Cloud Ready

Native A "cloud enabled" or "cloud ready" application is a legacy software program that has been modified to run on a cloud computing infrastructure (i.e., an application that previously ran on an enterprise's on-site server is now running in an off-site data centre and accessed by the enterprise through the internet).

Cloud

- Cloud-native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds. Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.
- These techniques enable loosely coupled systems that are resilient, manageable, and observable. Combined with robust automation. they allow engineers to make high-impact changes frequently and predictably with minimal toil.

Public Cloud vendors services

Public Cloud vendors providing containerisation capabilities orientated around continuous integration and continuous deployment (CI/CD)

Public Clouds

Google



Google
 Kubernetes
 Engine (GKE)

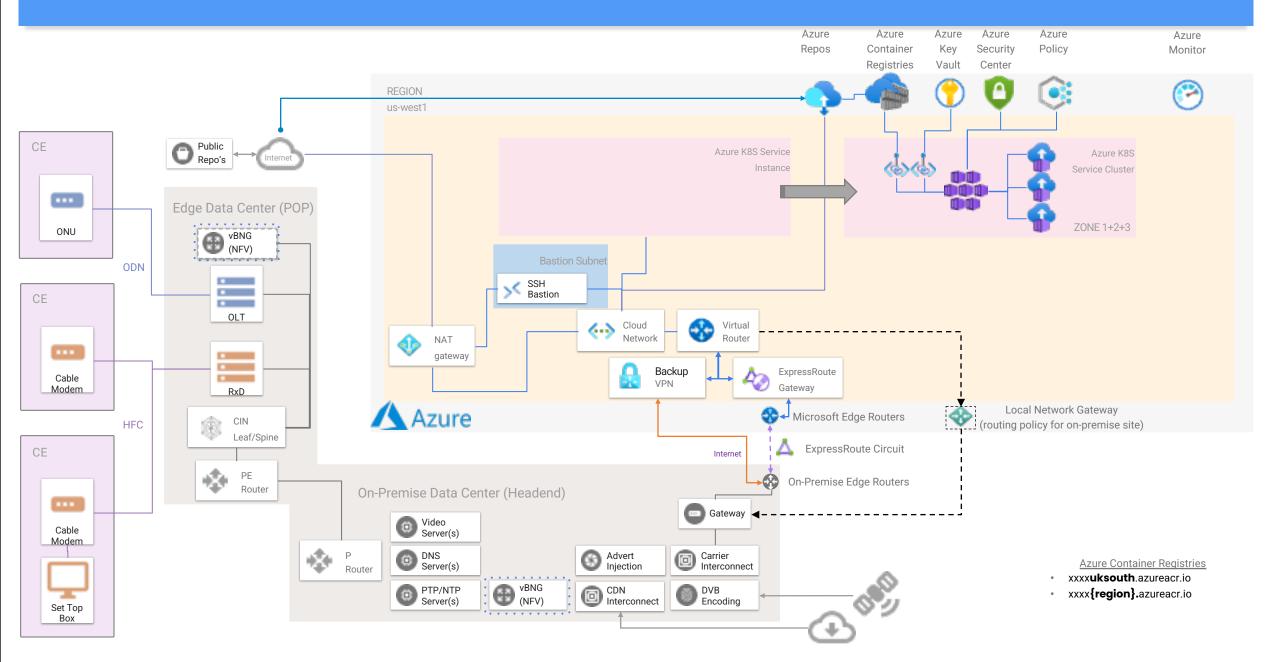
Microsoft

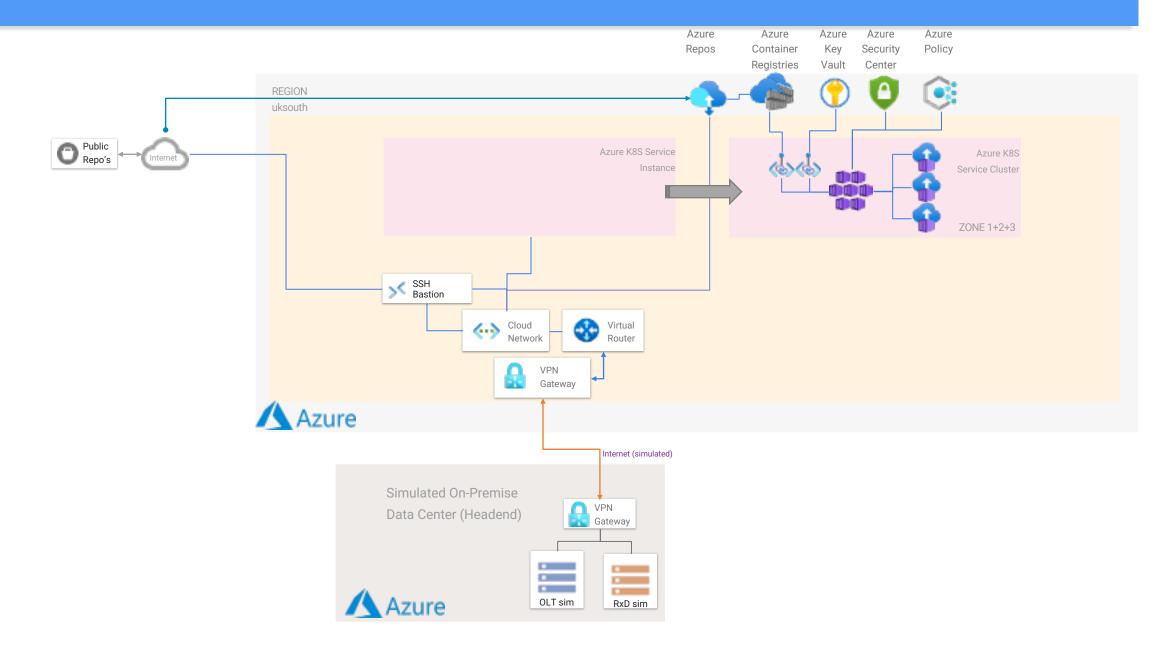


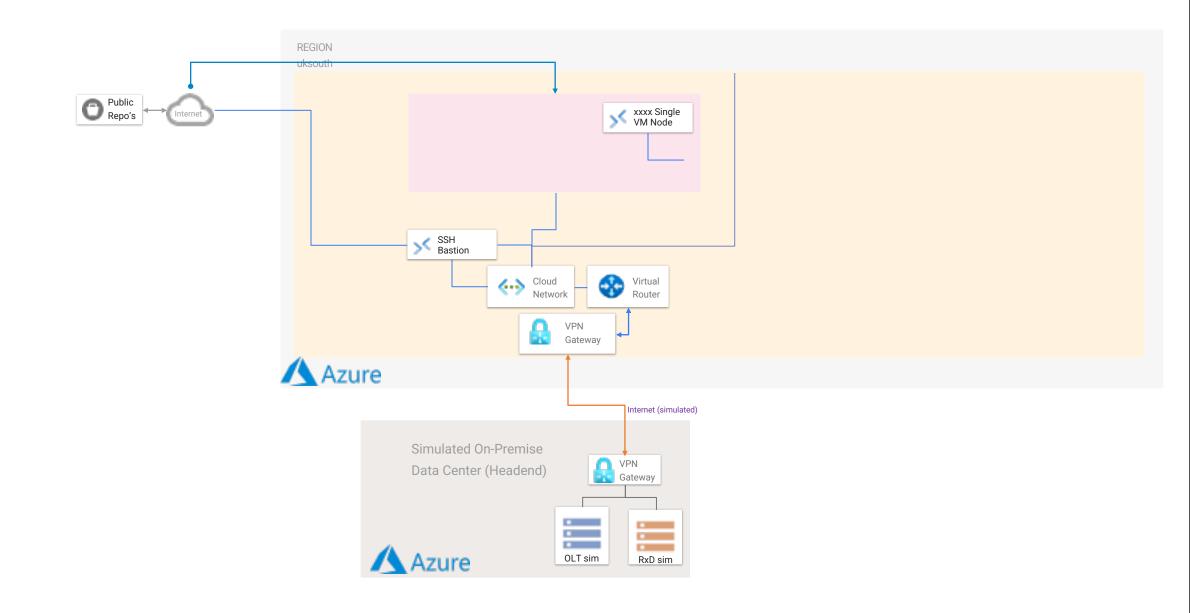
 Microsoft Azure Containers (AKS) Amazon

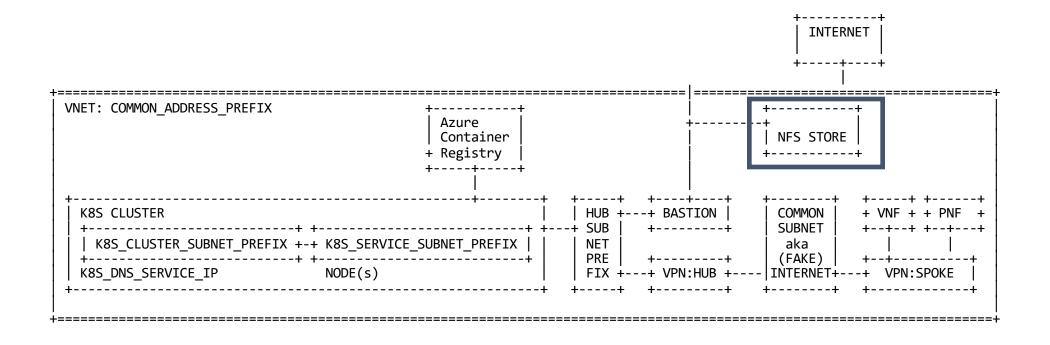


 Amazon Elastic Container Service (ECS)



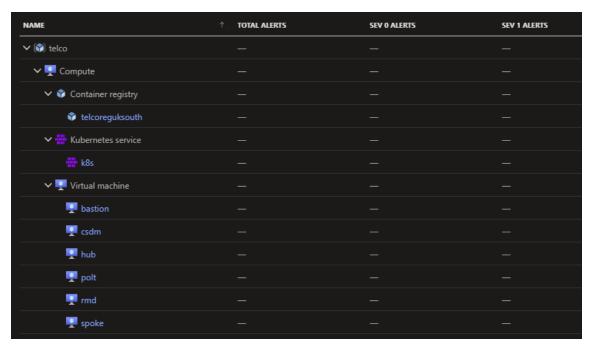


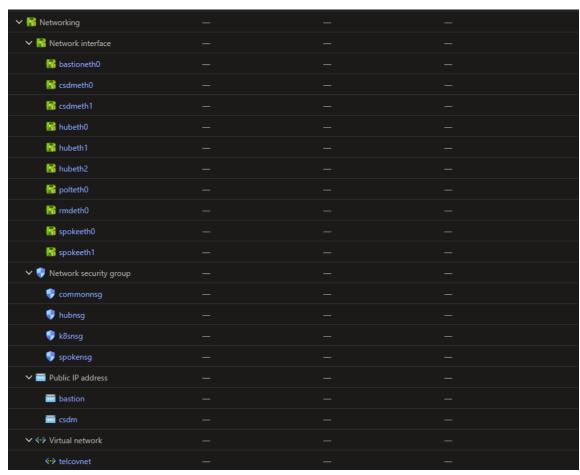




Used as local NFS/file server to reduce bandwidth and costs

Azure Infrastructure Resource Insights





Azure Infrastructure Resource Insights





Azure Container Service (AKS) & Container Registry (ACR)

AKS

- Master is free, configurable to meet needed requirements
- Workers are chargeable, but also configurable
- Prometheus not required (can be used though), AKS Metrics is available as alternative

ACR

- Based on Docker Hub

Azure Container Service (AKS) & Ceph/Rook

- Achievable but not desirable or necessary
 - Have to expand the K8S cluster to included dedicated K8S worker nodes for Ceph/Rook
 - Have to include custom annotations for file provisioning
 - Performance is not like bare-metal
- Use Azure option instead
 - Standard HDD/SSD, Performance HDD/SSD, replication (site and geographic etc.) but at additional costs
 - Still need to use annotations (but less):
 - provisioner: file.csi.azure.com

Cloud-Ready

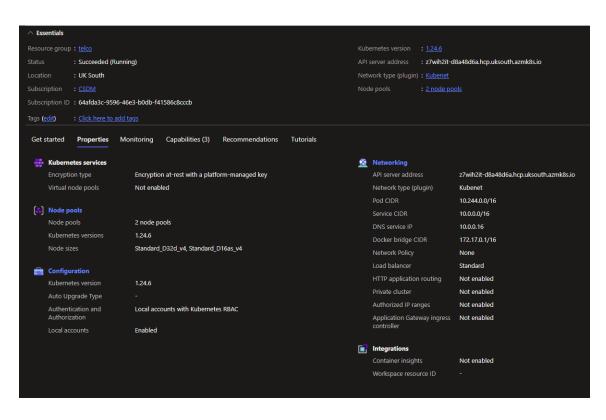
- Achieved
 - Pre-setup scripts for Azure
 - BASH and Python Platform scripts run "as is"

Cloud-Native

- Achieved
 - Pre-setup scripts for Azure
 - BASH Platform shell scripts are ignored/not used
 - Pre-setup scripts build platformconfig.yaml
 - Pre-setup scripts dynamically update charts (etc.) to match AKS and ACR
 - Platform python scripts (deploy_services.py and deploy_applications.py) run "as is"

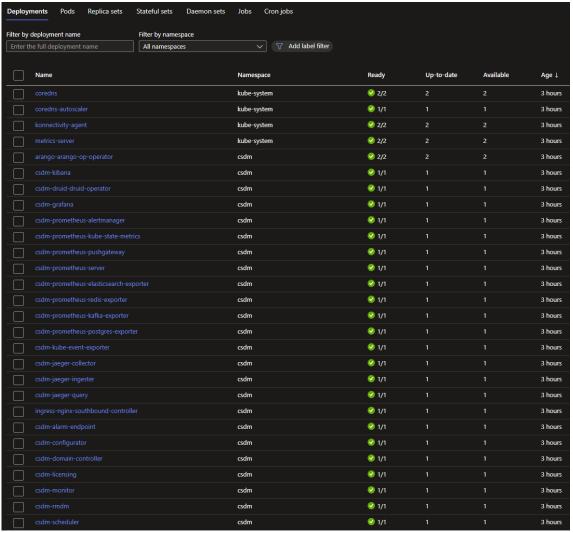
AKS Properties

AKS Namespaces





AKS Deployments



	csdm	② 1/1		3 hours
	csdm	② 1/1		3 hours
	csdm	② 1/1		3 hours
	csdm	⊘ 1/1		3 hours
	csdm	⊘ 1/1		3 hours
	csdm	⊘ 1/1		3 hours
	csdm	⊘ 1/1		3 hours
	csdm	⊘ 1/1		3 hours
	csdm	⊘ 1/1		3 hours
	csdm	⊘ 1/1		3 hours
	csdm	⊘ 1/1		3 hours
	csdm	⊘ 2/2		3 hours
	csdm	⊘ 1/1		2 hours
	csdm	⊘ 1/1		2 hours
	csdm	② 1/1		2 hours
	csdm	⊘ 1/1		2 hours
	csdm	⊘ 1/1		2 hours
	csdm	⊘ 1/1		2 hours
	csdm	⊘ 1/1		2 hours
·				

AKS Pods

	pod name Stat he full pod name Al	us I statuses		Filter by namespace ses All namespaces				
	Name	Namespace	Ready	Status	Restart count	Age ↓	Pod IP	Node
 ¬	coredns-59b6bf8b4f-6qp4l	kube-system	◯ 1/1	Running	0	3 hours	10.244.0.4	aks-inf-26751572-vmss
		kube-system	⊘ 1/1	Running		3 hours	10.244.0.5	aks-inf-26751572-vms
	azure-ip-masq-agent-r76mx	kube-system	⊘ 1/1	Running		3 hours	172.16.0.4	aks-inf-26751572-vmss
		kube-system	⊘ 1/1	Running		3 hours	172.16.0.4	aks-inf-26751572-vmss
		kube-system	⊘ 3/3	Running		3 hours	172.16.0.4	aks-inf-26751572-vms
		kube-system	⊘ 3/3	Running		3 hours	172.16.0.4	aks-inf-26751572-vmss
		kube-system	⊘ 1/1	Running		3 hours	172.16.0.4	aks-inf-26751572-vms
		kube-system	⊘ 1/1	Running		3 hours	172.16.0.5	aks-inf-26751572-vms
	cloud-node-manager-ts9rd	kube-system	⊘ 1/1	Running		3 hours	172.16.0.5	aks-inf-26751572-vms
		kube-system	⊘ 3/3	Running		3 hours	172.16.0.5	aks-inf-26751572-vms
		kube-system	⊘ 3/3	Running		3 hours	172.16.0.5	aks-inf-26751572-vms
		kube-system	⊘ 1/1	Running		3 hours	172.16.0.5	aks-inf-26751572-vms
		kube-system	⊘ 1/1	Running		3 hours	10.244.0.8	aks-inf-26751572-vms
		kube-system	⊘ 1/1	Running		3 hours	172.16.0.6	aks-csdm-35885521-vr
		kube-system	⊘ 1/1	Running		3 hours	172.16.0.6	aks-csdm-35885521-vr
		kube-system	⊘ 3/3	Running		3 hours	172.16.0.6	aks-csdm-35885521-vr
		kube-system	⊘ 3/3	Running		3 hours	172.16.0.6	aks-csdm-35885521-vr
		kube-system	⊘ 1/1	Running		3 hours	172.16.0.6	aks-csdm-35885521-vr
		csdm	⊘ 1/1	Running		3 hours	10.244.1.2	aks-inf-26751572-vms
		kube-system	② 2/2	Running		3 hours	10.244.1.4	aks-inf-26751572-vms
		kube-system	② 2/2	Running		3 hours	10.244.1.3	aks-inf-26751572-vms
		csdm	② 1/1	Running		3 hours	10.244.2.5	aks-csdm-35885521-vr
	arango-arango-op-operator-677d8bdb67	7-t csdm	② 1/1	Running		3 hours	10.244.1.5	aks-inf-26751572-vms
		7-t csdm	② 1/1	Running		3 hours	10.244.2.6	aks-csdm-35885521-vr
]		csdm	② 1/1	Running		3 hours	10.244.2.8	aks-csdm-35885521-vr
	csdm-arango-sngl-3ywseisx-18496f	csdm	♥ 1/1	Running		3 hours	10.244.2.9	aks-csdm-35885521-vn

csdm-redis-master-0	csdm	⊘ 1/1	Running	0	3 hours	10.244.2.12	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.2.11	aks-csdm-35885521-vm
	csdm	② 1/1	Running		3 hours	10.244.0.11	aks-inf-26751572-vmss0
	csdm	V 1/1	Running		3 hours	10.244.1.6	aks-inf-26751572-vmss0
	csdm	V 1/1	Running		3 hours	10.244.2.13	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.0.12	aks-inf-26751572-vmss0
	csdm	② 1/1	Running		3 hours	10.244.2.14	aks-csdm-35885521-vm
	csdm	V 1/1	Running		3 hours	10.244.1.7	aks-inf-26751572-vmss0
	csdm	② 1/1	Running		3 hours	10.244.0.13	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running		3 hours	10.244.2.15	aks-csdm-35885521-vm
	csdm	V 1/1	Running		3 hours	10.244.1.8	aks-inf-26751572-vmss0
	csdm	② 1/1	Running		3 hours	10.244.1.9	aks-inf-26751572-vmss0
	csdm	② 1/1	Running		3 hours	10.244.2.16	aks-csdm-35885521-vm
	csdm	② 1/1	Running		3 hours	10.244.2.17	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.2.24	aks-csdm-35885521-vm
	csdm	② 1/1	Running		3 hours	10.244.0.14	aks-inf-26751572-vmss0
	csdm	V 1/1	Running		3 hours	10.244.2.21	aks-csdm-35885521-vm
	csdm	② 1/1	Running		3 hours	10.244.2.23	aks-csdm-35885521-vm
	csdm	⊘ 2/2	Running		3 hours	10.244.2.22	aks-csdm-35885521-vm
	csdm	② 2/2	Running		3 hours	10.244.2.27	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.2.25	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	172.16.0.5	aks-inf-26751572-vmss0
	csdm	V 1/1	Running		3 hours	172.16.0.4	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running		3 hours	172.16.0.6	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.0.15	aks-inf-26751572-vmss0
	csdm	⊘ 2/2	Running		3 hours	10.244.2.26	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.2.28	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.2.29	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.2.30	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.0.16	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running		3 hours	10.244.0.17	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running		3 hours	10.244.2.31	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.0.18	aks-inf-26751572-vmss0
		_					

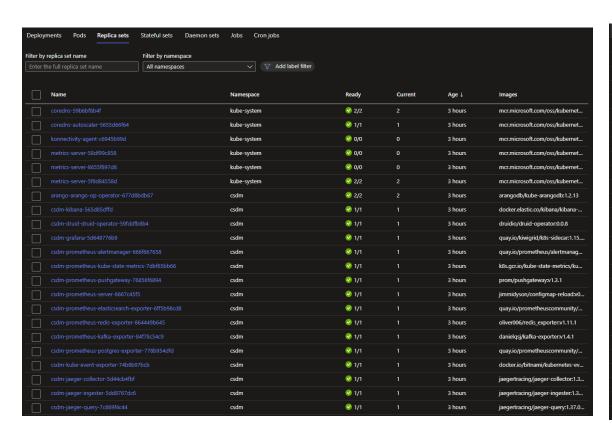
aks-inf-26751572-vmss0...

AKS Pods

	csdm	⊘ 2/2	Running		3 hours	10.244.1.10	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running		3 hours	10.244.0.19	aks-inf-26751572-vmss0
	csdm	<u> </u>	Completed		3 hours	10.244.2.32	aks-csdm-35885521-vm
	csdm	⊘ 3/3	Running		3 hours	10.244.2.33	aks-csdm-35885521-vm
	csdm	⊘ 3/3	Running		3 hours	10.244.2.34	aks-csdm-35885521-vm
	csdm	⊘ 3/3	Running		3 hours	10.244.0.20	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running		3 hours	10.244.2.35	aks-csdm-35885521-vm
	csdm	② 1/1	Running		3 hours	10.244.2.36	aks-csdm-35885521-vm
	csdm	⊘ 3/3	Running		3 hours	10.244.0.21	aks-inf-26751572-vmss0
	csdm	V 1/1	Running		3 hours	10.244.2.37	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.1.11	aks-inf-26751572-vmss0
	csdm	V 1/1	Running		3 hours	10.244.0.22	aks-inf-26751572-vmss0
	csdm	V 1/1	Running		3 hours	10.244.0.23	aks-inf-26751572-vmss0
	csdm	⊘ 3/3	Running		3 hours	10.244.2.38	aks-csdm-35885521-vm
	csdm	⊘ 3/3	Running		3 hours	10.244.2.39	aks-csdm-35885521-vm
csdm-templates-5565fb4d78-6qhdj	csdm	⊘ 3/3	Running		3 hours	10.244.2.40	aks-csdm-35885521-vm
	csdm	V 1/1	Running		3 hours	10.244.0.24	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running		3 hours	10.244.2.41	aks-csdm-35885521-vm
	csdm	② 1/1	Running		3 hours	10.244.2.42	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running		3 hours	10.244.0.25	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running		3 hours	10.244.1.12	aks-inf-26751572-vmss0
	csdm	② 2/2	Running		3 hours	10.244.2.44	aks-csdm-35885521-vm
flink-taskmanager-5c5bb4bfbf-l99k6	csdm	⊘ 1/1	Running		3 hours	10.244.2.43	aks-csdm-35885521-vm
flink-taskmanager-5c5bb4bfbf-n4nsj	csdm	② 1/1	Running		3 hours	10.244.0.27	aks-inf-26751572-vmss0
 ·		·	·	·	·		·

	csdm	√ 1/1	Running	3 hours	10.244.0.28	aks-inf-26751572-vmss0
	csdm	② 1/1	Running	3 hours	10.244.2.45	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running	3 hours	10.244.1.13	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running	3 hours	10.244.2.46	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running	3 hours	10.244.1.14	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running	3 hours	10.244.2.47	aks-csdm-35885521-vm
	csdm	⊘ 1/1	Running	3 hours	10.244.0.29	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running	3 hours	10.244.0.30	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running	3 hours	10.244.0.31	aks-inf-26751572-vmss0
	csdm	⊘ 1/1	Running	3 hours	10.244.1.15	aks-inf-26751572-vmss0
	csdm	⊘ 2/2	Running	3 hours	10.244.2.48	aks-csdm-35885521-vm
	csdm	⊘ 2/2	Running	3 hours	10.244.0.32	aks-inf-26751572-vmss0
	kube-system	⊘ 1/1	Running	2 hours	10.244.1.16	aks-inf-26751572-vmss0
konnectivity-agent-5f96c569c4-rjjbw	kube-system	⊘ 1/1	Running	2 hours	10.244.0.33	aks-inf-26751572-vmss0

AKS Replica Sets

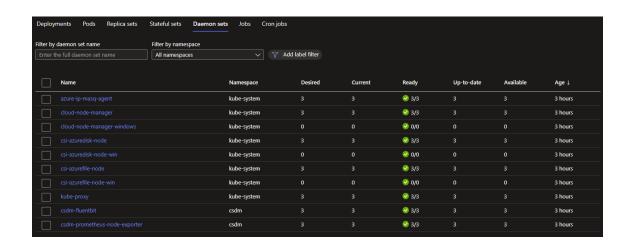


ingress-nginx-southbound-controller-68dc887746	csdm	⊘ 1/1	3 hours	k8s.gcr.io/ingress-nginx/controll
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	② 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	② 1/1	3 hours	nginx:1.21.3-alpine
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	apache/flink:1.14.2-scala_2.11,tel
flink-taskmanager-5c5bb4bfbf	csdm	⊘ 2/2	3 hours	apache/flink:1.14.2-scala_2.11
	csdm	⊘ 1/1	3 hours	balabit/syslog-ng:3.31.2
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	envoyproxy/envoy:v1.20.1
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm
	kube-system	⊘ 2/2	2 hours	mcr.microsoft.com/oss/kubernet

AKS Stateful Sets

Deployments Pods Replica sets	Stateful sets Daemon sets	Jobs Cron jobs			
Filter by stateful set name	Filter by namespace				
Enter the full stateful set name	All namespaces	✓ Add label filter			
Name		Namespace	Ready	Age ↓	Images
postgres-postgresql		csdm	⊘ 1/1	3 hours	docker.io/bitnami/postgresql:11.12.0-debian-10-r23
		csdm	⊘ 1/1	3 hours	docker.io/bitnami/keycloak:18.0.2-debian-11-r19
		csdm	⊘ 1/1	3 hours	docker.io/bitnami/zookeeper:3.8.0-debian-11-r56
		csdm	⊘ 1/1	3 hours	docker.io/bitnami/kafka:2.8.0-debian-10-r30
		csdm	⊘ 1/1	3 hours	docker.io/bitnami/redis:6.2.4-debian-10-r0
		csdm	⊘ 3/3	3 hours	docker.io/bitnami/redis:6.2.4-debian-10-r0
		csdm	⊘ 2/2	3 hours	docker.elastic.co/elasticsearch/elasticsearch:7.16.2
		csdm	√ 1/1	3 hours	docker.elastic.co/logstash/logstash-oss:7.16.2
		csdm	⊘ 1/1	3 hours	docker.io/bitnami/rabbitmq:3.9.8-debian-10-r6
		csdm	⊘ 1/1	3 hours	influxdb:2.1.1-alpine
		csdm	1/1	3 hours	apache/druid:0.22.1
		csdm	1/1	3 hours	apache/druid:0.22.1
		csdm	⊘ 1/1	3 hours	apache/druid:0.22.1
		csdm	⊘ 1/1	3 hours	apache/druid:0.22.1
		csdm	⊘ 1/1	3 hours	telcoreguksouth.azurecr.io/csdm/sdn-app:2.0.3-2211.rb2
		csdm	⊘ 3/3	3 hours	telcoreguksouth.azurecr.io/csdm/snmpcollector:2.0.3-221
csdm-restconf-c		csdm	⊘ 2/2	3 hours	telcoreguksouth.azurecr.io/csdm/restconfcollector:2.0.3

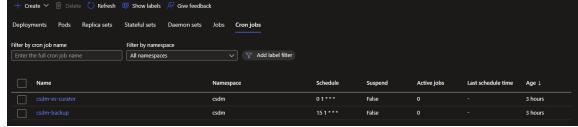
AKS Daemon Sets



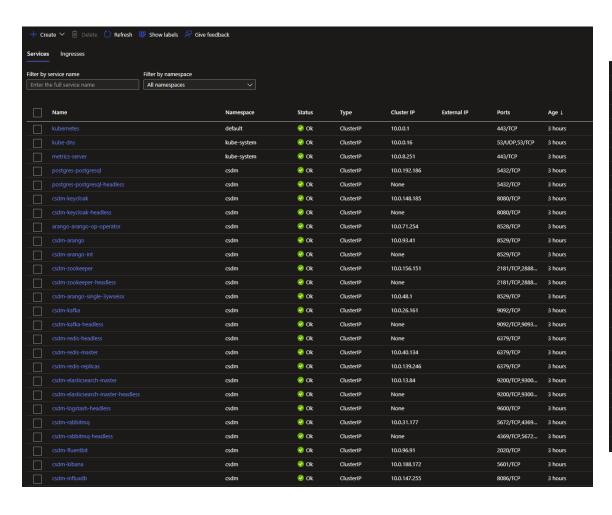
AKS Jobs

AKS Cron Jobs





AKS Services

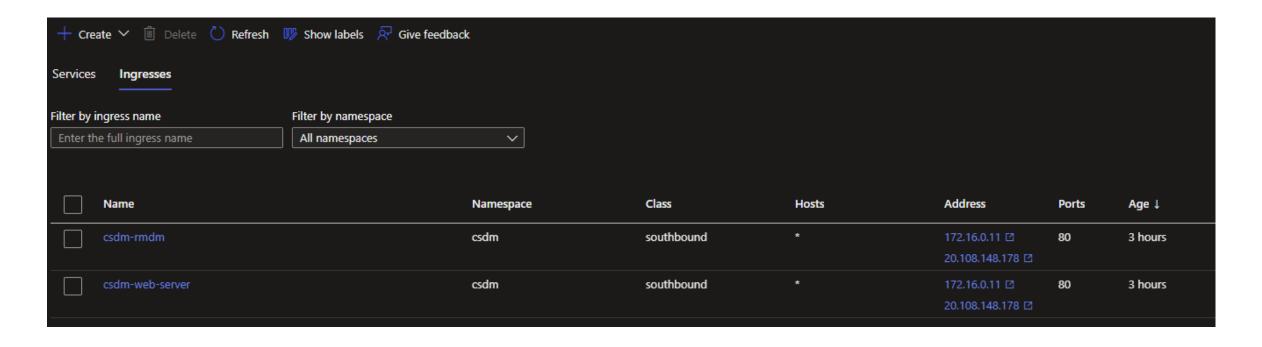


	csdm	Ok	ClusterIP	None	8088/TCP	3 hours
	csdm	Ok	ClusterIP	None	8088/TCP	3 hours
	csdm	⊘ Ok	ClusterIP	None	8088/TCP	3 hours
	csdm	Ok	ClusterIP	None	8088/TCP	3 hours
	csdm	⊘ Ok	ClusterIP	10.0.47.59	8088/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.255.217	80/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.71.231	8080/TCP	3 hours
	csdm	Ok	ClusterIP	None	9998/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.73.142	9091/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.109.101	80/TCP	3 hours
	csdm	⊘ Ok	ClusterIP	10.0.170.135	9108/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.79.230	9121/TCP	3 hours
	csdm	⊘ Ok	ClusterIP	10.0.62.140	9308/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.110.40	80/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.5.116	14250/TCP,142	3 hours
	csdm	Ok	ClusterIP	10.0.46.149	14270/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.218.244	16686/TCP,166	3 hours
	csdm	⊘ Ok	LoadBalancer	10.0.150.13	80:31695/TCP	3 hours
	csdm	⊘ Ok	LoadBalancer	10.0.106.238	80:31792/TCP,4	3 hours
	csdm	⊘ Ok	ClusterIP	10.0.144.174	7020/TCP	3 hours
	csdm	Ok	ClusterIP	None	9117/TCP	3 hours
	csdm	⊘ Ok	ClusterIP	10.0.47.119	7006/TCP	3 hours
	csdm	⊘ Ok	ClusterIP	None	9117/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.54.41	7008/TCP	3 hours
	csdm	Ok	ClusterIP	None	9117/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.91.191	7005/TCP	3 hours
<u> </u>						

AKS Services

	csdm	Ok	ClusterIP	None	9998/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.84.116	7004/TCP	3 hours
	csdm	Ok	ClusterIP	None	9117/TCP	3 hours
	csdm	Ok	ClusterIP	None	9998/TCP	3 hours
	csdm	⊘ Ok	ClusterIP	10.0.113.141	8888/TCP,8081	3 hours
	csdm	Ok	ClusterIP	10.0.222.197	7002/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.206.155	7009/TCP	3 hours
	csdm	Ok	ClusterIP	None	9117/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.122.99	7001/TCP	3 hours
	csdm	⊘ Ok	ClusterIP	10.0.204.214	7007/TCP	3 hours
	csdm	Ok	ClusterIP	None	9117/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.19.9	7015/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.214.216	7010/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.16.214	7003/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.211.81	7011/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.216.247	8008/TCP	3 hours
	csdm	Ok	ClusterIP	10.0.195.118	6123/TCP,6124	3 hours
	csdm	Ok	ClusterIP	10.0.4.241	8081/TCP	3 hours
	csdm	Ok	ClusterIP	None	8008/TCP	3 hours
	csdm	Ok	ClusterIP	None	8008/TCP	3 hours
	csdm	⊘ Ok	NodePort	10.0.8.21 172.16.0.11 🗵	514:31514/UDP	3 hours
	csdm	⊘ Ok	NodePort	10.0.61.82	8125:32699/UD	3 hours
	csdm	⊘ Ok	NodePort	10.0.245.74 172.16.0.11	8125:30495/UD	3 hours
	csdm	⊘ Ok	NodePort	10.0.223.252	4739:31559/UD	3 hours
	csdm	⊘ Ok	ClusterIP	10.0.216.138	9901/TCP	3 hours
	csdm	⊘ Ok	ClusterIP	None		3 hours
<u> </u>				·		

AKS Ingresses



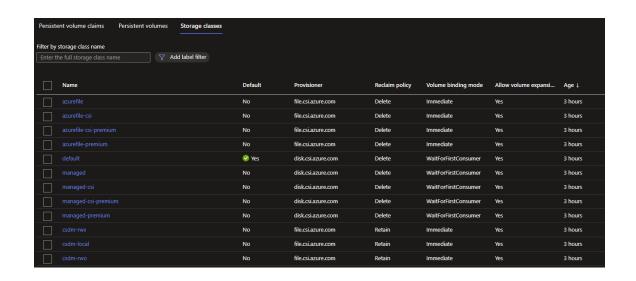
AKS Storage - PVC

Persiste	nt volume claims Persistent volumes Storage clas	ses						
Filter by	persistent volume claim name Filter by namespace							
	ne full persistent volume claim na All namespaces		Add label filter					
	Name	Namespace	Status	Volume	Capacity	Access modes	Storage class	Age ↓
		csdm	✓ Bound	pvc-0172a3bd-994d-48	10Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-18107e1d-ca6f-40d	10Gi	ReadWriteOnce		3 hours
		csdm	Bound	pvc-2928ca9c-2ac9-482	20Gi	ReadWriteOnce		3 hours
		csdm	Bound	pvc-b0fa8ddc-768f-4a8	10Gi	ReadWriteOnce		3 hours
		csdm	Bound	pvc-7e45f6ee-0694-4cf8	8Gi	ReadWriteOnce		3 hours
		csdm		pvc-50c95b12-eb83-4cb	2Gi	ReadWriteOnce		3 hours
		csdm	Bound	pvc-1f12fafd-b6fb-4f5e	30Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-190c519a-baa2-48b	10Gi	ReadWriteOnce		3 hours
		container-registry	✓ Bound	pvc-ef535007-8683-4e8	30Gi	ReadWriteMany		3 hours
		csdm	✓ Bound	pvc-d95192aa-a8e2-403	100Gi	ReadWriteMany		3 hours
		csdm	✓ Bound	pvc-3f8220ee-098f-4c59	8Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-b7fdc7fe-8228-430	8Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-1bcd5e38-2617-40	8Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-b007489e-8bcc-4eb	20Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-b80514c0-4513-4d	8Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-8ccf4038-9225-403	8Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-3d34aa12-37c7-47a	8Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-8c398ba2-3249-474	8Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-0346ba70-c3b3-44c	350Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-c918a781-0e84-447	350Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-9cfd4ddd-e0db-406	8Gi	ReadWriteOnce		3 hours
		csdm	⊗ Bound	pvc-e2916002-7e62-4d	10Gi	ReadWriteOnce		3 hours
		csdm	⊗ Bound	pvc-582d9007-2f97-4b3	2Gi	ReadWriteOnce		3 hours
		csdm		pvc-e92ee668-5ad5-474	28Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-6c96ffd1-6a46-451	3Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-0087e663-f7c8-470	1Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-ead302c1-2eec-47a	10Gi	ReadWriteOnce		3 hours
		csdm	✓ Bound	pvc-27681f90-fb74-488	10Gi	ReadWriteOnce		3 hours
	csdm-tcs-leveldb-pvc	csdm	⊗ Bound	pvc-45ed61c0-7094-4ca	1Gi	ReadWriteOnce		3 hours

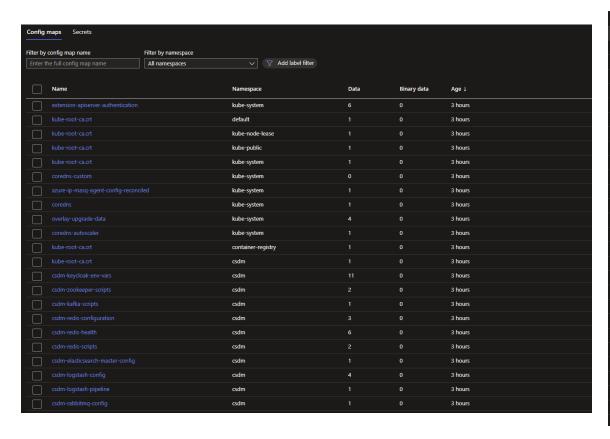
AKS Storage - PV

Persist	ent volume claims	Persistent vol	umes Storage o	lasses							
Filter by	persistent volume nan	ne									
Enter t	the full persistent volun	ne name									
	Name			Capacity	Access modes	Reclaim policy	Status	Claim	Storage class	Reason	Age ↓
				8Gi	ReadWriteOnce	Delete	✓ Bound				3 hours
				10Gi	ReadWriteOnce	Retain	✓ Bound				3 hours
				10Gi	ReadWriteOnce	Retain	✓ Bound				3 hours
				10Gi	ReadWriteOnce	Retain	✓ Bound				3 hours
				30Gi	ReadWriteOnce	Retain	⊗ Bound				3 hours
				20Gi	ReadWriteOnce	Retain	⊗ Bound				3 hours
				2Gi	ReadWriteOnce	Retain	⊗ Bound				3 hours
				10Gi	ReadWriteOnce	Retain	✓ Bound				3 hours
				8Gi	ReadWriteOnce	Retain	✓ Bound				3 hours
				100Gi	ReadWriteMany	Retain	✓ Bound				3 hours
			ffe8cd4	30Gi	ReadWriteMany	Retain	✓ Bound				3 hours
				8Gi	ReadWriteOnce	Delete	✓ Bound				3 hours
				8Gi	ReadWriteOnce	Delete	⊗ Bound				3 hours
				20Gi	ReadWriteOnce	Delete	⊗ Bound				3 hours
	pvc-8ccf4038-9225-			8Gi	ReadWriteOnce	Delete	⊗ Bound		default		3 hours
				8Gi	ReadWriteOnce	Delete	✓ Bound				3 hours
ᆜ				8Gi	ReadWriteOnce	Delete	✓ Bound		default		3 hours
ᆜ				8Gi	ReadWriteOnce	Delete	✓ Bound		default		3 hours
ᆜ				350Gi	ReadWriteOnce	Delete	✓ Bound				3 hours
ᆜ				350Gi	ReadWriteOnce	Delete	✓ Bound		default		3 hours
ᆜ	pvc-9cfd4ddd-e0db			8Gi	ReadWriteOnce	Delete	✓ Bound		default		3 hours
ᆜ				10Gi	ReadWriteOnce	Delete	⊗ Bound □	csdm-influxdb	default		3 hours
	pvc-582d9007-2f97-			2Gi	ReadWriteOnce	Delete	✓ Bound		default		3 hours
	pvc-e92ee668-5ad5			28Gi	ReadWriteOnce	Delete	✓ Bound		default		3 hours
	pvc-0087e663-f7c8-			1Gi	ReadWriteOnce	Delete	⊗ Bound		default		3 hours
H				3Gi	ReadWriteOnce	Delete	✓ Bound		default		3 hours
	pvc-ead302c1-2eec-			10Gi	ReadWriteOnce	Delete	⊗ Bound	csdm-ssd-vol			3 hours
				10Gi	ReadWriteOnce	Delete	✓ Bound		default		3 hours
	pvc-45ed61c0-7094	-4cat-bb42-d88a	08911894	1Gi	ReadWriteOnce	Delete	✓ Bound	csdm-tcs-level	default		3 hours

AKS Storage – Storage Classes



AKS Config Maps



	csdm		3 hours
csdm-fluentbit-luascripts	csdm		3 hours
	rsdm	0	3 hours

AKS Config Maps

	csdm		3 hours
	csdm		3 hours
			·

AKS Secrets

Config	maps Secrets					
Filter by secret name Filter by namespace						
	he full secret name	All namespaces	∨	bel filter		
	Name		Namespace	Туре	Data	Age ↓
	konnectivity-certs		kube-system	Opaque	3	3 hours
			kube-system	bootstrap.kubernetes.io/token		3 hours
			default	kubernetes.io/dockerconfigjson		3 hours
			kube-system	bootstrap.kubernetes.io/token		3 hours
			csdm	Opaque		3 hours
			csdm	Opaque		3 hours
			csdm	helm.sh/release.v1		3 hours
			csdm	Opaque		3 hours
			container-registry	Opaque		3 hours
			csdm	Opaque		3 hours
			csdm	Opaque		3 hours
			csdm	Opaque		3 hours
			csdm	helm.sh/release.v1		3 hours
			csdm	helm.sh/release.v1		3 hours
			csdm	helm.sh/release.v1		3 hours
			csdm	helm.sh/release.v1		3 hours
			csdm	helm.sh/release.v1		3 hours
			csdm	helm.sh/release.v1		3 hours
			csdm	helm.sh/release.v1		3 hours
			csdm	helm.sh/release.v1		3 hours
			csdm	Opaque		3 hours

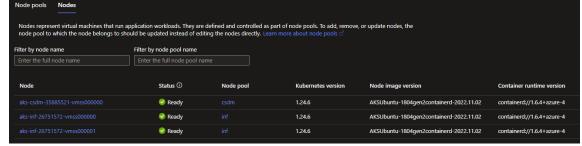
sh.helm.release.v1.csdm-rabbitmq.v1	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	Opaque	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	Opaque	3 hours
	csdm	Opaque	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	kubernetes.io/tls	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours

AKS Secrets

	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
sh.helm.release.v1.csdm-sdn-app.v1	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	Opaque	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours
	csdm	helm.sh/release.v1	3 hours

AKS Node Pools





AKS Deployment Duration

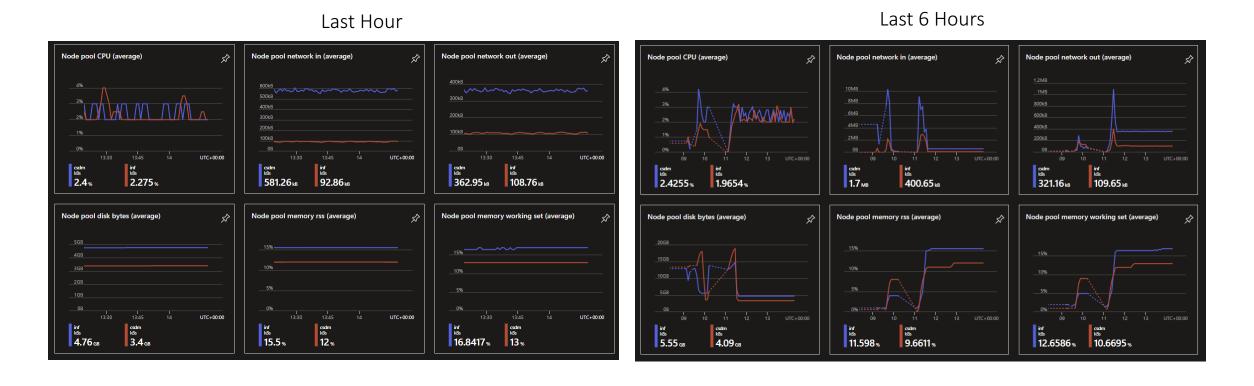
 Script started on 2022-11-22 10:55:09+00:00

• Script done on 2022-11-22 11:29:37+00:00



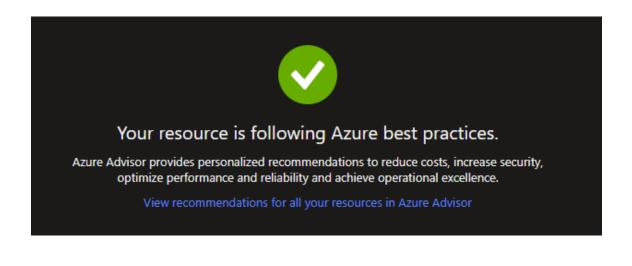
- 34 minutes and 28 seconds for equivalent to single-node appliance
- Includes creation of AKS but not ACR
 - ACR created as part of the other infrastructure components

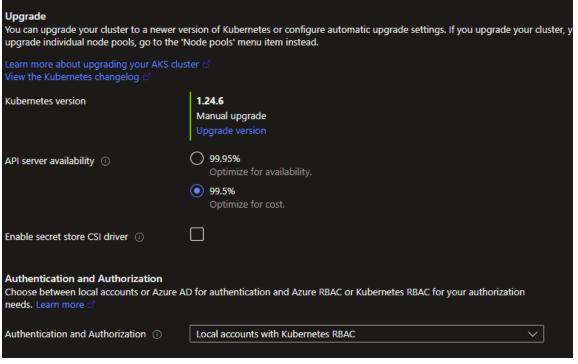
AKS Monitoring



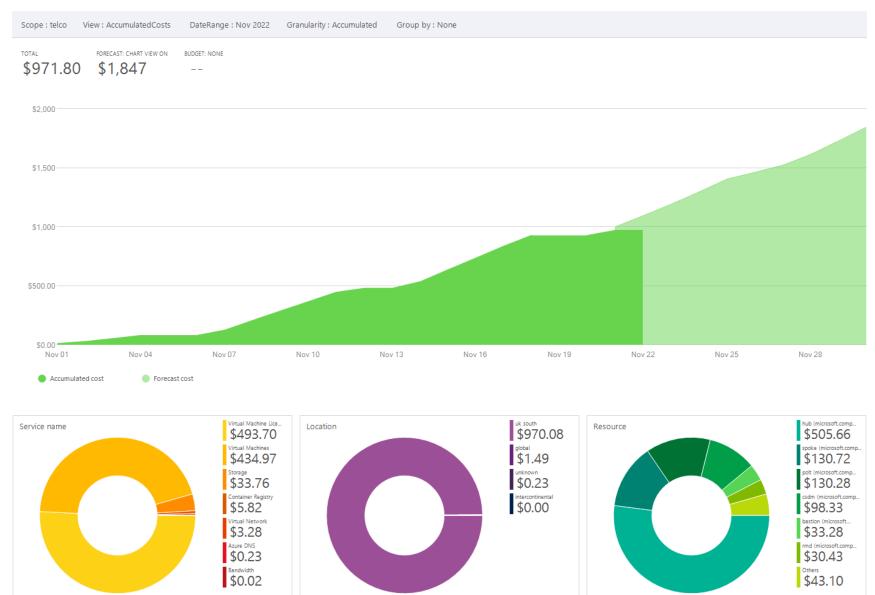
AKS Recommendations

Good to see...





Cloud-Native & Cloud-Native (inc. K8S/registry) Costs



Cost for single-node xxxx 1.3 specification Dell OEM PowerEdge R650 is \$5,745.16

Cost Adjustments

 Deployments secured in advance for 12 months receive approximately 60% discount

Costs shown do not include any discounts

Risks

- Interfacing services are subject to constant attack
 - NFS Repository
 - Bastion
 - SSH brute force
 - DDoS
 - poor management
 - Mitigated with hardened SSH configuration, private-keys, complex firewall rules
 - Hub/Spoke VPN
 - Hub can be managed, it's under our control
 - Spoke is managed by customer, outside of our control and remains potential unsecure attack plane