Intro to Edge Computing/IOx App Hosting

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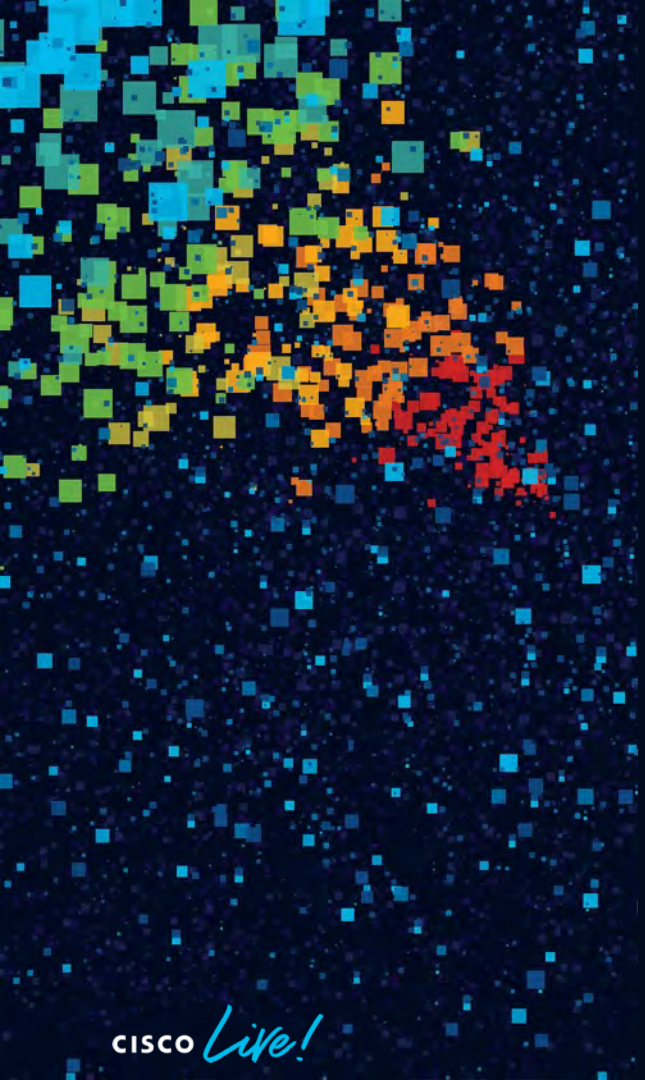
@ShwetaPalande

#DevNetDay

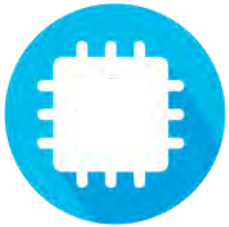


Agenda

- What is Edge Compute?
- Where is it used in reality?
- What is Cisco IOx?
- Application hosting
- Use cases
- Call to Action!

What is Edge Compute?

Edge Compute
What it is?



Sensors & Devices

Edge

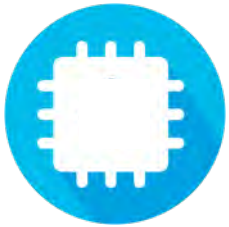
Fog

Cloud / Data Center

- Sensing
- Intelligent ?

Computing

Scenario: Gateway



Sensors & Devices

Edge

Fog

Cloud / Data Center

Any devices

Gateway

Application/ Database

Edge Compute
Why it Matters?

Safety
react fast in emergency Situations

Data Protection
confidential Data remains On-site

Bandwidth
low-bandwidth Usage

Latency
low latency and faster Response Time

Always-on Connectivity
independent of Cloud Connectivity

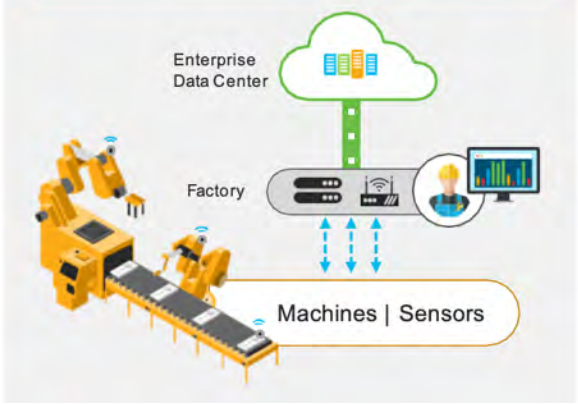
Connecting Heterogeneous Systems
collecting data from heterogeneous Systems to an open normalized Network

Critical Use Cases

Roadway

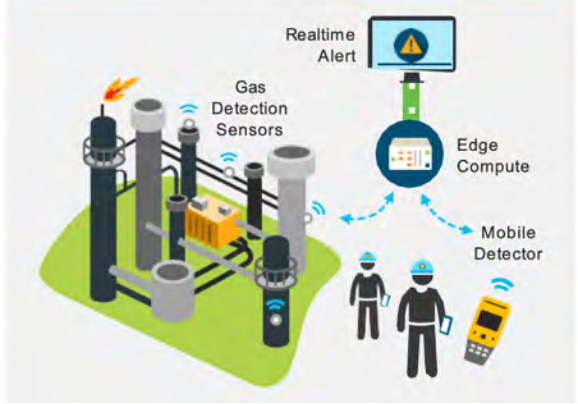
- Process vehicles and roadway sensor data for real-time response at the edge without backhaul dependency

Manufacturing



- Consume machine/sensor data at edge by factory manager analysis and operator dashboard

Oil & Gas

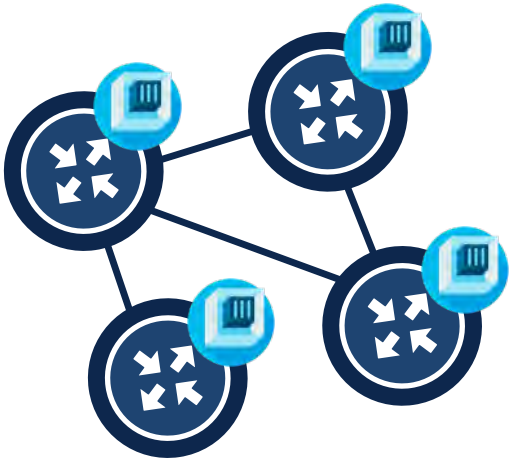


- Process sensor data at edge for real-time alert for safety and process compliance

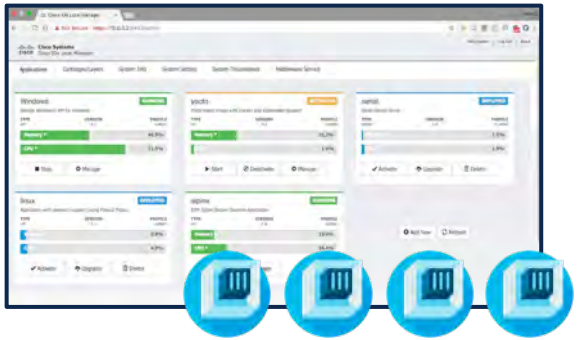
What's IOx?

Cisco IOx = IOs + linuX

Cisco IOx is an Application Management Framework that allows you to execute IoT Applications on the Edge.

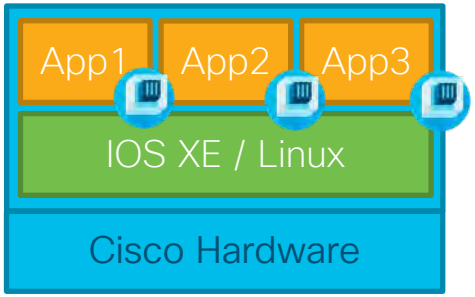


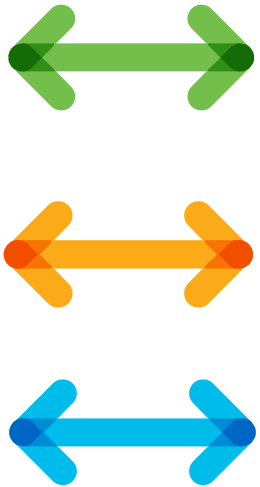
IOx enabled Cisco Networking Devices

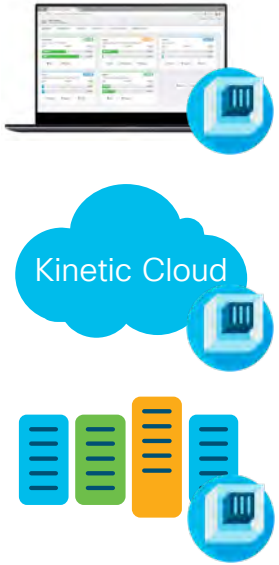


Application Management Interface & API

IOx Management Options







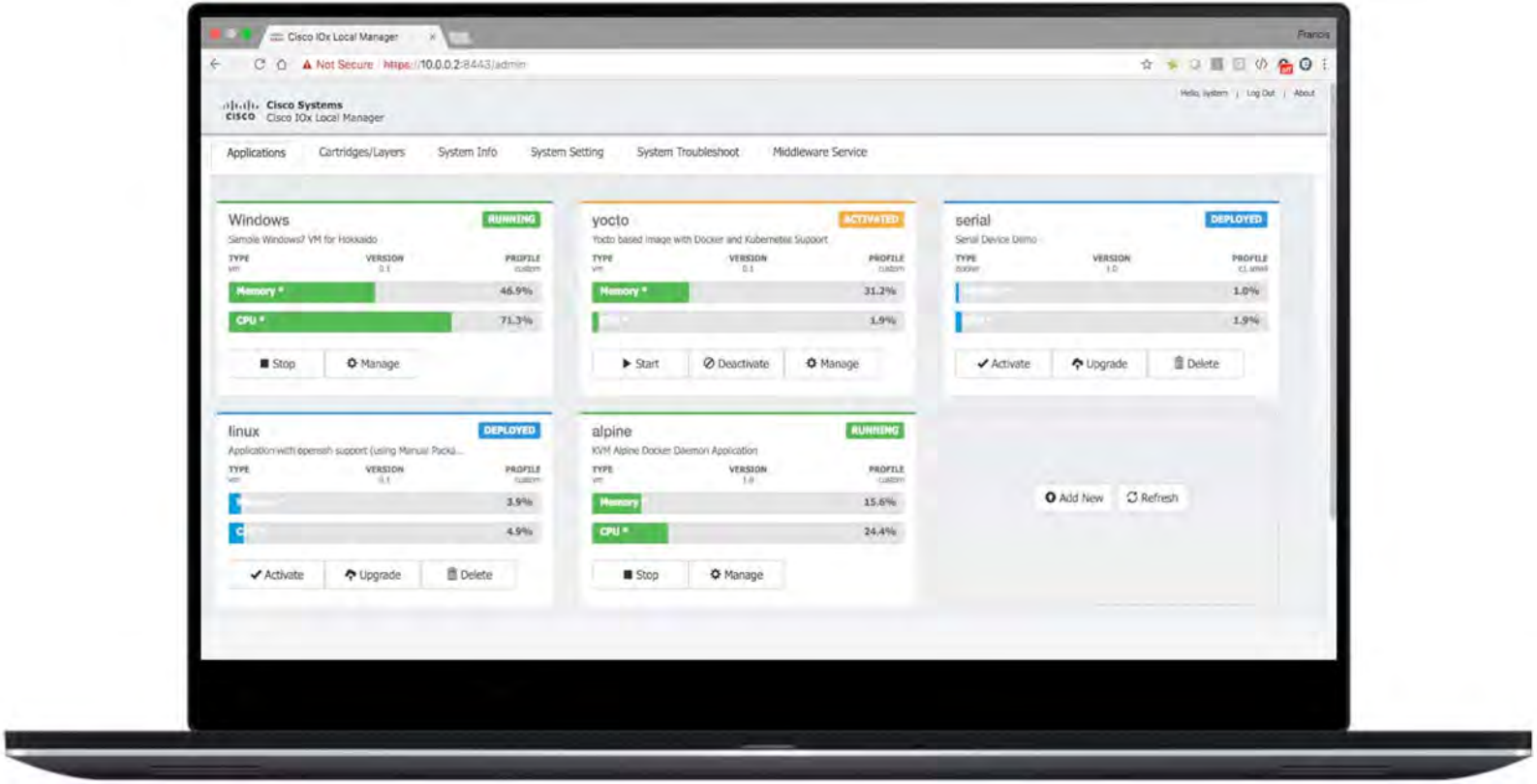
Local: Local Manager

Cloud: Kinetic Gateway Management Module

On-Premise: Field Network Director

On-Premise: DNA Center

IOx Local Manager – Graphical User Interface!



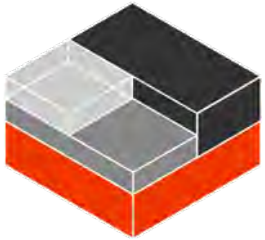
Ioxclient – Command Line Tool!

Easy to use CLI to perform most common operations

```
root@37f85e1027c8:~# ioxclient --help
NAME:
   ioxclient - Command line tool to assist in app development for Cisco IOx platforms

USAGE:
   ioxclient [global options] command [command options] [arguments...]

VERSION:
   1.9.2.0

AUTHOR:
  Cisco Systems - <iox-support@cisco.com>

COMMANDS:
   debug, dbg           Set debug to on or off
   errorcodes, err      Get ioxclient error code to description map in JSON format
   showguide, guide     View ioxclient reference guide
   application, app     Manage lifecycle of applications
   service, svc         Manage lifecycle of services
   package, pkg         Package an iox application/service/cartridge. Produces an IOx compatible archive
   platform, plt        Manage IOx platform
   cartridge, cr        Create/Delete/List cartridges
   fogportal, fogp      FogPortal operations
   profiles, pr         Profile related commands
   vm, vm               Command for using Virtual Machine tools for IOx app development
   docker, dkr          Commands for using docker tools for IOx app development
   layer, lr            Manage lifecycle of application layers
   show, sh             Show Smart License information
   license, lic         Execute licensing commands
   call-home, call      Set destination address for Smart License callhome
   help, h              Shows a list of commands or help for one command

GLOBAL OPTIONS:
   --profile                    Override the profile to be used for the current command
   --non-interactive-mode       execute the command in non-interactive mode
   --help, -h                   show help
   --generate-bash-completion
   --version, -v                print the version
```

Application hosting

Application Hosting Options



Docker

- Native Docker Runtime
- Directly portable

LXC

- LXC Runtime
- Docker Build process supported

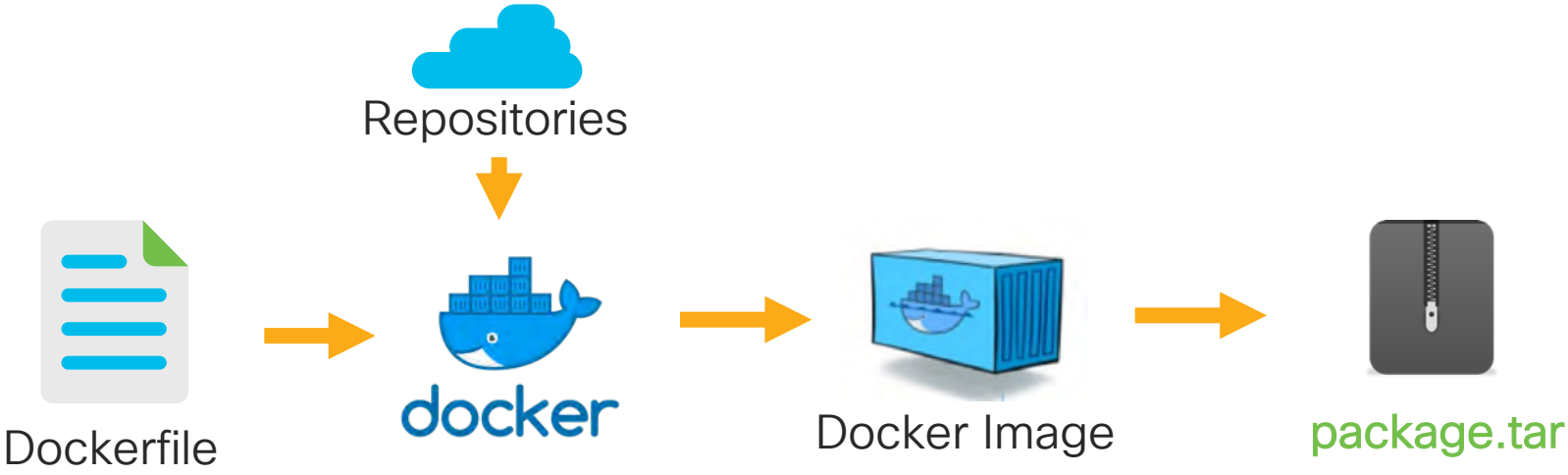
KVM

- Virtual Machines

Hypervisors

- Performance is important
- Not supported on IOx network devices (only with UCS-E)

Docker Style



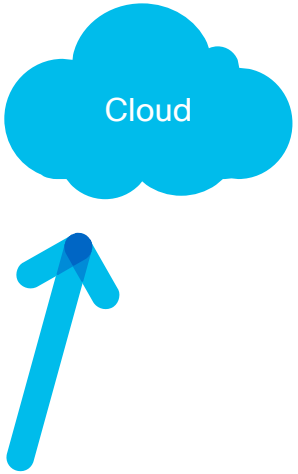
Iox Use Cases

Cisco IOx Applications

Cyber Vision Center

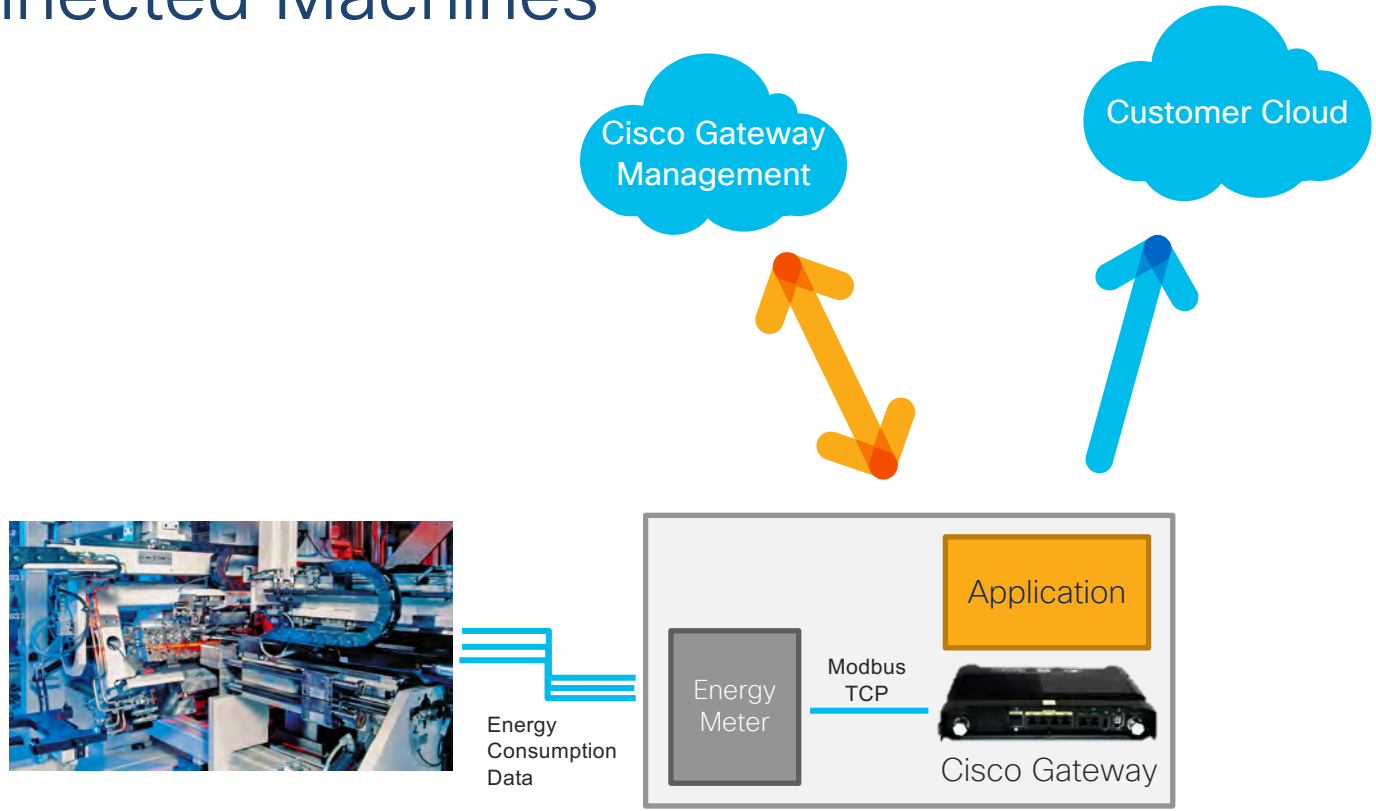
Centralized Analytics & Data Visualization

Cyber Vision IOx Application

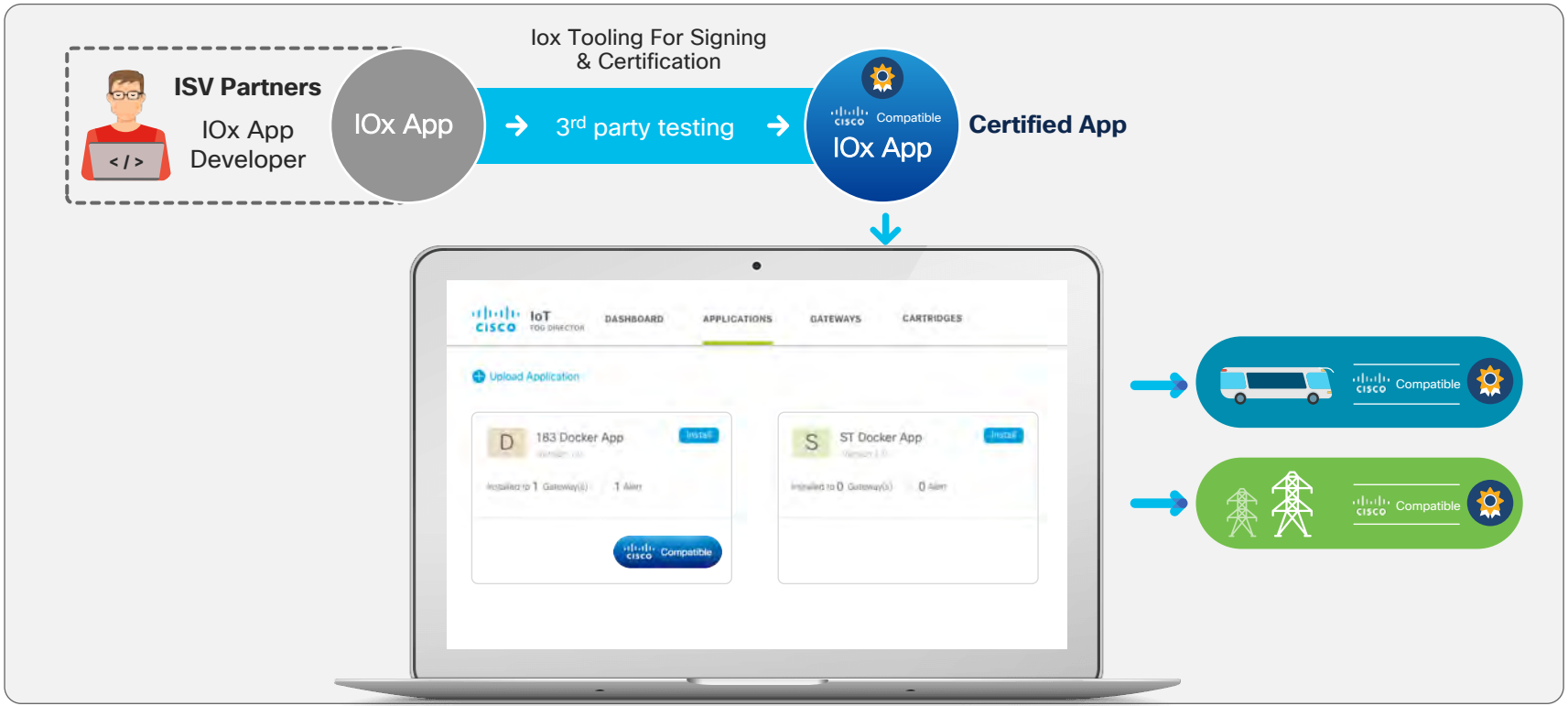


Cisco Edge Intelligence

Connected Machines



IOx Interoperability Verification Testing (IVT)



Call To Action!

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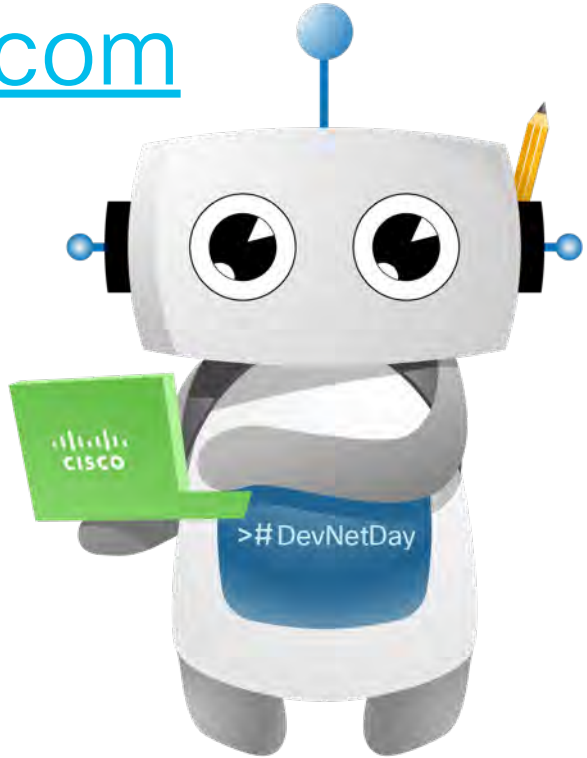
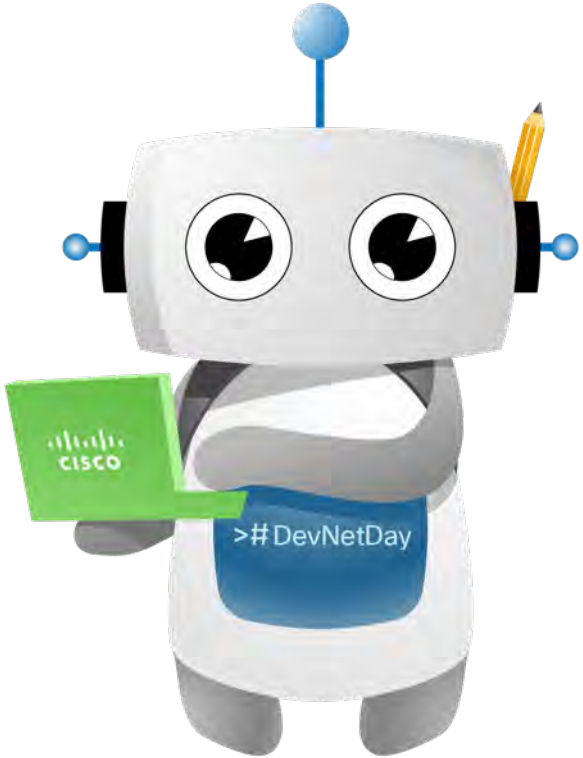
- Reserve FREE Sandbox Environments
  https://developer.cisco.com/site/sandbox/



Explore More

- https://developer.cisco.com/site/iox/ - Iox
- https://www.cisco.com/c/en/us/solutions/internet-of-things/edge-intelligence.html
  - Cisco Edge Intelligence



Thank you

Possibilities

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