Microsoft Azure Cloud Concepts

AN INTRODUCTION TO CLOUD COMPUTING



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Overview



Introduction to cloud computing

Advantages of using cloud computing



Introduction to Cloud Computing



Datacenters in the Past



















Datacenters in the Past



X Cores XX GB Ram XXXX GB HDD



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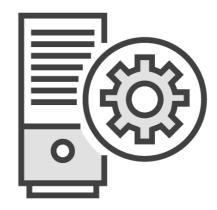
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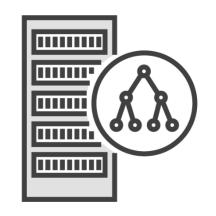
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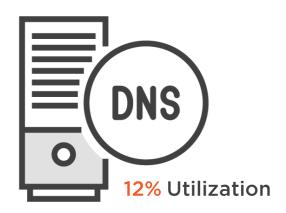


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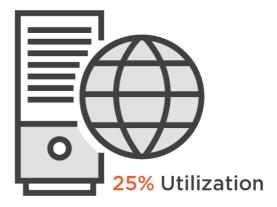
Datacenters in the Past



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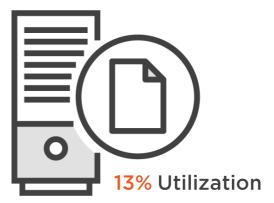
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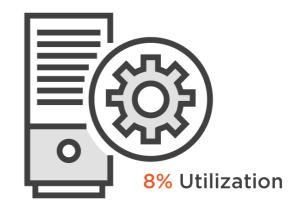
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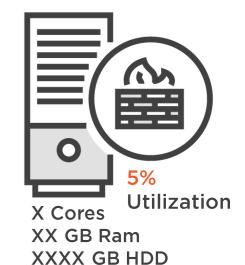
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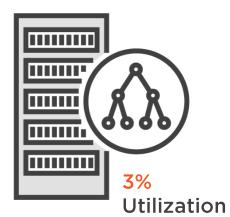


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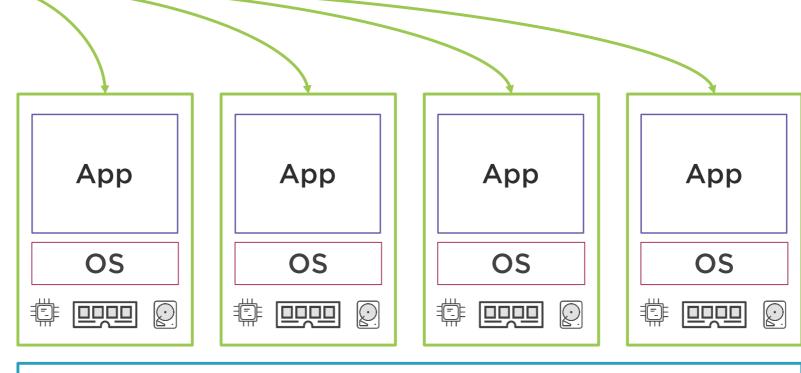
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Virtual machines



Virtualization layer (Hypervisor)

Virtual host

Physical server









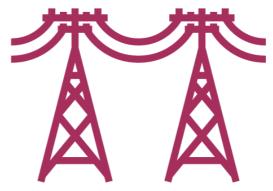
Even with Virtualization



High up-front cost



Space needed to host servers



Electricity / utility costs



Hardware maintenance still needed



Cloud Computing

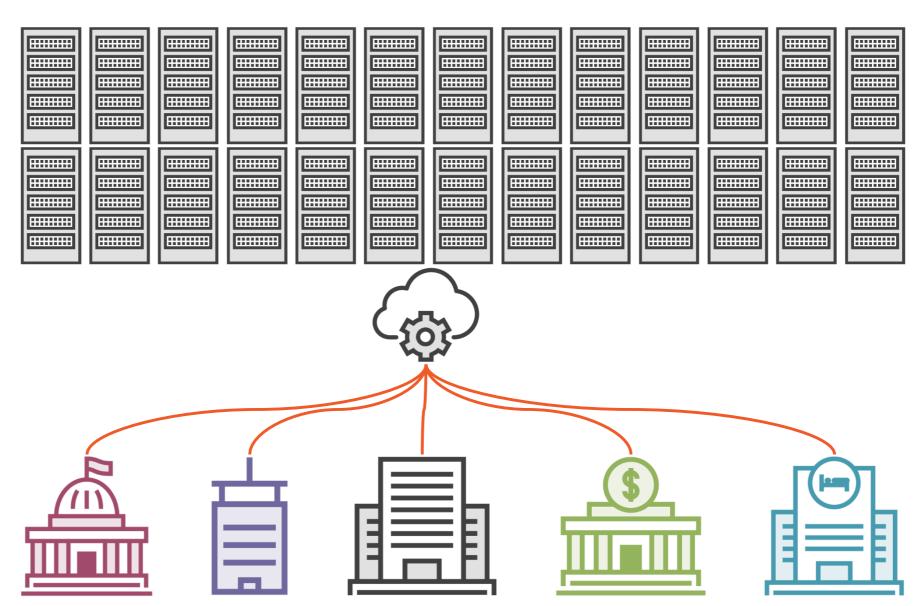
Cloud computing enables companies to consume a compute resource, such as a virtual machine, storage, or an application, as a utility -- just like electricity -- rather than having to build and maintain computing infrastructures in-house.

https://searchcloudcomputing.techtarget.com/definition/cloud-computing



Cloud Infrastructure: Shared Resources

Cloud provider





Cloud Infrastructure: On-demand Self Service

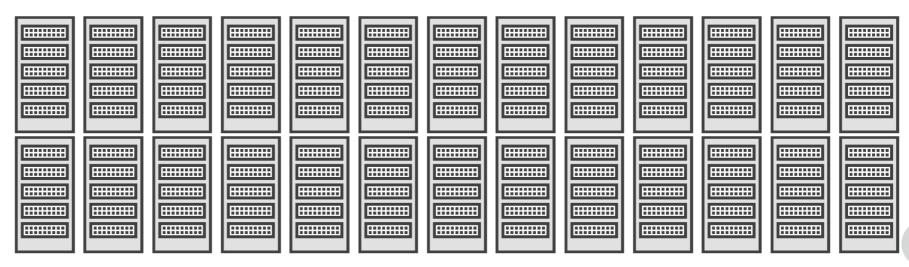








Cloud provider





How Much Does the Public Cloud Cost?



Services are billed on-demand, by the minute or by the hour

Allows organizations to create new resources when needed, and shut them off (and stop paying) when they are not needed anymore

Organizations can be more dynamic and costeffective

Reduces up-front cost

Cost goes into Operating Expenses (OpEx) instead of Capital Expenditures (CapEx)



CAPEX vs. OPEX Basics

Capital expenditures are depreciated over the useful life of the asset

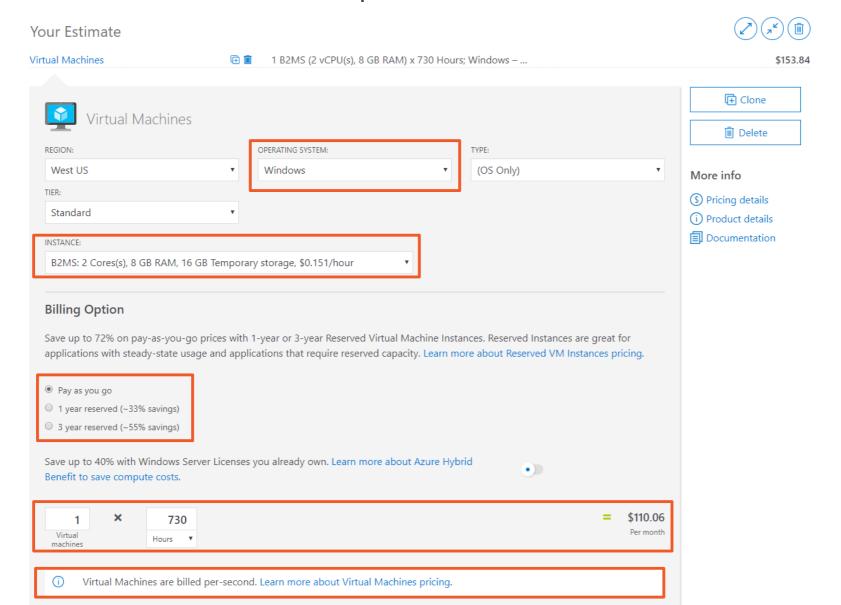
- You cannot fully deduct the cost from the fiscal year the asset was paid for in

Operating Expenses are deducted in the same year they are made



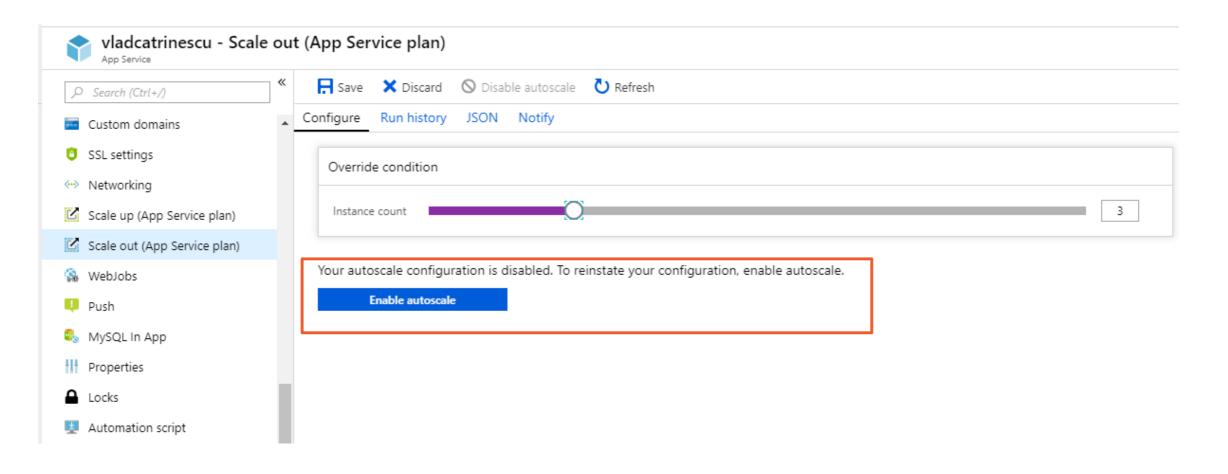


Cost Example: Microsoft Azure



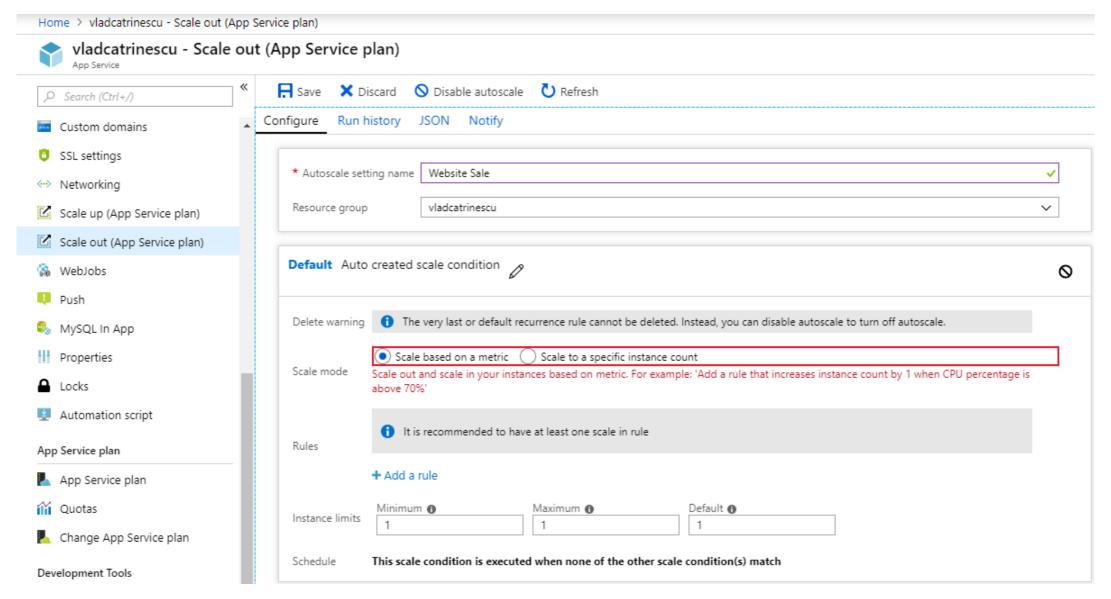


Scaling / Rapid Elasticity Example





Rapid Elasticity Example





Reliability



Cloud provider takes care of high availability (HA) and disaster recovery (DR)

- HA: local failure such as a disk, power supply, etc
- DR: natural / human disaster like a fire, flood, earthquake, etc.

Fault Tolerance

 Very similar to HA but offers zero downtime



Reliability and Cost

Cost to implement in-house can grow quickly

- 2nd Datacenter Rent
- Networking
- Utilities

In the cloud you benefit from the economies of scale





Azure Data Center Locations



Conclusion



Introduction to cloud computing

- Allows organizations to consume computing resources as a utility

Advantages of using cloud computing

- Rapid elasticity
- Billed per second/minute/hour
- Reliability
- Economies of scale

