

Lecture 3 - Cloud Delivery Models

Cloud Delivery Models

Pizza as a service

The variety of cloud services can obfuscate the level of an organization's ownership of the stack.
Albert Barron, executive software client architect at IBM, uses this analogy to provide clarity:



ON-PREMISES MANAGEMENT
Making a pizza
at home



IAAS
Take-and-bake
service



PAAS
Delivery



SAAS
Eat-in
restaurant



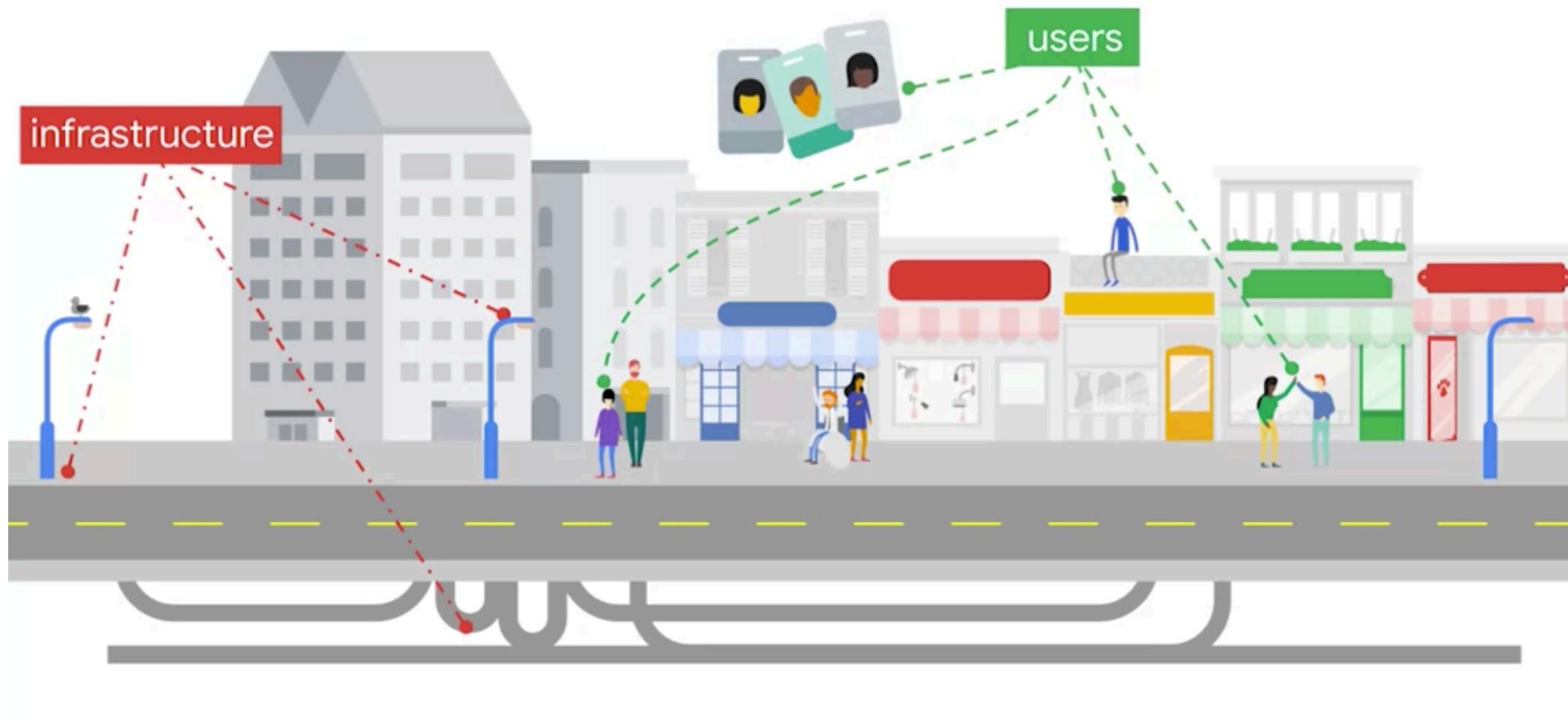
Cloud Delivery Models



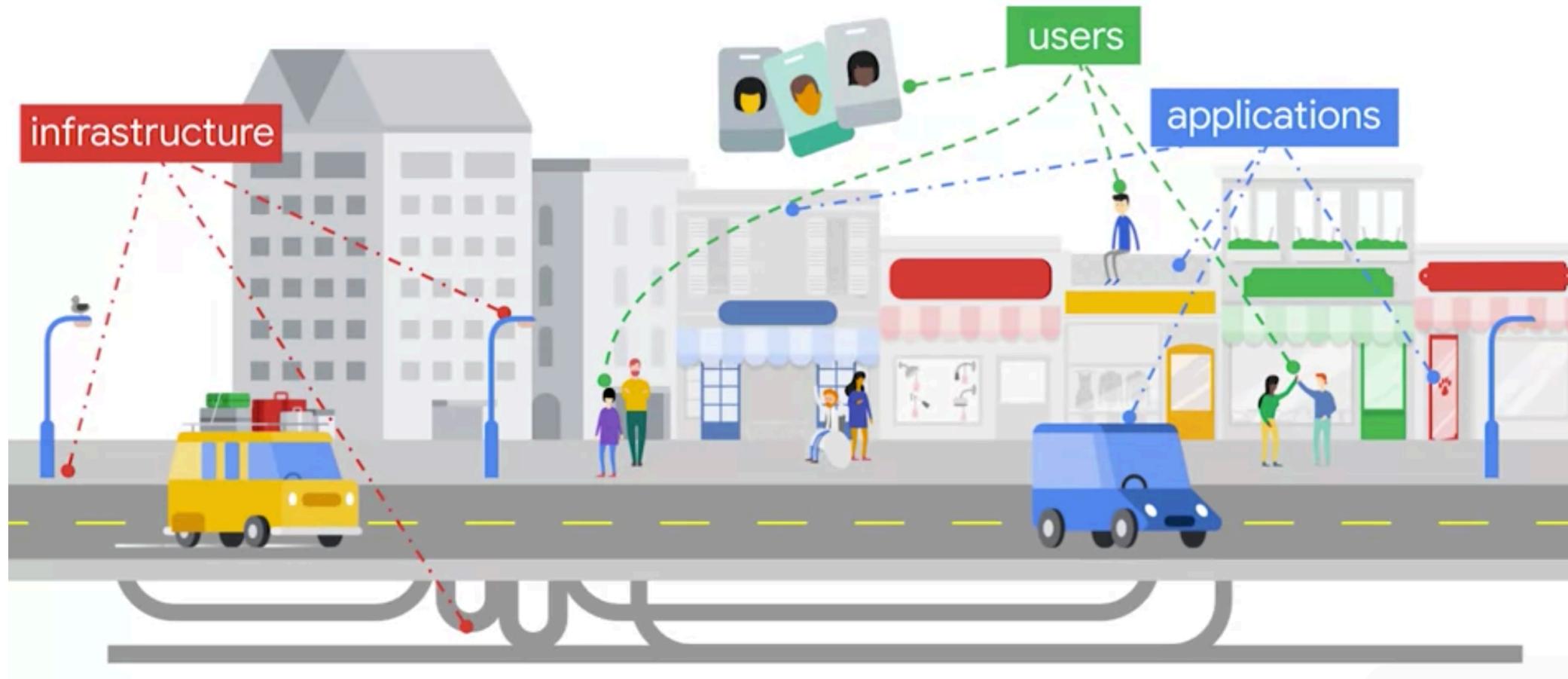
Cloud Delivery Models



Cloud Delivery Models



Cloud Delivery Models



Cloud Delivery Models....

Cloud Service Models

**Software as a Service
(SaaS)**

A software distribution model in which applications are hosted by a service provider and made available to customers over Internet

**Platform as a Service
(PaaS)**

networks, servers, storage, operating system (OS) , middleware (e.g. Java runtime, .NET runtime, integration, etc.), database and other services to host the consumer's application

**Infrastructure as a Service
(IaaS)**

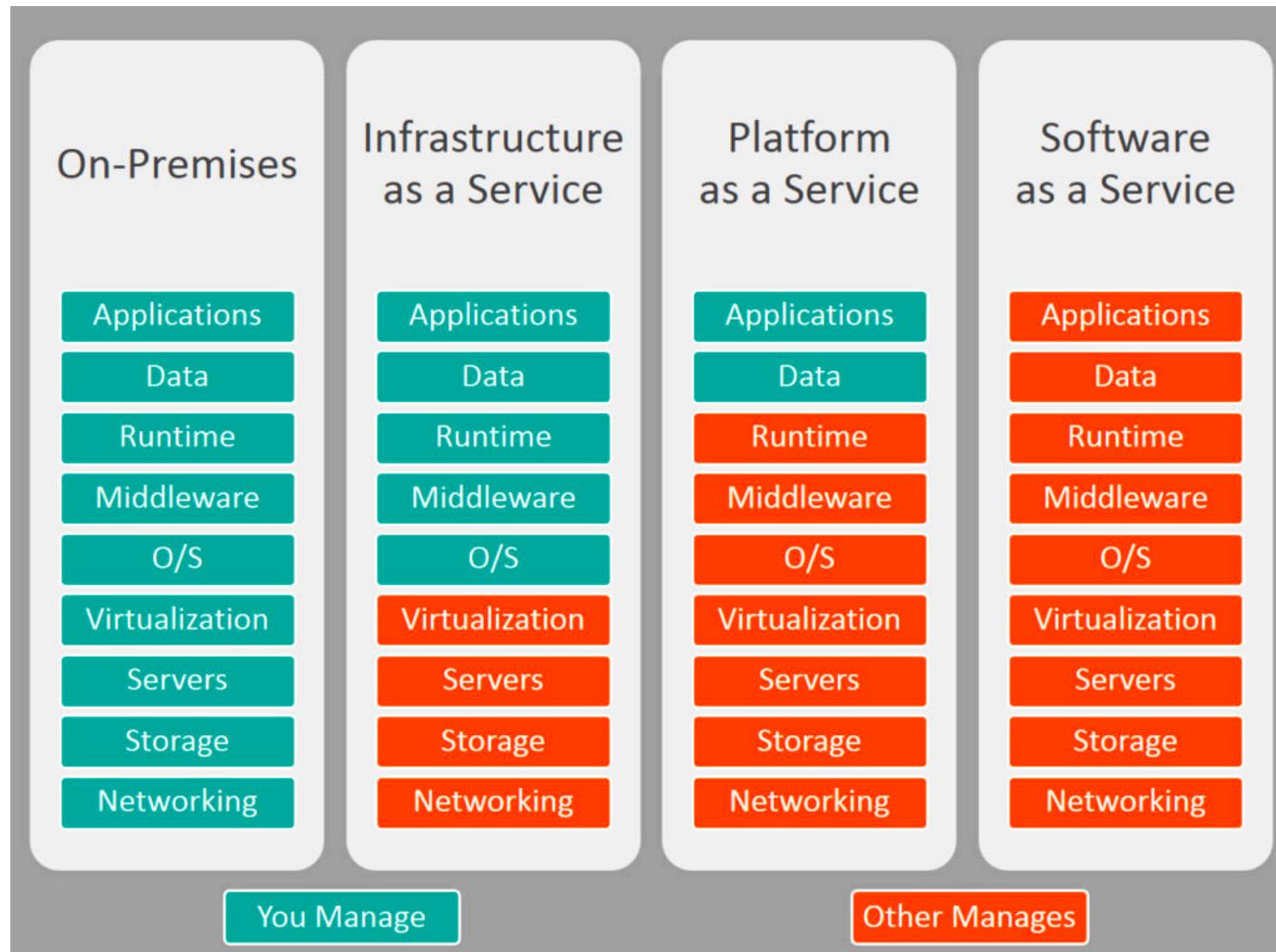
A provision model in which an organization outsources the equipment used to support operations, including storage, hardware, servers and networking components.



Google™ Apps



Cloud Delivery Models....



Cloud Delivery Models....

IaaS



Amazon EC2



DigitalOcean



rackspace®
the open cloud company

⋮

PaaS



HEROKU



salesforce



⋮

BaaS



Firebase



Skygear



Parse Server

⋮

SaaS



zendesk



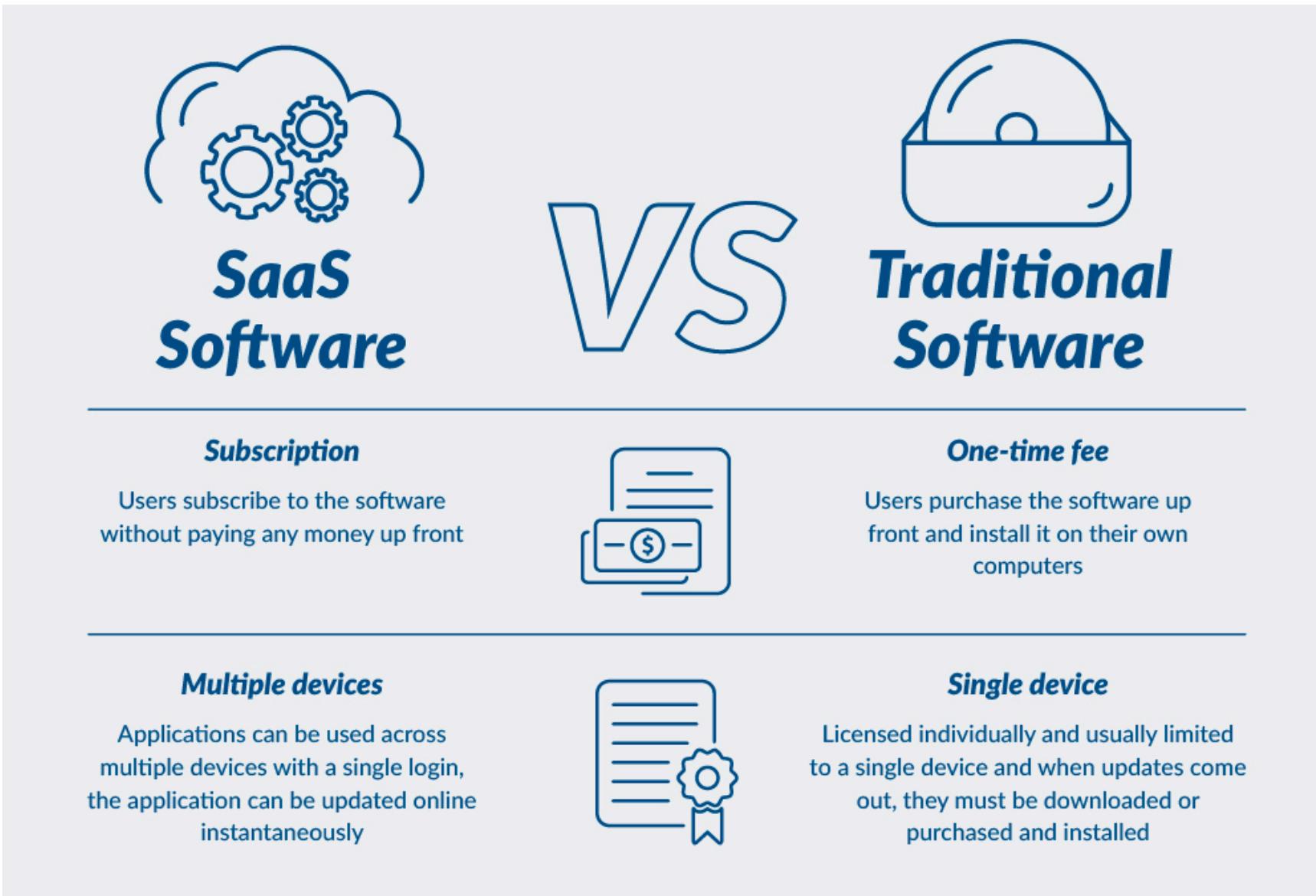
PayPal



⋮



Cloud Delivery Models....

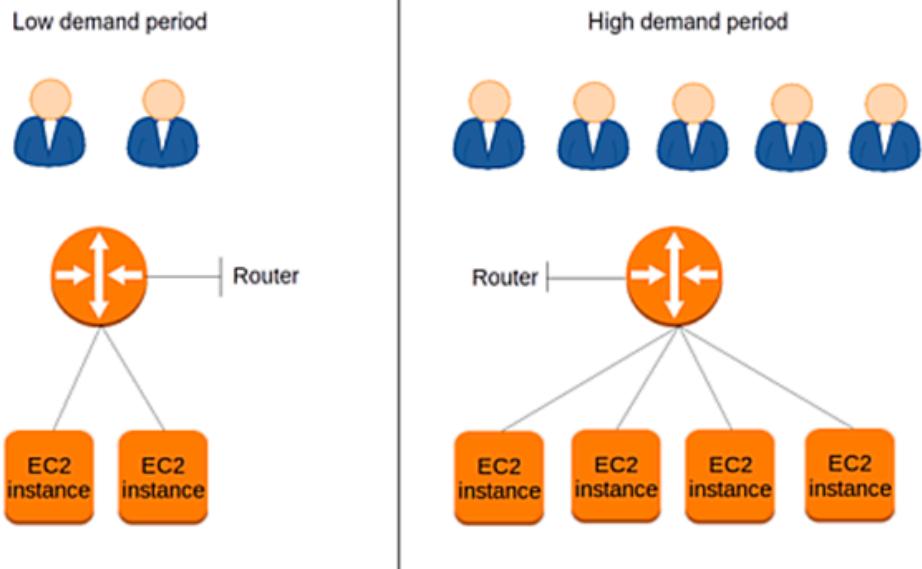


Terms in Computing – Scalability and Elasticity

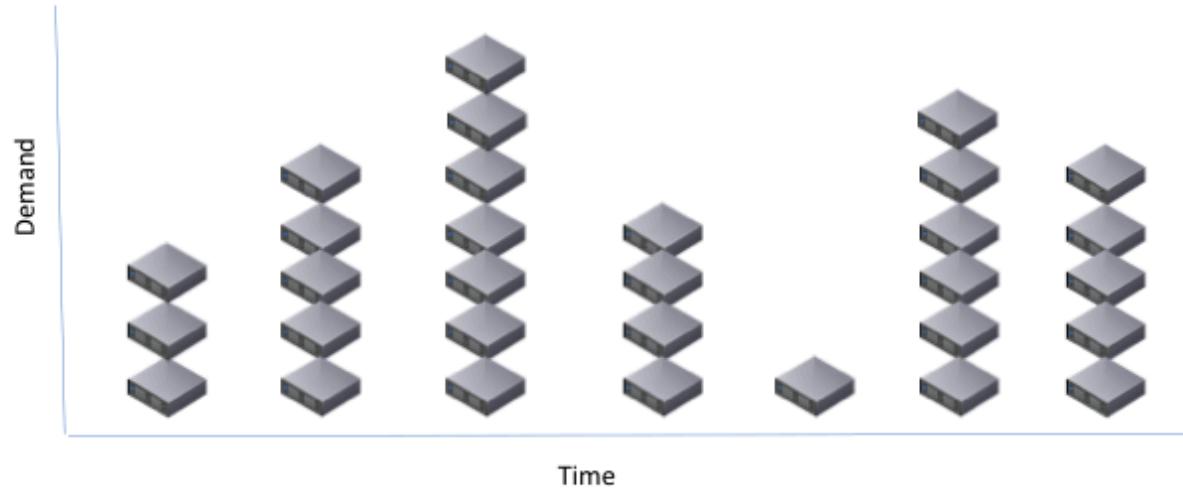
- Scalability
 - A desirable property of a system, a network, or a process, which indicates its ability to either handle growing amount of work in a graceful manner or to be readily enlarged.
- Elasticity
 - The ability to apply a quantifiable methodology that allows for the basis of an adaptive introspection within a real time infrastructure.
- But how to achieve these properties ?
 - ✓ Dynamic provisioning



Terms in Computing – Scalability and Elasticity



Elasticity in Cloud Computing



Terms in Computing – Availability and Reliability

- Availability
 - Degree to which a system, subsystem, or equipment is in a specified operable and committable state at the start of the mission, when a mission is called for at an unknown time.
- Reliability
 - The ability of a system or component to perform its required functions under stated conditions for a specified period of time.
- Availability and Reliability can be achieved by ,
 - ✓ Fault-tolerant systems
 - ✓ Require system resilience
 - ✓ Reliable system security



Terms in Computing – Availability and Reliability

The measurement of Availability is driven by **time loss** whereas the measurement of Reliability is driven by the **frequency and impact** of failures.



Availability

The percentage of time an infrastructure, system, or solution remains operational under normal circumstances in order to serve its intended purpose

Reliability

The probability that an infrastructure, system, or solution will meet certain performance standards when yielding correct output for a set period of time



Terms in Computing – Manageability and Interoperability

- Manageability
 - Systems manageability is strongly affected by network management initiatives in telecommunications.
- Interoperability
 - A property of a product or system, whose interfaces are completely understood, to work with other products or systems, present or future, without any restricted access or implementations
- But how to achieve above two ?
 - System control automation
 - System state monitoring



Terms in Computing – Performance & Optimization

Performance

- Application performance should be guaranteed.

Optimization

- Use of powerful infrastructure or other underlining resources to build up a highly performed and highly optimized environment, and then deliver the complete services to end users.

- ❖ Parallel computing
- ❖ Load balancing
- ❖ Job scheduling



Terms in Computing – Accessibility & Portability

- Accessibility
 - A general term used to describe the degree to which a product, service, or environment is accessible by as many people as possible.
- Portability
 - Service portability is the ability to access services using any device, anywhere, continuously with mobility support and dynamic adaptation to resource variations

How can we achieve this??

- ✓ Uniform access
- ✓ Thin client



Thanks