

Azure Scale Sets

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What is Azure Scale Set

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- ❑ Virtual machine scale sets are an Azure compute resource that you can use to deploy and manage a set of identical VMs.
- ❑ With all VMs configured the same, scale sets are designed to support auto scale, and no pre-provisioning of VMs is required.
- ❑ So it's easier to build large-scale services that target big compute, large data, and containerized workloads.
- ❑ For applications that need to scale compute resources out and in, scale operations are implicitly balanced across fault and update domains.

Azure Scale Set: Autoscale

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- ❑ To maintain consistent application performance, you can automatically increase or decrease the number of VM instances in your scale set.
- ❑ You define rules based on performance metrics, application response, or a fixed schedule, and your scale set autoscales as needed.
- ❑ For basic autoscale rules, you can use host-based performance metrics such as CPU usage or disk I/O.
- ❑ These host-based metrics are available automatically, with no additional agents or extensions to install and configure.
- ❑ To use more granular performance metrics, you can install and configure the Azure diagnostic extension on VM instances in your scale set.
- ❑ The Azure diagnostic extension allows you to collect additional performance metrics, such as memory consumption, from inside of each VM instance.
- ❑ These performance metrics are streamed to an Azure storage account, and you create autoscale rules to consume this data.

Azure Scale Set: Autoscale Benefits

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- ❑ If your application demand increases, the load on the VM instances in your scale set increases.
- ❑ If this increased load is consistent, rather than just a brief demand, you can configure autoscale rules to increase the number of VM instances in the scale set.
- ❑ When these VM instances are created and your applications are deployed, the scale set starts to distribute traffic to them through the load balancer.
- ❑ You control what metrics to monitor, such as CPU or memory, how long the application load must meet a given threshold, and how many VM instances to add to the scale set.
- ❑ On an evening or weekend, your application demand may decrease.
- ❑ If this decreased load is consistent over a period of time, you can configure autoscale rules to decrease the number of VM instances in the scale set.
- ❑ This scale-in action reduces the cost to run your scale set as you only run the number of instances required to meet the current demand.

Azure Scale Set: Scale Set specific Features

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- ☐ Once you specify the scale set configuration, you can update the "capacity" property to deploy more VMs in parallel.
- ☐ You can use Azure Autoscale to automatically scale a scale set but not individual VMs.
- ☐ You can reimage scale set VMs but not individual VMs.
- ☐ You can overprovision scale set VMs for increased reliability and quicker deployment times.
- ☐ You can specify an upgrade policy to make it easy to roll out upgrades across VMs in your scale set.

Azure Scale Set: Schedule Autoscale

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- ❑ You can also create autoscale rules based on schedules.
- ❑ These schedule-based rules allow you to automatically scale the number of VM instances at fixed times.
- ❑ With performance-based rules, there may be a performance impact on the application before the autoscale rules trigger and the new VM instances are provisioned.
- ❑ If you can anticipate such demand, the additional VM instances are provisioned and ready for the additional customer use and application demand.
- ❑ The following examples are scenarios that may benefit the use of schedule-based autoscale rules:
 - Automatically scale out/ Scale in the no. of VM instances at the start/ end of the day.
 - If a department uses an application heavily at certain parts of the month, automatically scale the number of VM instances to accommodate their additional demands.
 - When there is a marketing event, promotion, or holiday sale, you can automatically scale the number of VM instances ahead of anticipated customer demand.

Azure Scale Set: Actions

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- ❑ When an autoscale rule triggers, your scale set can automatically scale in one of the following ways:

Scale Operation	Use Case
Increase count by	A fixed number of VM instances to create. Useful in scale sets with a smaller number of VMs.
Increase percent by	A percentage-based increase of VM instances. Good for larger scale sets where a fixed increase may not noticeably improve performance.
Increase count to	Create as many VM instances are required to reach a desired maximum amount.
Decrease count to	A fixed number of VM instances to remove. Useful in scale sets with a smaller number of VMs.
Decrease percent by	A percentage-based decrease of VM instances. Good for larger scale sets where a fixed increase may not noticeably reduce resource consumption and costs.
Decrease count to	Remove as many VM instances are required to reach a desired minimum amount.

Hands-On Lab

Thank You