



# IoT Use Cases – Smart Home



# IDG Contributor Network: IoT protects fishing fleets and global fisheries with RPMA technology

By [News Aggregator](#)

Posted on: April 12, 2017

Low Power Wide  
Area Network



**7-Eleven beats Google and Amazon to the first regular commercial drone delivery service in the U.S.**



**Learning Deep Control Policies for  
Autonomous Aerial Vehicles with MPC-Guided  
Policy Search - UC Berkeley**

**[UC Berkeley Team Commands Drone Fleet with HoloLens](https://hololens.reality.news/news/uc-berkeley-team-commands-drone-fleet-with-hololens-0176671/)**

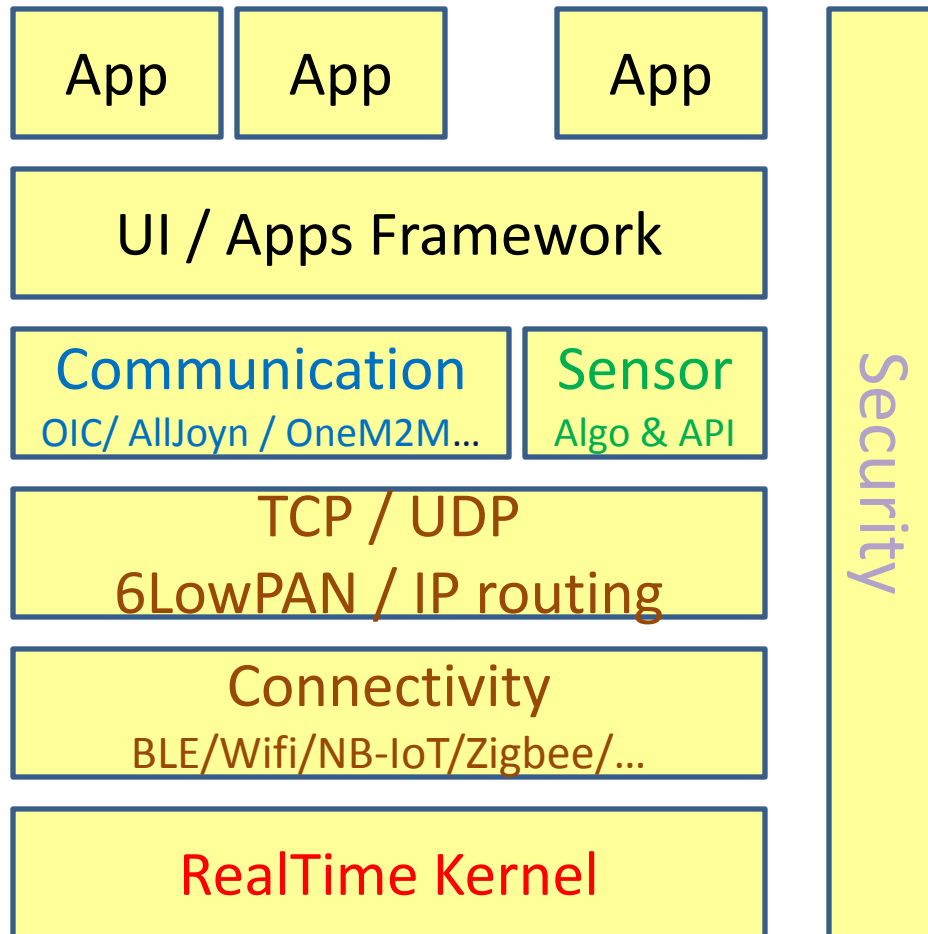
**<https://hololens.reality.news/news/uc-berkeley-team-commands-drone-fleet-with-hololens-0176671/>**



- Connectivity
- Communication
- Dev discovery & management
- Data acquisition & filter
- Real-time
- Low power
- Small footprint
- Over the Air update
- High level programming
- UI
- Local compute
- Security



# A Typical IoT SW Stack



- UI
- Highlevel programming
- Communication
- Dev discovery & management
- Data acquisition & filtering
- Connectivity
- Real-time
- Low power
- Small footprint
- Over the Air update

# Highlevel Languages on IoT?

# JerryScript

# A JavaScript engine for Internet of Things

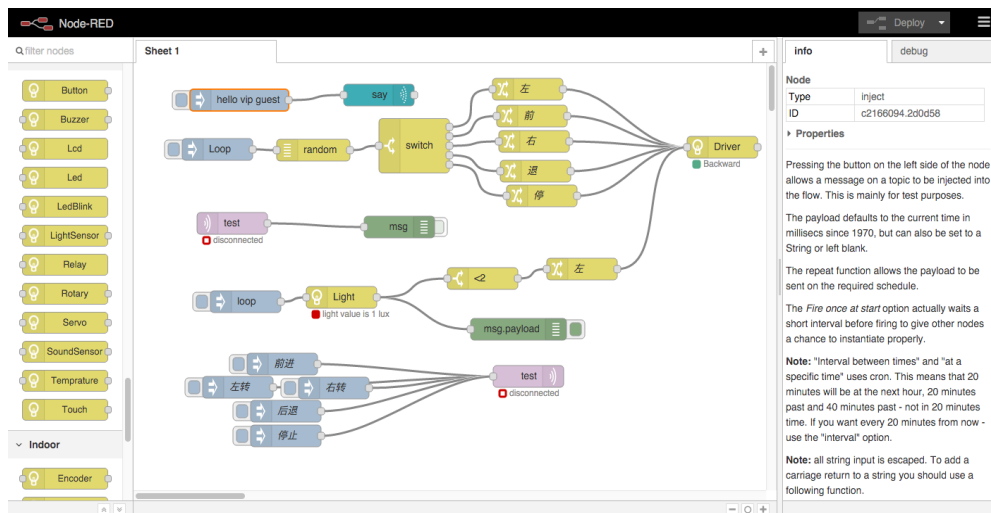
<https://www.infoq.com/news/2015/08/iotjs-jerryscript-samsung>

# Java ME Embedded

## Enables M2M Technology in Small Embedded Devices

<https://www.oracle.com/java/java-embedded.html>

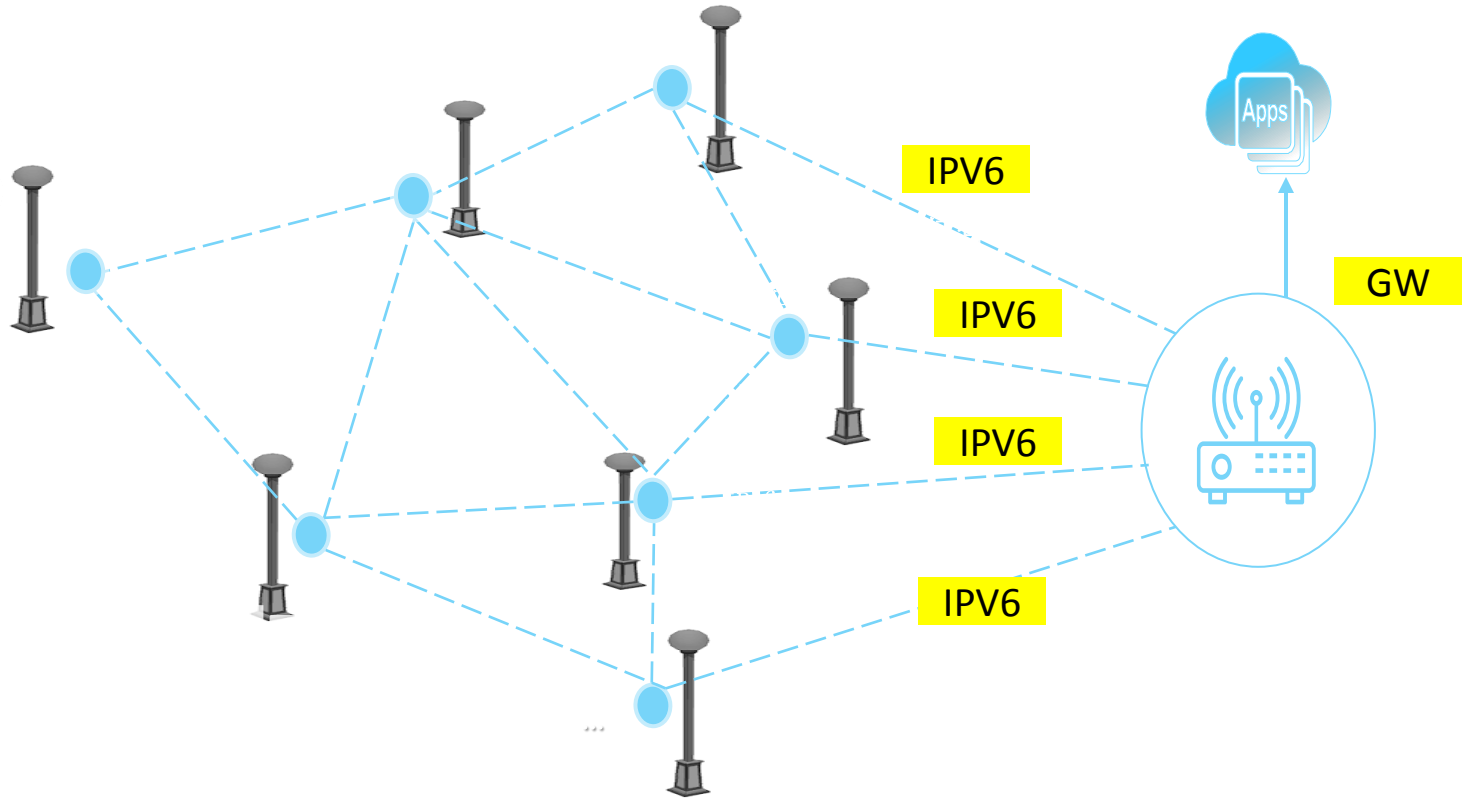
- Benefits
  - UI & Apps framework
  - Apps isolation
- Challenges
  - Real-time
  - Memory footprint
  - Low power



# Programming With Smart node

<http://www.makercollider.com/course/detail?id=45>

# Mesh Network for Street Lights



 6LowPAN

## Challenge

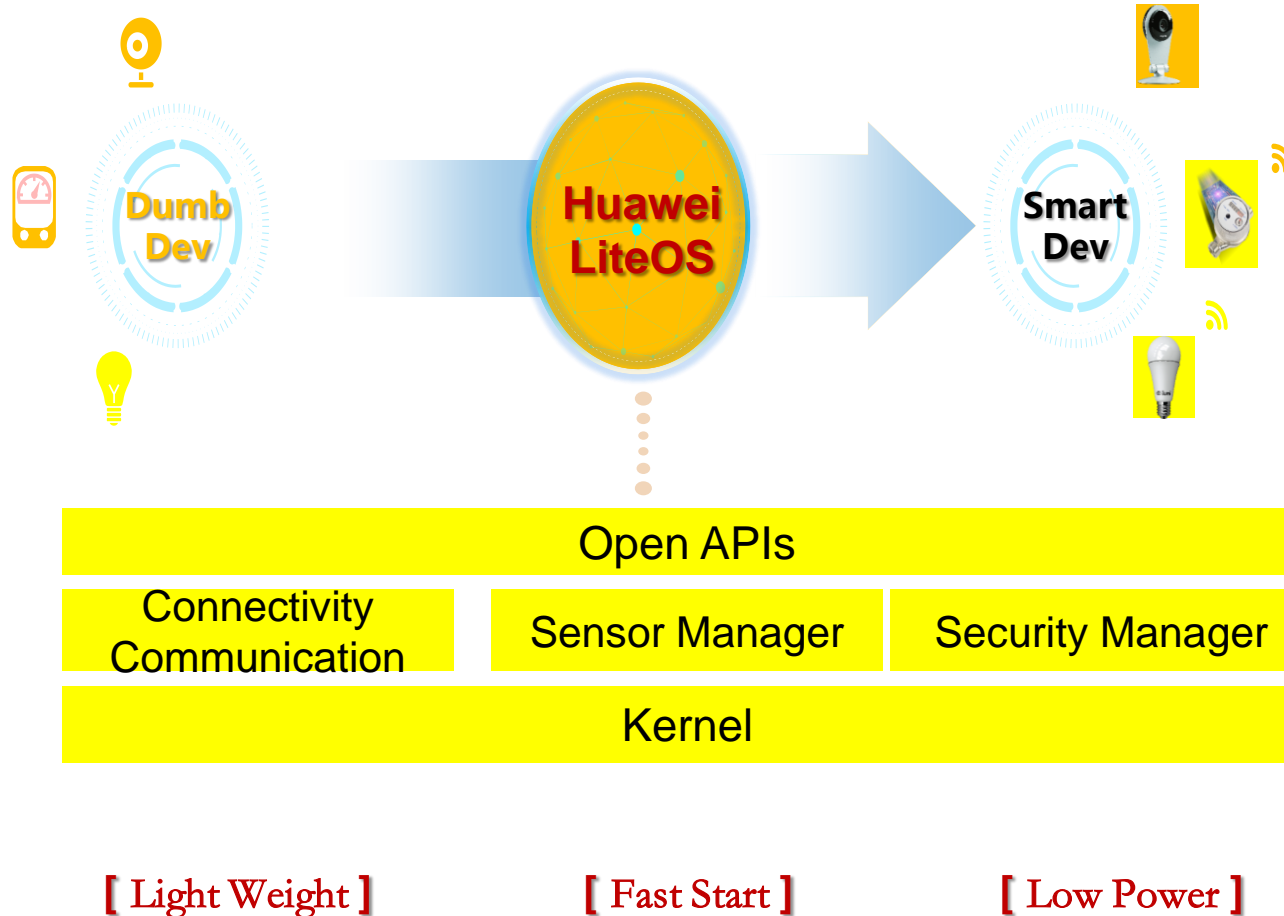
- Self Organizing
- 1000+ nodes, < 20mins



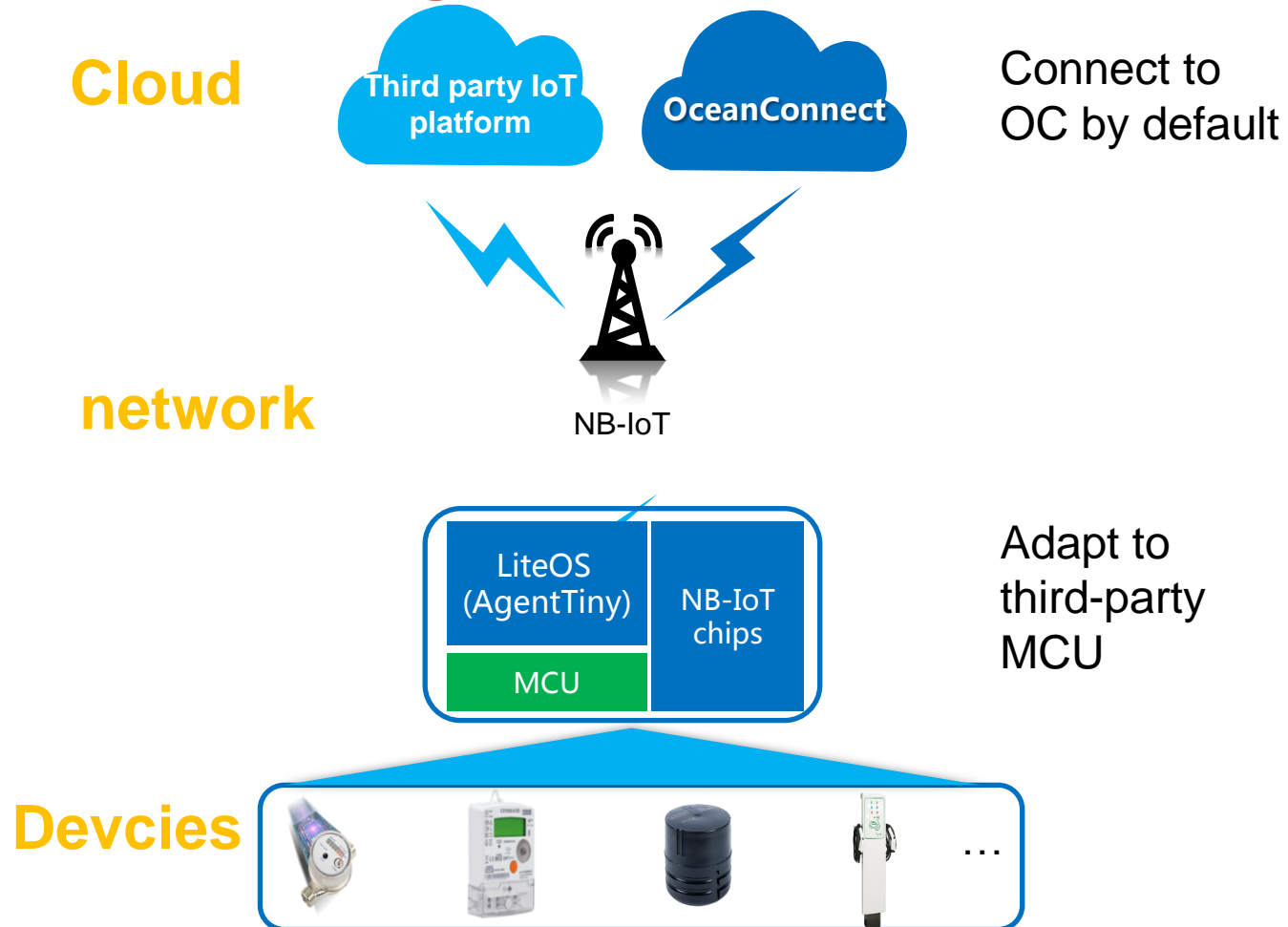
# Sensor Block in IoT Stack

- End device as data actuator
  - Utility usages
  - Location
  - Image creation
- Unified driver and data management API
- Data Merging algorithm and library
  - More accuracy, less data transmission
  - Contextual inference
  - Anomaly situation (security and disaster aversion)

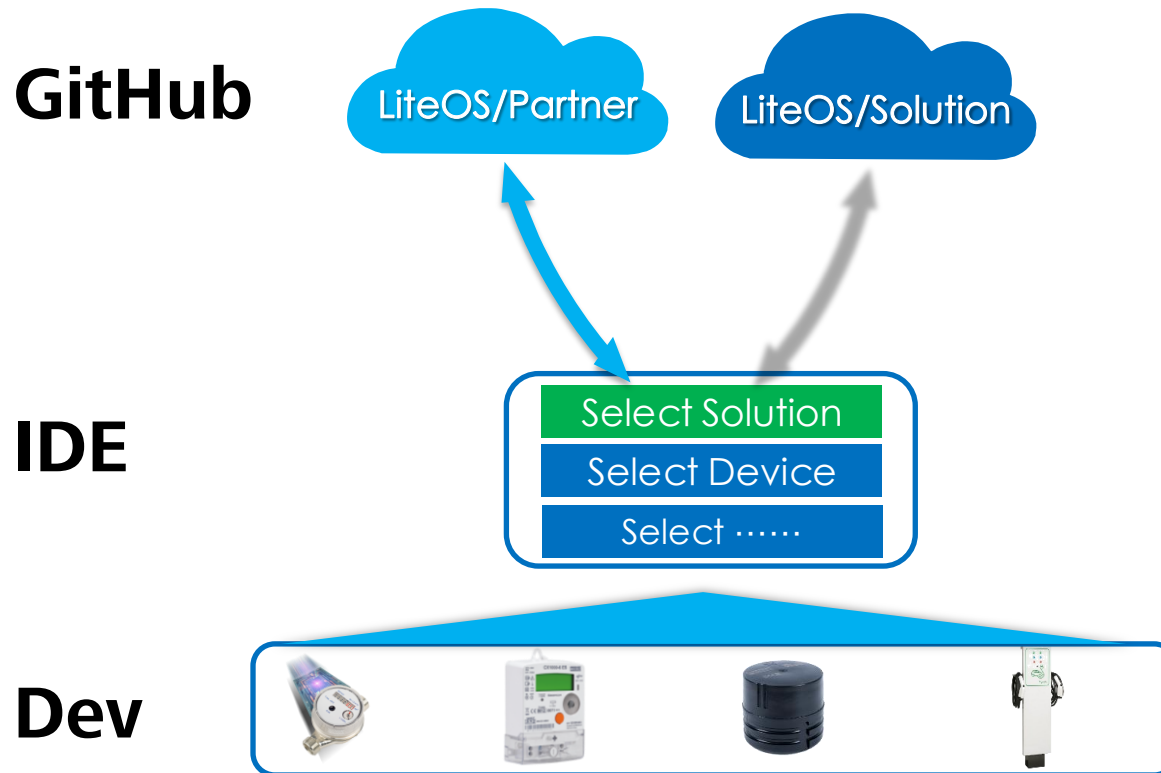
# Huawei LiteOS enable devices intelligence



# Easy to connect the devices and IoT platform using Huawei LiteOS



# Build a pool of resources by integrating solutions and IDEs



# Boards Supported

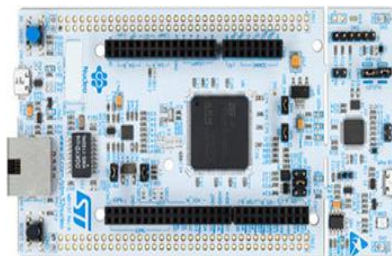
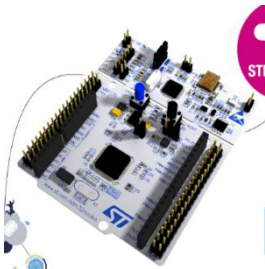
Company	Model		MCU	Memory		
				HZ(M)	Flash(K)	SRAM(K)
GD	1	GD32F450I-EVAL	M4	200	1024	256
	2	GD32F190R-EVAL	M3	72	64	8
ST	3	STM32F411RE-NUCLEO	M4	100	512	128
	4	STM32F412ZG-NUCLEO	M4	100	1024	256
	5	STM32F429I_DISCO	M4	180	2048	256
	6	STM32L476RG_NUCLEO	M4	80	1024	128
	7	STM32F746ZG_NUCLEO	M7	216	1024	320
ATMEL	8	Atmel SAM D21 Xplained Pro	M0+	24	256	32
	9	ATSAM4S-XPRO	M4	120	2048	160
	10	ARDUINO ZERO PRO	M0+	48	256	32
NXP	11	LPC824_LITE	M0+	30	32	8
	12	LPC54110_BOARD	M4	100	256	192
	13	FRDM-KW41Z	M0+	48	512	128
	14	FRDM-KL25Z	M0+	48	128	16
Siliconlab	15	EFM32 GIANT GECKO STARTER KIT EFM32GG-STK3700	M4	48	1024	128
	16	EFM32 PEARL GECKO STARTER KIT SLSTK3401A	M4	40	1024	256
	17	EFM32 HAPPY GECKO STARTER KIT SLSTK3400A	M0+	25	64	8
MM	18	MM32F103_MINI	M3	96	64	20
More on the way. .	. . .	. . .				

With LCDs

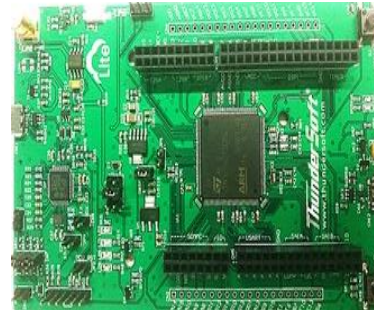
# ST collaborates with Huawei LiteOS

has covered the full range of  
STM32

公司	型号		内核
ST	3	STM32F411RE-NUCLEO	M4
	4	STM32F412ZG-NUCLEO	M4
	5	STM32F429I_DISCO	M4
	6	STM32L476RG-NUCLEO	M4
	7	STM32F746ZG-NUCLEO	M7

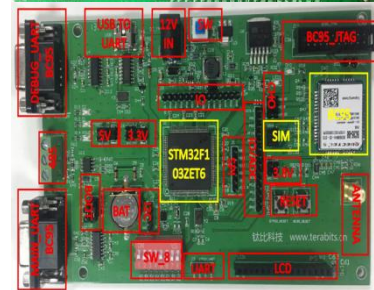


LiteOS and STM32 have partnered to launch  
three NB-IoT development kits EVK



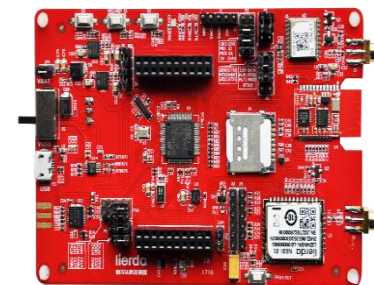
厂商：中科创达

- STM32L452
- Arduino接口
- 温度、湿度、六轴



厂商：钛比科技

- STM32F103
- 私有接口
- 温度、湿度

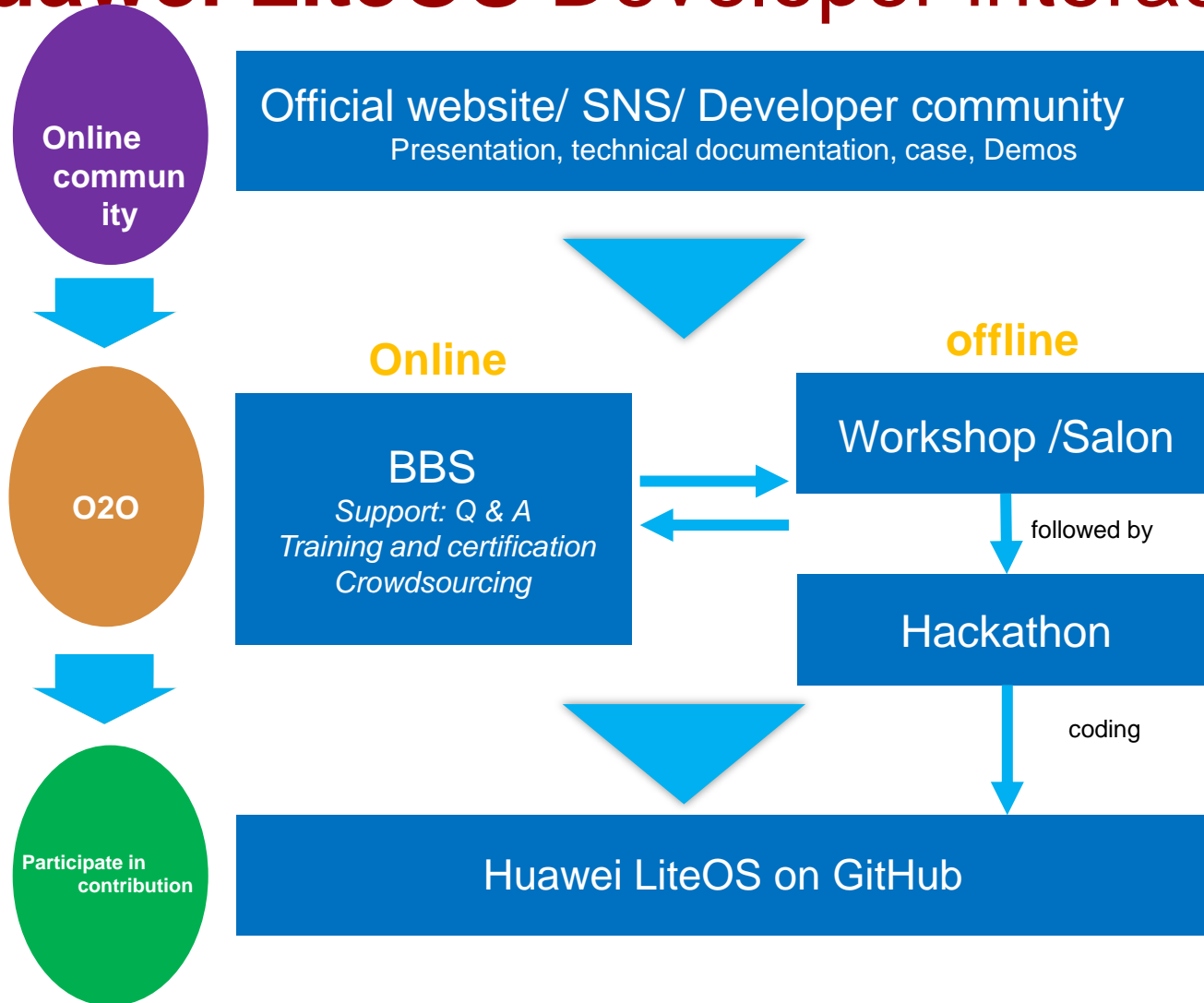


厂商：利尔达

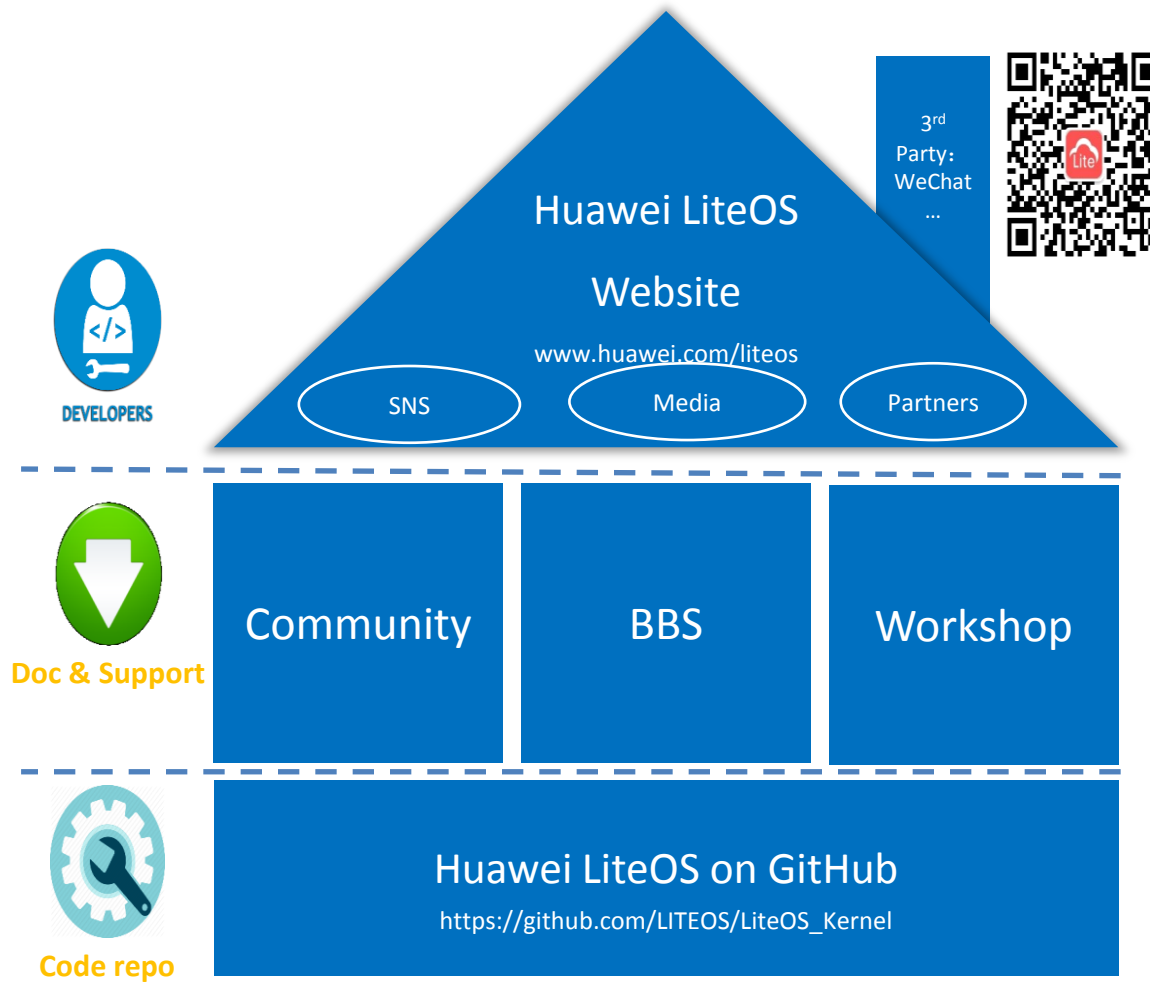
- STM32L409
- 私有接口
- 温湿度、六轴、气压



# Huawei LiteOS Developer interaction



# How you can join the fun



# Recap

- Exciting and tremendous opportunities in IoT apps and SW stack
- Challenges in entire application to system SW stack
  - algorithms, framework, language runtime & optimizations, communication MW, system software
- Huawei LiteOS open source roadmap and possible areas of possibility

***Workshop tomorrow on Huawei LiteOS and NB-IoT***  
***You are invited to participate and explore***