

## Eclipse Kura Project Update

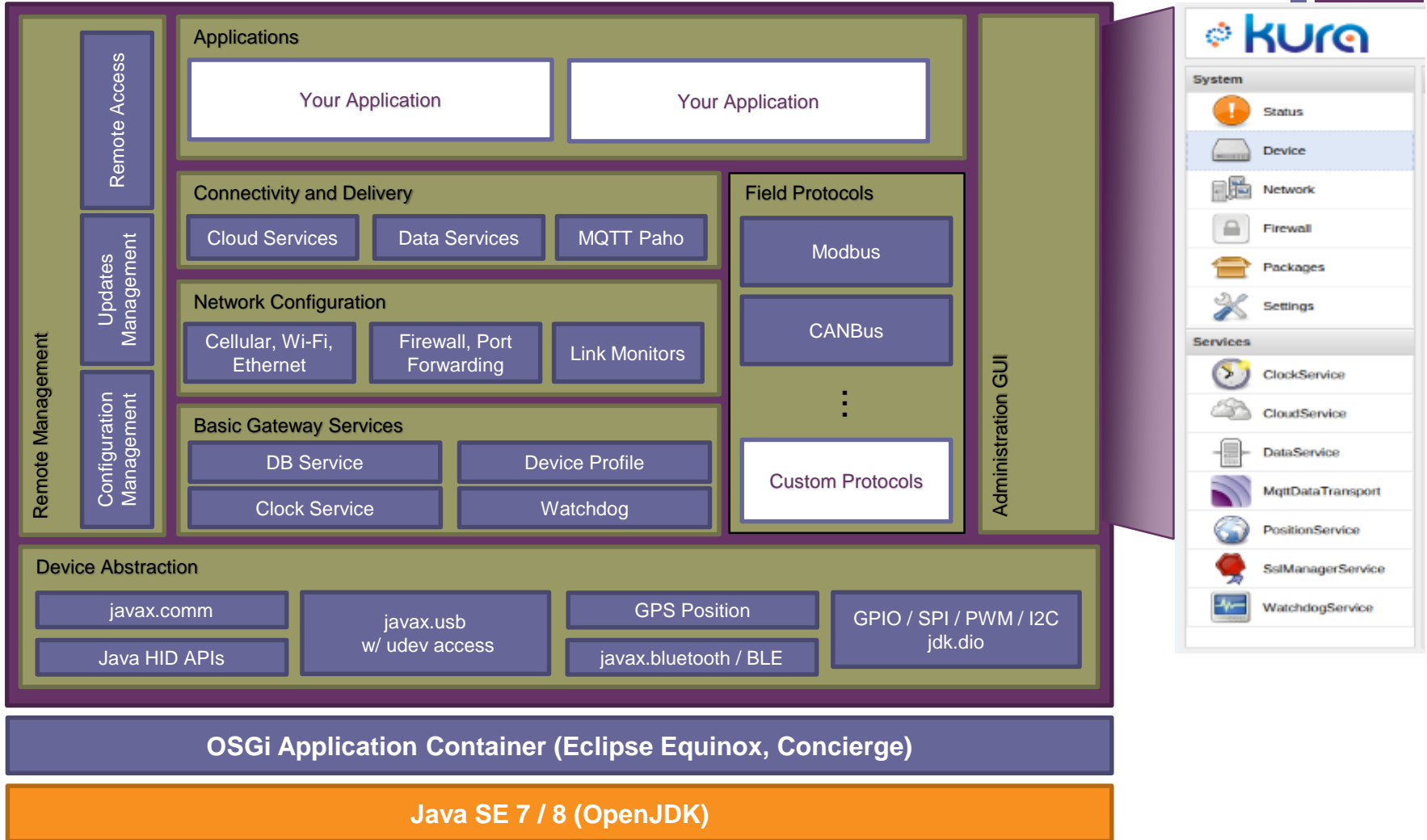
Ludwigsburg – 24/10/2016

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# Eclipse Kura

Eclipse Open Java Stack for IoT Gateways



# + Project statistics

- October 2016:
  - 22 contributors
  - 2400+ commits
  - Bugs/Enhancements:
    - 130 Open
    - 210+ Closed
  - Pull requests
    - 8 Open
    - 300+ Closed

OCT '15 - SEP '16 (color indicates variation compared to previous period)

|                | Opened bugs | Closed bugs | Code authors | Commits | Posted messages | Senders |
|----------------|-------------|-------------|--------------|---------|-----------------|---------|
| 4diac          | 82          | 137         | 11           | 133     | 12              | 2       |
| californium    | 52          | 41          | 19           | 468     | 323             | 14      |
| concierge      | 12          | 3           | 5            | 92      | 18              | 6       |
| eclipsescada   | 0           | 19          | 3            | 366     | 4               | 2       |
| edje           | 0           | 0           | 2            | 2       | 1               | 1       |
| hawkbit        | 26          | 5           | 22           | 1298    | 1               | 1       |
| hono           | 36          | 32          | 5            | 247     | 116             | 6       |
| krikkit        | 0           | 0           | 1            | 1       | 0               | 0       |
| kura           | 298         | 146         | 21           | 1047    | 111             | 20      |
| leshan         | 44          | 50          | 20           | 409     | 157             | 20      |
| milou          | 28          | 21          | 7            | 84      | 11              | 4       |
| mosquitto      | 252         | 172         | 19           | 221     | 273             | 40      |
| om2m           | 1           | 1           | 7            | 73      | 25              | 4       |
| paho           | 312         | 225         | 54           | 401     | 429             | 54      |
| paho.incubator | 0           | 0           | 0            | 0       | 0               | 0       |
| ponte          | 0           | 0           | 3            | 8       | 0               | 0       |
| risev2g        | 2           | 1           | 1            | 17      | 2               | 2       |
| smarthome      | 665         | 567         | 83           | 994     | 55              | 7       |
| tinydtls       | 0           | 2           | 2            | 14      | 21              | 3       |
| vorto          | 258         | 141         | 21           | 496     | 1               | 2       |
| wakaama        | 55          | 50          | 14           | 201     | 65              | 13      |
| whiskers       | 0           | 0           | 2            | 28      | 1               | 1       |
| ALL PROJECTS   | 2123        | 1613        | 322          | 6600    | 1626            | 54      |

# + Kura Project Releases



## ■ Kura 1.4.0

Released February 2016

- Improved SSL support
- Improved Remote Deploy
- New firewall management
  - Iptables-save
  - Iptables-restore
- New modem Ublox SARA-U2
- Refactored Emulator

## ■ Kura 2.0.x

Releases since July 2016

- Added support for:
  - Multiple Cloud Connections
  - Wi-Fi multimode
  - X86\_64 systems
  - AWS IoT Cloud
- New web UI
  - GWT 2.7/GwtBootstrap 3
  - Drag-and-drop Installs
- Improved Bluetooth APIs (Bluez 5.x)
- Initial integration of Apache Camel
- New examples:
  - SenseHat
  - Beacon.scanner



# Kura Planned Project Releases



- Kura 2.1.0  
Planned for Q4 2016
  - Complete Camel integration
  - Multiple Cloud Connections UI
  - Oomph-based Dev Env
  - Platform Support
    - Fedora Linux
    - Raspberry Pi 3 support
- Kura 2.2.0  
Planned for Q1 2017
  - Kura Wires
    - Assets and Drivers
    - Wire Components and Graph
    - Field Protocol Drivers
      - Modbus, OPC-UA, BLE, ...
  - Runtime Platform Refresh
    - Java 8 (min) and Equinox 3.11
    - Apache Karaf
  - Optional Bundles
    - Messaging (ActiveMQ)
    - Drools (BRMS)

# + Kura 2.1.0 preview

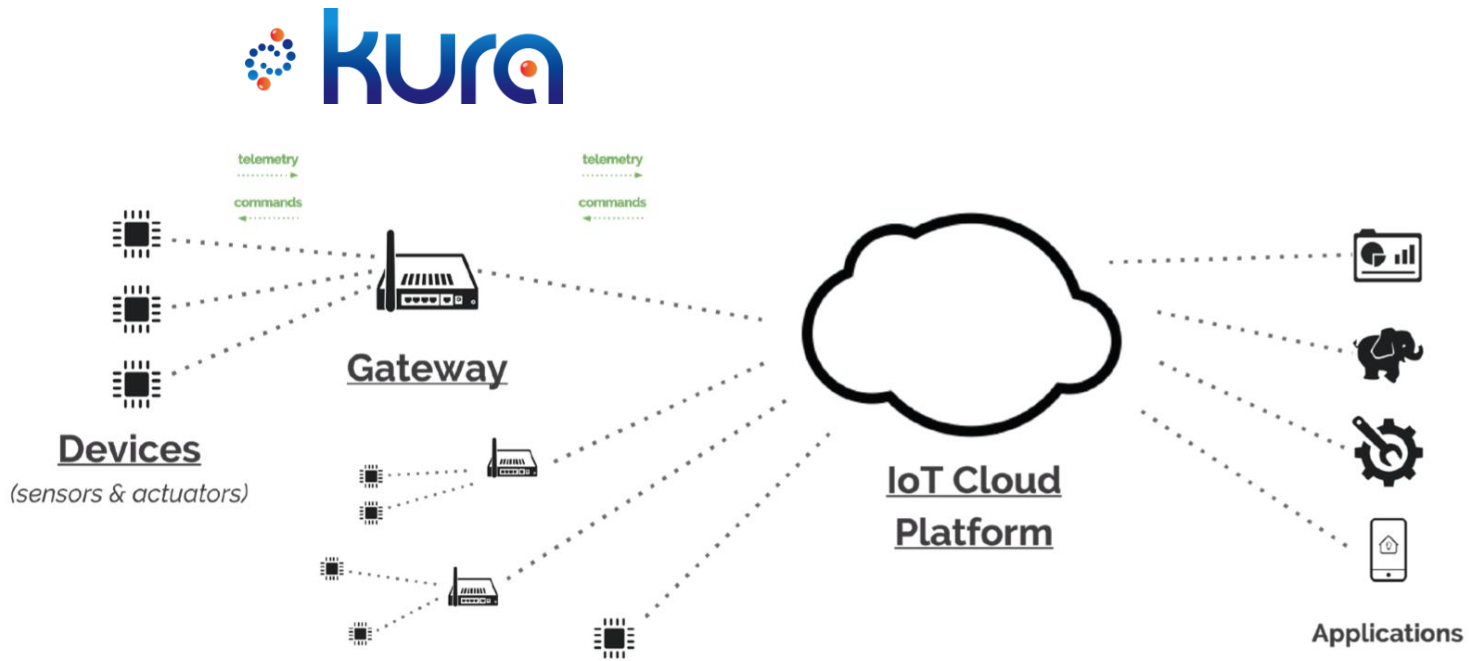
The screenshot displays the Kura 2.1.0 preview web interface. On the left, there is a navigation sidebar with two main sections: 'System' and 'Services'. The 'System' section includes links for Status, Device, Network, Firewall, Cloud Services, Packages, and Settings. The 'Services' section includes links for Camel Cloud Factory, ClockService, CommandService, WebConsole, PositionService, WatchdogService, and Camel XML router. The main content area is titled 'Cloud Services' and features a toolbar with 'Refresh', '+ New', 'Delete', 'Connect', and 'Disconnect' buttons. Below the toolbar is a table with the following data:

| Status    | Cloud Factory PID                   | Cloud Service PID                   |
|-----------|-------------------------------------|-------------------------------------|
| Connected | org.eclipse.kura.cloud.CloudService | org.eclipse.kura.cloud.CloudService |

Below the table, there are tabs for 'CloudService', 'DataService', and 'MqttDataTransport'. The 'CloudService' tab is active, showing 'Apply' and 'Reset' buttons. The configuration form below contains several fields:

- device.display-name \***: A dropdown menu with 'Custom' selected. Description: Friendly name of the device. Device name is the common name of the device (eg: Reliagate 50-21, Raspberry Pi, etc.). Hostname will use the linux hostname utility. Custom allows for defining a unique string. Server defined relies on Eurotech Everware Cloud to define a name.
- device.custom-name**: A text input field. Description: Custom name for the device. This value is applied ONLY if device.display-name is set to "Custom".
- topic.control-prefix \***: A text input field with 'SEDC' entered. Description: Topic prefix for system messages.
- encode.gzip**: A radio button selection with 'true' selected. Description: Compress message payloads before sending them to the remote server to reduce the network traffic.
- republish.mqtt.birth.cert.on.gps.lock \***: A radio button selection with 'true' selected.

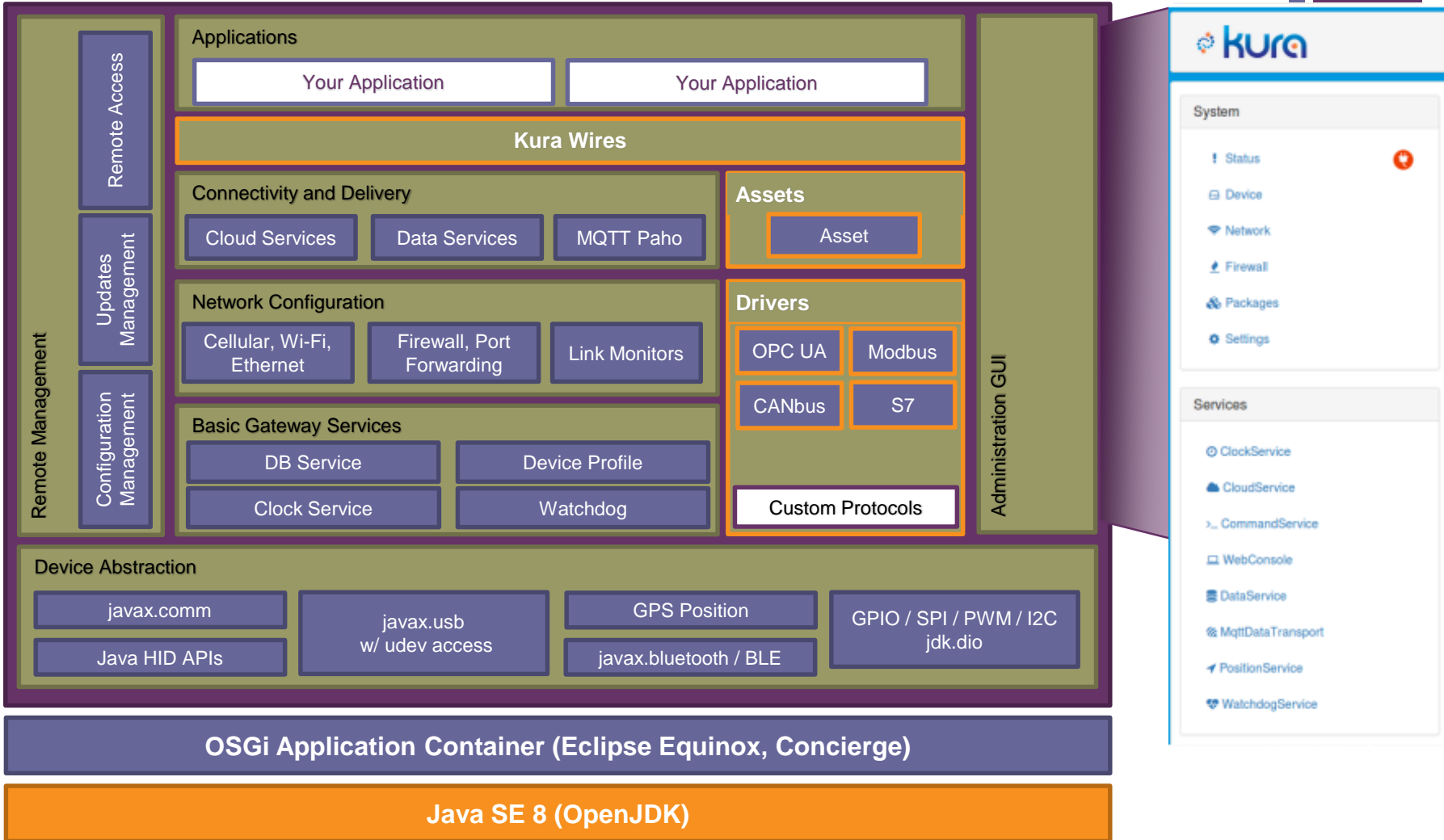
# + Devices and Gateway





# Eclipse Kura 2.2.0

New: Drivers, Assets, Wire Components, Wire Graph





# + Kura 2.2.0 Wires

## Preview



**System**

- Status
- Device
- Network
- Firewall
- Packages
- Settings
- Wires**

**Services**

Search  +

- ClockService
- CloudService
- CommandService
- WebConsole
- DataService
- MqttDataTransport
- OPC UA Driver**
- PositionService

**Wire Graph**

Save | Zoom In | Zoom Out | Delete Instance | Delete Graph

```
graph LR;
  TIMER1[TIMER 1] --> ASSET[ASSET];
  ASSET --> PUBLISHER[PUBLISHER];
  ASSET --> LOG[LOG];
```

**Wire Components**

- ← Timer
- ← Subscriber
- Logger
- Publisher
- ≡ DB Store
- ≡ DB Filter
- ≡ Asset

**Asset - Asset**

**Channels Table (OPC UA Driver)**

Add Channel | Remove Channel | Download Channels | Upload Channels

| ID | name                                  | type | value type | node.id                                | node.namespace.index           |
|----|---------------------------------------|------|------------|--|--------------------------------|
| 1  | <input type="text" value="Counter"/>  | READ | INTEGER    | <input type="text" value="Counter1"/>  | <input type="text" value="5"/> |
| 2  | <input type="text" value="Level"/>    | READ | DOUBLE     | <input type="text" value="MyLevel"/>   | <input type="text" value="2"/> |
| 3  | <input type="text" value="Sinusoid"/> | READ | DOUBLE     | <input type="text" value="Sinusoid1"/> | <input type="text" value="5"/> |

# + Kura Next Steps



- IoT Cloud Integrations

- IBM Watson IoT
- Microsoft Azure
- Oracle IoT Cloud

- Eclipse IoT Integrations

- Eclipse Kapua
- Eclipse Milo
- Eclipse Vorto

- Other Desired Integrations

- Eclipse Californium
- Eclipse Leshan

- Key Challenges

- Widen the Community

- Open Weekly meeting
- Full visibility
  - Issues
  - Team board
- Help Wanted Page

- Increase Marketplace Presence

- TI SensorTag
- Raspberry SenseHat
- Wires Drivers
- Wires Components

# + Thank You!



Fork me on GitHub!

- <https://github.com/eclipse/kura/>
- Join the discussion:
  - kura-dev mailing list
  - iot-dev mailing list
- Visit us at Booth #12