Cloud Computing and Data Centers

What is Data Center?

Dedicated space

Used to house

- Computer systems and
- Associated components

How Cloud is Transforming the Data Center?

Data Center as a Service

Allows customers to build solutions

- That are ideal for their business needs

Versatility

Reposition Data Centers

How Cloud Data Centers Differ?

Nothing similar

A cloud Data Center is all online

- Cost
- Accessibility
- Security
- Scalability

Data center design

- Cloud has already changed the way we design and deploy
- “Architecture” is a word often used in IT
- For the most part, when we’ve talked about architecture in the past, we’ve been thinking about the way operating systems and applications were configured for best performance
- Increasingly, the word is also used now to describe the physical layout of the data center

Data center design

We have

- Public clouds
- Private clouds, and
- Hybrid clouds

We have

- Shared servers
- Dedicated servers, and
- Colocation

We have equipment that shrinks

It becomes many times more powerful, with increasing demands

Data center design

- How to improve airflow to provide more efficient cooling at lower cost has changed rack layout
- Where you place firewalls and how you arrange access to backup power.
- Laying out a data center requires an understanding of exactly how disaster recovery is going to work

Communication Requirements

Blending of multiple communication modalities

These include methods such as

- Voice, email, chat and video, in an integrated fashion

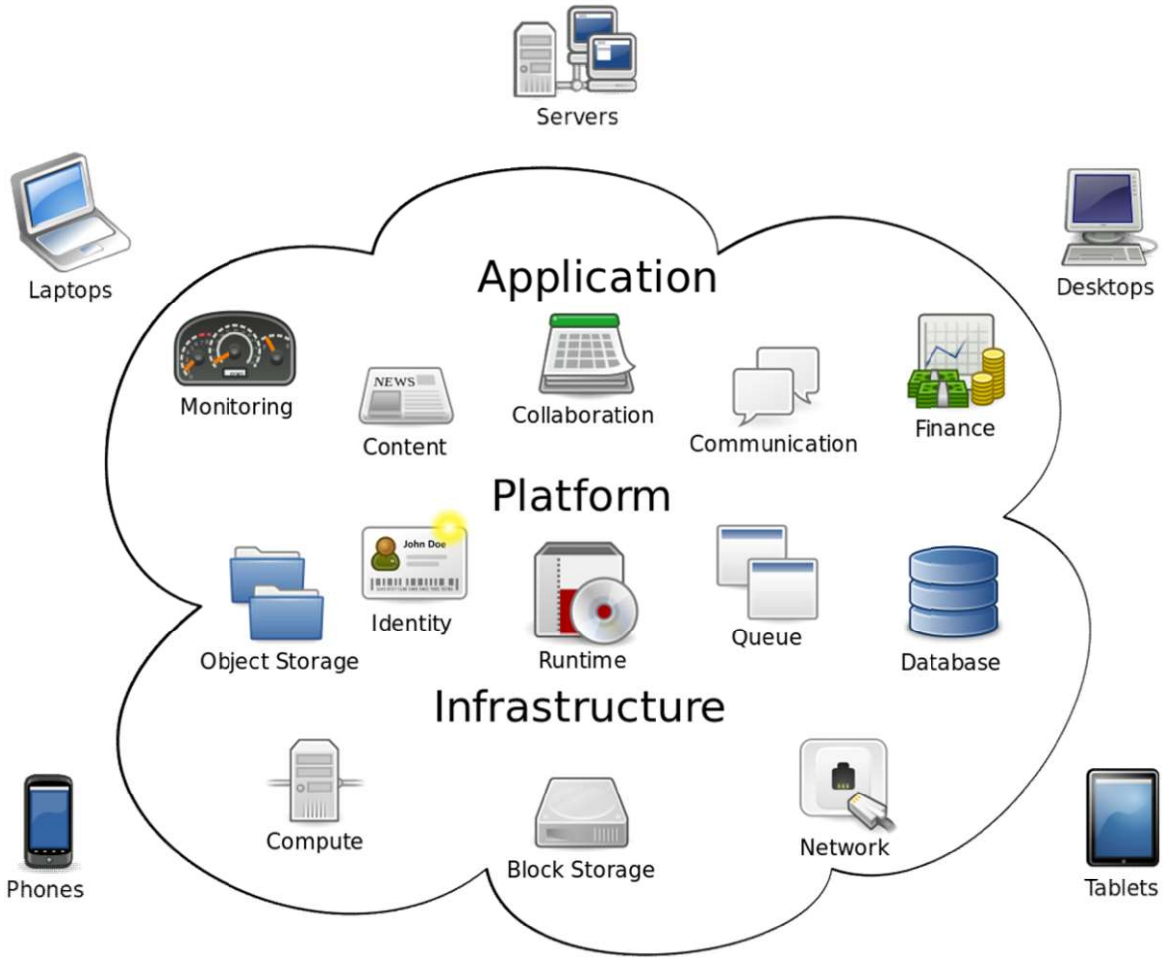
Reduce communication lag

Internet-based communication

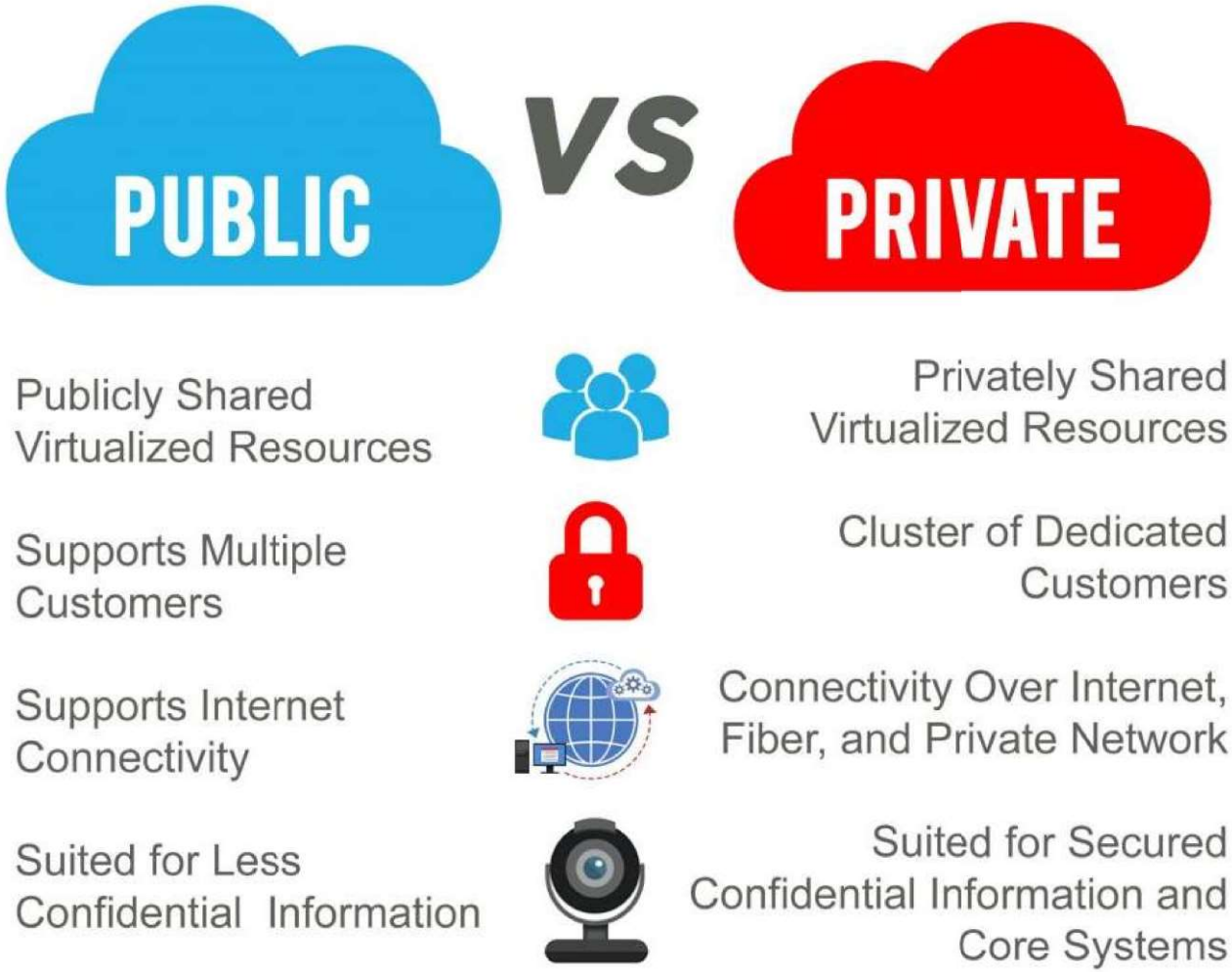
The storage, applications and switching are handled at the cloud

Evolved from data to voice with the introduction of VoIP

Communication Requirements



Public/Private Internet



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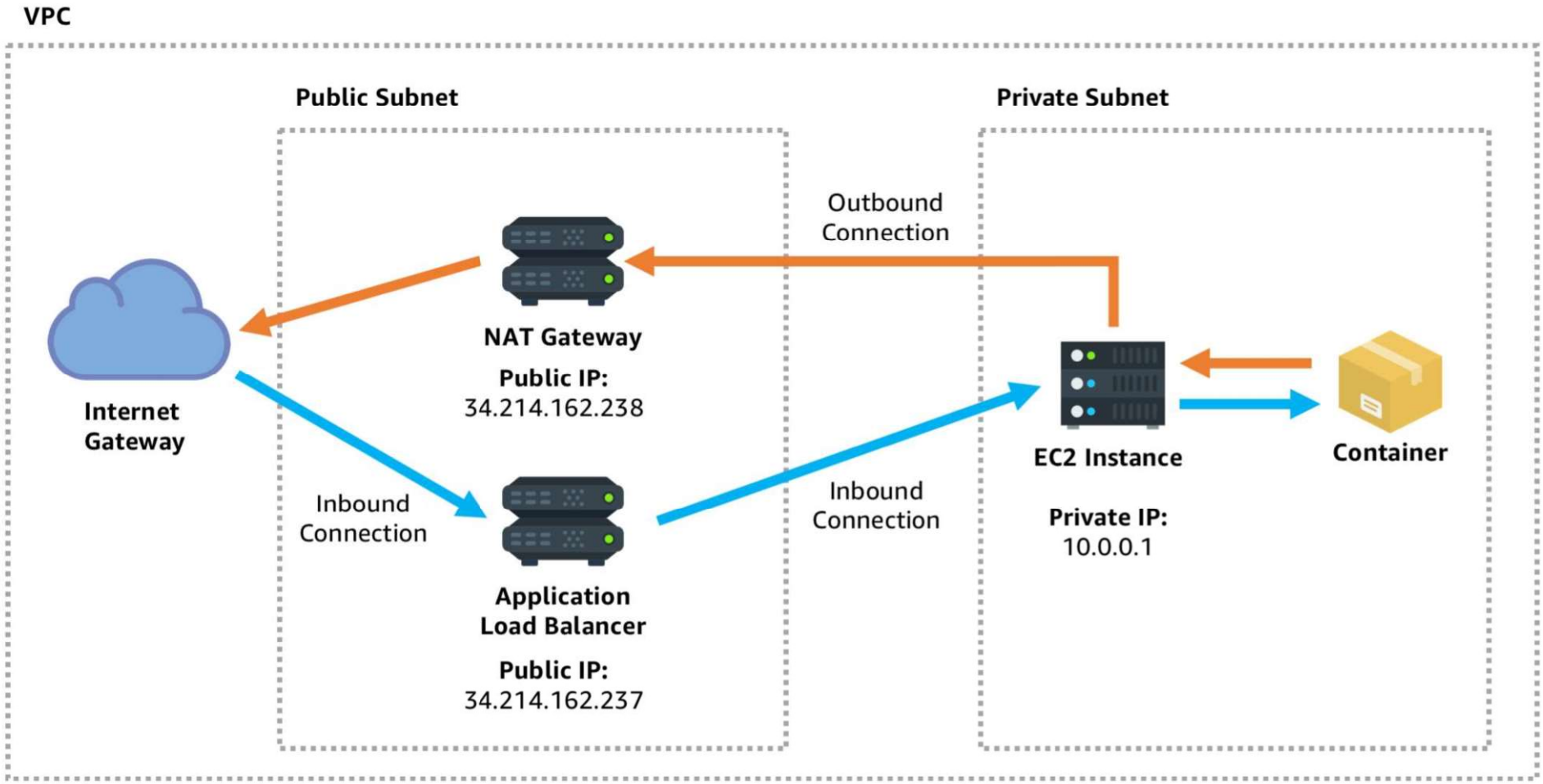
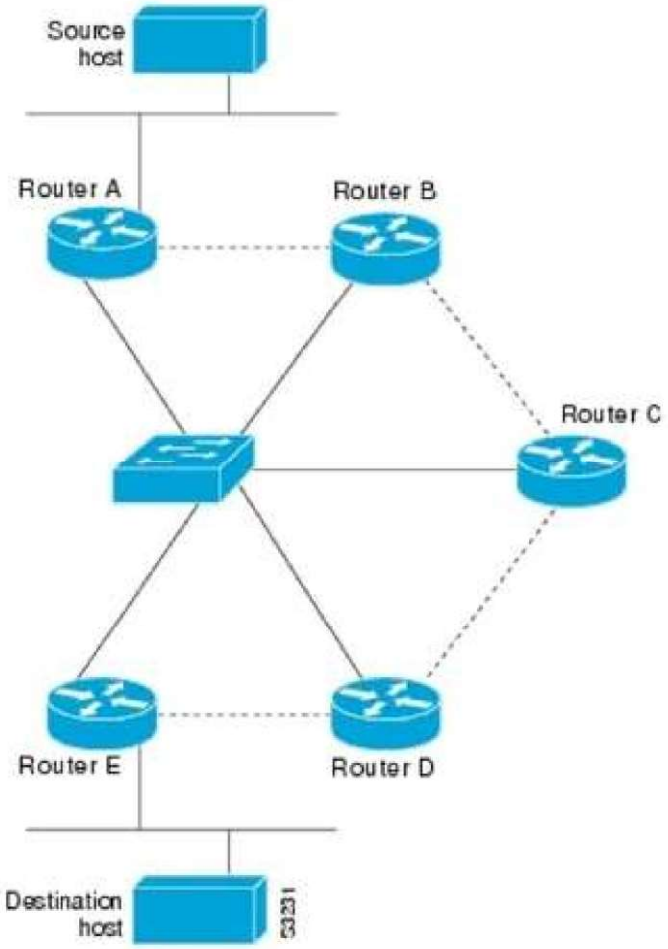


Routing to the Data center



- A data center network comprises:
  - Servers that manage workloads and respond to client requests
  - Switches that connect devices together
  - Routers that perform packet forwarding functions
  - Controllers that manage the workflow between network devices
  - Gateways that serve as the junctions between data center networks and the broader Internet and
  - Clients that act as consumers of the information in data packets.

Switching within the Data Center

Switches

- Used to connect multiple devices on the same network.

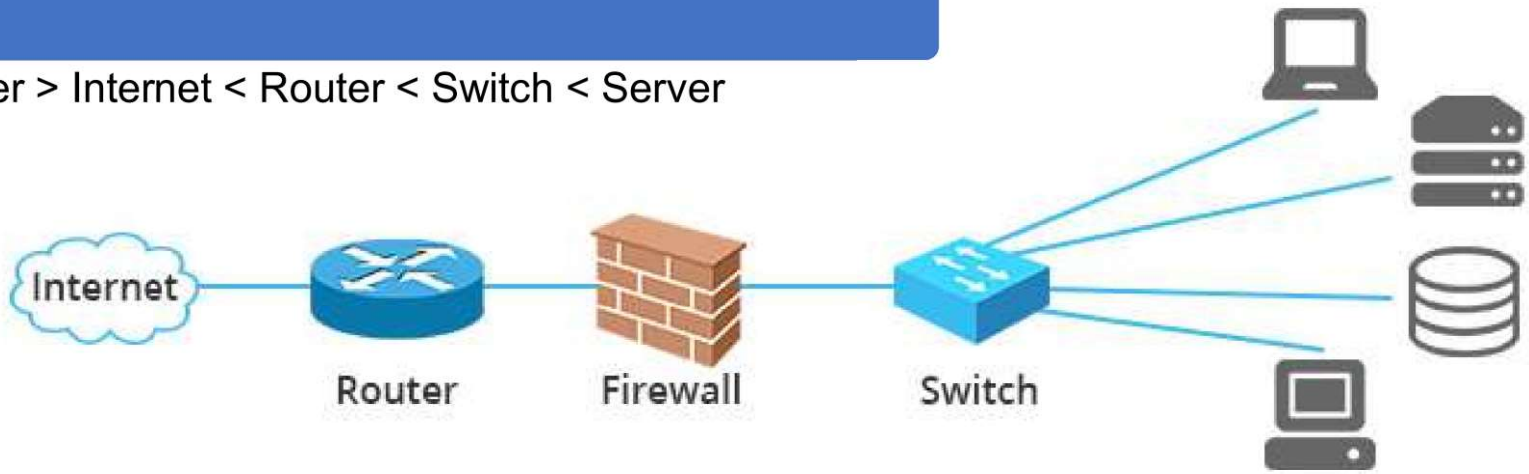
Routers

- Used to tie multiple networks together
- Could use a router to connect your networked servers to the internet

Servers are used to store data and execute task

Flow:

- Server > Switch > Router > Internet < Router < Switch < Server



Thanks