Decision Guide

Azure Container Apps vs Azure Kubernetes Services

https://github.com/lgmorand/aca-vs-aks

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Comparison between ACA and AKS

	AKS	ACA
Complexity	High	Low
Portability	High	Low, containers are the same but manifests are not portable
Resiliency		
SLA	free SLO of 99,5% and SLA of 99.95% with Premium SKU	SLA of 99.95%
Multi-AZ support	Yes, manually during cluster creation	Yes, built-in
Operations		
Control plane	Control plane managed by Azure	Control/Data plane abstracted from Azure. wrapper around API server (no access to kubectl command)
Data plane	managed by user by creating nodepools	Serverless and fully managed
Upgrade management	Manual or automated	Fully managed
Autoscaling		

	AKS	ACA
Cluster Autoscaling	Yes, with cluster autoscaler	Yes, automatic
Basic workload autoscaling	Yes, out-of-the-box with metric server in combination with HPA	Yes, with scaling rules
Advanced workload autoscaling	Can be done by deploying KEDA	Yes, out-of-the-box with built-in KEDA
Limits	Almost no limit in terms of number of pods	App scaling is limited to 300 replicas
Workloads		
Operating systems	Support Linux/Windows based container	Supports only Linux based container images
Compute configuration	Virtually unlimited to any configuration (also support dynamic sizing	Support a predefined list of VM SKU with Workload Profile

	AKS	ACA
memory-optimized Compute	Yes, using Memory dedicated nodes	yes using dedicated workflow profiles
GPU Compute	Yes, using GPU dedicated nodes	GPU supported via Workload Profile
Confidential Compute	Yes, using SGX dedicated nodes	No confidential compute support
Azure Arc Compatible	Yes	Yes
Network		
mTLS communication	No OOB mTLS support in pods. Can be done by installing Dapr or a service mesh	OOB support for mTLS with dapr integration (need configuration)
Internal	Native usage of network policies	No network segmentation within the same environment
VNet integration	Yes, built-in	Yes, built-in

	AKS	ACA
Private End-point	Private mode at the control plan level (AKS Admin) and for the data plane you can use a private load balancer	Yes on the Container App Environment at the data plane level
HTTP Ingress	Yes, built-in (Envoy)	Yes
TCP ingress	Yes	Yes
Controlling egress traffic with Firewall	Yes limit egress traffic	Yes limit egress traffic
Traffic manage-ment	Yes, but nothing OOB	Native traffic management
Session affinity	Yes, built-in	Yes, built-in in kubernete
Security		

	AKS	ACA
Injecting identities into workloads	Yes, with workloads identities	OOB supported
Authentication and authorization	Yes but manually with services meshes or components	Yes, native. Integration with AAD, Facebook, Twitter & Google
Secret management	Secret management via CSI driver (i.e. Azure KeyVault or HashiCorp Vault)	Key-value management, no integration with KeyVault
Security Policy	Rich, with Gatekeeper and Azure Policies	Limited to some configuration policies
Runtine scanning	Yes, natively with Defender for Containers or any 3rd party runtime	No, maybe later
Container Sandbox environment	No	Yes Dynamic sessions use full for AI workload for instance

	AKS	ACA
Managed certificates	Can be done based on AppConfig for instance	Yes Free managed certificates
Support Azure Key Vault Certificates	Yes	Yes at the environment level
Development		
Service discovery	Yes, when installing tooling such as Dapr	Yes, built-in with Dapr
Type of workload	Almost anything	Microservices, Event-driven applications, Jobs, small web applications
Deployment	Kubernetes manifests, kustomization, Helm	Azure CLI

	AKS	ACA
Infra As Code (ARM, Bicep, Terraform)	Yes	Yes
Monitoring		
Azure monitor integration	Yes, built-in	Yes, built-in
Open Telemetry support	Yes, with custom code	Yes, natively with OpenTelemetry Agent
3rd party integration	Logs/Metrics can be shipped to third party tools	No direct integration, Metrics can be pulled from Azure Monitor API
Cost		
Compute Cost	Standard node-based billing	Based on resources consumption. Allow idle time. Alternative is to use dedicated profiles

	AKS	ACA
Reserved Instances	Yes, possible	Not supported
Azure saving plan for compute	Yes, possible	Yes, possible