

# Cloud Computing in the Real World

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# Overview



## Types of cloud computing services

- Infrastructure as a Service
- Platform as a Service
- Software as a Service

## Cloud computing services scenarios

## Cloud computing deployment models

## Virtual Desktop Infrastructure



# Types of Cloud Computing Services

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# Three Main Types of Cloud Computing Services

**Infrastructure  
as a Service  
(IaaS)**

**Platform  
as a Service  
(PaaS)**

**Software  
as a Service  
(SaaS)**



# Types of Cloud Computing Services

## On-premises

Applications

Data

Runtime

Middleware

OS

Virtualization

Servers

Storage

Networking

## IaaS

Applications

Data

Runtime

Middleware

OS

Virtualization

Servers

Storage

Networking

## PaaS

Applications

Data

Runtime

Middleware

OS

Virtualization

Servers

Storage

Networking

## SaaS

Applications

Data

Runtime

Middleware

OS

Virtualization

Servers

Storage

Networking

You manage

Managed by vendor



You manage

Managed by vendor

# Pizza as a Service

## On-premises

Dining table

Soda

Electric/Gas

Oven

Fire

Pizza dough

Tomato sauce

Toppings

Cheese

Made at home

## IaaS

Dining table

Soda

Electric/Gas

Oven

Fire

Pizza dough

Tomato sauce

Toppings

Cheese

Take and bake

## PaaS

Dining table

Soda

Electric/Gas

Oven

Fire

Pizza dough

Tomato sauce

Toppings

Cheese

Pizza delivery

## SaaS

Dining table

Soda

Electric/Gas

Oven

Fire

Pizza dough

Tomato sauce

Toppings

Cheese

Dine out

# Some Popular Vendors

## IaaS

**Microsoft Azure**

**Amazon Web Services**

**Google Compute Engine**

**Rackspace**

## PaaS

**Heroku**

**Amazon Elastic Beanstalk**

**Azure Logic Apps**

## SaaS

**Microsoft 365**

**Google G Suite**

**Salesforce**

**Dropbox**



# Cloud Computing Services Scenarios

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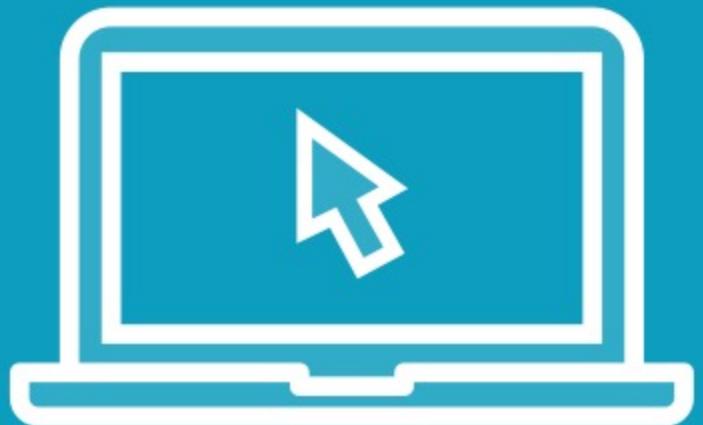
# Common IaaS Scenarios



- Test and development**
- Storage and backups**
- High performance computing**
- Big data analysis**



Demo



**Creating a virtual machine in Azure IaaS**



# Common PaaS Scenarios

**Analytics or business intelligence**

**Development framework**



Demo



**Create an Azure Web App**



# Common SaaS Scenarios



**Gain access to sophisticated applications**  
**Mobilize your workforce easily**



Demo



**Pricing for Microsoft 365 and Dropbox**  
**Setting up a Dropbox account**



# Cloud Computing Deployment Models

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# Cloud Computing Deployment Models

## Public Cloud

**Cloud service provided by a third-party provider, hardware can be shared amongst multiple clients**

## Private Cloud

**Hardware is only used by a single company, which often owns the hardware and datacenter**

## Hybrid Cloud

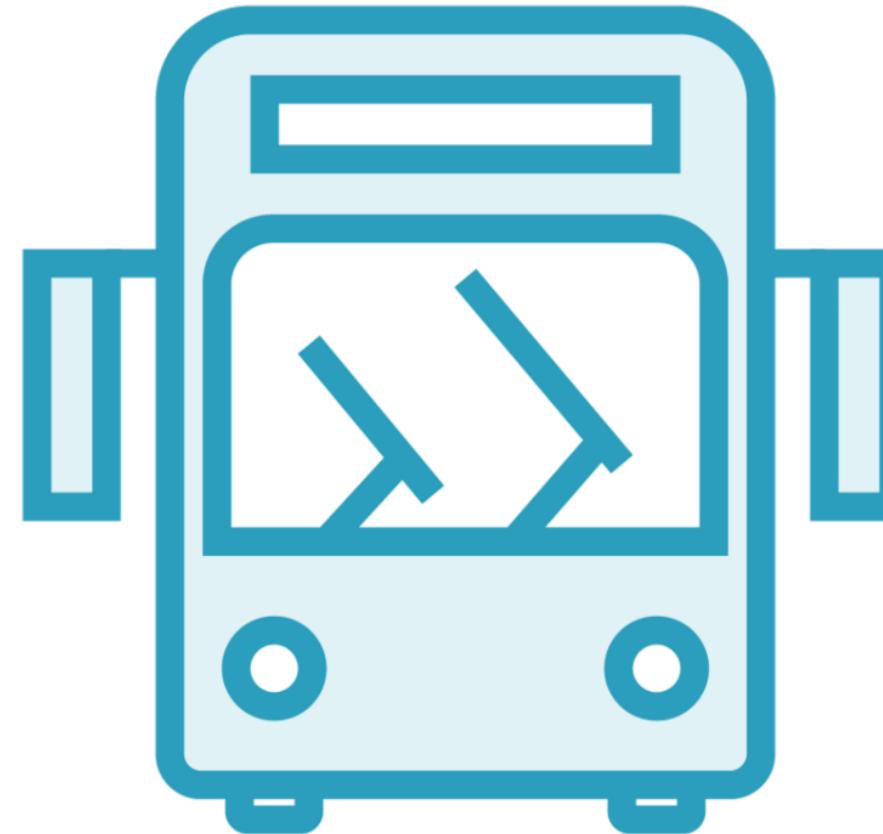
**Combination of public and private cloud with automation and orchestration between the two**

## Community Cloud

**Infrastructure is shared between several orgs from a specific community with common concerns (security, compliance, jurisdiction, etc.)**



# Public Cloud



**Most cloud offerings are in the public cloud model**



# Private and Hybrid Cloud

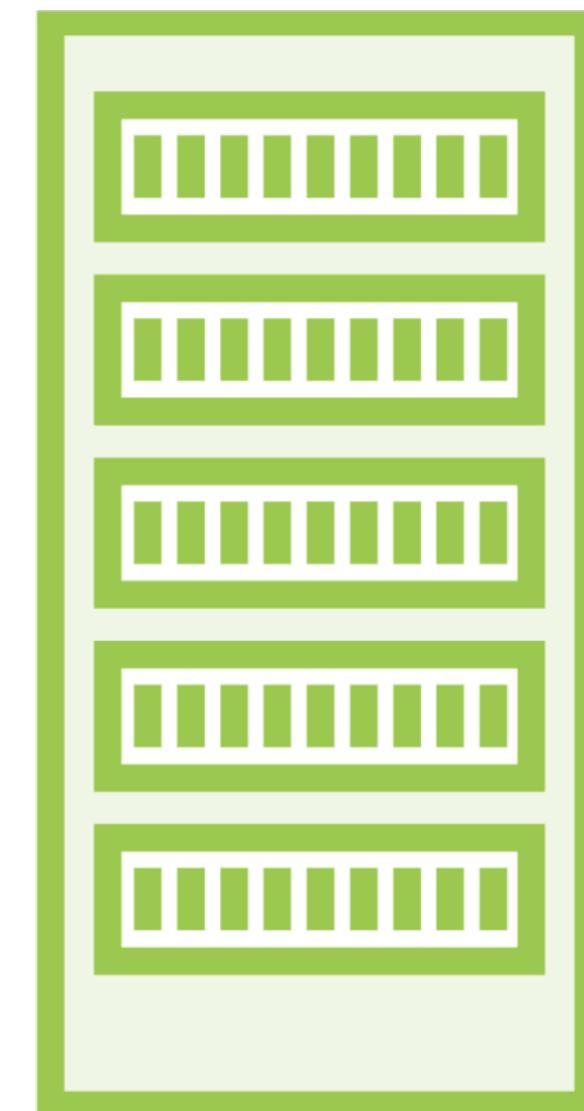
**Consistent tools, experiences, and app models**

**Some examples**

**Azure Stack**

**AWS Outposts**

**Easier to transfer workloads to public cloud in the future**



# Community Cloud



**Example scenario is a cloud offering specific to government entities**

**Can handle data that is subject to government regulations & requirements**

- FedRAMP / DOD / CJIS / etc

**Other example community clouds include services in specific countries**

- Azure China
- Azure Germany
- AWS China



# Virtual Desktop Infrastructure

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# **Virtual Desktop Infrastructure (VDI)**

**Virtual Desktop Infrastructure, or VDI, refers to the process of running a user desktop inside a virtual machine that lives on a server in the datacenter. It's a powerful form of desktop virtualization because it enables fully personalized desktops for each user with all the security and simplicity of centralized management.**

**<https://www.citrix.com/glossary/vdi.html>**



# Goal of Virtual Desktop Infrastructure



**Virtual desktop accessible from any computing device**

**You can decide how powerful the virtual desktop is**

- The computing device used to connect to the virtual desktop doesn't need to be powerful!**

**Enterprises can enforce security & compliance on the virtual desktops**



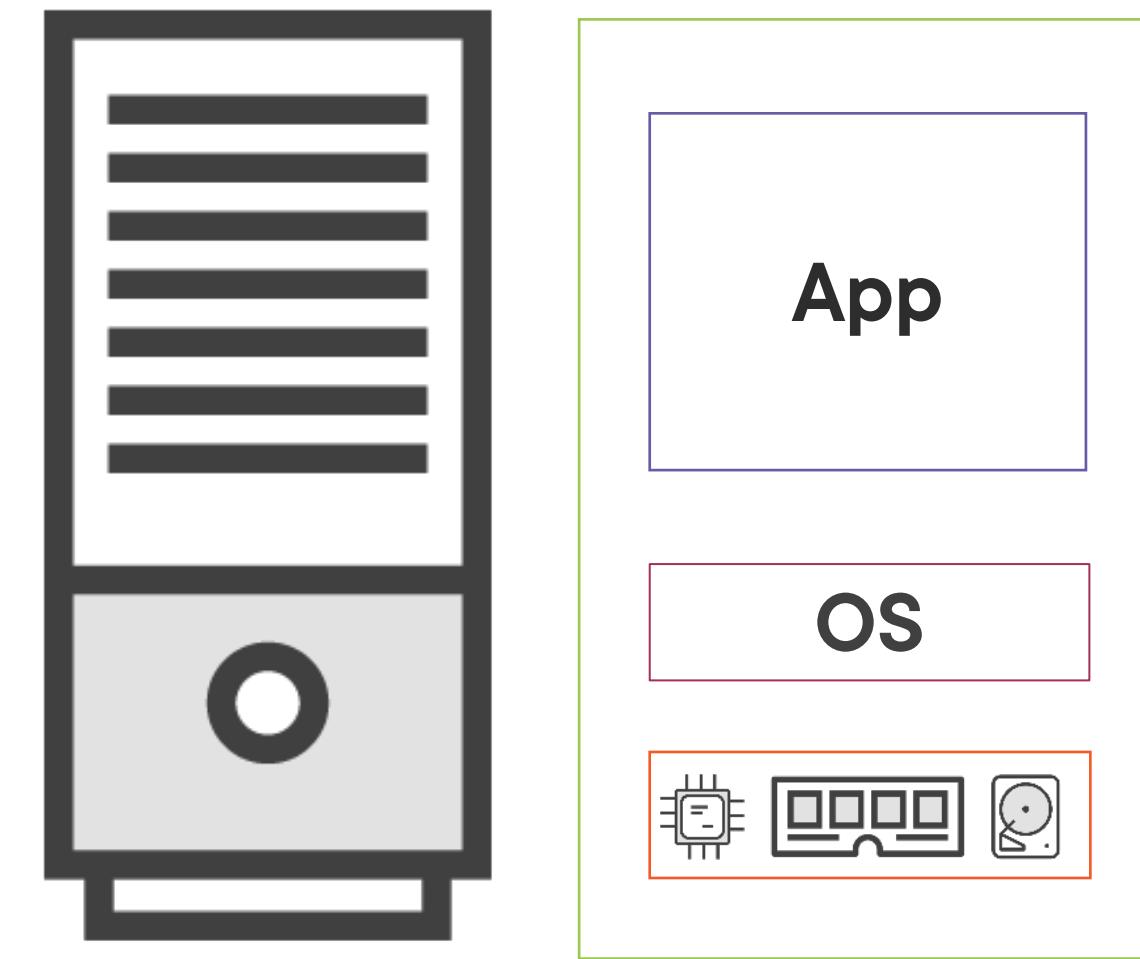
# Virtual Desktop Infrastructure

**On-Premises**  
*Private Cloud*

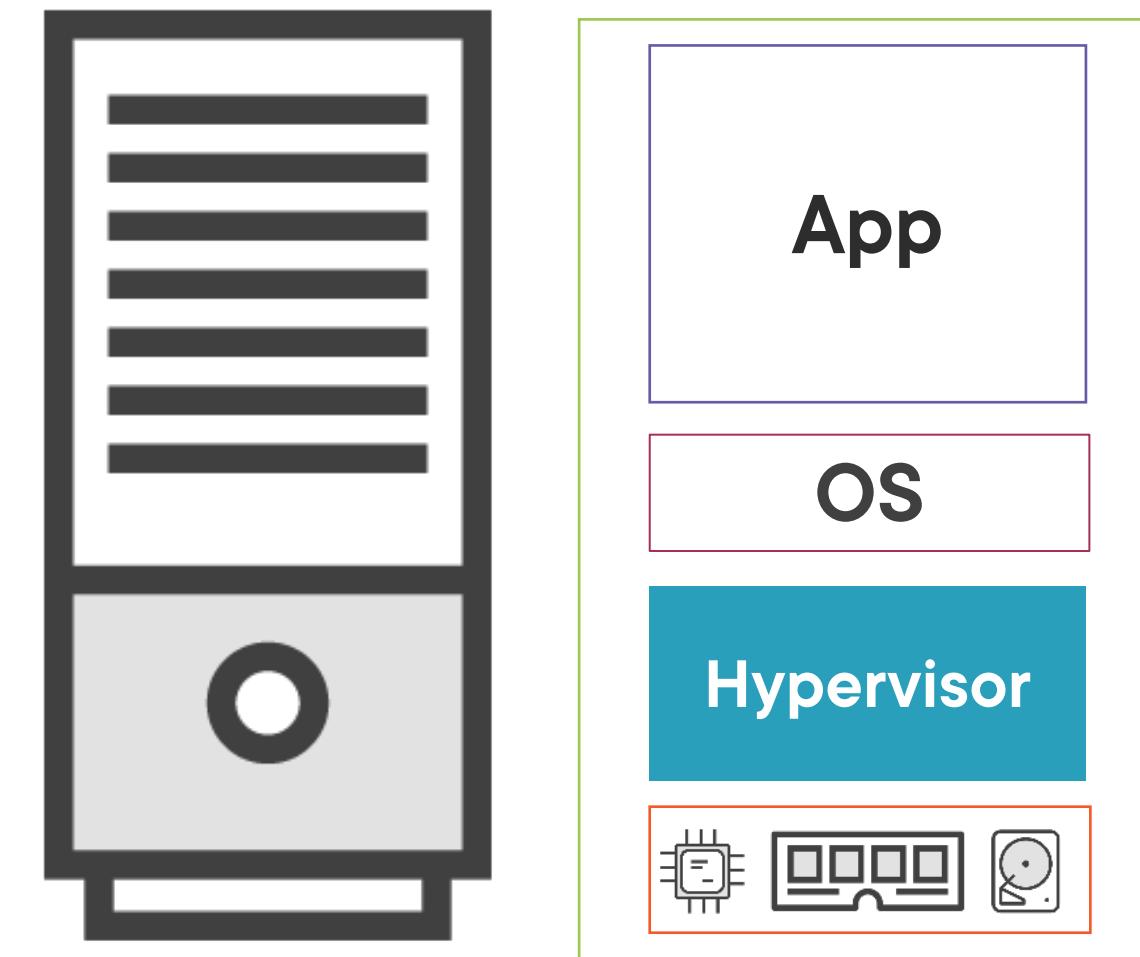
**Public Cloud**



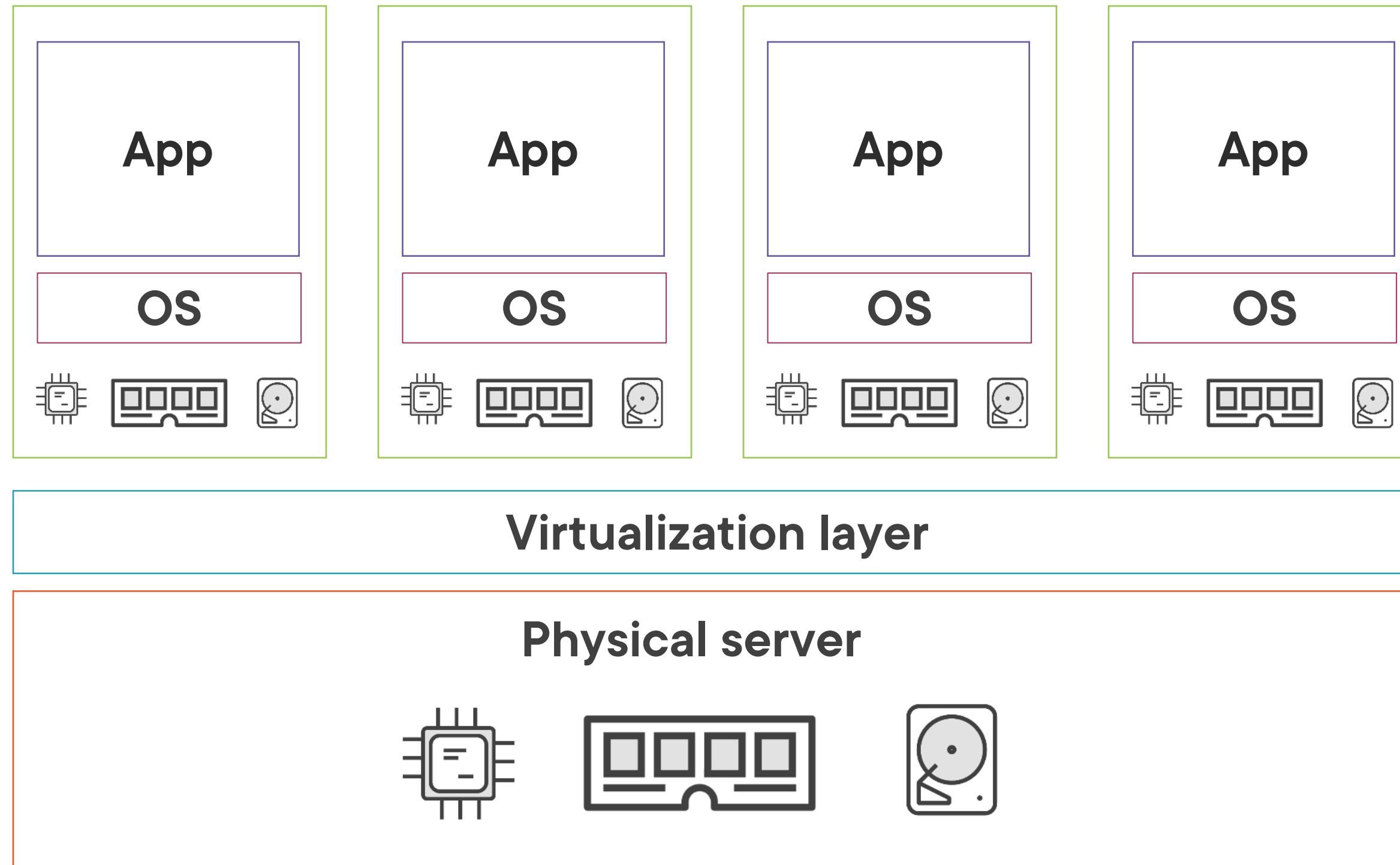
# Desktop Virtualization



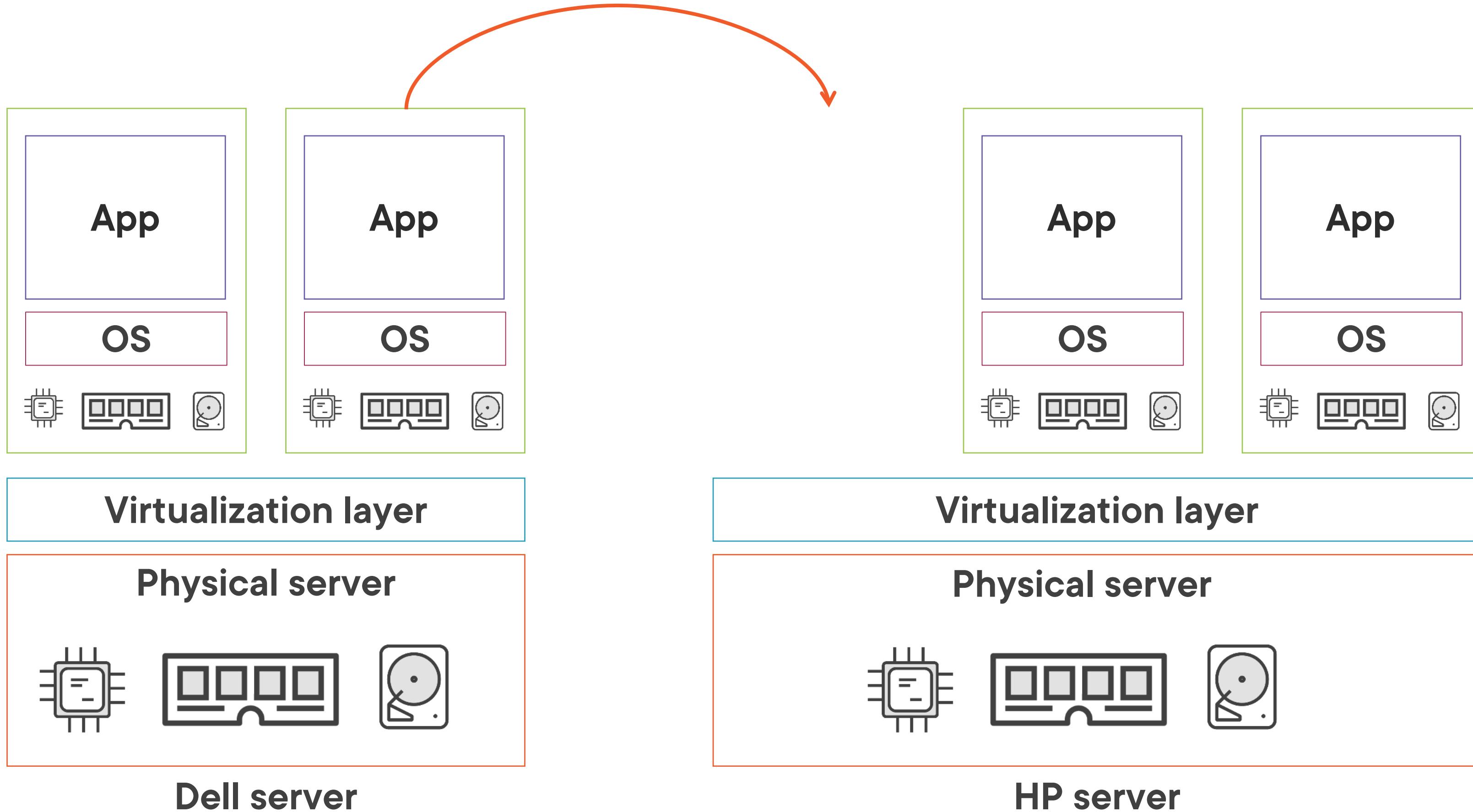
# Desktop Virtualization



# Desktop Virtualization



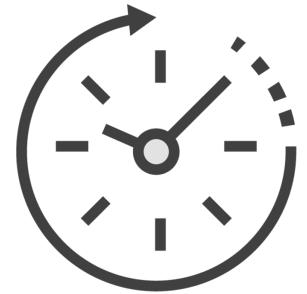
# Virtual Desktops Are Portable



# Virtual Desktop Infrastructure Benefits



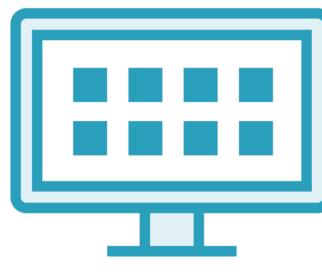
**Hardware Cost Savings**



**Load Balancing and Resilience**



**Faster PC deployment**



**Centrally managed and backed up**



Demo



**Windows 365 Cloud PC**



# Scenario: Carved Rock Fitness

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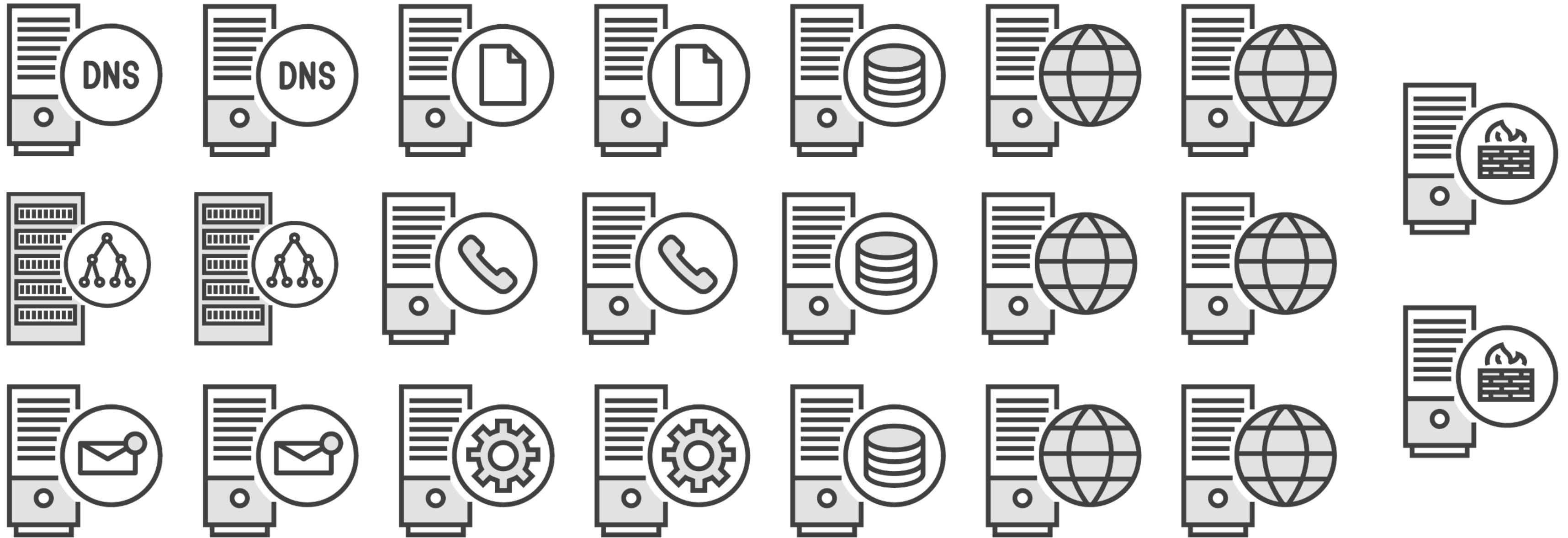
# Your Case: Carved Rock Fitness



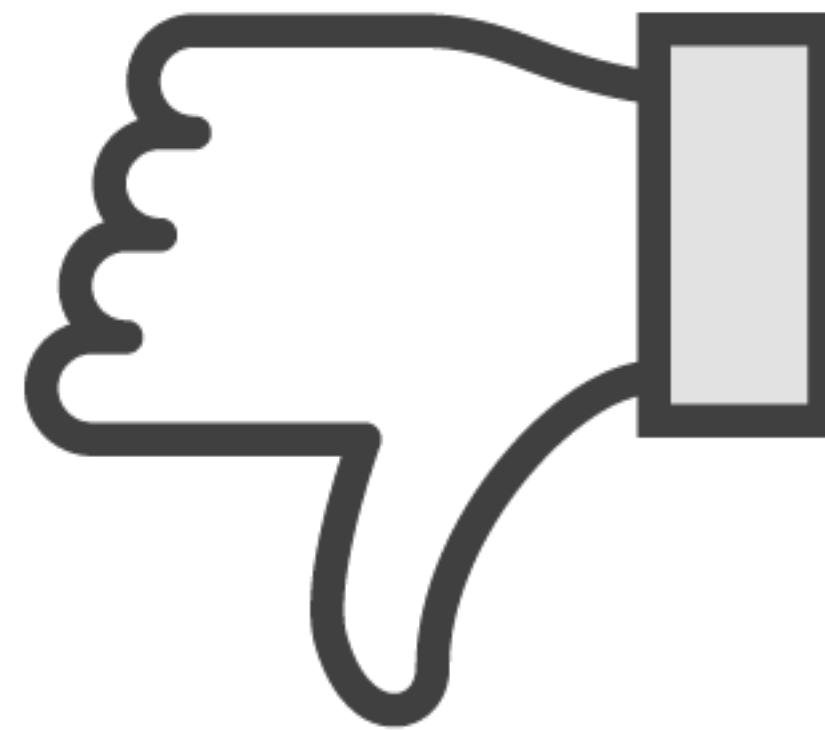
Carved Rock Fitness is a family-owned fitness company that is growing throughout North America. As they grow to multiple locations, they are looking at different ways to improve their IT Infrastructure reliability and save money.



# Carved Rock Fitness: Current Infrastructure



# Current Problems



**With 23 servers, rent for the datacenter is expensive and getting new space is complicated**

**Web servers only reach 60% utilization during quarterly sales**

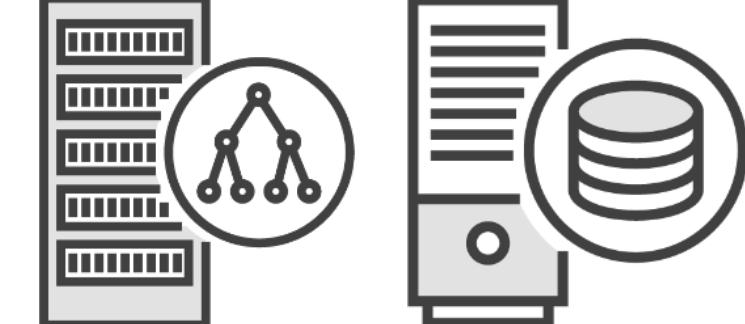
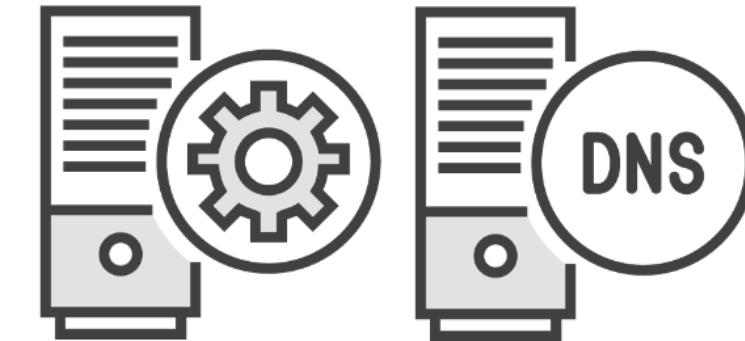
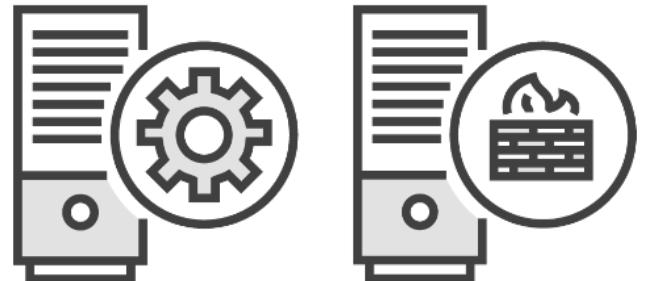
- Normal utilization is less than 5%**

**The brand expansion adds new high availability and disaster recovery requirements**

**Maintaining the hardware and servers will require more full time IT personnel**



# How Can Virtualization and Cloud Help?



**Microsoft  
Azure (IaaS)**

**Microsoft 365  
(SaaS)**

**Azure App Service (PaaS)**



## Conclusion



### Types of cloud computing services

- Infrastructure as a Service
- Platform as a Service
- Software as a Service

### Cloud computing deployment models

- Public cloud
- Private cloud
- Hybrid cloud
- Community cloud

### Virtual desktop infrastructure



Up Next:  
Course Conclusion

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