Eclipse IoT

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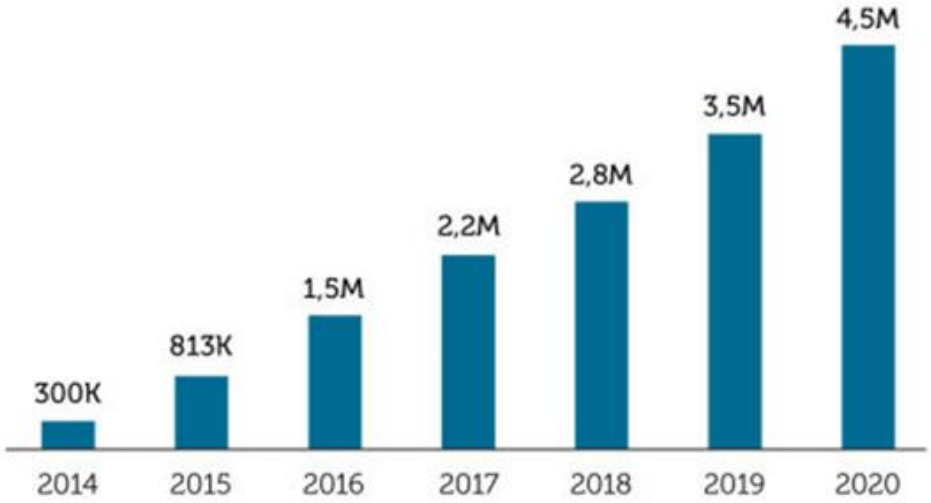
THE NUMBER OF IOT DEVELOPERS 2014-2020



Source: VisionMobile estimates, 2014

Report: IoT: Breaking Free From Internet And Things | vmob.me/IoT

Open Source for IoT

IoT needs open source to be successful.
Eclipse IoT simplifies IoT development.

iot
eclipse.org

Standards

Implementation of IoT standards like MQTT, CoAP, LWM2M and OneM2M

Services & Frameworks

Building blocks to accelerate IoT development

Getting Started

Step-by-step guide to getting started on IoT development

All projects

Check out all our IoT open source projects

Technology

Eclipse IoT provides open source implementations of the standards, services and frameworks that enable an Open Internet of Things.

Founded in November 2011

IBM, Eurotech, Sierra Wireless

18 open-source projects*

29 members*

Java – but also C, C++, Python, etc.

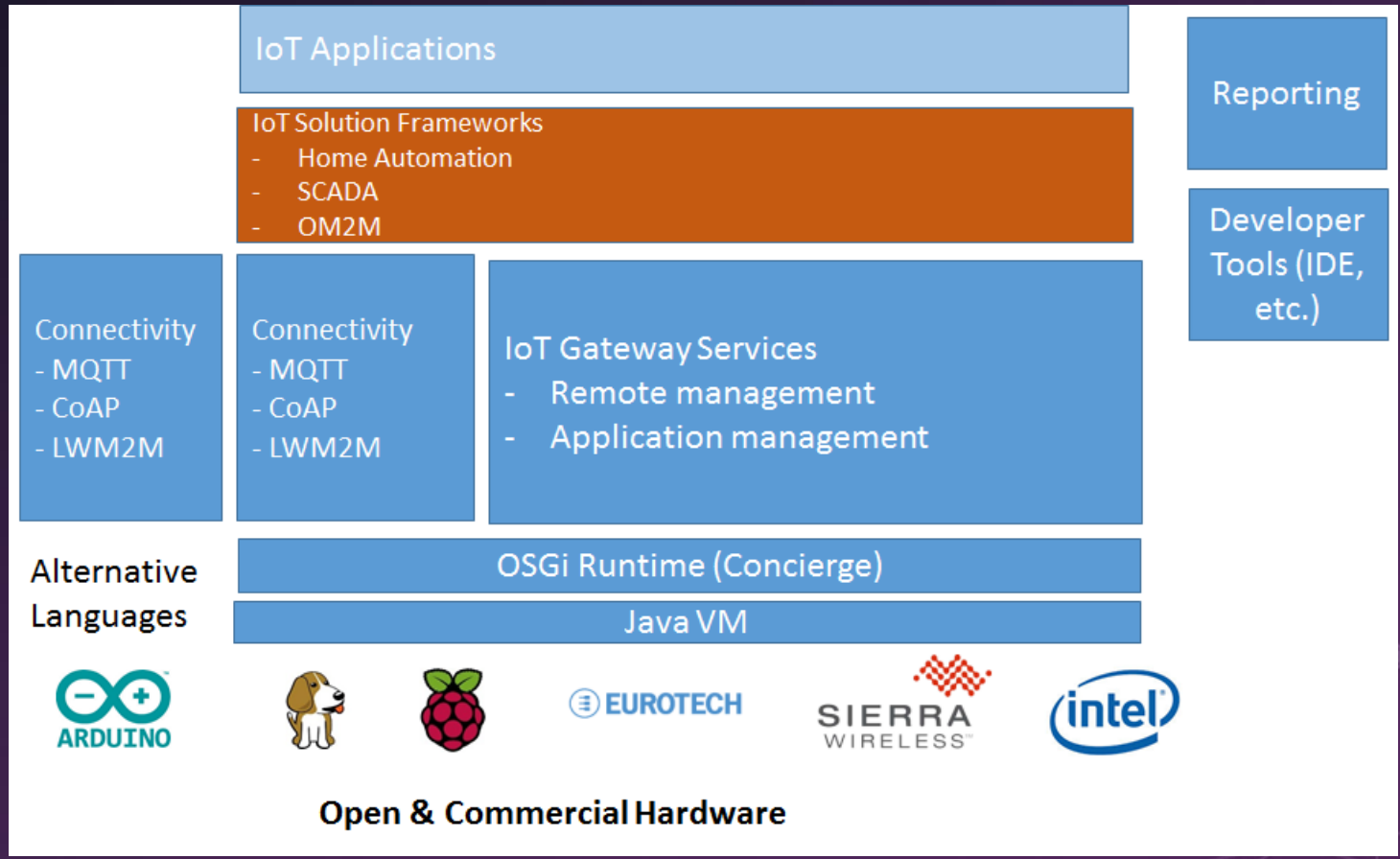
→IoT Standards

→Services & Frameworks

* and counting!

Members


IS2T
bitreactive
redhat
VERISIGN
DC square
BOSCH
Invented for life
SMB
openHAB
AZUL SYSTEMS
ACTUATE
ca technologies
EUROTECH
solair
GENERATIVE SOFTWARE
SIERRA WIRELESS
QIVICON
CANONICAL
itemis
HUAWEI
GadgetKeeper
2lemetry
m2m alliance
ibh SYSTEMS
zolertia
CISCO
LITMUS Automation
LAAS-CNRS
IBM


IoT Applications
Reporting
IoT Solution Frameworks
- Home Automation
- SCADA
- OM2M
Developer Tools (IDE, etc.)
Connectivity
- MQTT
- CoAP
- LWM2M
Connectivity
- MQTT
- CoAP
- LWM2M
IoT Gateway Services
- Remote management
- Application management
Alternative Languages
OSGi Runtime (Concierge)
Java VM
ARDUINO
EUROTECH
SIERRA WIRELESS
intel
Open & Commercial Hardware

Protocols

MQTT

- OASIS standard
- Client and server implementations in **Paho** & **Mosquitto**
- Wide commercial adoption: IBM MessageSight, Facebook Messenger, Eurotech ESF, Sierra Wireless AirVantage, HiveMQ, …

Protocols

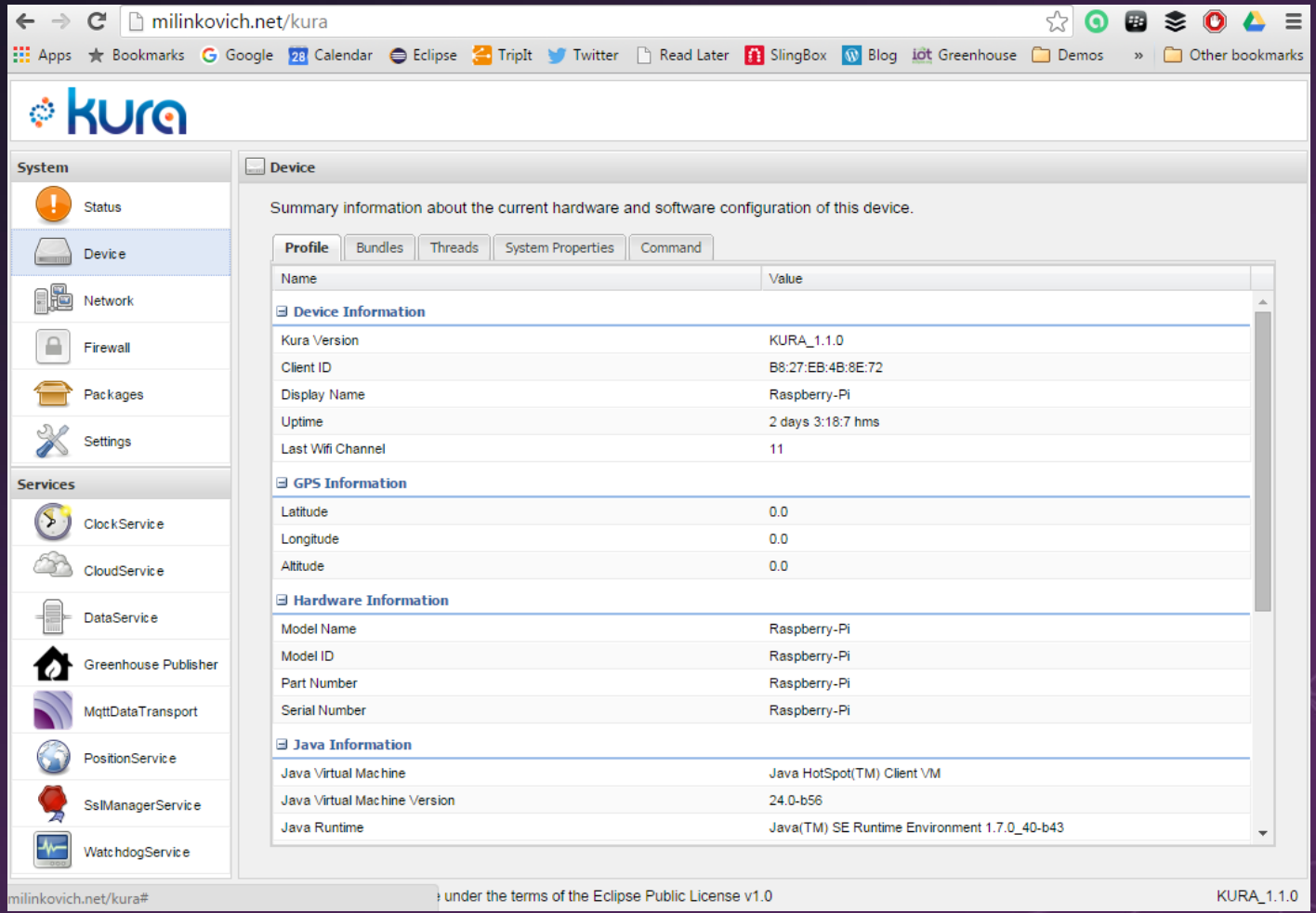
- CoAP
  - IETF standard
  - Java implementation in **Californium**
  - Lots of traction in the WSN space (Thingsquare, Everythng, …)
  - Foundation for **LWM2M** – supported by Sierra Wireless, Bosch SI, Zebra Technologies

Frameworks

Application framework for IoT: **Kura**

- Built on top of Java and OSGi
- Foundation for Eurotech's **Everyware Software Framework**

ETSI SmartM2M and oneM2M implementation: **OM2M**


milinkovich.net/kura
Apps
Bookmarks
Google
Calendar
Eclipse
TripIt
Twitter
Read Later
SlingBox
Blog
Greenhouse
Demos
Other bookmarks
kura
System
Status
Device
Network
Firewall
Packages
Settings
Services
ClockService
CloudService
DataService
Greenhouse Publisher
MqttDataTransport
PositionService
SslManagerService
WatchdogService
Device
Summary information about the current hardware and software configuration of this device.
Profile
Bundles
Threads
System Properties
Command
Name
Value
Device Information
Kura Version
KURA_1.1.0
Client ID
B8:27:EB:4B:8E:72
Display Name
Raspberry-Pi
Uptime
2 days 3:18:7 hms
Last Wifi Channel
11
GPS Information
Latitude
0.0
Longitude
0.0
Altitude
0.0
Hardware Information
Model Name
Raspberry-Pi
Model ID
Raspberry-Pi
Part Number
Raspberry-Pi
Serial Number
Raspberry-Pi
Java Information
Java Virtual Machine
Java HotSpot(TM) Client VM
Java Virtual Machine Version
24.0-b56
Java Runtime
Java(TM) SE Runtime Environment 1.7.0_40-b43
milinkovich.net/kura#
e under the terms of the Eclipse Public License v1.0
KURA_1.1.0

Frameworks

Device Management

LWM2M is an Open Mobile Alliance Standard Device Management on top of CoAP

Eclipse **Leshan** and **Wakaama** are two implementations

Frameworks

Software Provisioning

Eclipse hawkBit

Back end solution for rolling out software updates to constrained edge devices or via IP-enabled gateways

Device management usually have basic update capabilities but lack the capability to organize more complex roll outs

Runtimes

Secured Service Discovery

Eclipse Tiaki

Leveraging DNS-SEC and DNS-SD for retrieving a device configuration parameter, or its public key for establishing secured communications

Solutions

Home Automation: Eclipse **SmartHome**

- Based on Java and OSGi
- Very active community with ~100 home automation driver implementations
- Foundation for Deutsche Telekom's **QIVICON**

IoT network management: **Krikkit**

- Rules engine for IoT devices
- Powering Cisco's Data in Motion.

Industrial control: EclipseSCADA

Tools and Repositories

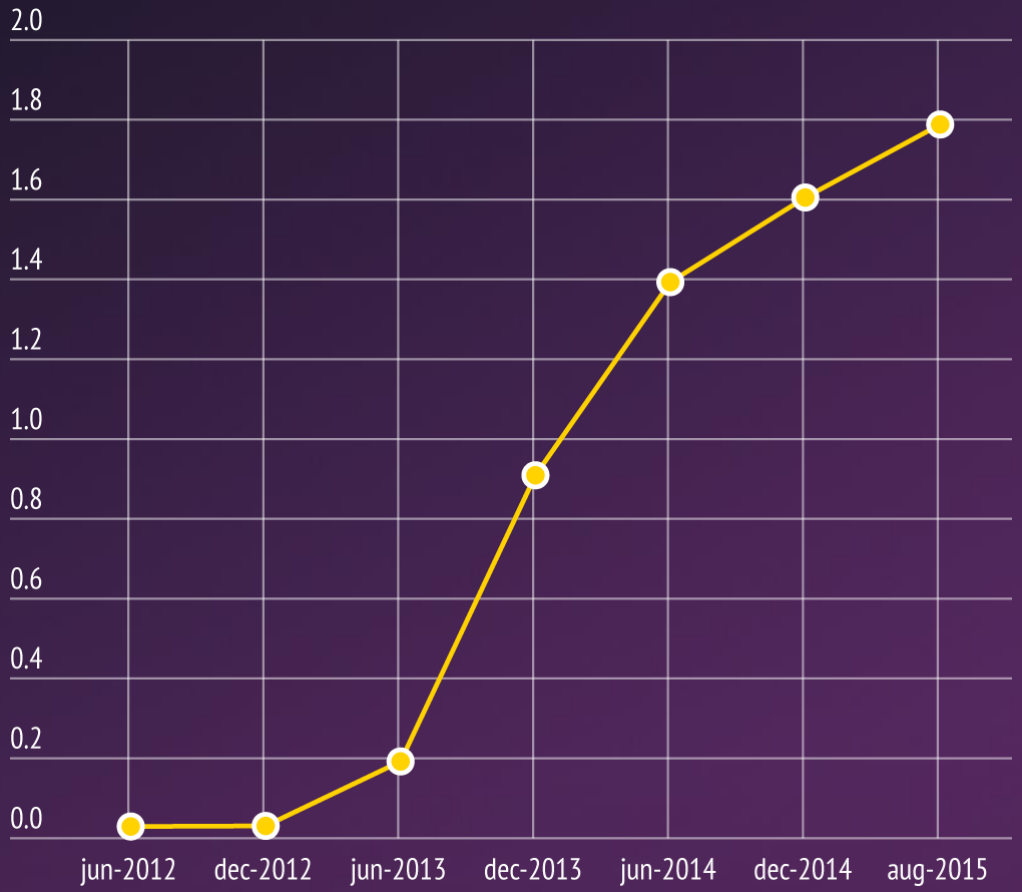
- Eclipse **Vorto**
  - Information model for « things » + code generators
  - Creation of a flexible meta information model for generating specific representations
  - Bosch SI leading

Eclipse IoT is also…

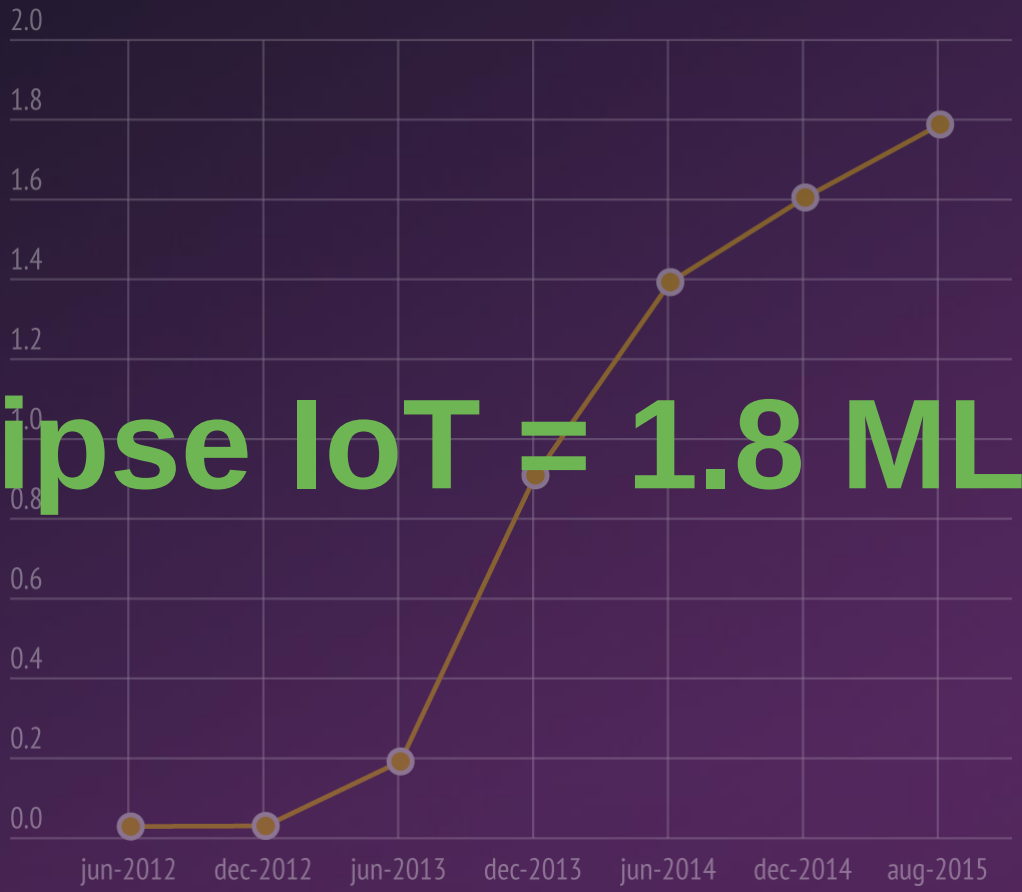
Industrial IoT

Open source implementations of IEC standards

Eclipse **SCADA**, 4DIAC, Rise V2G, ...


2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
jun-2012
dec-2012
jun-2013
dec-2013
jun-2014
dec-2014
aug-2015

Eclipse IoT = 1.8 MLOC



Eclipse IoT in Numbers

1.8 Million Lines of Code

18 projects

125 developers from **20+** organizations

Eurotech, IBM, Sierra Wireless, LAAS-CNRS & Deutsche Telekom leading

Dashboard available at:
http://dashboard.eclipse.org/project.html?project=iot