

Build IOT system from scratch using Opensource



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Who is this guy?


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Sáng lập Lophocvui.com và Viota.vn

Toán học

Vật lí


Hóa học

IoT courses




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Vật lí 12 cơ bản và nâng cao miễn phí
Do yêu cầu cực kỳ lớn của các bạn, chúng tôi đã vô cùng cố gắng để tiếp tục khóa...


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Vật lí 11 nâng cao hoàn toàn miễn phí



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**VIỆT NAM**
IoT ALLIANCE

Trang chủ

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Sự kiện

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Tutorials

Trending

Technology Matters for Research Papers



HƯỚNG DẪN CHIẾN LƯỢC CHO CÔNG NGHIỆP 4.0
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The Internet of Things
From connecting devices to human value

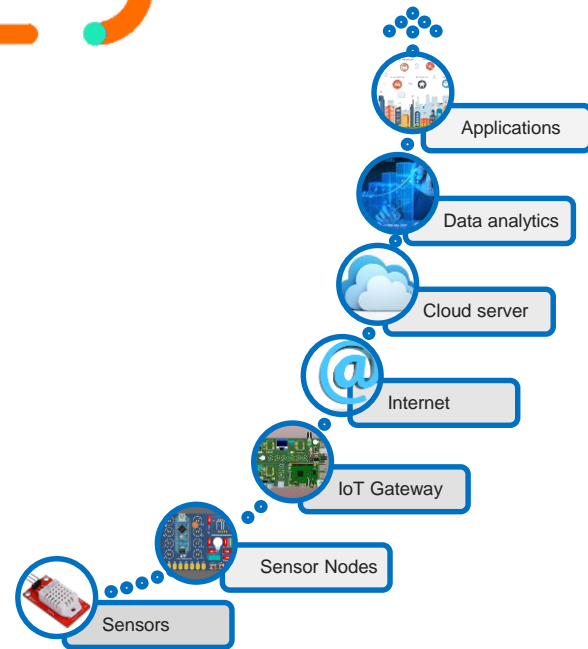
IoT Cơ bản - Hướng dẫn cho nhà đầu tư. Phần 1 - Hiểu về hệ sinh thái
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Iot system

1. Things
2. Connect
3. Collect
4. Learn
5. Do

(Timothy Chou - Precision)





Sensor Nodes

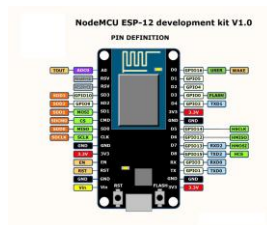
Hardware



Arduino Uno



Arduino Nano



ESP8266



Beaglebone Black



STM32





Sensor Nodes

Open Hardware



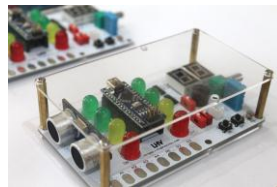
Arduino Uno



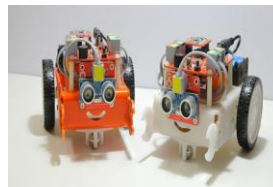
Arduino Nano



Libelium



LHV-Stem



Clover-Edu





Sensor Nodes

Opensource

<https://developers.google.com/blockly/>

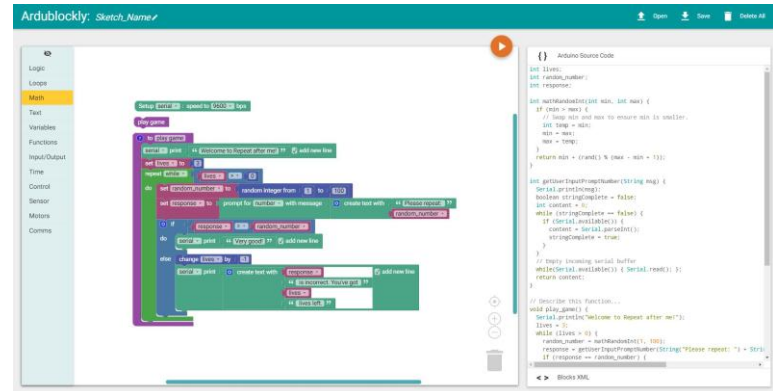
<https://ardublockly.embeddedlog.com>

<https://lophocvui.com/huong-dan/>

<https://www.arduino.cc/en/Main/Software?>



Blockly



Ardublockly



Sensor Nodes

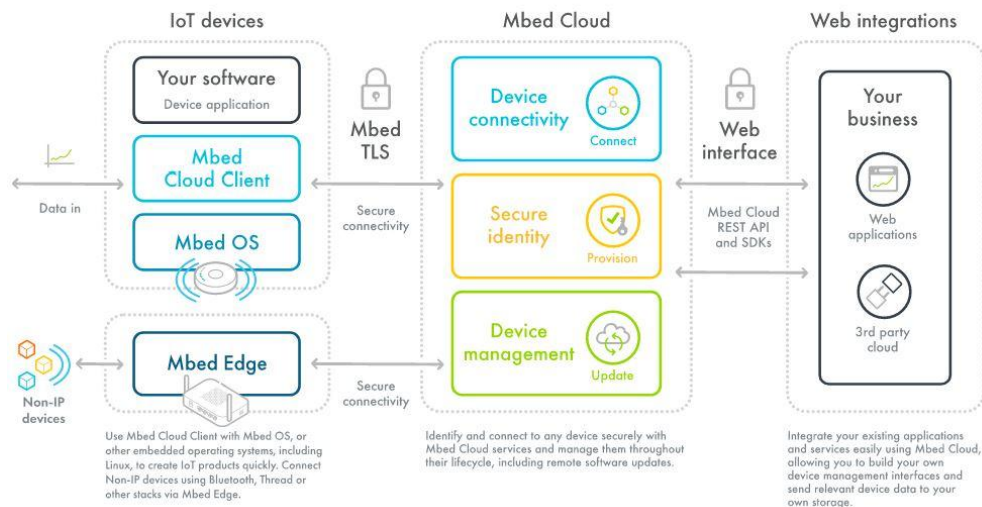
Opensource

<https://www.mbed.com/en/>

Mbed is a platform and operating system for internet-connected devices based on 32-bit ARM Cortex-M microcontrollers.

Mbed IoT Device Platform is a fully integrated device management solution. It provides the operating system, gateway, device management services, and partner ecosystem to speed adoption and deployment of IoT solutions.

How Mbed Works





Wireless Communication



LoRa

LoRa SX1278
433MHz / -140dBm / 3500m

LoRa



NB - IoT

YD Open Source Hardware



Zigbee



BLE5.0, Wifi





IoT Gateway – Hardware

Postscapes™

IoT GATEWAY MARKET

Software / Edge Analytics



Hardware Vendors

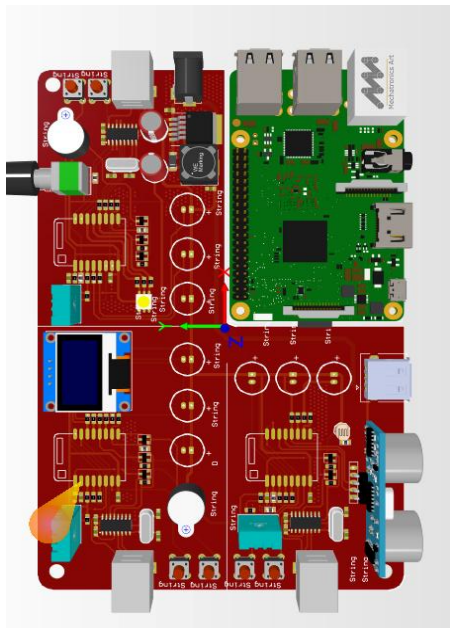


End-to-End Providers



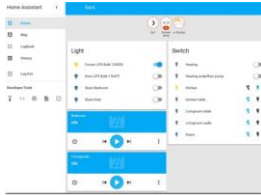


IoT Gateway - Hardware

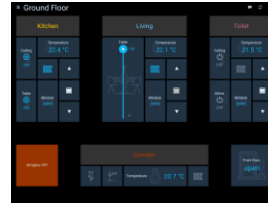




Opensource IoT Gateway Platform



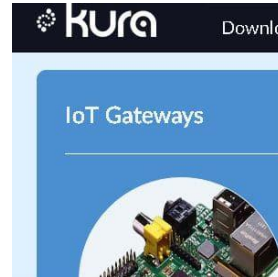
Home assistant



Openhab



AGILE IoT

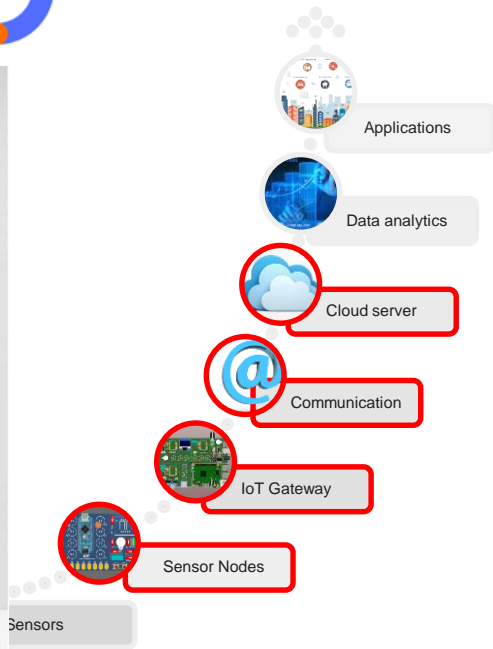
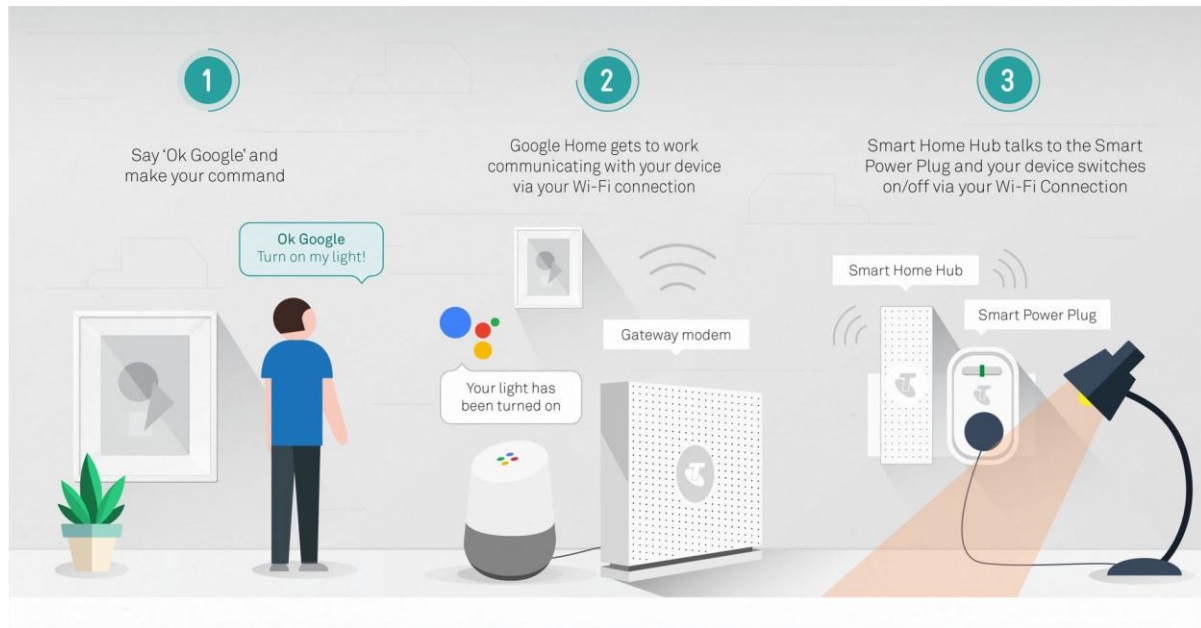


Eclipse Kura



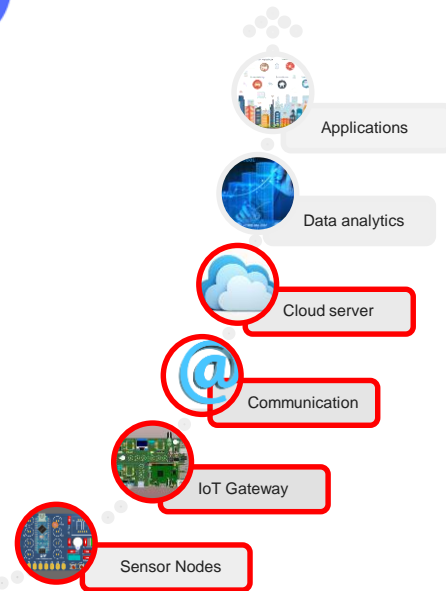
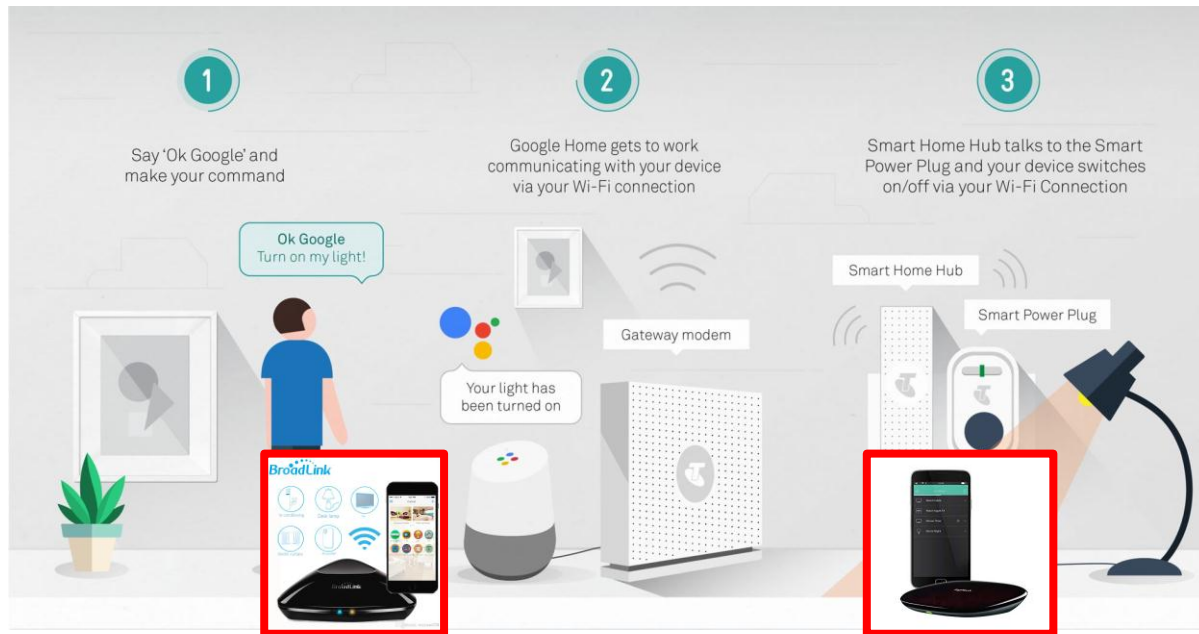


Smarthome???





Smarthome???





IoT Cloud Platforms - Publicly Traded



IoT Cloud Platform	Support
AWS IOT	HTTP, WebSockets, and MQTT, Rules Engine with AWS Lambda, Amazon Kinesis, S3, DynamoDB, CloudWatch
Google Cloud IoT	Web-scale processing, analytics, and machine intelligence
Microsoft Azure IoT Suite	HTTP, AMQP, and MQTT. Gateway SDK, integrate with Salesforce, SAP, Oracle Database, and Microsoft Dynamics
IBM Watson IoT	Machine Learning - Automate data processing, Raspberry Pi Support, APIs Real-Time Insights, real-time IoT data
Artik Cloud	Java/Android, ObjC (iOS and Mac), Python, Ruby and more SDKs. REST/HTTP, websockets, MQTT, and CoAP support
Autodesk Fusion Connect	M2M/IoT protocol and data, CoAP, UDP, HTTP, Modbus, XMPP, DDS, MQTT and Vendor-Specific M2M Technologies
ThingWorx (Acquired by PTC)	Coldlight - IoT Analytics, Augmented Reality Integration, Edge Microserver & "Always On"SDK



Opensource IoT Cloud Platforms



IoT Cloud Platform	Support
Kaa Platform	Raspberry Pi, Beaglebone, Samsung Artik 5, Udoo, CC3200, ESP8266
Macchina Platform	Web-enabled, modular and extensible C++ and JavaScript. Runs on Embedded Linux devices with as little as 32 MB of RAM
SiteWhere Platform	Connect devices with MQTT, AMQP, Stomp, and other protocolsIntegrates with Azure EventHub
Thingsboard.io	IoT platform for device management, data collection, processing and visualization for your IoT projects
Arm Mbed, Owntrack, Thingspeak, MyDevices Cayenne Platform, Carriots Platform	

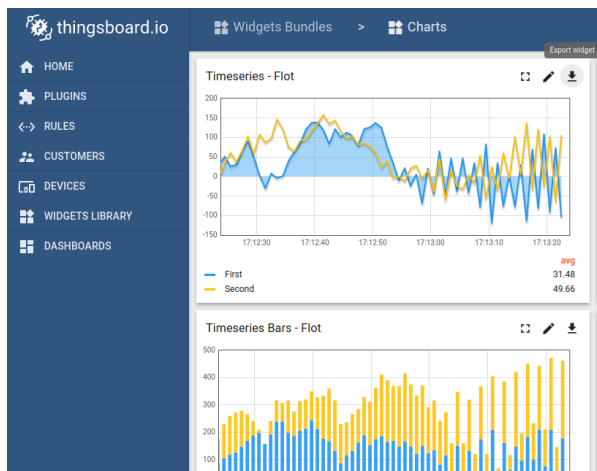
Source: <https://www.postscapes.com/internet-of-things-platforms/>



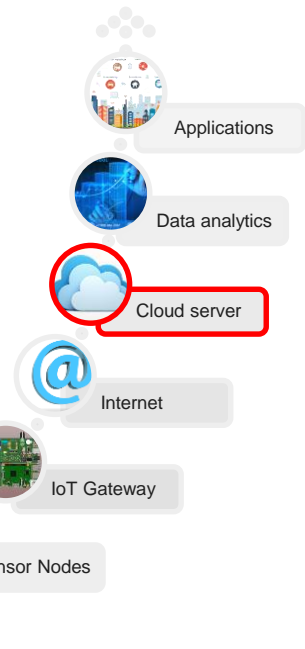
OpenSource IoT Cloud Platforms



[Kaa Platform](#)



[Thingsboard.io](#)





Opensource Monitoring Tools



IoT Cloud Platform	Support
Kibana	Open source (Apache Licensed), browser based analytics and search dashboard for Elasticsearch, Can build dashboards
Grafana	Grafana is a general purpose dashboard and graph composer. It's focused on providing rich ways to visualize time series metrics. It currently has rich support for for Graphite, InfluxDB and OpenTSDB
Logstash	Logstash is an open source tool for collecting, parsing, and storing logs for future use. Elasticsearch, Logstash, and Kibana, is known as an ELK stack



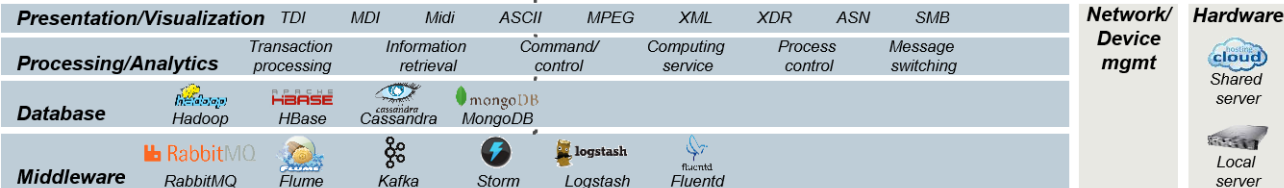
Internet of Things – Technology architecture

Applications

End-user level



System level



Network/Device mgmt

Hardware



Security

Security architecture planning



Access control



Device authentication



Firewall/IPS



Updates/Patching



Surveillance



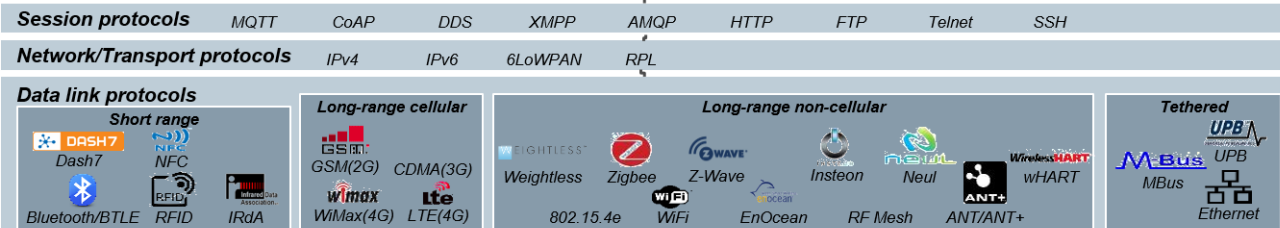
Incident management



Secure booting

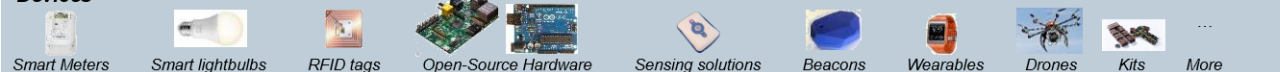
Technology

Communication level

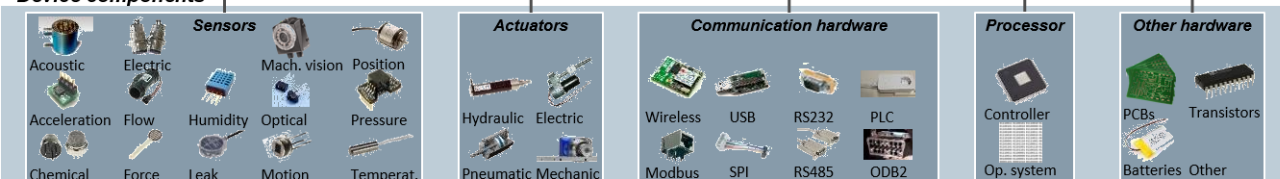


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Devices



Device components



1. Lifestyle incl Quantified-self products 2. Incl all other B2B commercial IoT 3. Industrial goods business incl. transportation 4. Services incl. finance and insurance 5. Other including education, public and military, media, telecom

Note: Product, image, or service names are the property of the respective owners

Source: www.IoT-Analytics.com 2014



Thank you!

Thanks to my students for creating materials for Demos
Link <http://iot-platform.lophocvui.com>

