ıoose an Azure compute service for ·ur application

/2020 • 6 minutes to read • +4

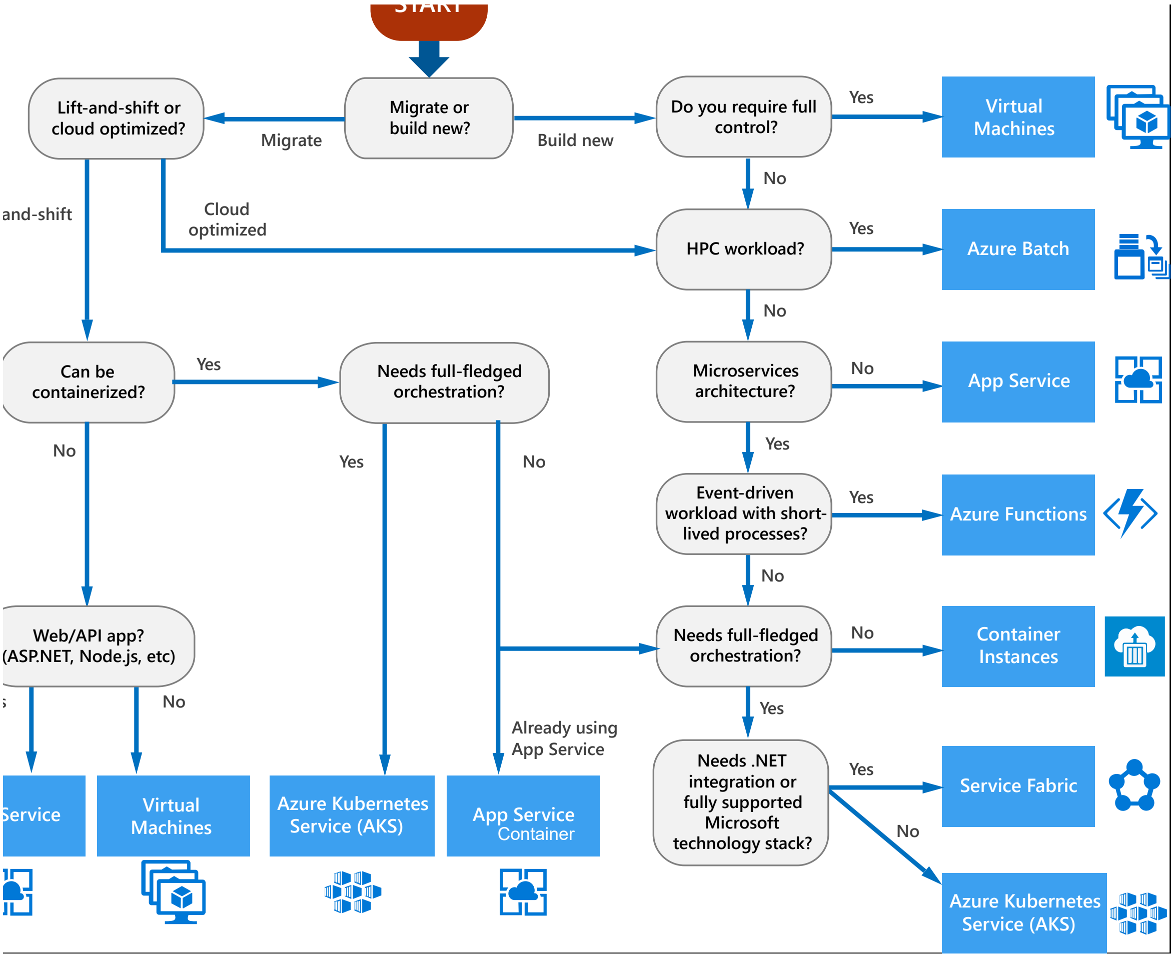
s article

ɛ offers a number of ways to host your application code. The term *compute* refers ɛ hosting model for the computing resources that your application runs on. The ving flowchart will help you to choose a compute service for your application.

ır application consists of multiple workloads, evaluate each workload separately. A ɔlete solution may incorporate two or more compute services.

oose a candidate service

he following flowchart to select a candidate compute service.


START
Lift-and-shift or cloud optimized?
Migrate
Migrate or build new?
Build new
Do you require full control?
Yes
Virtual Machines
No
and-shift
Cloud optimized
HPC workload?
Yes
Azure Batch
No
Can be containerized?
Yes
Needs full-fledged orchestration?
Microservices architecture?
No
App Service
No
Yes
No
Yes
Event-driven workload with short-lived processes?
Yes
Azure Functions
No
Web/API app? (ASP.NET, Node.js, etc)
Needs full-fledged orchestration?
No
Container Instances
No
Yes
Already using App Service
Needs .NET integration or fully supported Microsoft technology stack?
Yes
Service Fabric
No
Service
Virtual Machines
Azure Kubernetes Service (AKS)
App Service Container
Azure Kubernetes Service (AKS)

itions:

"Lift and shift" is a strategy for migrating a workload to the cloud without redesigning the application or making code changes. Also called *rehosting*. For more information, see Azure migration center.

Cloud optimized is a strategy for migrating to the cloud by refactoring an application to take advantage of cloud-native features and capabilities.

utput from this flowchart is a **starting point** for consideration. Next, perform a detailed evaluation of the service to see if it meets your needs.

derstand the basic features

're not familiar with the Azure service selected in the previous step, read the iew documentation to understand the basics of the service.

App Service. A managed service for hosting web apps, mobile app back ends, RESTful APIs, or automated business processes.

Azure Kubernetes Service (AKS). A managed Kubernetes service for running containerized applications.

Batch. A managed service for running large-scale parallel and high-performance

Batch. A managed service for running large-scale parallel and high-performance computing (HPC) applications

Container Instances. The fastest and simplest way to run a container in Azure, without having to provision any virtual machines and without having to adopt a higher-level service.

Functions. A managed FaaS service.

Service Fabric. A distributed systems platform that can run in many environments, including Azure or on premises.

Virtual machines. Deploy and manage VMs inside an Azure virtual network.

derstand the hosting models

services, including Azure services, generally fall into three categories: IaaS, PaaS, aS. (There is also SaaS, software-as-a-service, which is out of scope for this article.) eful to understand the differences.

structure-as-a-Service (IaaS) lets you provision individual VMs along with the iated networking and storage components. Then you deploy whatever software pplications you want onto those VMs. This model is the closest to a traditional on-ises environment, except that Microsoft manages the infrastructure. You still ge the individual VMs.

orm-as-a-Service (PaaS) provides a managed hosting environment, where you can y your application without needing to manage VMs or networking resources. App Service is a PaaS service.

tions-as-a-Service (FaaS) goes even further in removing the need to worry about osting environment. In a FaaS model, you simply deploy your code and the service natically runs it. Azure Functions are a FaaS service.

is a spectrum from IaaS to pure PaaS. For example, Azure VMs can autoscale by virtual machine scale sets. This automatic scaling capability isn't strictly PaaS, but e type of management feature found in PaaS services.

neral, there is a tradeoff between control and ease of management. IaaS gives the control, flexibility, and portability, but you have to provision, configure and ge the VMs and network components you create. FaaS services automatically ge nearly all aspects of running an application. PaaS services fall somewhere in een.

nsider limits and cost

perform a more detailed evaluation, looking at the following aspects of the

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:e:

- Service limits
- Cost
- SLA
- Regional availability

ɿ on this analysis, you may find that the initial candidate isn't suitable for your ɛular application or workload. In that case, expand your analysis to include other ɔute services.

ɔllowing tables contain additional comparison points, which may be useful when ɜing.

sting model

teria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service
ɔlication nposition	Agnostic	Applications, containers	Services, guest executables, containers	Functions	Containers
ɿsity	Agnostic	Multiple apps per instance via app service plans	Multiple services per VM	Serverless [1]	Multiple containers per node
ɿimum nber of ɿes	1 [2]	1	5 [3]	Serverless [1]	3 [3]
te nagement	Stateless or Stateful	Stateless	Stateless or stateful	Stateless	Stateless or Stateful

teria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service
b hosting	Agnostic	Built in	Agnostic	Not applicable	Agnostic
ı be ployed to licated et?	Supported	Supported[5]	Supported	Supported [5]	Supported
orid nectivity	Supported	Supported [6]	Supported	Supported [7]	Supported

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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.

Higher SLA with two or more instances.

Recommended for production environments.

Can scale down to zero after job completes.

Requires App Service Environment (ASE).

Use Azure App Service Hybrid Connections.

Requires App Service plan.

vOps

teria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service
cal bugging	Agnostic	IIS Express, others [1]	Local node cluster	Visual Studio or Azure Functions CLI	Minikube, others
gramming del	Agnostic	Web and API applications, WebJobs for background tasks	Guest executable, Service model, Actor model, Containers	Functions with triggers	Agnostic

teria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernete Service
plication date	No built-in support	Deployment slots	Rolling upgrade (per service)	Deployment slots	Rolling update

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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.
See Resource Manager providers, regions, API versions and schemas.

lability

teria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service	C I
oscaling	Virtual machine scale sets	Built-in service	Virtual machine scale sets	Built-in service	Pod auto-scaling[1], cluster auto-scaling[2]	N s
d ancer	Azure Load Balancer	Integrated	Azure Load Balancer	Integrated	Azure Load Balancer or Application Gateway	N s
le limit[3]	Platform image: 1000 nodes per scale set, Custom image: 600 nodes per scale set	20 instances, 100 with App Service Environment	100 nodes per scale set	200 instances per Function app	100 nodes per cluster (default limit)	2 c g s (li

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See Autoscale pods.
See Automatically scale a cluster to meet application demands on Azure Kubernetes Service (AKS).
See Azure subscription and service limits, quotas, and constraints.

ailability

teria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernetes Service	Contain Instanc
.	SLA for Virtual Machines	SLA for App Service	SLA for Service Fabric	SLA for Functions	SLA for AKS	SLA for Contain Instance
lti ion over	Traffic manager	Traffic manager	Traffic manager, Multi-Region Cluster	Azure Front Door	Traffic manager	Not support

uided learning on Service Guarantees, review Core Cloud Services - Azure tecture and service guarantees.

ner criteria

teria	Virtual Machines	App Service	Service Fabric	Azure Functions	Azure Kubernet Service
.	Configured in VM	Supported	Supported	Supported	Ingress controller
st	Windows, Linux	App Service pricing	Service Fabric pricing	Azure Functions pricing	AKS pricir
table hitecture es	N-Tier, Big compute (HPC)	Web-Queue-Worker,	Microservices, Event-driven architecture	Microservices, Event-driven architecture	Microserv Event-dri architectu

teria	Virtual Machines	App N-Tier Service	Service Fabric	Azure Functions	Azure Kubernet

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ıderstand the basic features

ı're not familiar with the Azure service selected in the previous step, read one of ıllowing overview articles:

App Service
Azure Kubernetes Service
Batch
Container Instances
Functions
Service Fabric
Virtual machines

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perform a more detailed evaluation, looking at the following aspects of the :e:

Service limits
Cost
SLA
Regional availability
Compute comparison tables

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ːxt steps

Core Cloud Services - Azure compute options. This Microsoft Learn module explores how compute services can solve common business needs.

ꜱ page helpful?

'es No

es ✓ No