

ELIOT Release 2 - IoT Gateway Test Document

Introduction

This document covers Test Deployment Environment and Test Case Result for ELIOT IoT Gateway Blueprint.

The number of nodes in the ELIOT Cluster remains same as Release 1.0 ; one virtual machine node for ELIOT Manager and one Virtual Node for ELIOT Edge Node (IoT Gateway)

The changes include testing of the new software included in the ELIOT Platform Stack.

Akarino Test Group Information

Not Applicable

Overall Test Architecture

ELIOT Cluster Number of Nodes remains same as Release 1.0

- One Node for ELIOT Manager.
- One Node for ELIOT Edge Node.

Both the nodes are running on Virtual Machine.

In Release 1.0 the Test Environments were :-

- ELIOT Cluster with Kubernetes on Ubuntu OS.
- ELIOT Cluster with KubeEdge on Ubuntu OS

In Release 2.0 the Test Environments are :-

- ELIOT Cluster with Kubernetes + EdgeX Platform on Ubuntu OS.
- ELIOT Cluster with Kubernetes + OPC-UA on Tailored OS
- ELIOT Cluster with KubeEdge on Cent OS

Traffic Generator

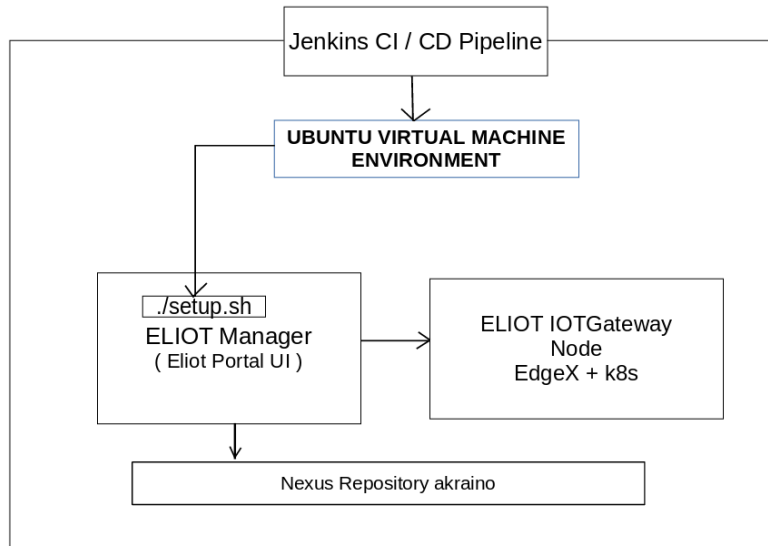
N/A

Test API description

Some test cases are re-used from Release 1.0 . Test cases are marked as *inherited from Release 1.0* and *New Test Cases*.

1. Deployment Type 1 Test Environment

ELIOT Cluster with Kubernetes + EdgeX Platform on Ubuntu OS



1.1 ELIOT Platform Test

Test Case 1: NGINX deployment verification.

(Inherited from Release 1.0)

Test inputs:

Execute the bootstrap script to setup the ELIOT platform. The bootstrap script internally invokes verifyk8s.sh script. verifyk8s.sh script check if the nginx pod is deployed and running in the ELIOT Cluster. If not returns non zero value.

Test Procedure

The setup.sh script will deploy nginx pod in the ELIOT Edge Node after Kubernetes Installation.

Manual Check : execute kubectl get pods

Expected output

It will check nginx deployment and result the details in the log. If the nginx pod is not in running state after 10 retry setup.sh script will return value 1.

(CI Job fails if the return value is 1)

Test Results

```

root@akraino-slave-0001:~# kubectl get pods
NAME READY STATUS RESTARTS AGE
nginx-deployment-74d48dbfb8-kvx9q 1/1 Running 0 18h
  
```

Test Case 2 : Test Kubernetes cluster, EdgeX Platform Check.

(New Test Case)

Test Input :

Execute the bootstrap script to setup the ELIOT Platform.

Test Procedure:

```

root@akraino-slave-001:~# cd eliot/blueprints/iotgateway/script
root@akraino-slave-001:~# source setup.sh
root@akraino-slave-0001:~# kubectl get nodes
NAME                STATUS ROLES AGE VERSION
  
```

```
akraino-slave-0001   Ready   master   18h   v1.16.0
akraino-slave-0002   Ready   <none>    18h   v1.16.0
```

```
root@akraino-slave-0001:~# kubectl get pods -o wide
```

NAME	NODE	READY NOMINATED	STATUS NODE READINESS GATES	RESTARTS	AGE	IP
edgex-config-seed /1 0002	Completed <none>	0	0 26h	192.168.53.74	akraino-slave-	
edgex-core-command-5fb859467f-dkbkw /1 0002	Running <none>	1 0	26h	192.168.53.69	akraino-slave-	
edgex-core-consul-5b6b5c7567-jlpqz /1 0002	Running <none>	1 0	26h	192.168.53.76	akraino-slave-	
edgex-core-data-67b9677944-zp7tt /1 0002	Running <none>	1 0	26h	192.168.53.72	akraino-slave-	
edgex-core-metadata-57f7fb45f8-nzsgq /1 0002	Running <none>	1 0	26h	192.168.53.73	akraino-slave-	
edgex-device-virtual-59674ffc4c-vrz7b /1 0002	Running <none>	1 1	26h	192.168.53.77	akraino-slave-	
edgex-export-client-578c48cc87-m92nl /1 0003	Running <none>	1 0	26h	192.168.53.70	akraino-slave-	
edgex-export-distro-66c679875d-2hnb2 /1 0003	Running <none>	1 0	26h	192.168.53.71	akraino-slave-	
edgex-mongo-676d599f54-kzp87 /1 0003	Running <none>	1 0	26h	192.168.53.80	akraino-slave-	
edgex-support-logging-696ff8d9fc-5hbn2 /1 0003	Running <none>	1 0	26h	192.168.53.81	akraino-slave-	
edgex-support-notifications-86577b7b57-7xwsc /1 0003	Running <none>	1 0	26h	192.168.53.75	akraino-slave-	
edgex-support-rulesengine-6b5765d57f-q8bf8 /1 0003	Running <none>	1 1	26h	192.168.53.79	akraino-slave-	
edgex-support-scheduler-bc8f4fd6-42bbj /1 0003	Running <none>	1 0	26h	192.168.53.78	akraino-slave-	

CI/CD Logs:

Nexus Repo Path:-

<https://nexus.akraino.org/content/sites/logs/huawei/blueprints/iotgateway/job/eliot-iotgateway-deploy-k8s-virtual-daily-master/221/>

1.2 Conformance Test:

(New Test Case)

Test Execution Step :

Blu-Val Validation test suite Kubernetes conformance test case is executed on ELIOT Platform

Test Result :

All Test cases are passed.

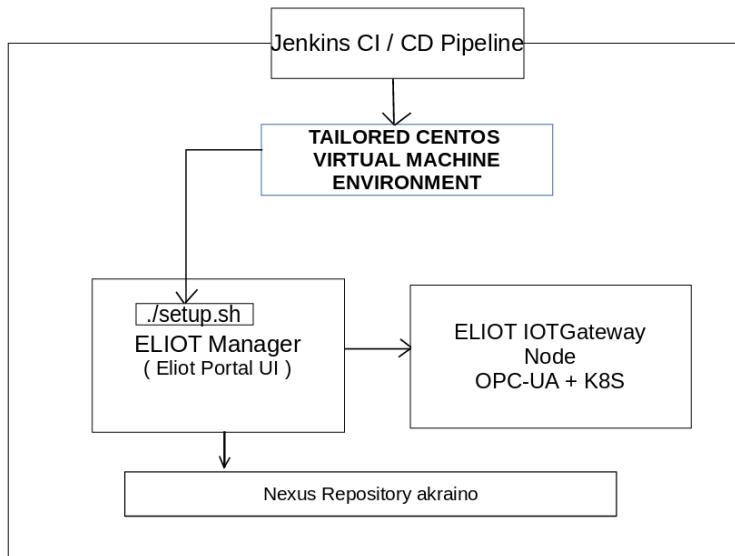
CI / CD Logs

Logs are pushed in nexus repo:-

<https://nexus.akraino.org/content/sites/logs/huawei/blu-val/job/eliot-deploy-virtual-daily-master-validation/13/>

2. Deployment Type 2 Test Environment

ELIOT Cluster with Kubernetes + OPC-UA on Tailored OS.



2.1 ELIOT Platform Test

Test Case : Test Kubernetes cluster & OPC-UA Platform Check.

(Inherited from Release 1.0)

Test Input :

Execute the bootstrap script to setup the ELIOT Platform

Test Procedure:

```
root@akraino-slave-001:~# cd eliot/blueprints/iotgateway/script
```

```
root@akraino-slave-001:~# source setup.sh
```

```
root@akraino-slave-001:~# kubectl get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
akraino-slave-0001	Ready	master	18h	v1.16.0
akraino-slave-0002	Ready	<none>	18h	v1.16.0

OPC-UA Platform successful installation is integrated in the setup.sh. Console log will record the successful installation message, same is recorded in nexus repo, path is shared in CI/CD Log section.

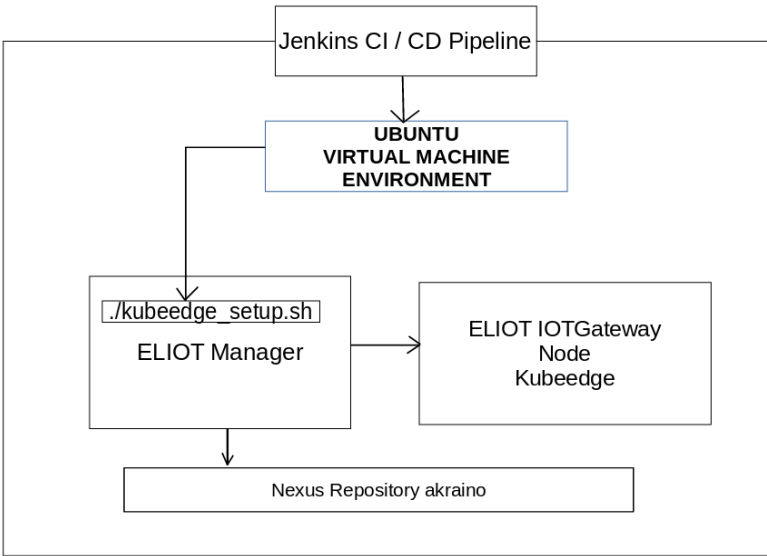
CI/CD Logs:

Nexus Repository URL :

<https://nexus.akraino.org/content/sites/logs/huawei/blueprints/iotgateway/job/eliot-deploy-iotgateway-minimal-os-virtual-daily-master/65/>

3. Deployment Type 3 Test Environment

ELIOT Deployment with KubeEdge on CentOS .



3.1 ELIOT Platform Test

Test Case : Test KubeEdge Deployment.

Test Input :

Execute the kubeedge setup script kubeedge_setup.sh script to setup the ELIOT Platform with KubeEdge

Test Procedure:

There is no test script for this deployment, only Manual Testing

Manual Test Steps:

- 1. After the kubeedge_setup.sh script execution is complete check in the ELIOT Manager whether edgecontroller process status.

ps -eaf | grep edgecontroller

- 2. In ELIOT Edge Node check if edge_core process status.

ps -eaf | grep edge_core

CI/CD Logs:

Nexus Repository URL :

<https://nexus.akraino.org/content/sites/logs/huawei/blueprints/iotgateway/job/eliot-deploy-kubeedge-ubuntu-virtual-daily-master/12/>

Blueprint extension tests

Not Applicable

Feature Project Tests

Not applicable

Test Dashboards

Single pane view of how the test score looks like for the Blue print.

Total Tests	Test Executed	Pass	Fail	In Progress
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3	3	3	0	0
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Additional Testing

N/A

Bottlenecks/Errata

N/A