CLOUD COMPUTING

University of Colorado
Boulder

PROJECT PRESENTATIONS

WHAT IS THE CLOUD?


ARE YOU SURE THIS IS HOW WE GET DATA INTO THE CLOUD?
IT


I THINK WE MAY NEED TO UPDATE OUR DISASTER RECOVERY PLAN. THIS ONE SUGGESTS WE ALL RUN AROUND IN CIRCLES SHOUTING 'WHAT DO WE DO?!!' 'WHAT DO WE DO?!!'

THINGS TO THINK ABOUT

- Scaling, Lead time
- Floor space
- Power management
- Heating/Cooling
- Redundancy – SPOF (Single Point of Failure)
- Fire Suppression
- Battery Backup -- UPS
- Network Wiring
- Data & Server Backups
- Network Switching
- 7X24 support
- Alerts/Alarms

A METAPHOR

- The electrical grid
  - You don't know where it comes from
  - It's there when you need it, just plug it in
  - Use what you want
  - Need more? Just take it.
  - Pay for what you use

DEFINITION

"Computing Services and Solutions are delivered and consumed in real time over the internet."

PROS AND CONS

Advantages of Cloud Computing:

- Ubiquitous (available from anywhere)
- Automated change management
- Massively Scalable
- On-Demand Provisioning
- Rapid Deployment
- Lowers innovation barriers
- Leading edge architecture
- Lower Cost

Disadvantages of Cloud Computing:

- Surrender Control
- Less Robust Monitoring
- Less Secure – multi-tenancy, DDoS

TYPES OF CLOUD NETWORKS

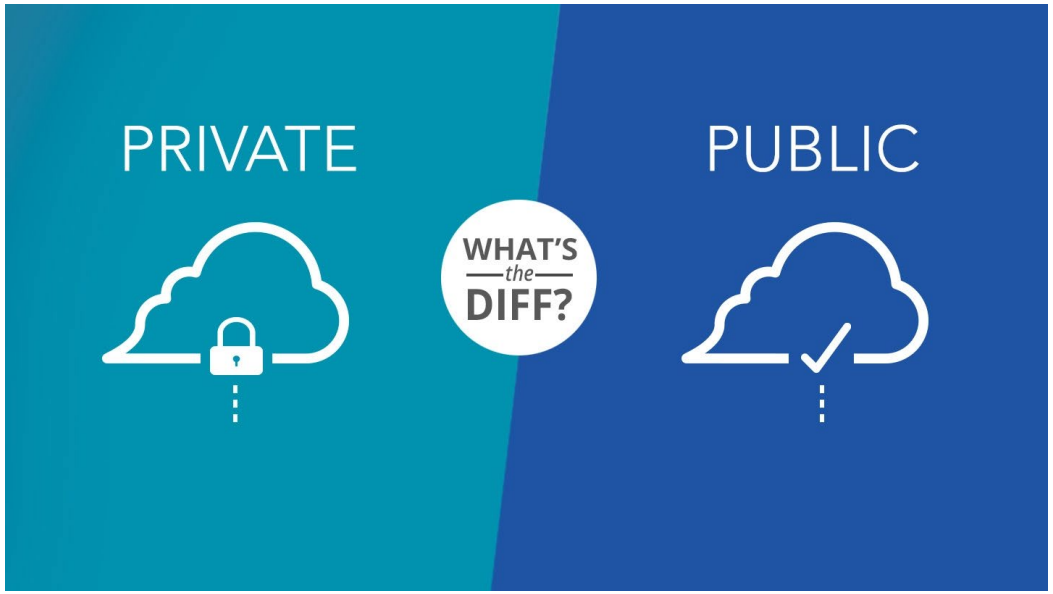
Private – my private cloud in my own data center

Public – a shared environment hosted by a provider

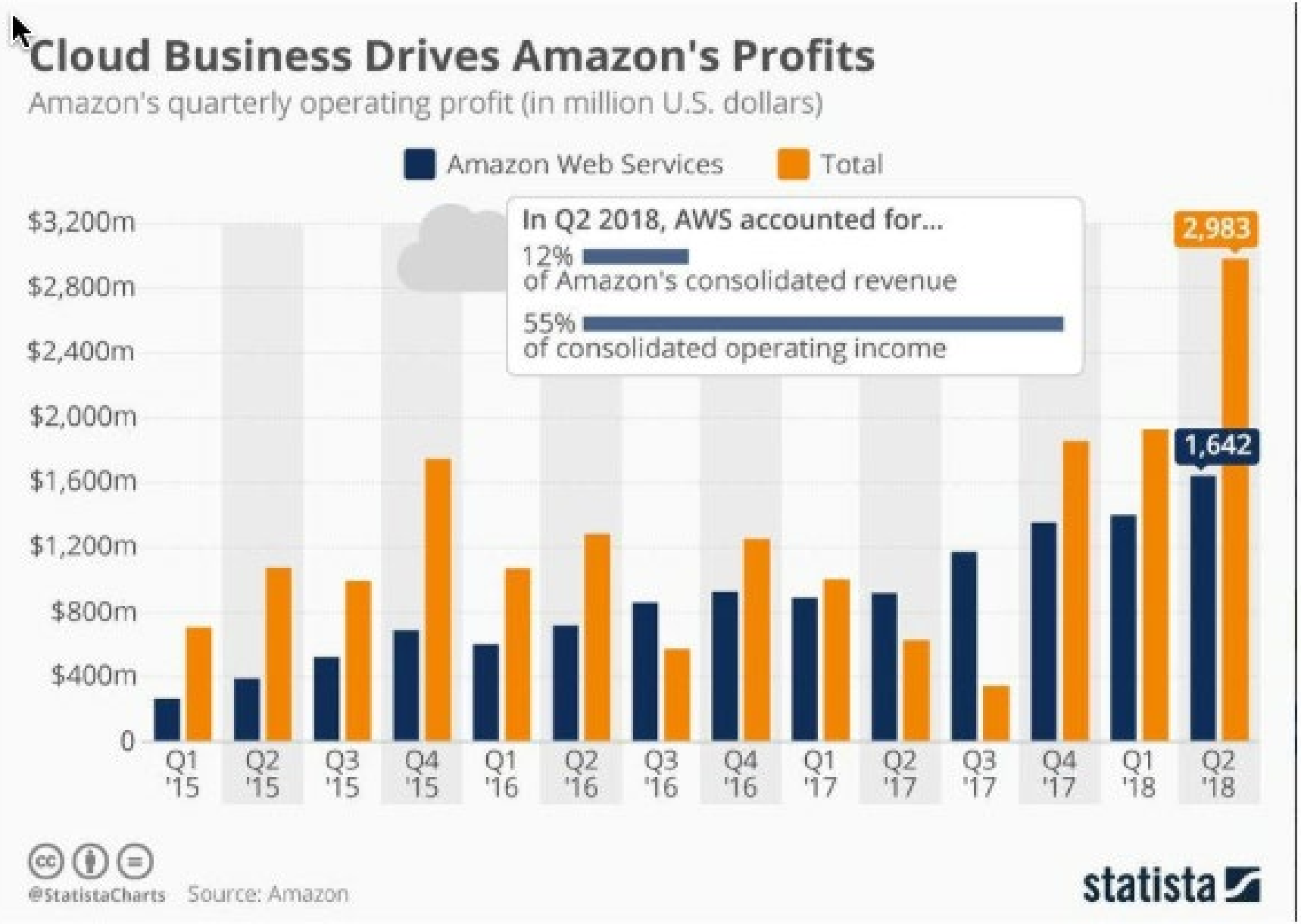
CHARACTERISTICS OF PUBLIC CLOUD SERVICES

- Offsite hosting
- Pay per use (setup/initial, plus ongoing)
- Shared space
- Massively Scalable
- On-Demand Provisioning
- Rapid Deployment
- Lowers innovation barriers
- Leading edge architecture

CHARACTERISTICS OF PRIVATE CLOUD SERVICES



- Private: Leverage the advantages, with few disadvantages
  - Massively Scalable
  - On-Demand Provisioning
  - Rapid Deployment
  - More secure
  - Better Monitoring
  - BUT → Still requires significant internal infrastructure



SOURCE: CLOUD BUSINESS DRIVES AMAZON'S PROFITS, STATISTA, JULY 27, 2018

CLOUD SERVICE MODELS

IaaS - Infrastructure-as-a-Service

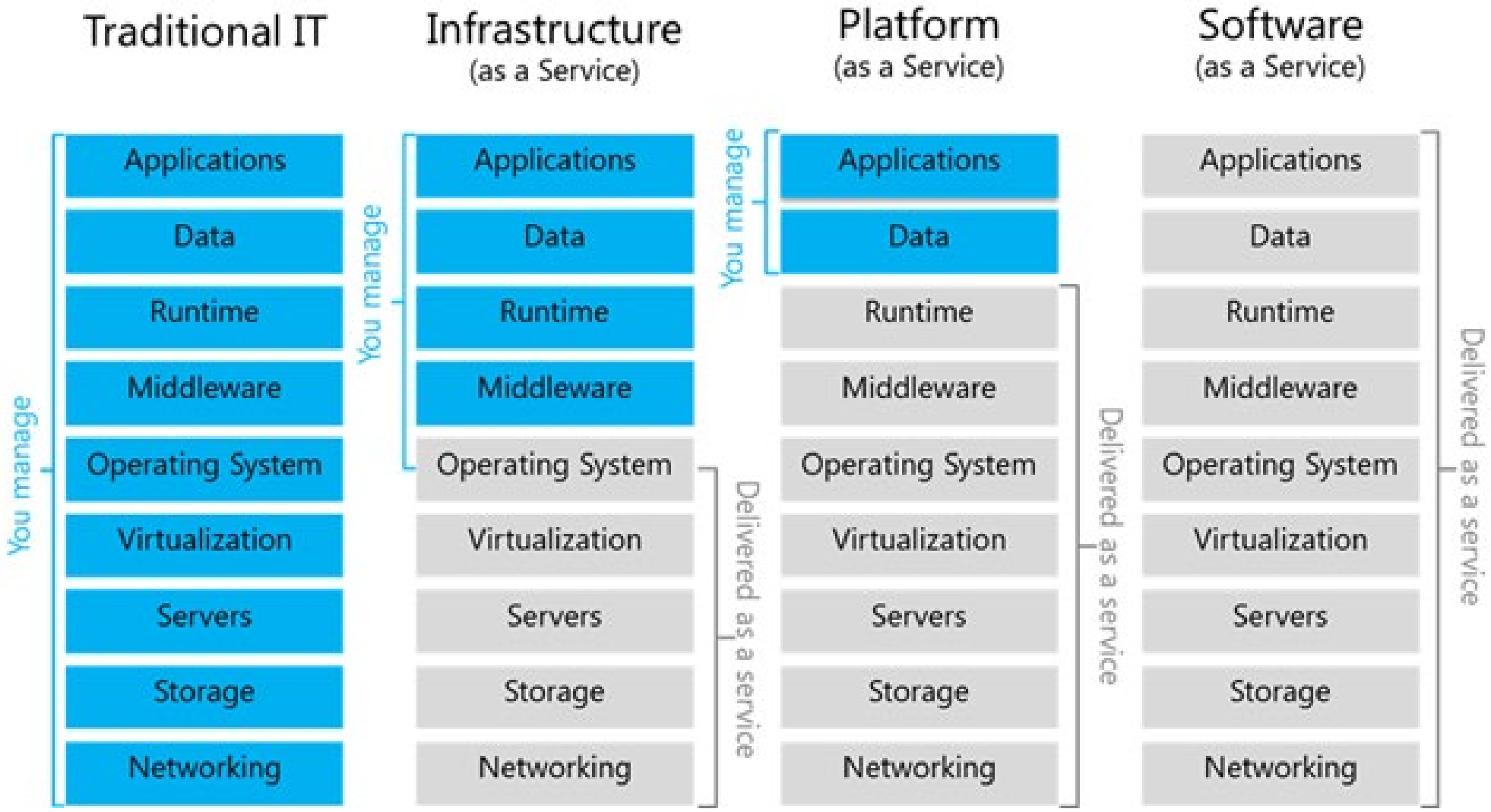
- A cloud service providing infrastructure - computers, networking resources, storage. Typically virtual but could be physical.

PaaS - Platform-as-a-Service

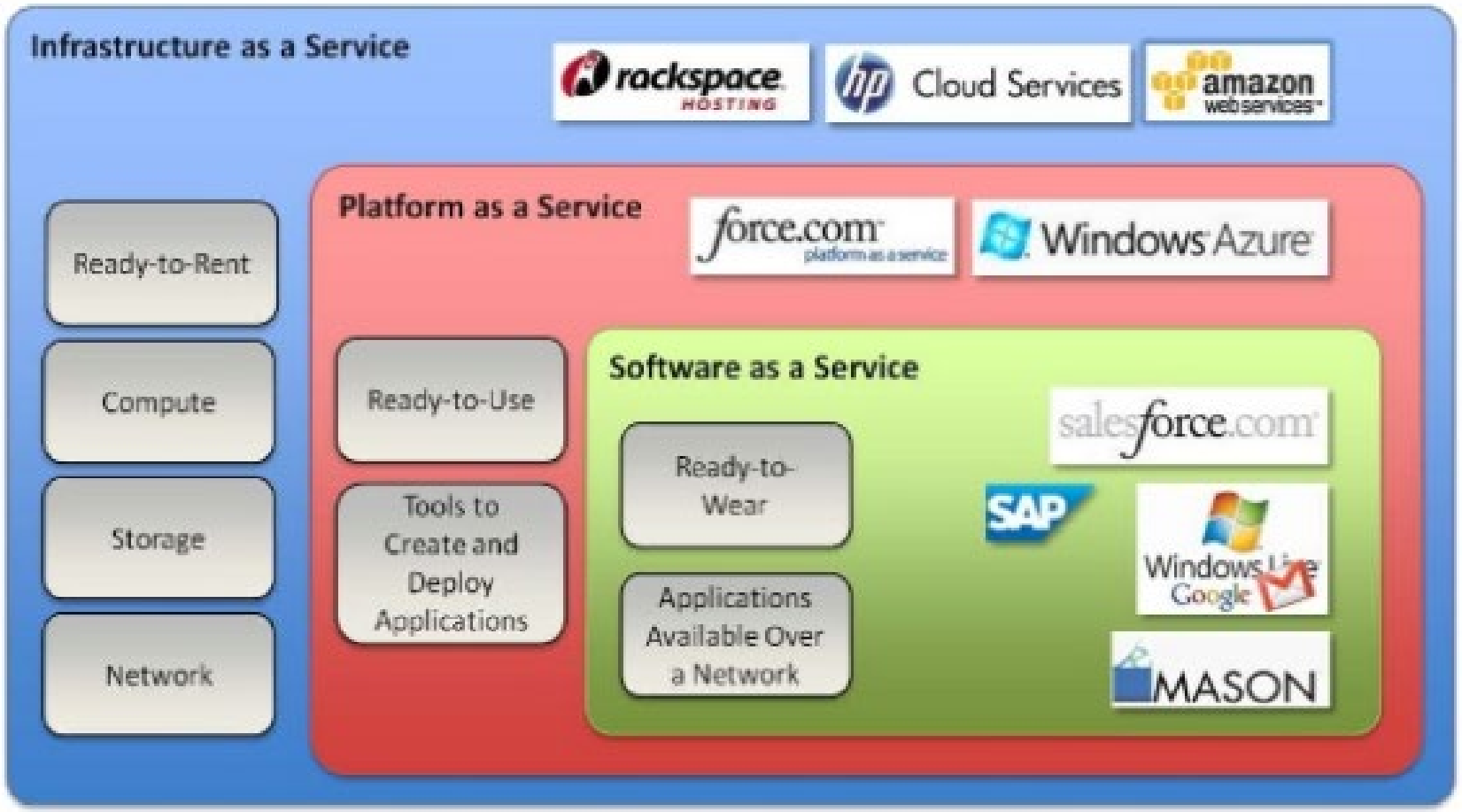
- A cloud service that hides the infrastructure (users don't see the servers, storage, switches, etc.) Provides a software development platform. Users can develop and run an application on a PaaS: the system ensures the app has the necessary infrastructure to run and scale.

SaaS - Software-as-a-Service

- A cloud service providing users access to software in a self-service, on-demand fashion. This could be a single application or an entire suite.


Traditional IT
Infrastructure
(as a Service)
Platform
(as a Service)
Software
(as a Service)
Applications
Data
Runtime
Middleware
Operating System
Virtualization
Servers
Storage
Networking
You manage
You manage
You manage
Delivered as a service
Delivered as a service
Delivered as a service

Cloud Computing Architecture



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