Freescale Use of Java

Secure, Connected IoT

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External Use

Agenda

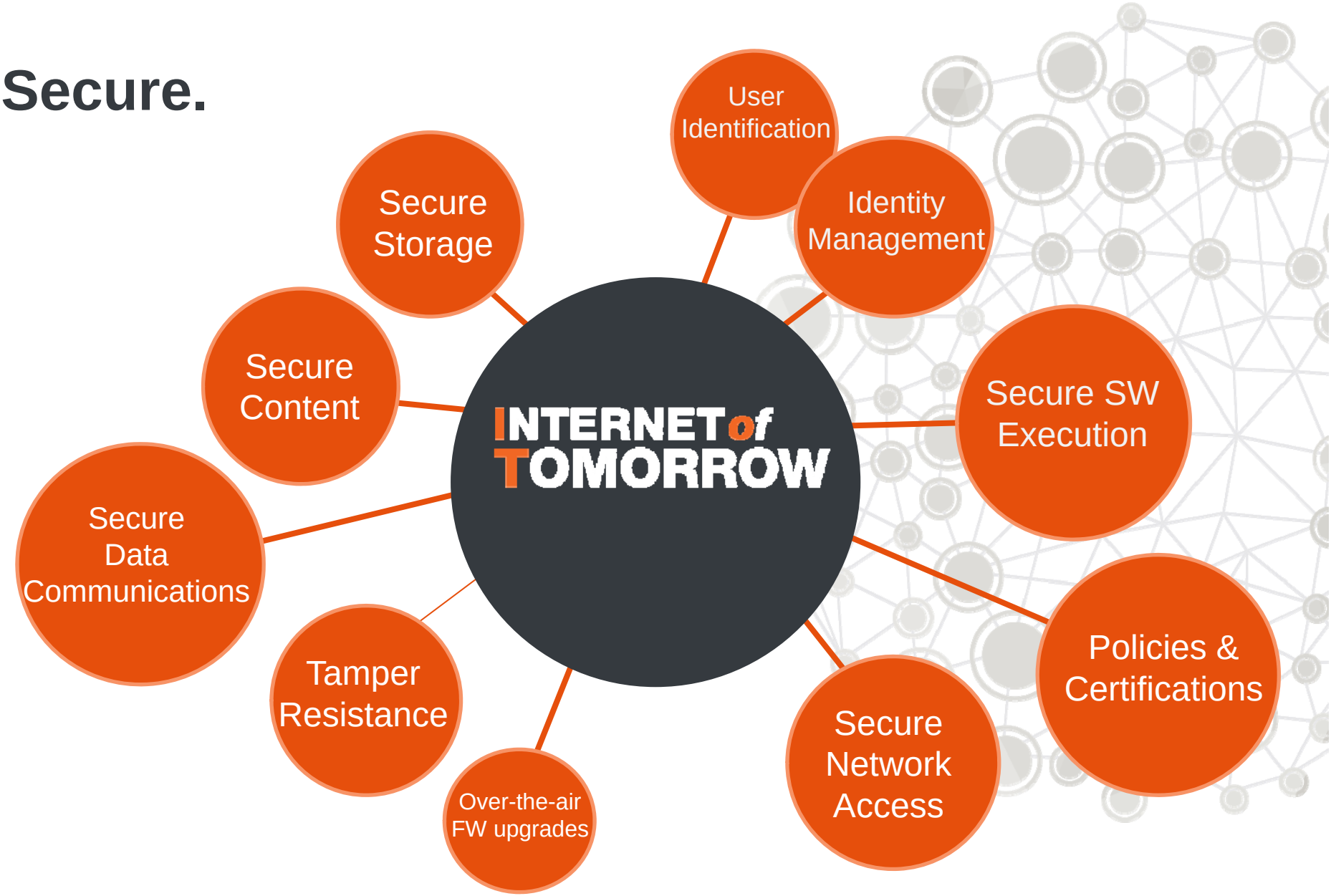
- **Freescale Vision – IoT**
- **Freescale – Edge Node Java Based**
- **Freescale – Gateway Java Based**

SECURE EMBEDDED PROCESSING SOLUTIONS

for the

INTERNET of TOMORROW

Secure.


User Identification
Secure Storage
Identity Management
Secure Content
INTERNET of TOMORROW
Secure SW Execution
Secure Data Communications
Policies & Certifications
Tamper Resistance
Secure Network Access
Over-the-air FW upgrades

Infrastructure of the IoT

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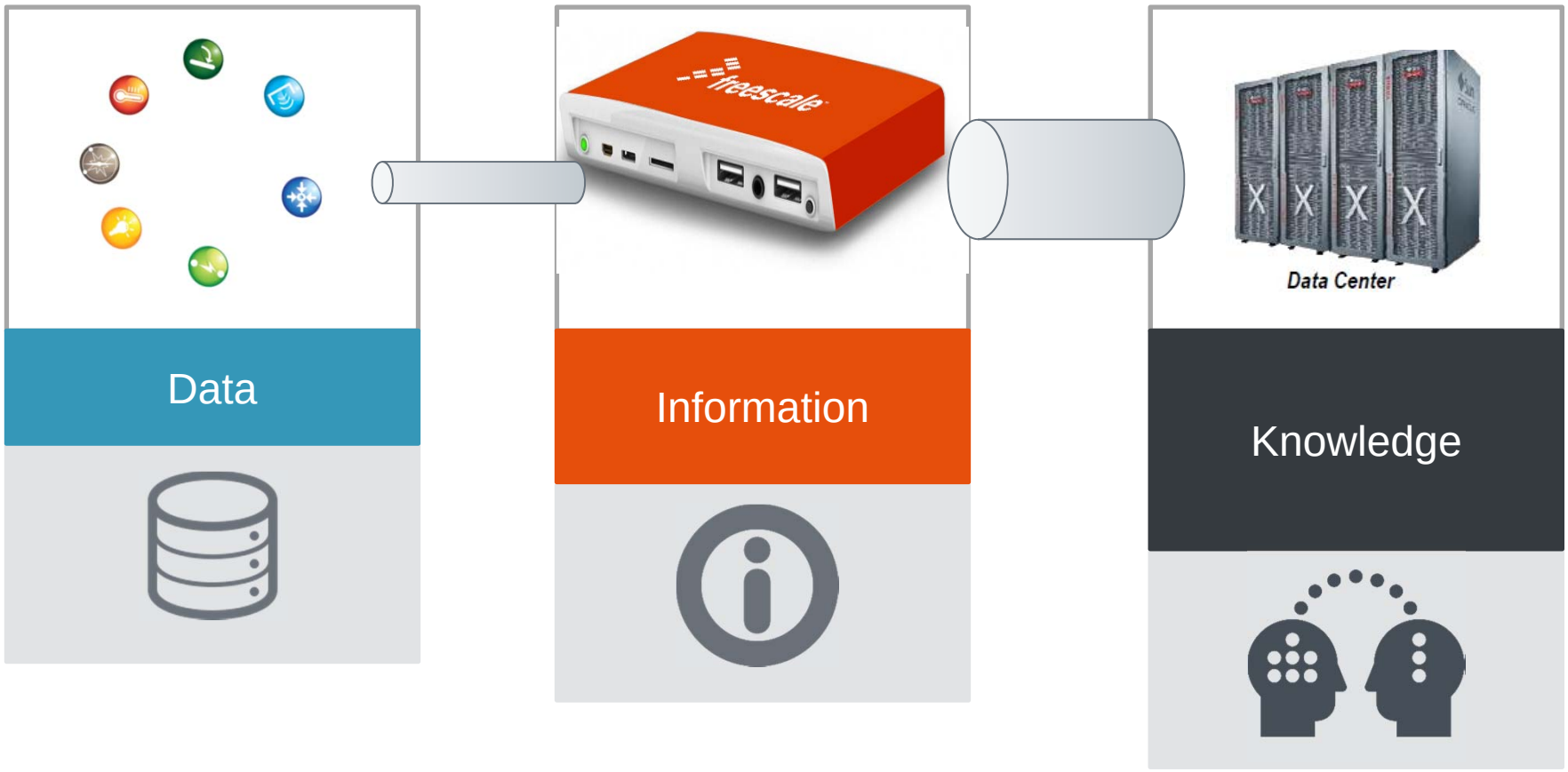
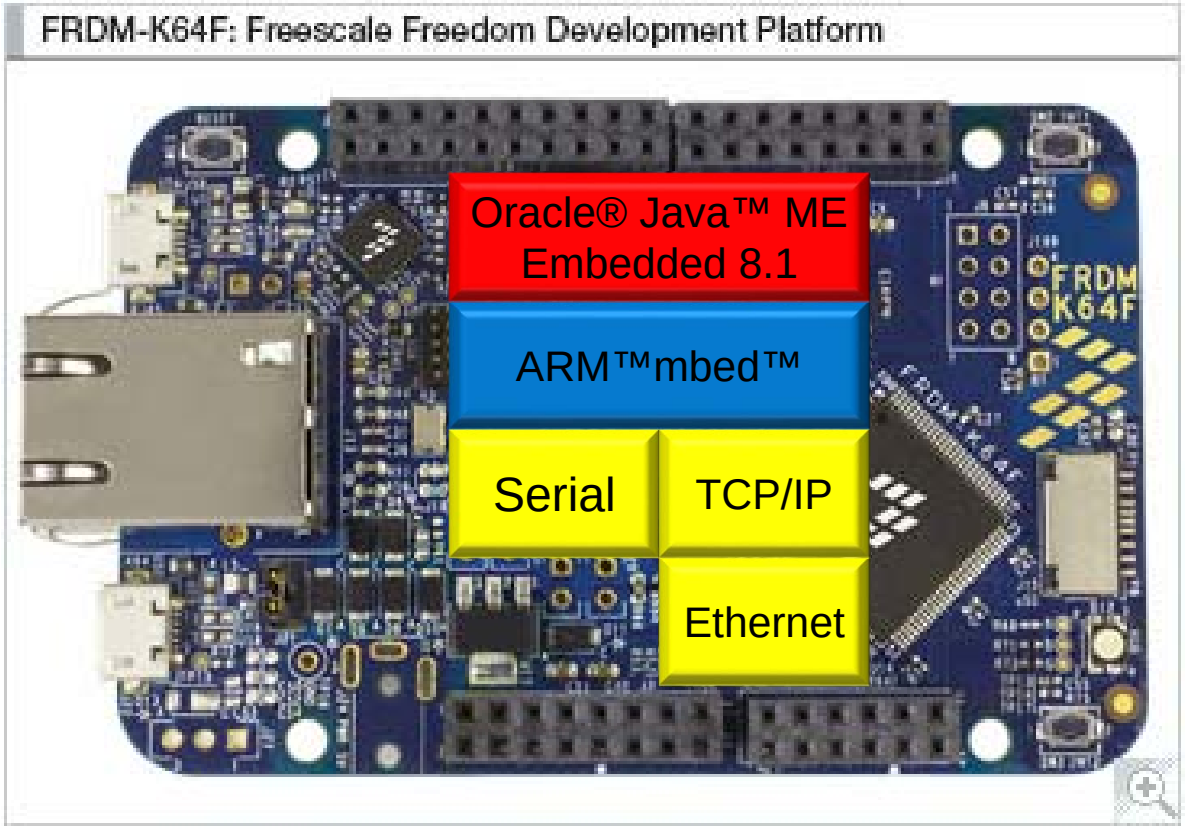
IoT: Data Flow



Available Online – Java ME 8.1 Developer Preview



Gateway Software Architecture

CLOUD

Mobile App

Web App
(running on the gateway)
(Eg: connected home, home health, etc)

Web REST API

Device Management Platform

Java SE

Java ME Sensor Node

- Accelerometer
- Light
- Temperature
- Ambient Light
- Touch

Java ME demo library
CoAP Java ME
Java ME Embedded

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IoT Concept: Software / Hardware Platform

HA1.2, SE1.x
ZLL
ZigBee PRO

FSL KW2x 2.4GHz
802.15.4
development platform

ARM
NanoService

Java ME

FSL IPv6 Stack
with 6LoWPAN

FSL KW2x 2.4GHz / KW01 Sub-Gig
802.15.4
development platform

ARM
NanoService

Java ME

FSL mBed™
development platform

Local Directory

OEP for Java Embedded

App / Web Servier

Data Communication Module

Java Apps/Service

Sensor Data

ZigBee Data

Wi-Fi Data

Bluetooth Data

JAVA Database

VLAN, DNS, IPS

Data Encryption
Open SSL, DTLS

FSL IoT Gateway Image

JAVA VM
(SE
Embedded)

MPU Yocto Linux BSP
Software Drivers

ZigBee Pro | ZigBee IP | Bluetooth 4.0 | Gb Enet | Wi-Fi

ARM Sensinode NanoServices

USB2.0 | USB2.0 | USB2.0 | GMII | SDIO | Micro-SD

USB ThinkEco | USB KW2x | USB KW01 | Gb PHY | SDIO WiFi | 8 GB Flash

ARM

ORACLE

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Solutions

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Yocto Linux

PHY Interface

Inside Box Modules

FSL MPU Board Design

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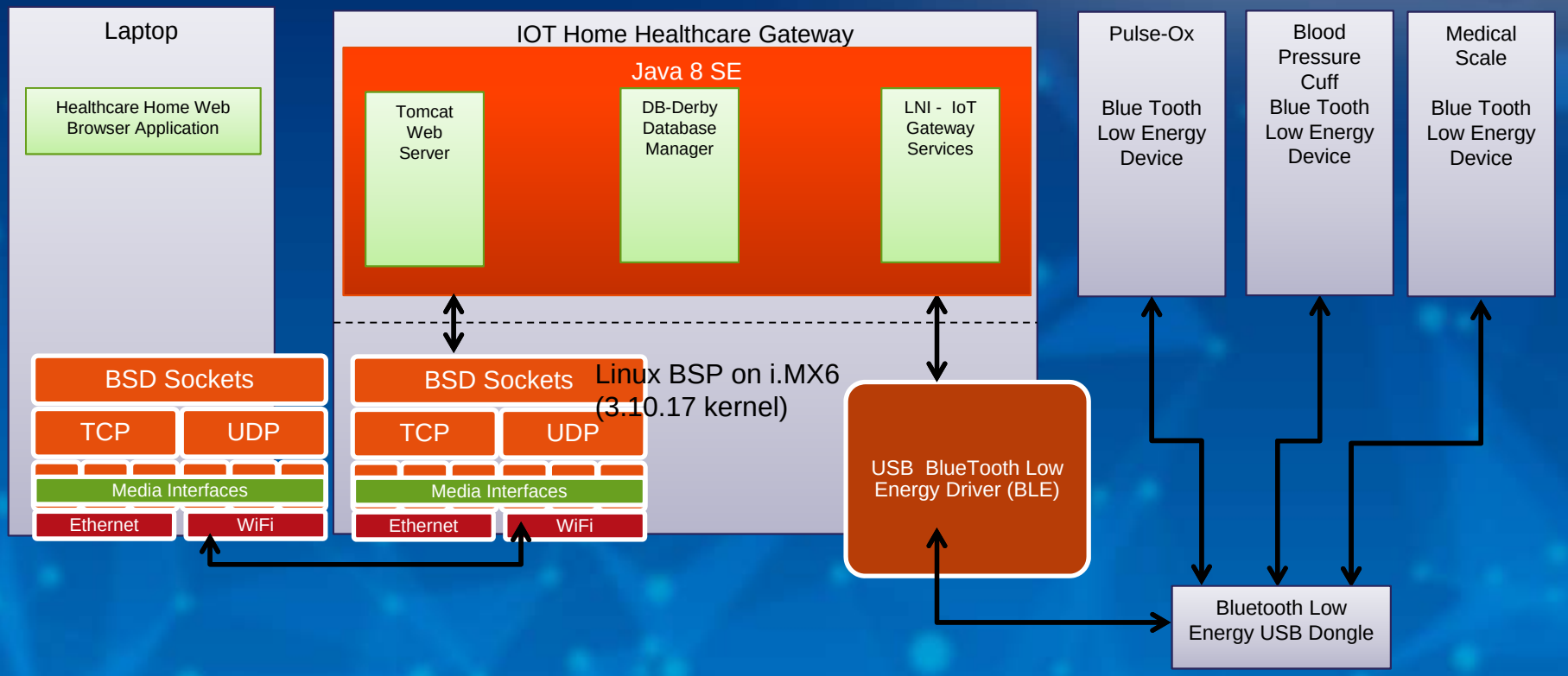
Prototype Implementation of i.MX6 IoT Healthcare Gateway



Evolution of Java for IoT

Java ME 8: What it does it mean to the IoT developer community?

Convergence of ME and SE API's

- Maximize code reuse across devices with varying capabilities

Compact Profiles enable Java to run on resource-constrained devices

- ~1/3 reduction in runtime footprint from previous Java version
- Connected Limited Device Configuration provides configurability and many new features for embedded applications

Lambda expressions allows easy leverage of multi-cores

Java ME 8 security domains – support for device- and client- specific security policies

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