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Huawei LiteOS, Simplifying the Development of LPWA Devices

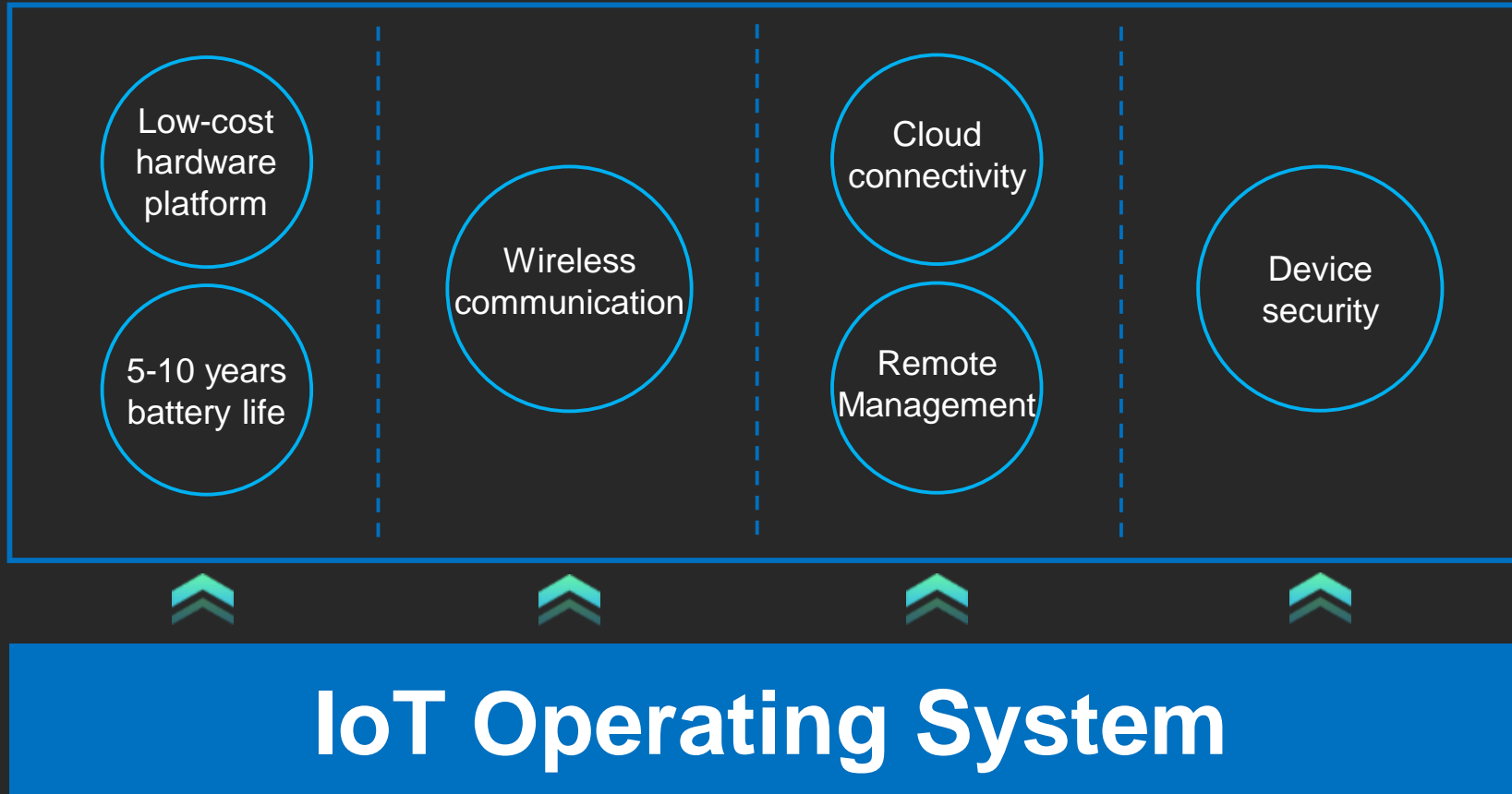
Jeff Shi

Director of Huawei LiteOS Marketing

Huawei

IoT OS is the Key to LPWA Devices

Device's Capabilities Required for LPWA Application



Huawei LiteOS, An IoT OS for Simplifying the Development of LPWA Devices



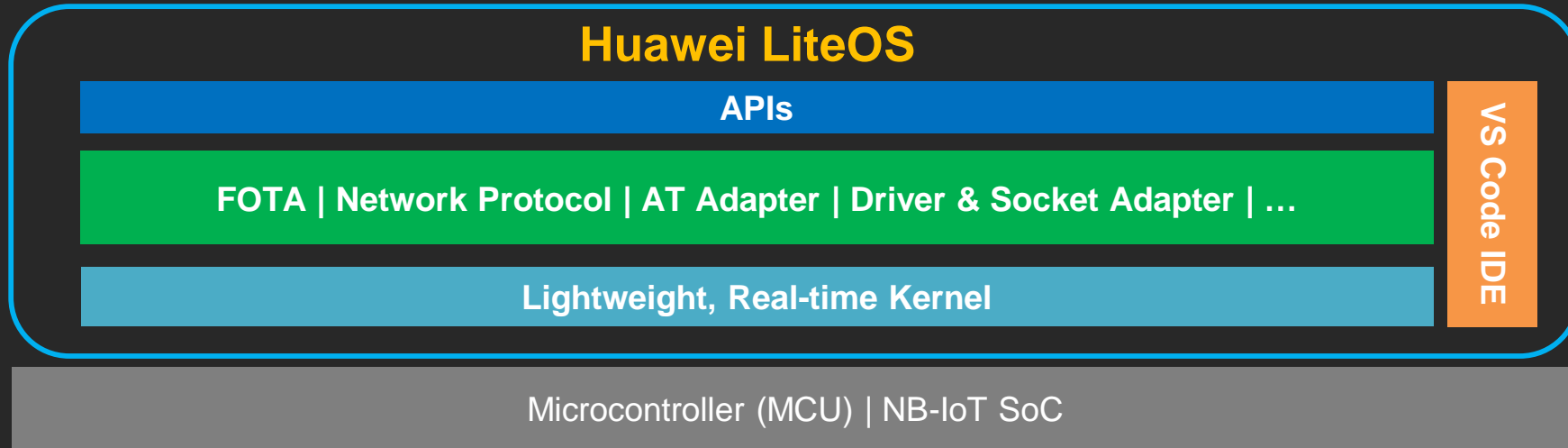
Easily configure and control MCU/Peripherals to automatically sleep, wakeup



Easily connect to Huawei OceanConnect or 3rd party IoT platform



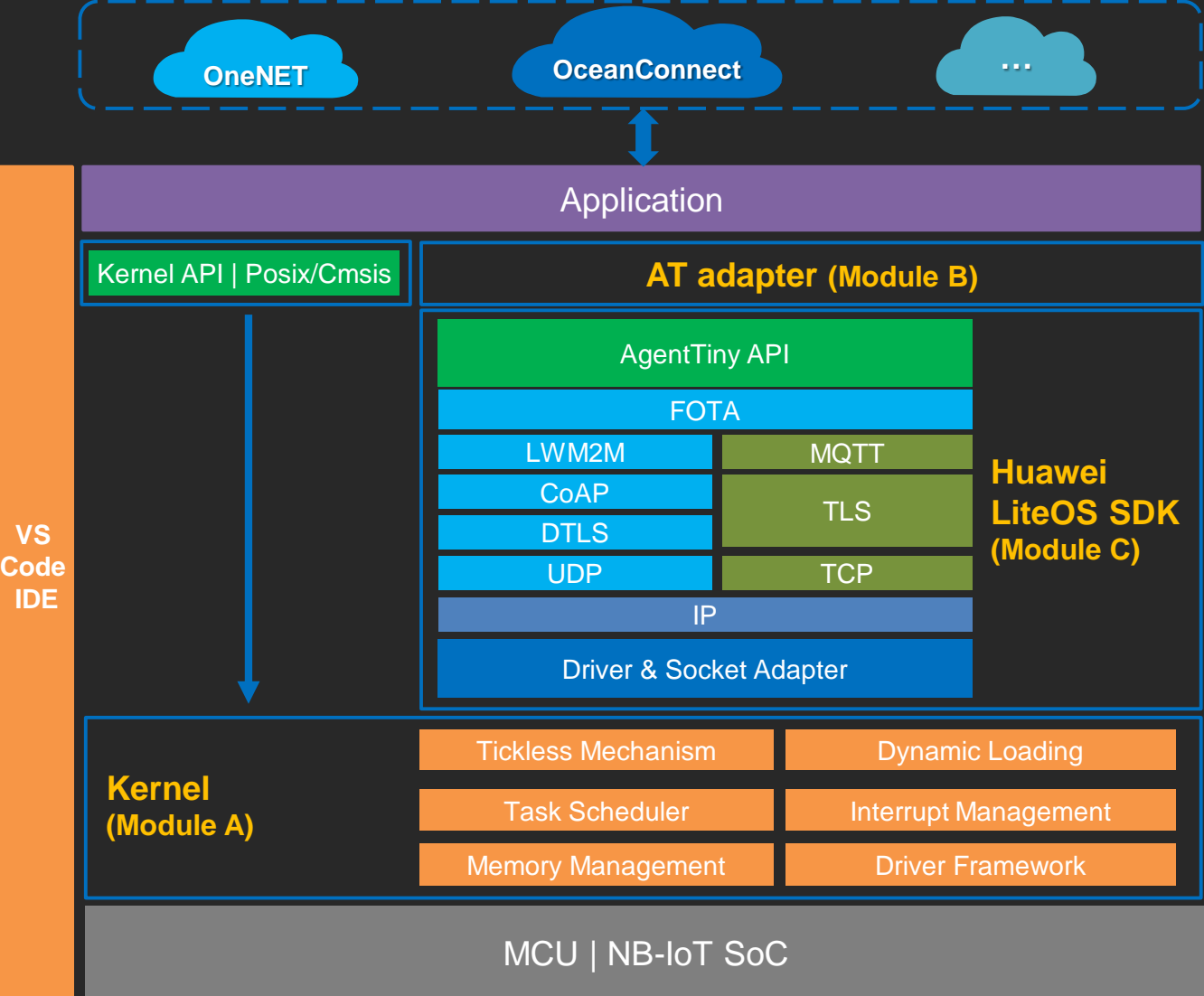
VS Code based, Support C/C++ ARM cross-platform toolchain Debug, Trace etc.



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Huawei LiteOS Flexibly Supports Different Development Scenarios



For LPWA Device Vendors:

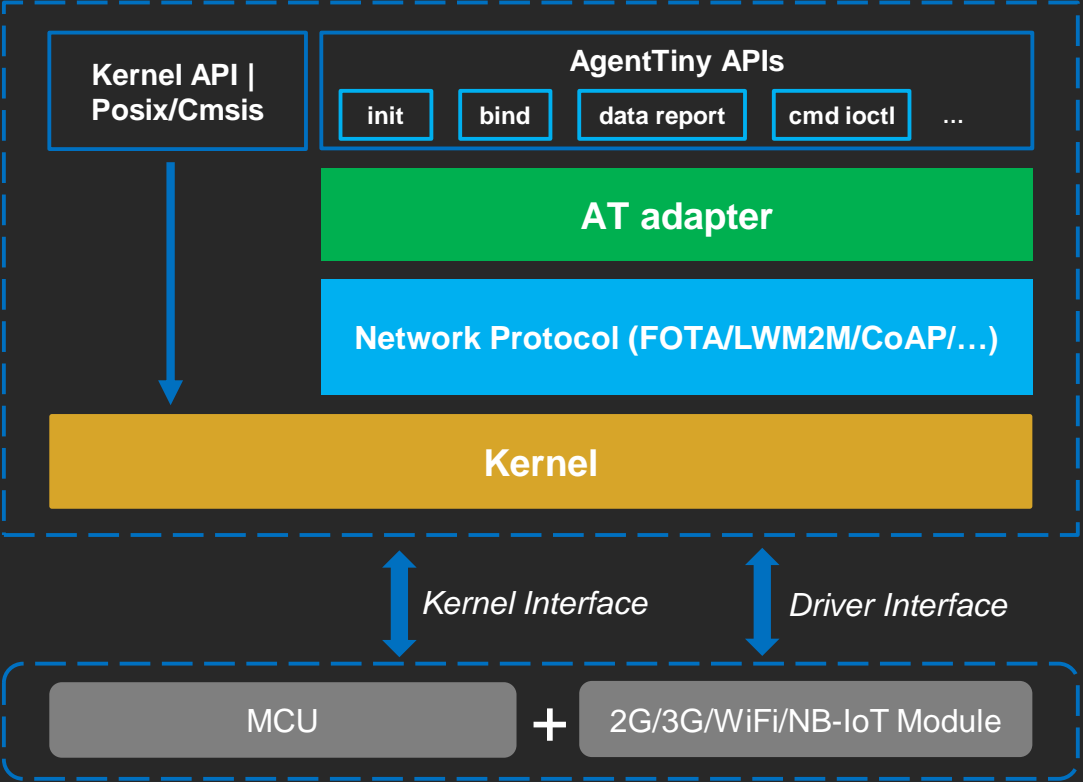
Scenario 1
MCU based development
(A + B + C)

Scenario 2
NB-IoT SoC based development
(A + C)

Scenario 3
SDK based development
(B + C or C)



MCU Based Development Requires Full Stack Capability



- ✓ Multi-platform support
- ✓ Complete protocol stack
- ✓ Unified AT command interfaces to communicate with various modules



Ofo

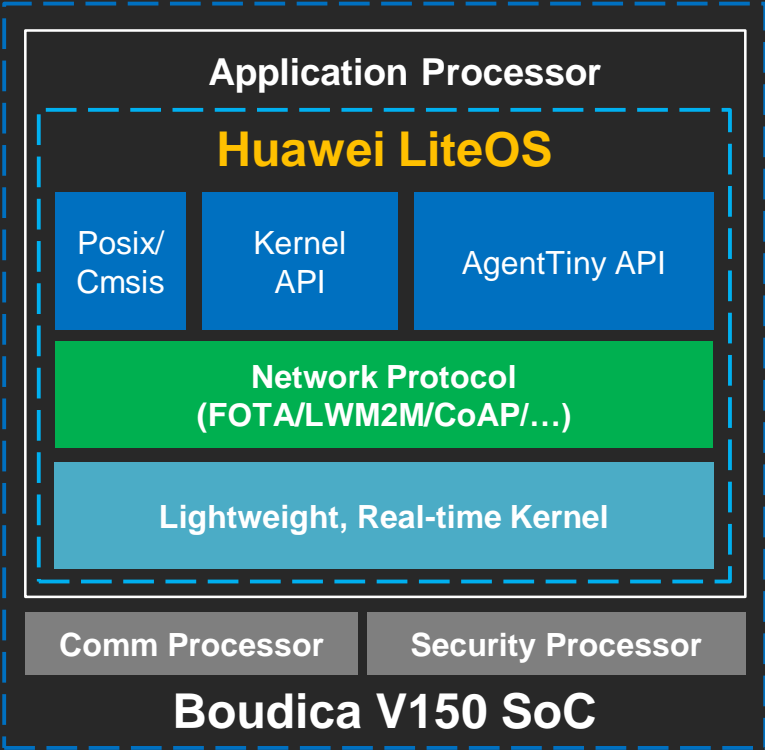


Oppla

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Native Support of Boudica SoC Lowers the Development Cost

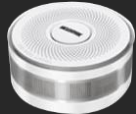


- Support 3GPP R13/R14 standard
- Full frequency coverage, 698MHz~2180MHz
- Low power consumption @ sleep (2.5uA)
- ARM Cortex-M based processors @ 48MHz



Value for Device Vendors

\$1-\$2 Solution saving (vs. MCU based)	5 Steps For cloud connection (vs. 9 AT commands)
30% Power optimization (vs. BoudicaV120)	3+ IoT platform support (OC, OneNET, Telecom,...)



Smoke Sensor



Gas Meter

...



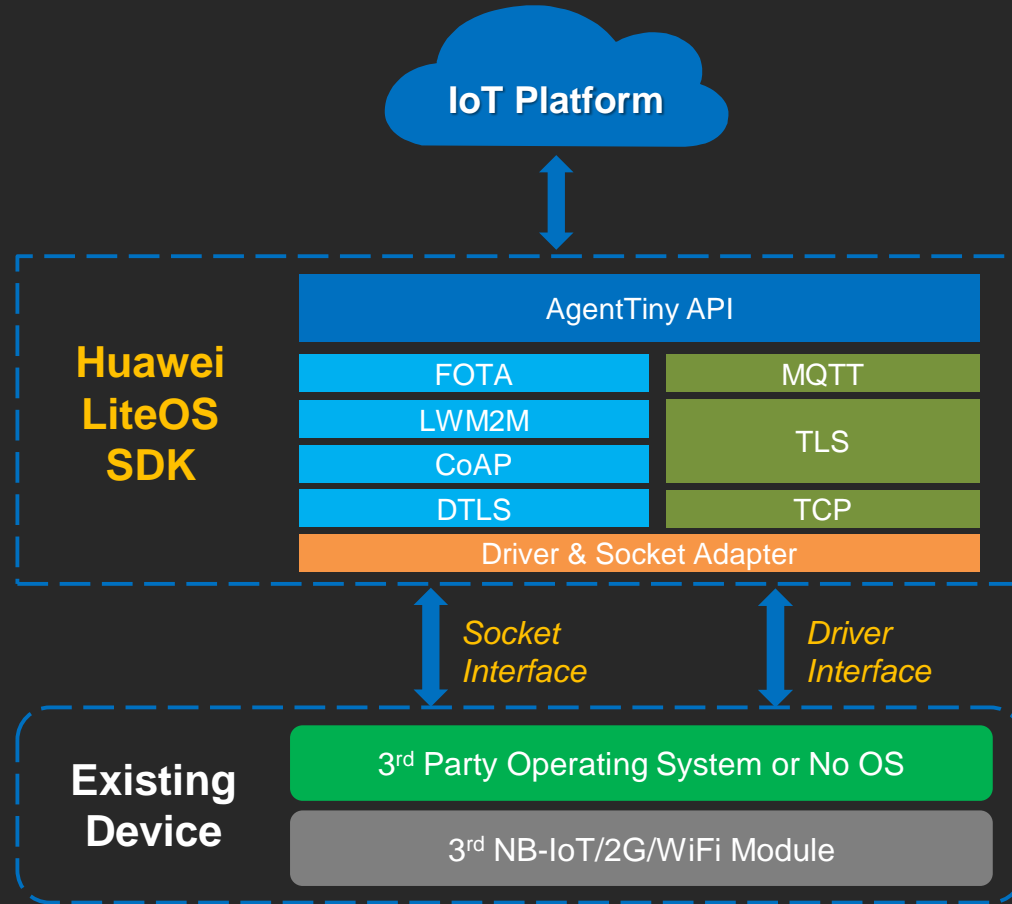
Huawei LiteOS Accelerates the GTM of 3rd Party NB-IoT Chipsets



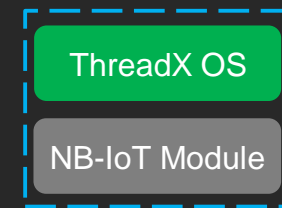
Reduce development efforts, Achieve fast GTM



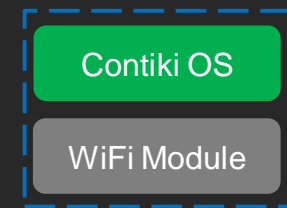
Huawei LiteOS SDK Enables Existing Devices to Connect with IoT Platform Quickly



- ✓ **Unified south interfaces for various modules**
- ✓ **Reduced efforts for both Telecom operators and Device Vendors**



Qualcomm



Hanfeng

...



Simple Steps to Connect with OceanConnect IoT Platform Using Huawei LiteOS SDK

1

Porting

① Hardware Driver Interface

- Get system time
- Delay
- Memory allocation/free
- Hardware random numbers

② Socket Interface

- `atiny_net_connect`
- `atiny_net_send`
- `atiny_net_recv`
- `atiny_net_close`

2

Implementing

① `atiny_cmd_ioctl(cmd)`

- Used by LwM2M objects on IoT Platform to send command to IoT devices, eg. data, reset, upgrade etc.

② `atiny_event_notify(event)`

- Used to notify developers the key events or status during the device registration or programming running

3

API Calling

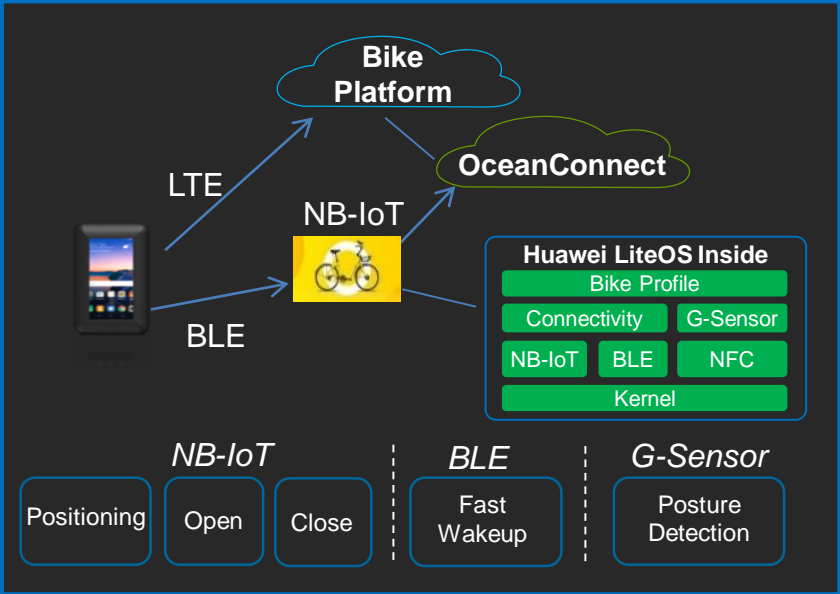
① `atiny_init(atiny_params):` initialize

② `atiny_bind(device_info):` network connection etc.

③ `atiny_data_report(report_data):` send data to IoT platform

④ `atiny_cmd_ioctl(cmd, arg, len):` send command to devices

Huawei LiteOS Supports Fast Deployment of New Shared Bike's Locks



Why Huawei LiteOS?

- ✓ Multi MCU product support
- ✓ Low-power framework for MCU based lock application
- ✓ Multi-communication protocol support



	Power Consumption	Development Efforts
GPRS Lock	1.7 Months	Months
NB-IoT/LiteOS Lock	26 Months	Weeks

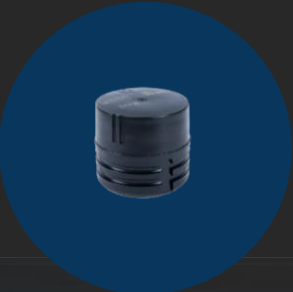


Huawei LiteOS Will Be Inside More LPWA Devices in 2018

**Will be
commercially
shipped in
2018**



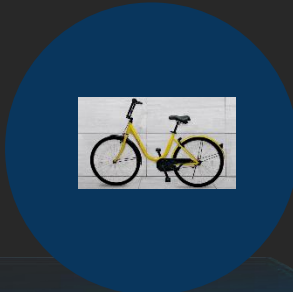
Smart Water Meter



Smart Parking



Smart Smoke Alarm



Internet of Bicycles

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**Have been
commercially
shipped**



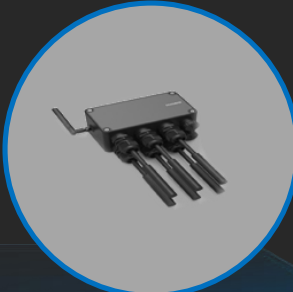
Wearables



Smart home



Light Controller



Sensor Gateway



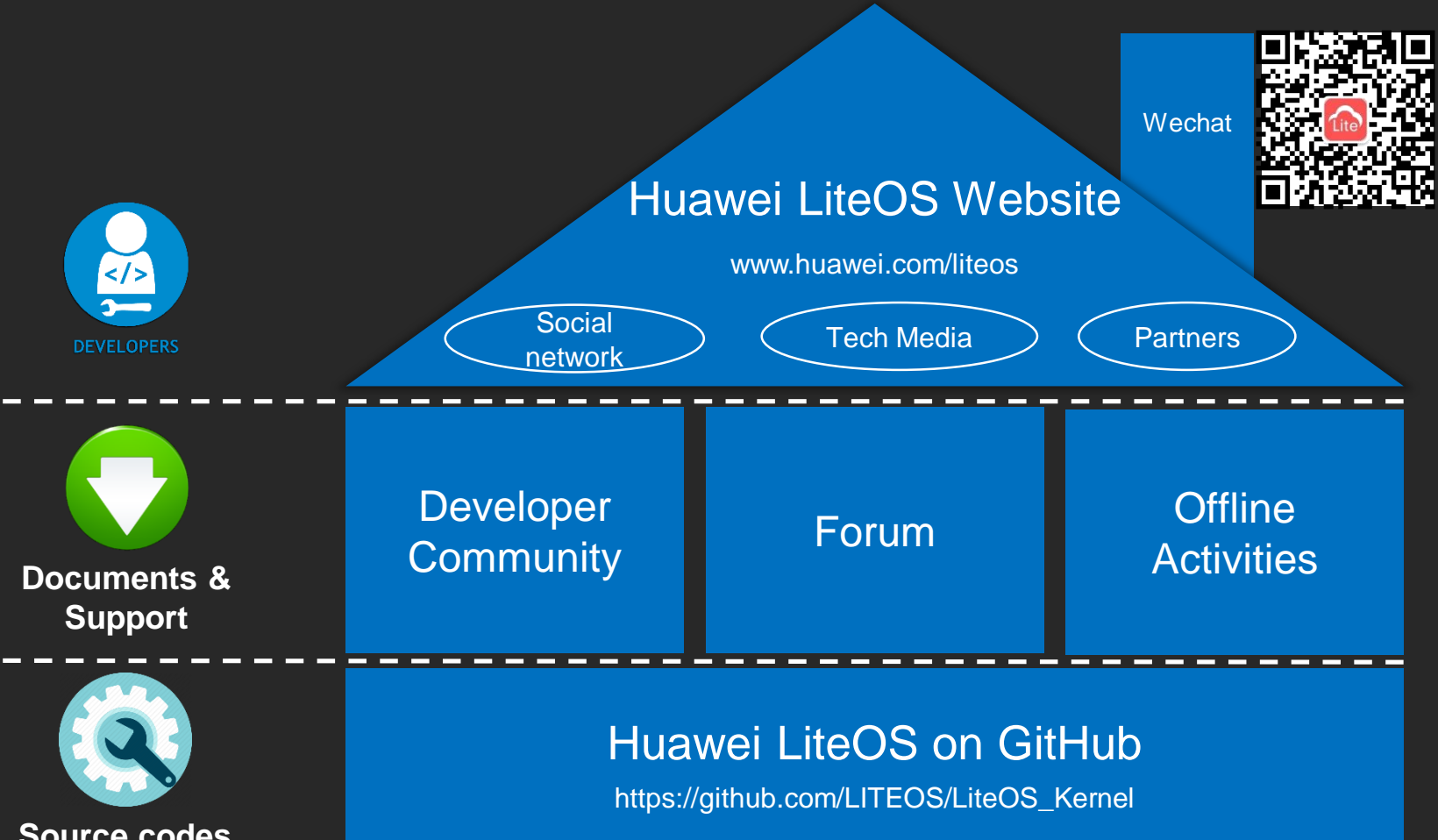
Huawei LiteOS Jointly Builds Open Ecosystem with Partners

MCU vendors (2 Core IP vendors) , IoT Dev Suites (MCU Dev Platform + Comm Board)										Integrated NB-IoT Dev Suites			
3 rd Party MCU	ST	NXP	Amtel	Silicon Labs	GD	Novoton	TI	Nuvoton	MTK		Thundersoft	Lierda	GD
IoT Dev Suite										Integrated Comm Dev Suite			
											SINOVOIP	YiqiSoft	Terabits

13 top MCU vendors | 25+ industry partners | 50+ development suites



Huawei LiteOS' Open-sourced Community Facilitates Developer's Projects



- Know** : website, Wechat, Developer community
- Experience** : DevCloud's remote development , fast online experience
- Download** : Open-source community or Github, free downloads of source codes
- Learn** : online courses, offline workshop activities
- Communication** : online forum, offline Hackathon competitions
- Support** : online technical support



Thank You!

