Eliot Blueprint (Enterprise-edge Lightweight & IoT)

DRAFT 2
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Focus on Akraino community’s “Use Case 2”

Use Case 2: IOT Driving the New Edge for Enterprise
Retail, Transportation, Healthcare...

Cloud Automation
Retail

Network Automation
Hospitality

IOT Automation
Healthcare

Manufacturing

Transportation & Logistics

Enterprises

Public Buildings

Enterprise & Data Centers

“Southbound” Devices, Sensors and Actuators
Where on the edge?

- Two main use cases
  - Enterprise edge lightweight, e.g. uCPEs
  - IoT gateways
- The control/management entity can be anywhere in the cloud, including edge of the network or cloud.

Photo thanks to Michael Howard of IHS.
Edge use case #2

Blueprint family: “Eliot”
- IoT gateway
- Enterprise-edge lightweight

Blueprint species 1: Eliot A (IoT)

IoT GW hardware choices

Blueprint species 2: Eliot B (EL)

EL hardware choices
Use Case A: IOT Gateway

- **Device Controller**
- **IOT Terminal**
- **IOT Terminal**
- **RS485/PLC/RF/Zigbee**
- **ETH/LTE**
- **Lightweight OS**
- **ARM32/ARM64/X86**
- **JVM**
- **Container Open Environment**
  - **Industry APP**
  - **SDK (Base Image + Build Tools + API + Docs)**
- **User/Application Developer**
- **Custom Cloud Server**
  - **Application**
  - **Device Manager**
  - **Device Controller**
  - **IOT Terminal**
  - **IOT Terminal**
  - **Custom Cloud Server**
  - **Application**
  - **User/Application Developer**
  - **SDK (Base Image + Build Tools + API + Docs)**
Use Case B: SD WAN (uCPE)
Akraino lightweight blueprint – Eliot - for Enterprise edge, lightweight and IoT

Cloud services

On-Cloud or On-EdgeCloud Services

- Node resource mgr (CRD)
- Network controller

Developers tool sets

- Data driven services
- Automated testing & testbeds
- CI/CD

Related upstream projects

- EdgeX, vFW, vRouter…
- Container Runtime, Clover, Kubernetes, cncf
- Upstream OS: ThinOS/CentOS/Fedora, Ubuntu Core
- ARM, x86, hardware, I/O

Gateway node

On-board Services

- Container Microservices Environment
- "Light Kubelet"
- Netconf/ yang

Lightweight OS

A: X86/ARM32/64
- Gateway/cpe
- RAM: ~256MB-4GB
- Disk: ~GB
- WAN+LAN+FAN I/F

B: X86/ARM32/64
- Server/appliance
- RAM: >16GB
- Disk: ~TB
- WAN+LAN I/F

Reuse Clover/OPNFV, K8S, CNCF etc.

Akraino lightweight blueprint – Eliot - for Enterprise edge, lightweight and IoT

sensors

devices
Hardware selections

- Any hardware that meet the minimum requirements
  - For developers and user community: virtual machines
  - For developers and user community: widely available enthusiast’s favorites: RPi
  - For deployable choices
    - ARM family based
    - x86 family based
    - GPU, and other accelerators

- The management software requires cloud services (private or public), e.g. Akraino network edge blueprints

for example:
Labs

» 2 types of labs may be enabled for Eliot

» Centralized lab location: all physical gateways reside in a shared lab

» Distributed lab locations: physical gateways can reside in different admin domains as long as secure tunnel is enabled
  - Allows anyone to be integrated into the virtual lab
Eliot Blueprint creation documentation in progress

› Template 1 - Use case template
› Template 2 - Blueprint family template
› Template 3 - Blueprint species template
› Blueprint Draft Doc
Eliot project planning

› **Community and Project Planning dates**
  » November 5-6, online Zoom workshop, initial proposal
  » December 6-7: F2F meeting, location Santa Clara, CA, Eliot project workshop, demo
  » December 10-13: KubeCon Seattle

› **First release: depends on Akraino community planning, but we suggest e.g. end of Q1 2019.**
  » end of March, 2019

› **Welcoming contributors**
  » arm based systems, x86 based systems, sensors/devices
  » operating systems, containers, run times
  » middleware, SDN controllers, VNFs, e.g. EdgeX, Tungsten Fabric, smart video
  » sample applications
  » CI/CD
  » testing, validation, labs, …

  » And ...
Thank you

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