**Explore Azure compute services**

After completing this module, you'll be able to describe the benefits and usage of:

* Azure Virtual Machines
* Azure App Service
* Azure Container Instances
* Azure Kubernetes Service
* Azure Functions
* Windows Virtual Desktop

### What is Azure Batch?

Azure Batch enables large-scale parallel and high-performance computing (HPC) batch jobs with the ability to scale to tens, hundreds, or thousands of VMs.

When you're ready to run a job, Batch does the following:

* Starts a pool of compute VMs for you.
* Installs applications and staging data.
* Runs jobs with as many tasks as you have.
* Identifies failures.
* Requeues work.
* Scales down the pool as work completes
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### Azure Kubernetes Service

* The task of automating, managing, and interacting with a large number of containers is known as orchestration. [Azure Kubernetes Service](https://azure.microsoft.com/services/kubernetes-service) is a complete orchestration service for containers with distributed architectures and large volumes of containers. Orchestration is the task of automating and managing a large number of containers and how they interact.

## Types of app services

With App Service, you can host most common app service styles like:

* Web apps
* API apps
* WebJobs
* Mobile apps

App Service handles most of the infrastructure decisions you deal with in hosting web-accessible apps:

* Deployment and management are integrated into the platform.
* Endpoints can be secured.
* Sites can be scaled quickly to handle high traffic loads.
* The built-in load balancing and traffic manager provide high availability.

## Functions vs. Logic Apps

Functions and Logic Apps can both create complex orchestrations. An orchestration is a collection of functions or steps that are executed to accomplish a complex task.

* With Functions, you write code to complete each step.
* With Logic Apps, you use a GUI to define the actions and how they relate to one another.

You can mix and match services when you build an orchestration, calling functions from logic apps and calling logic apps from functions. Here are some common differences between the two.

| **FUNCTIONS VS. LOGIC APPS** | | |
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|  | **Functions** | **Logic Apps** |
| State | Normally stateless, but Durable Functions provide state. | Stateful. |
| Development | Code-first (imperative). | Designer-first (declarative). |
| Connectivity | About a dozen built-in binding types. Write code for custom bindings. | Large collection of connectors. Enterprise Integration Pack for B2B scenarios. Build custom connectors. |
| Actions | Each activity is an Azure function. Write code for activity functions. | Large collection of ready-made actions. |
| Monitoring | Azure Application Insights. | Azure portal, Log Analytics. |
| Management | REST API, Visual Studio. | Azure portal, REST API, PowerShell, Visual Studio. |
| Execution context | Can run locally or in the cloud. | Runs only in the cloud. |