

# Criteria for choosing an Azure compute service

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The term *compute* refers to the hosting model for the computing resources that your applications runs on. The following tables compare Azure compute services across several axes. Refer to these tables when selecting a compute option for your application.

## Hosting model

Criteria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service	Container Instances	Azure Batch
Application composition	Agnostic	Applications, containers	Services, guest executables, containers	Functions	Containers	Containers	Scheduled jobs
Density	Agnostic	Multiple apps per instance via app service plans	Multiple services per VM	Serverless <sup>1</sup>	Multiple containers per node	No dedicated instances	Multiple apps per VM
Minimum number of nodes	1 <sup>2</sup>	1	5 <sup>3</sup>	Serverless <sup>1</sup>	3 <sup>3</sup>	No dedicated nodes	1 <sup>4</sup>
State management	Stateless or Stateful	Stateless	Stateless or stateful	Stateless	Stateless or Stateful	Stateless	Stateless
Web hosting	Agnostic	Built in	Agnostic	Not applicable	Agnostic	Agnostic	No
Can be deployed to dedicated VNet?	Supported	Supported <sup>5</sup>	Supported	Supported <sup>5</sup>	<a href="#">Supported</a>	Not supported	Supported
Hybrid connectivity	Supported	Supported <sup>6</sup>	Supported	Supported <sup>7</sup>	Supported	Not supported	Supported

Notes

1. If using Consumption plan. If using App Service plan, functions run on the VMs allocated for your App Service plan. See [Choose the correct service plan for Azure Functions](#).
2. Higher SLA with two or more instances.
3. Recommended for production environments.
4. Can scale down to zero after job completes.
5. Requires App Service Environment (ASE).
6. Use [Azure App Service Hybrid Connections](#).
7. Requires App Service plan.

## DevOps

Criteria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service	Container Instances	Azure Batch
Local debugging	Agnostic	IIS Express, others <sup>1</sup>	Local node cluster	Visual Studio or Azure Functions CLI	Minikube, others	Local container runtime	Not supported
Programming model	Agnostic	Web and API applications, WebJobs for background tasks	Guest executable, Service model, Actor model, Containers	Functions with triggers	Agnostic	Agnostic	Command line application
Application update	No built-in support	Deployment slots	Rolling upgrade (per service)	Deployment slots	Rolling update	Not applicable	

### Notes

1. Options include IIS Express for ASP.NET or node.js (iisnode); PHP web server; Azure Toolkit for IntelliJ, Azure Toolkit for Eclipse. App Service also supports remote debugging of deployed web app.
2. See [Resource Manager providers, regions, API versions and schemas](#).

## Scalability

Criteria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service	Container Instances	Azure Batch
Autoscaling	Virtual machine scale sets	Built-in service	Virtual machine scale sets	Built-in service	Not supported	Not supported	N/A
Load balancer	Azure Load Balancer	Integrated	Azure Load Balancer	Integrated	Integrated	No built-in support	Azure Load Balancer

Criteria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service	Container Instances	Azure Batch
Scale limit <sup>1</sup>	Platform image: 1000 nodes per VMSS, Custom image: 100 nodes per VMSS	20 instances, 100 with App Service Environment	100 nodes per VMSS	200 instances per Function app	100 nodes per cluster (default limit)	20 container groups per subscription (default limit).	20 core limit (default limit).

Notes

1. See [Azure subscription and service limits, quotas, and constraints](#).

## Availability

Criteria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service	Container Instances	Azure Batch
SLA	<a href="#">SLA for Virtual Machines</a>	<a href="#">SLA for App Service</a>	<a href="#">SLA for Service Fabric</a>	<a href="#">SLA for Functions</a>	<a href="#">SLA for AKS</a>	<a href="#">SLA for Container Instances</a>	<a href="#">SLA for Azure Batch</a>
Multi region failover	Traffic manager	Traffic manager	Traffic manager, Multi-Region Cluster	Not supported	Traffic manager	Not supported	Not Supported

## Other

Criteria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service	Container Instances	Azure Batch
SSL	Configured in VM	Supported	Supported	Supported	<a href="#">Ingress controller</a>	Use <a href="#">sidecar</a> container	Support
Cost	<a href="#">Windows, Linux</a>	<a href="#">App Service pricing</a>	<a href="#">Service Fabric pricing</a>	<a href="#">Azure Functions pricing</a>	<a href="#">AKS pricing</a>	<a href="#">Container Instances pricing</a>	<a href="#">Azure Batch pricing</a>
Suitable architecture styles	<a href="#">N-Tier, Big compute (HPC)</a>	<a href="#">Web-Queue-Worker, N-Tier</a>	<a href="#">Microservices, Event-driven architecture</a>	<a href="#">Microservices, Event-driven architecture</a>	<a href="#">Microservices, Event-driven architecture</a>	<a href="#">Microservices, task automation, batch jobs</a>	<a href="#">Big compute (HPC)</a>