How to Access EdgeX Micro Services running on Kubernetes

Michaelestrin has done an excellent job of creating yaml files for deploying EdgeX on Kubernetes. However when we run Edgex on Kubernetes, we can no longer access the services as described in "https://docs.edgexfoundry.org/Ch-GettingStartedUsers.html".

We need to use either Kubernetes Ingress and Ingress controller or expose the port so that we can access the services from browser. If the device code is not running as Kubernetes PODs, it will not be able to connect to the Edgex platform either.

EdgeX Foundry Microservice	Docker Compose Container	Container Name	Port	Ping URL
Core Command	command	edgex-core-command	48082	http://[host]:48082/api/v1/ping
Core Data	data	edgex-core-data	48080	http://[host]:48080/api/v1/ping
Core Metadata	metadata	edgex-core-metadata	48081	http://[host]:48081/api/v1/ping
Export Client	export-client	edgex-export-client	48071	http://[host]:48071/api/v1/ping
Export Distribution	export-distro	edgex-export-distro	48070	http://[host]:48070/api/v1/ping
Rules Engine	rulesengine	edgex-support-rulesengine	48075	http://[host]:48075/api/v1/ping
Support Logging	logging	edgex-support-logging	48061	http://[host]:48061/api/v1/ping
Support Notifications	notifications	edgex-support-notifications	48060	http://[host]:48060/api/v1/ping
Support Scheduler	scheduler	edgex-support-scheduler	48085	http://[host]:48085/api/v1/ping
Virtual Device Service	device-virtual	edgex-device-virtual	49990	http://[host]:49990/api/v1/ping

Step-by-step guide

1. Run below on the Kubernetes Master node to expose the services as Node port

```
kubectl expose deployment edgex-core-consul --type=NodePort --name=consulnodeport
kubectl expose deployment edgex-core-command --type=NodePort --name=commandnodeport
kubectl expose deployment edgex-core-data --type=NodePort --name=datanodeport
kubectl expose deployment edgex-core-metadata --type=NodePort --name=metadatanodeport
kubectl expose deployment edgex-support-rulesengine --type=NodePort --name=rulesenginenodeport
kubectl expose deployment edgex-support-logging --type=NodePort --name=loggingnodeport
```

2. Run below on the Kubernetes Master node to get the Node ports

```
kubectl get svc | grep NodePort
```

Sample output

```
commandnodeport  NodePort 10.97.76.1       <none> 48082:32263/TCP 13d
consulnodeport       NodePort 10.96.153.108  <none> 8400:31618/TCP,8500:30101/TCP,8600:32426/TCP 13d
datanodeport         NodePort 10.103.180.82  <none> 48080:30995/TCP,5563:31584/TCP 13d
lognodeport          NodePort 10.102.64.0     <none>  48061:30202/TCP 13d
metanodeport         NodePort 10.106.226.49  <none> 48081:30378/TCP 13d
rulenodeport         NodePort  10.106.22.55    <none> 48075:32045/TCP
```

3. Once we get the port, replace the default port 8500,48080,48081 etc. with the corresponding node port. For e.g., to access the Consul GUI, use the URL below

http://[host]:30101/ui

where 30101 is the nodeport corresponding to 8500

Related articles

https://github.com/edgexfoundry-holding/edgex-kubernetes-support/tree/master/releases/edinburgh/kubernetes

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