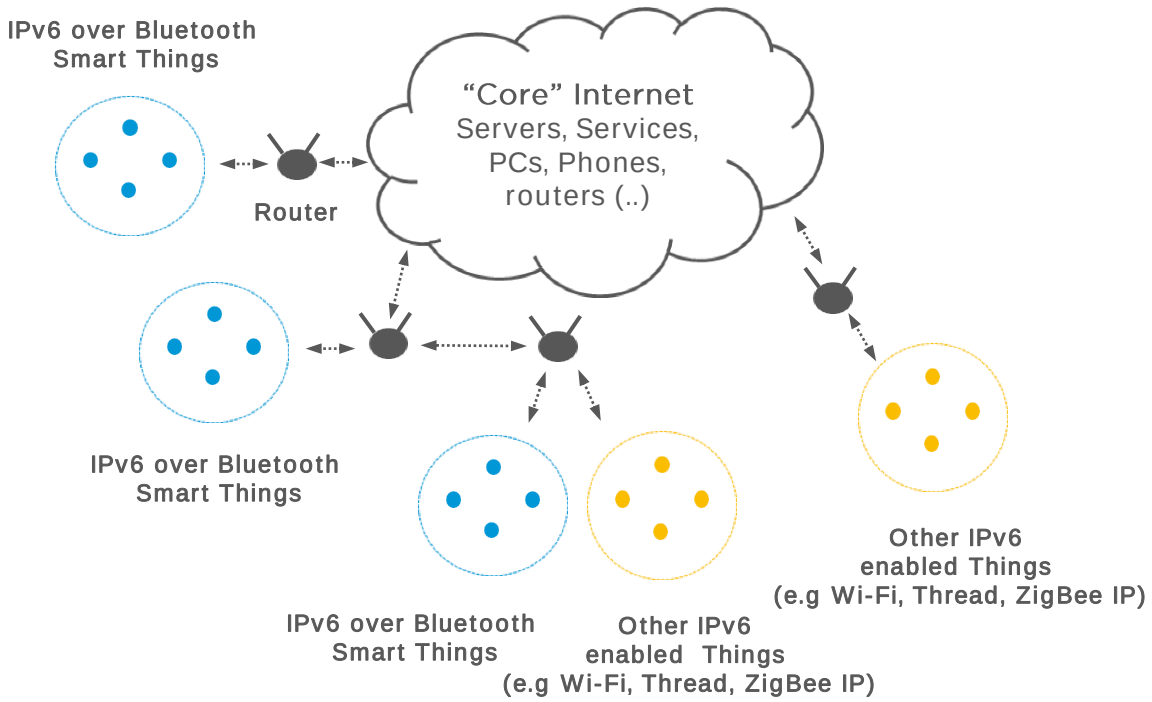
Not a good solution for connecting things “around us”

The Nordic nRF51 IoT SDK
IPv6 over *Bluetooth*® Smart for things around us





Large heterogeneous IoT networks with IPv6 over Bluetooth® Smart



Thing to Thing (star topology)

Thing to cloud

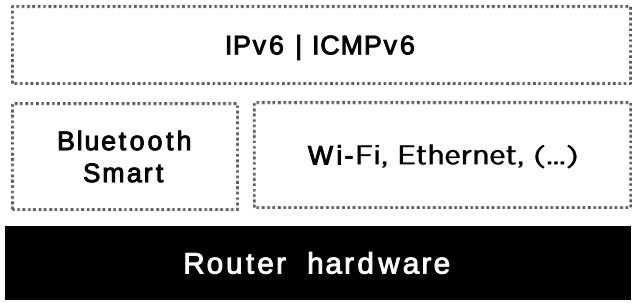
Thing to Thing via routers(s)

Thing to Thing via cloud

IPv6 Thing to IPv6 Thing via gateway

IPv6 Thing to IPv6 Thing via cloud

IPv6 over Bluetooth Smart
enables “headless” routers



- Instrumental for fixed, distributed, large scale network deployments
- Connecting “things around us”
- Always connected, non personal
- Standard IPv6 routing
- Bluetooth Smart / Wi-Fi combos IC exists
- Broadcom, Qualcomm and others
- Linux / BlueZ already supports IPv6 over Bluetooth Smart

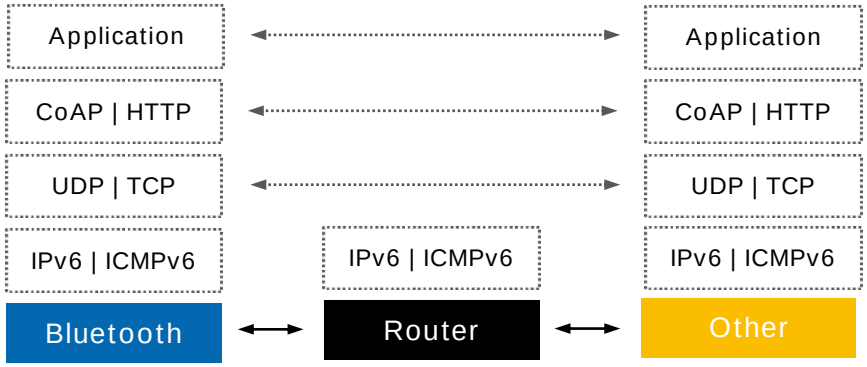
Enabling heterogeneous networks and IP based “profiles”

Things with different data link communicating with each other

The power and purpose of IPS

Application level interoperability with IP based profiles

Industry alliances working on this



IPSO Alliance

ALLSEEN ALLIANCE

Bluetooh Smart IoT Overview

nRF5 IoT SDK

HomeKit Overview

nRF5 HomeKit SDK

Summary

The nRF51 IoT SDK Overview

Complete Internet Protocol Suite for nRF51 Series SoCs

Entirely based on open standard

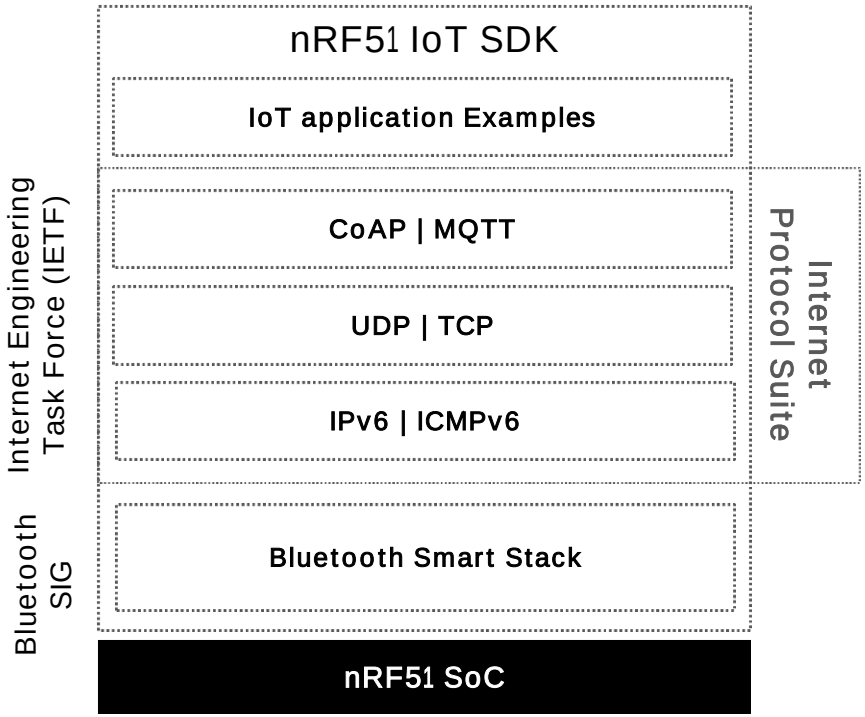
Bluetooth 4.1 and IETF standards

Native internet connectivity

IPv6 address in the thing

Compact and low power implementation

Single chip, year of battery lifetime



nRF51 IoT SDK Software Architecture

IoT SW implementation

- RTOS agnostics
- Asynchronous and event driven

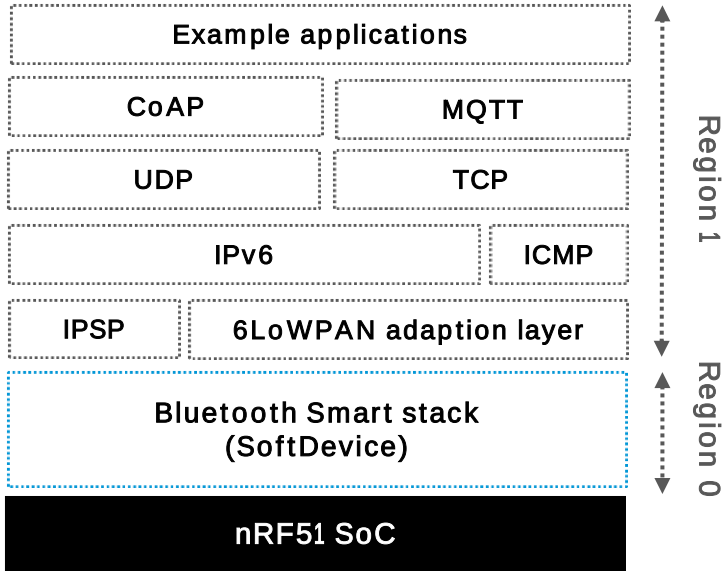
Libraries supplied:

- IPSP and 6LoWPAN adaption layer
- lwip IPv6 / TCP stack
- DTLS

Source code:

- IPv6/UDP/CoAP and MQTT

Socket APIs for UDP and TCP layers



The IoT SDK nRF52 support

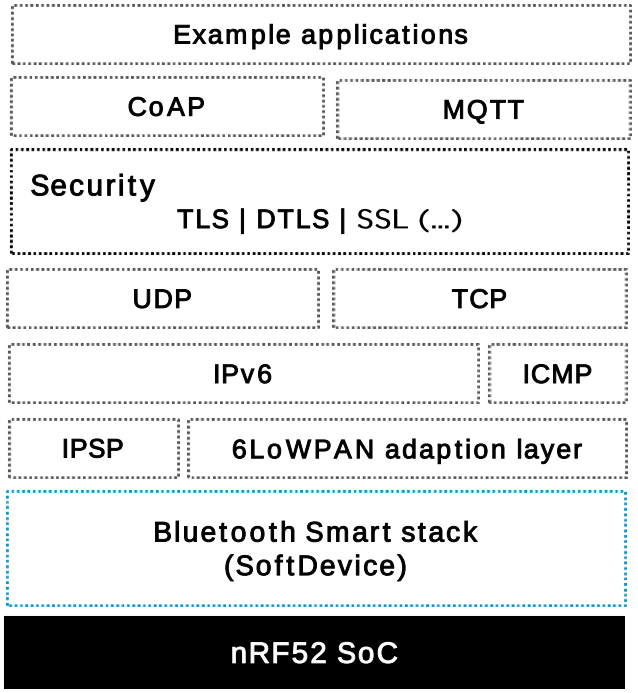
Based on the nRF51 IoT SDK

New features

- Support for TLS and DTLS
- LWM2M protocol support
- Commissioning via Smartphone

First release of the nRF52 by end of the year

The Nordic IoT SDK focus on nRF52 support in the future



Basic framework for alternative internet protocol stacks

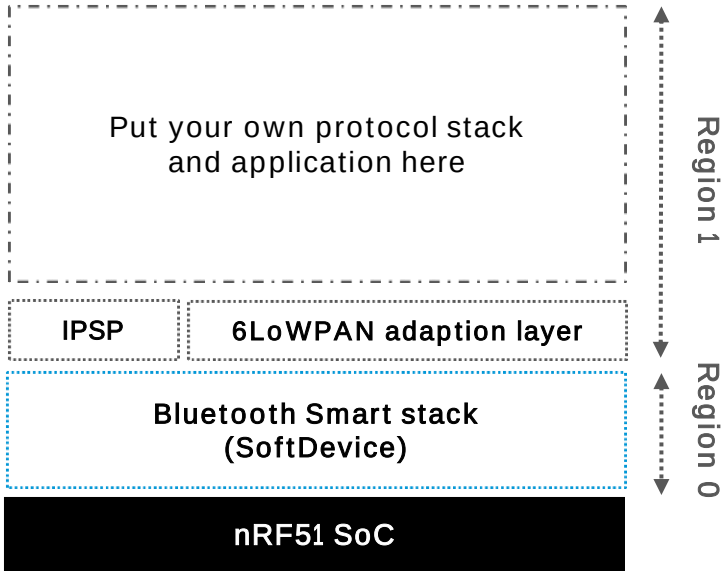
6LoWPAN and IPSP provides the basic framework for IPS on nRF51/2

You can port your own IPS

- Contiki OS, RIOT OS, lwip, etc.
- Tailor the solution to your needs
- Leverage existing code base
- Align with your other products

Nordic did this with IPv6/TCP from lwip

Share with and leverage the community!



Router Prototype Architecture

Raspberry Pi to emulate “headless” router

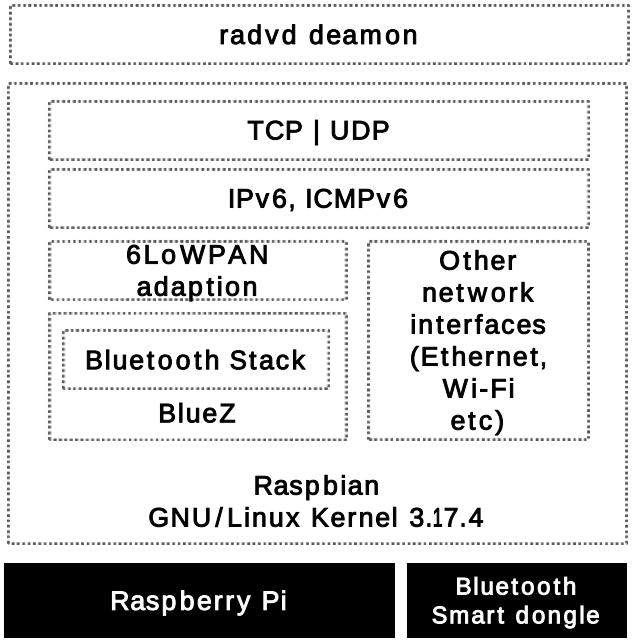
Bluetooth Smart Ready dongle based on “Any” chipset with HCI interface

Software based on Raspbian GNU/Linux and BlueZ stack

radvd deamon does the routing

Software image available from Nordic

Ideal for prototyping and development

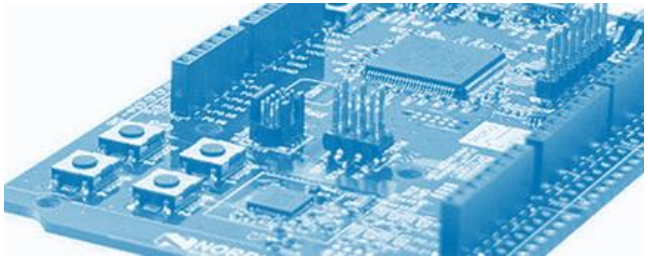


Complete development platform for IoT with IPv6 over Bluetooth Smart

The Thing

nRF51-DK with the nRF51822 SoC

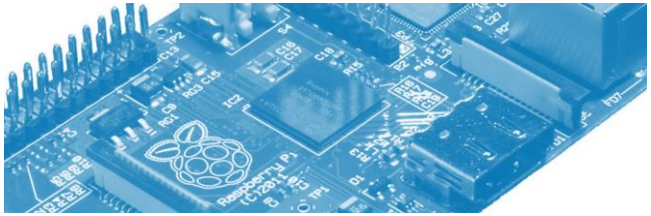
nRF51 IoT SDK, nRF51 SDK, S1xx stacks ++



Headless IoT router

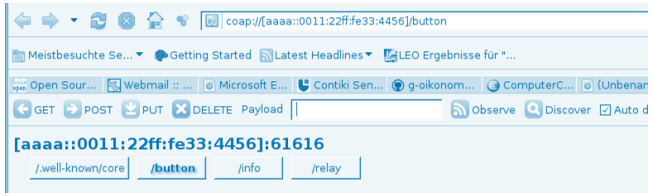
Raspberry Pi with Bluetooth dongle

Linux based firmware build



The cloud

CoAP browser plug-in



Example cloud service (Xively)

Bluetooh Smart IoT Overview
nRF5 IoT SDK
Summary

Summary

nRF5X SDK for IoT

- Complete Internet Protocol Suite for nRF51 Series SoCs
- Development platform includes “the thing”, headless router, and example cloud service
- IPv6/UDP/CoAP and MQTT is provided as source code
- IPSP and 6LoWPAN adaption layer are provided as precompiled libraries
- Continued support will be on the nRF52 (First release end of the year.)