

Tweet for Beer! Beer Tap Powered by Java Goes Internet of Things and JavaFX - [CON2122]

Java end-to-end to pour some beer

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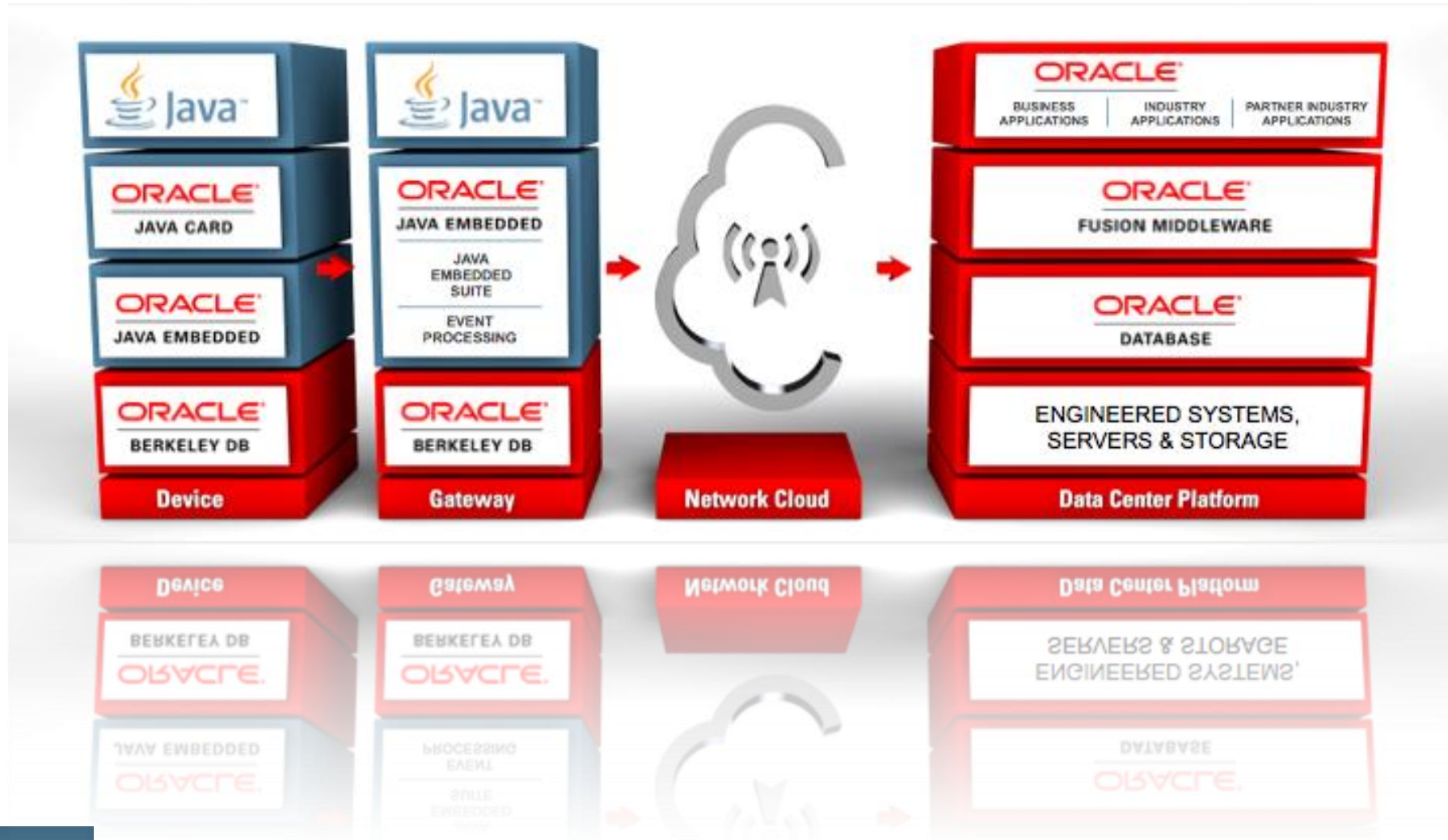


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Oracle's Internet of Things Platform – D2D



Java Solutions for Embedded Devices and IoT



Java ME

It's not about Mobile!

- From low-end to mid-range devices
- Devices from 130KB up to 32MB of RAM
- Applications with no graphical interface
- Microcontrollers, RTOS or minimal Operational Systems
- Wireless devices, smart metering, eHealth, IoT, M2M in general



Java SE Embedded

- The **same Java** that runs on your computer but optimized for embedded devices
- Mid-range to high-end devices
- Full compatibility with Java SE
- JavaFX support
- ARM v5/6/7
- ARM Cortex-A
- Your Java knowledge, now in embedded devices!



Java SE Embedded - JavaFX Support!

Hardware platforms for running JavaFX

- Reference Platform
 - BeagleBoard XM with PowerVR SGX530 GPU
- Also runs on
 - Raspberry Pi
 - Freescale iMX53 & IMX6 boards
 - PandaBoard



Real World Deployments



- RFID Readers
- Parking Meters
- Intelligent Power Module
- Wireless Modules

- Routers & Switches
- Storage Appliances
- Network Management Systems
- Factory Automation Systems
- Security Systems
- Smart Meters

- Multi Function Printers
- ATMs
- POS Systems
- In-Flight Entertainment Systems
- Electronic Voting Systems
- Medical Imaging Systems



Panasonic

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Comcast

PHILIPS



Canon

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Rockwell
Automation

The Java Tweet for Beer Project

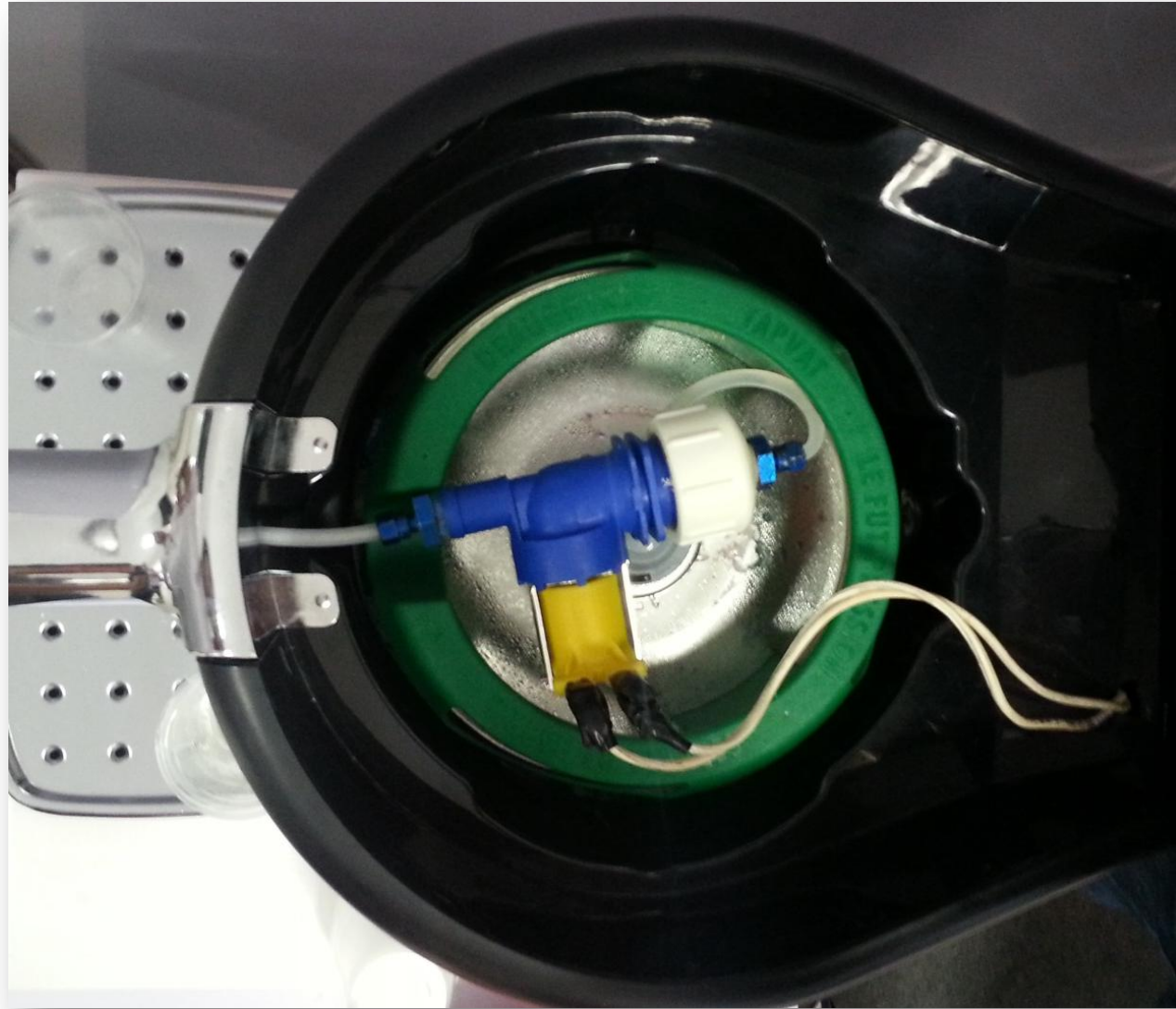


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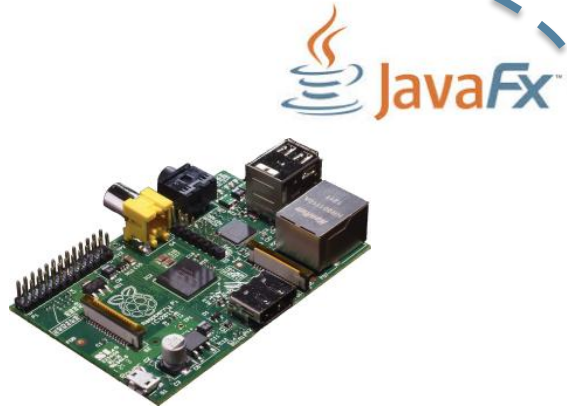


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ORACLE

 Java

Java Tweet for Beer

Publique no Twitter o texto abaixo para liberar o chopp! Use o QR Code para copiar o texto facilmente.



Ei #JavaBeer da @OracleOTNLA, me dá uma cerveja aqui no #TDC2014!
Meu ticket é: **173794**

[Reload Ticket](#)

* Utilize as hashtags #TDC2014, #JavaBeer, mencione @OracleOTNLA, e no final do texto coloque o código do ticket de 8 dígitos apresentado acima.



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Java Tweet for Beer

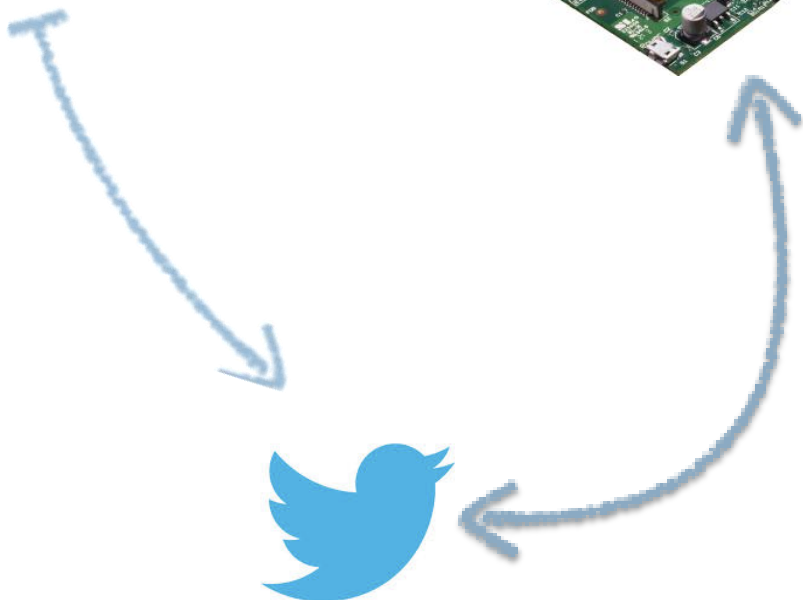
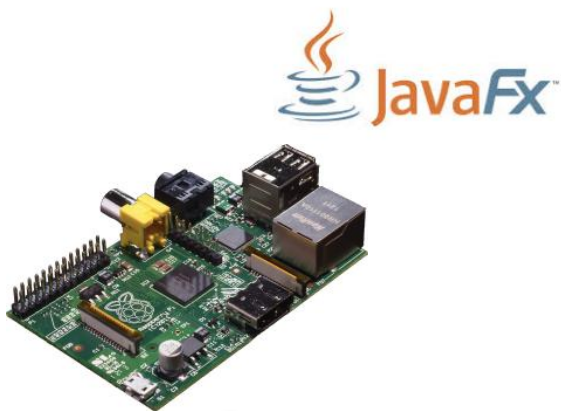
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Java Tweet for Beer

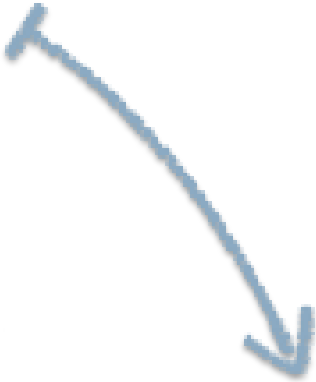
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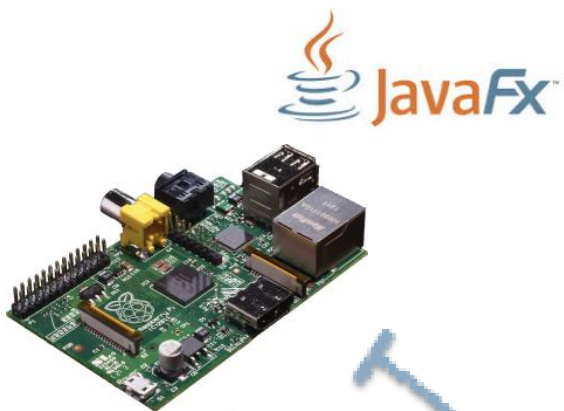


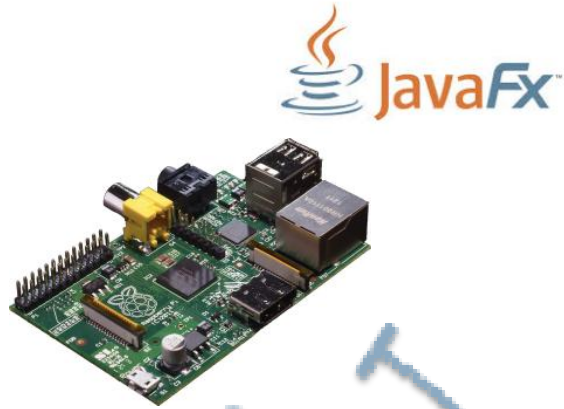
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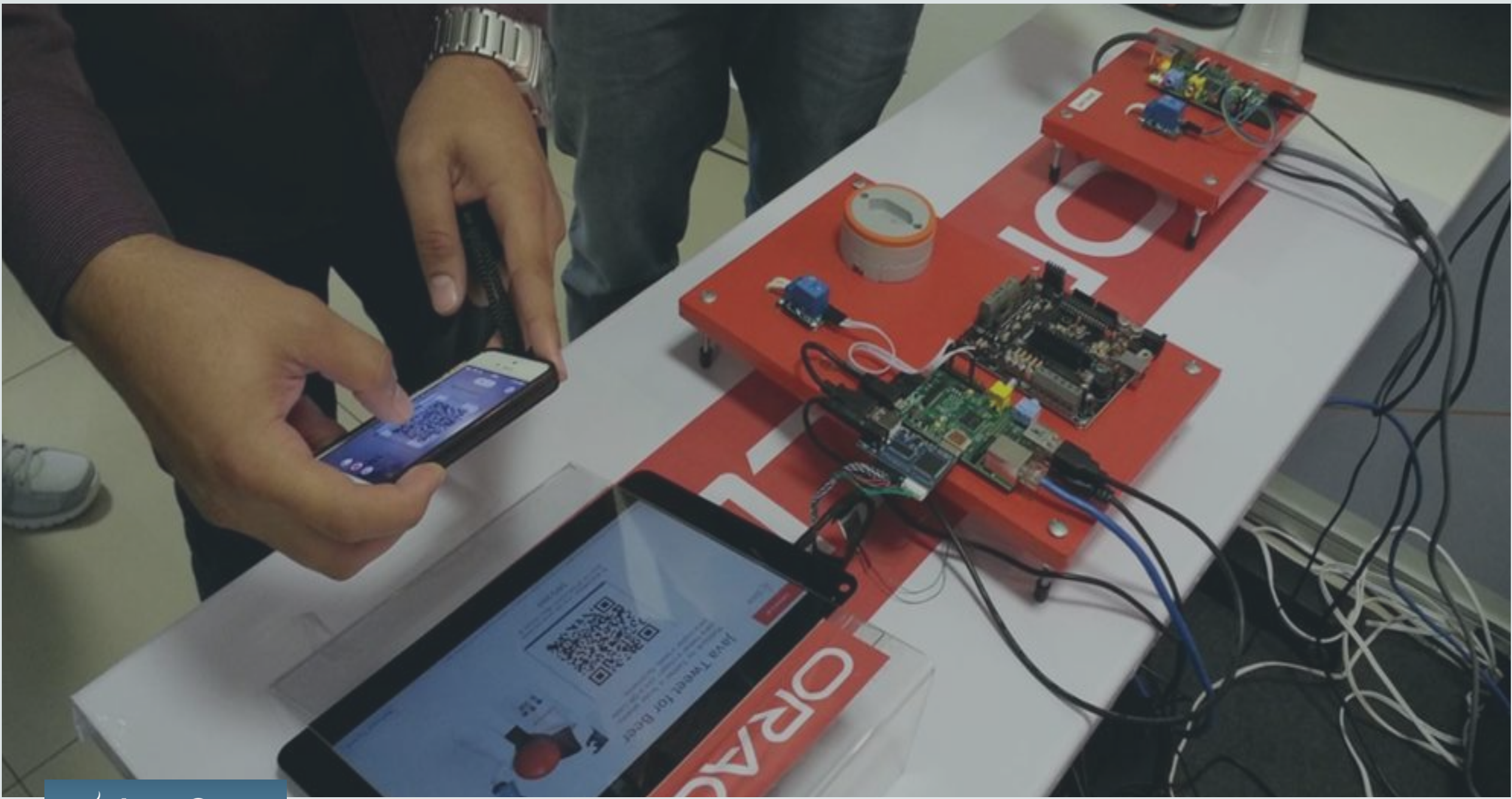








#FUUUUU





Show me the code

Token Generation – Simple Random!

```
protected void generateNewRandomTicket() {  
    Platform.runLater(() -> {  
        ticketProperty.set(  
            (int) (100000 + new Random().nextFloat() * 900000)  
        );  
    });  
}
```


Reading Twitter Stream with Apache Camel

```
from("twitter://streaming/filter?type=event&keywords=#TDC2014,#JavaBeer")  
    .process(e -> processarTweet(e.getIn().getBody(Status.class)))
```

Reading Twitter Stream with Apache Camel

```
public void processarTweet(Message in) {  
    Status status = in.getBody(Status.class);  
    String text = status.getText().toUpperCase().trim();  
    String currentTicket = ticketProperty.getValue().toString();  
  
    boolean containsHashtags = text.contains("#TDC2014")  
                                && text.contains("#JAVABEER");  
    boolean containsTicket = text.endsWith(currentTicket);  
    in.setBody(containsHashtags && containsTicket);  
}
```

Reading Twitter Stream with Apache Camel

```
from("twitter://streaming/filter?type=event&keywords=#TDC2014,#JavaBeer")  
  .process(e -> processarTweet(e.getIn().getBody(Status.class)))  
  .filter(body().isEqualTo(Boolean.TRUE))  
  .setBody(constant(null))  
  .to(URL_CHOPEIRA)  
  .process(e -> generateNewRandomTicket());
```



REST Service in the Oracle Java Cloud Service

Easily deploy Java EE Applications in the Cloud!

- A simple JAX-RS Service
 - POST command
 - Called by the JavaFX application (through Apache Camel) to turn a flag “TURNON” to true
 - GET command
 - Called by the Java headless application connected to a relay to read the state of TURNON information. When true, it will turn the relay ON for a few (pre-defined) seconds to fill the beer mug :-)

REST Service in the Oracle Java Cloud Service

```
@Path("turnon")
public class TurnonResource {
    @Context ServletContext servletContext;

    @PUT @Consumes("text/plain") @Produces("text/plain")
    public String putText(String cmd) {
        servletContext.setAttribute("TURNON", cmd);
        return "Received: " + cmd;
    }

    @GET @Produces("text/plain")
    public String getText() {
        String cmd = (String) servletContext.getAttribute("TURNON");
        servletContext.removeAttribute("TURNON");
        return cmd;
    }
}
```

Oracle Java Cloud Service

cloud.oracle.com

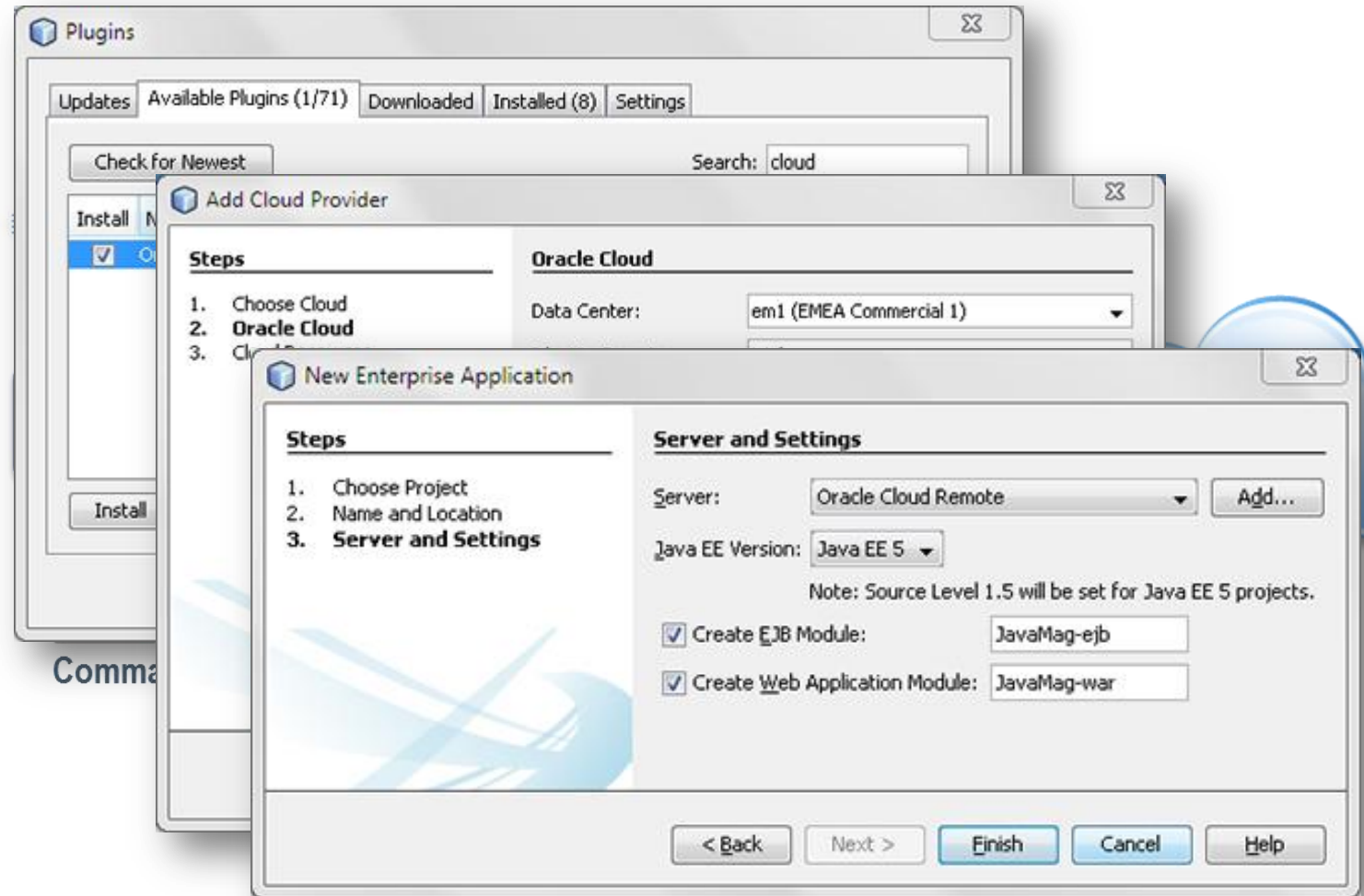
DEMO Dashboard



Oracle Java Cloud Service

Integrated IDEs

- Popular IDEs supported
- Plugins for Ant and Maven
- Oracle Java Cloud Service SDK available
- Deploy to the Cloud
- Visualize logs
- Visualize metrics



Turning On the Beer Tap with GPIO

Dumb loop connects to the Cloud

Don't do this at home

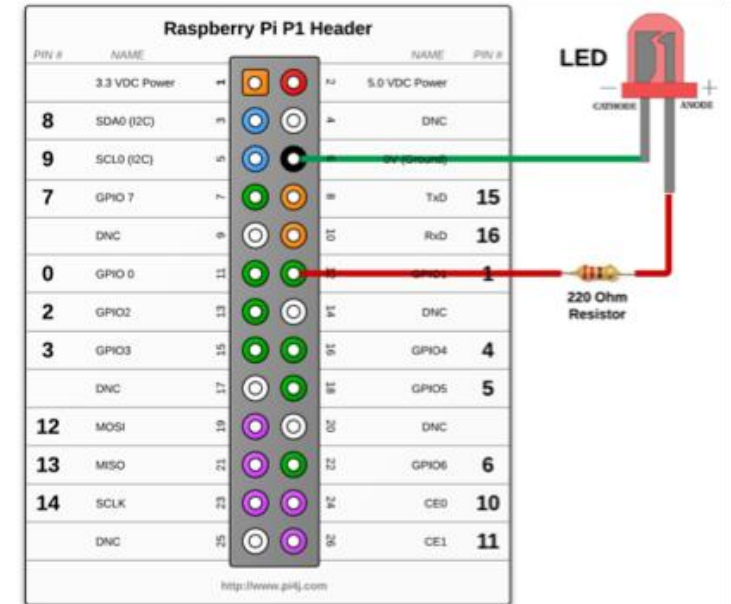
Java EE 7 – JAX-RS 2.0 Client API

```
public String readFromCloud() {  
    Client client = ClientBuilder.newClient();  
    WebTarget target = client.target(URL_CLOUD_REST_SERVICE);  
    String cmd = target.request().get(String.class);  
    return "true".equals(cmd) ? "1" : "0";  
}
```

Java GPIO on Raspberry Pi with pi4j

```
gpio = GpioFactory.getInstance();  
pin = gpio.provisionDigitalOutputPin(  
    RaspiPin.GPIO_05, "Chopp", PinState.LOW);
```

```
pin.high();  
Thread.sleep(duration);  
pin.low();  
gpio.shutdown();
```



Thank You!





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