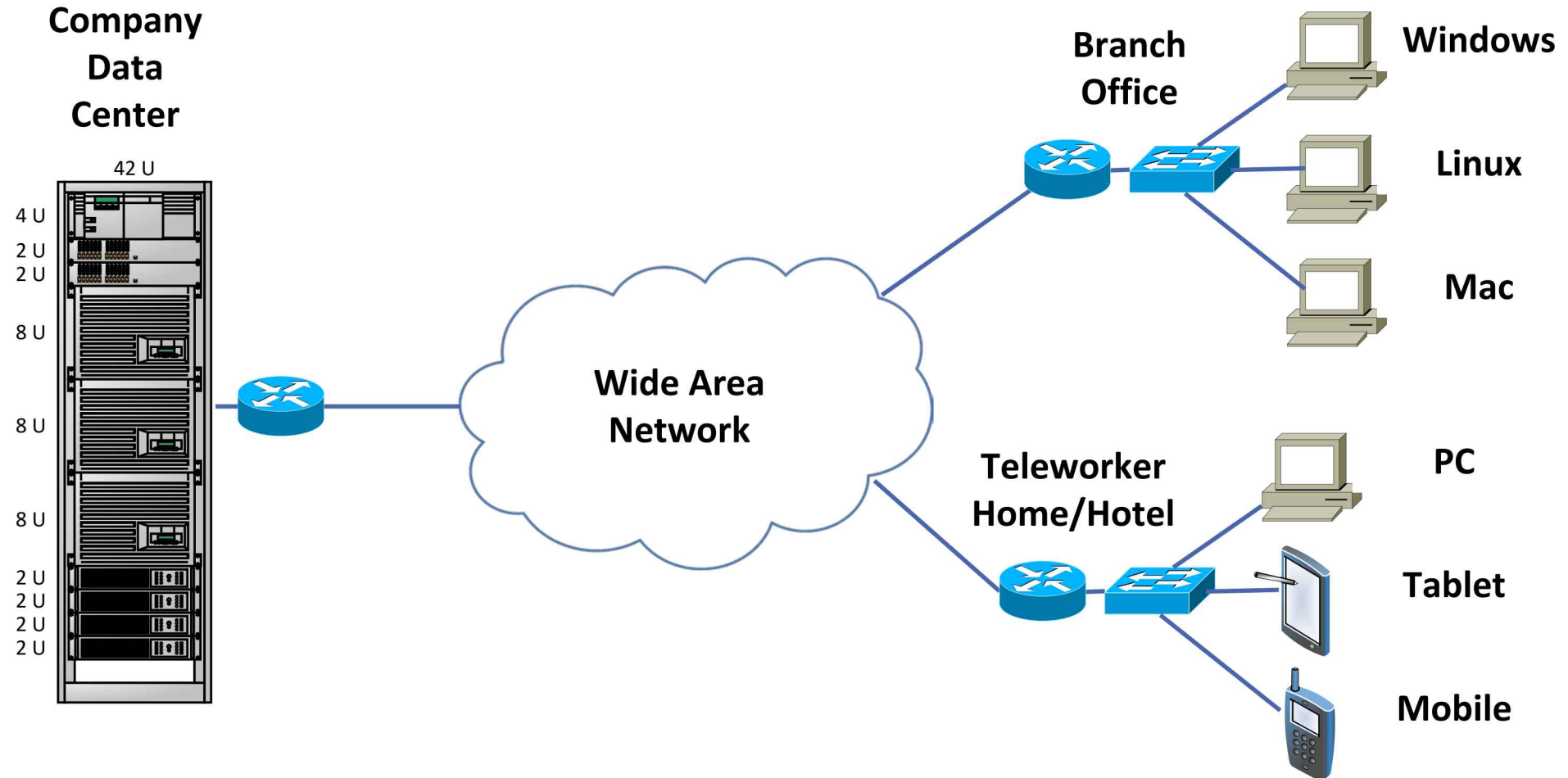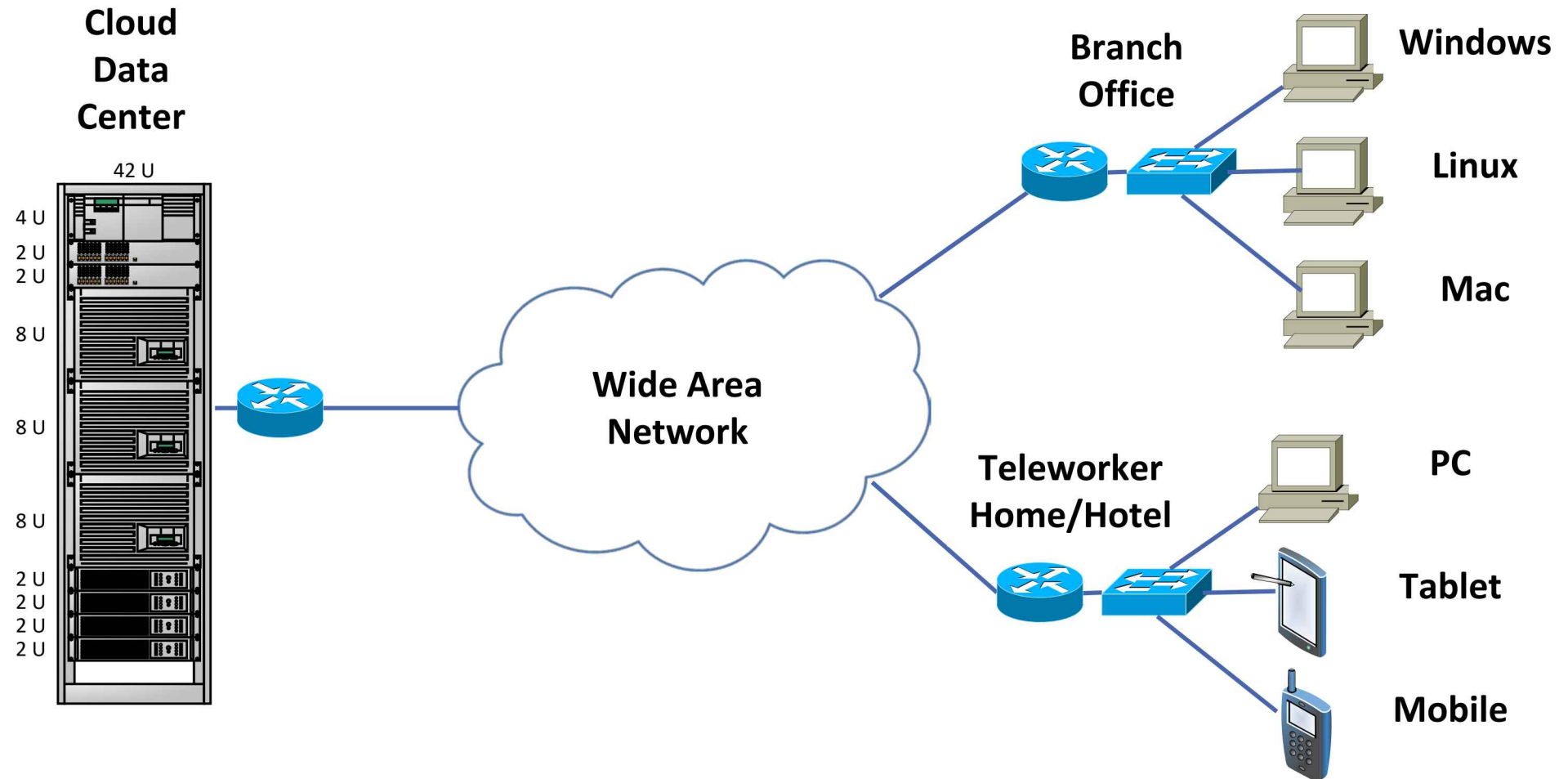# IaaS Design

- Designing an IaaS solution is just like designing an On Premises solution which is accessed from a remote office

- It uses exactly the same data center design principles, it's just that the data center hardware is in the Cloud Provider's facility instead of yours

- The hardware components are the same, the way it's networked is the same, the way it's accessed is the same, and the way it's secured is the same
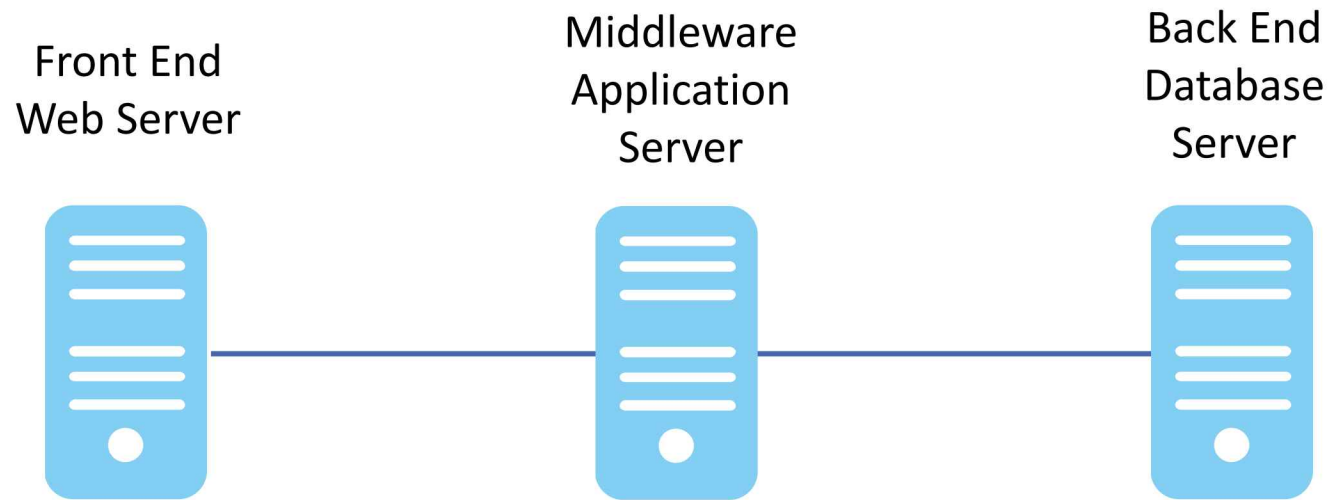
Traditional On Premise Solution

Company Data Center

42 U

4 U
2 U
2 U

8 U

8 U

8 U

2 U
2 U
2 U
2 U

Wide Area Network

Branch Office

Windows

Linux

Mac

Teleworker Home/Hotel

PC

Tablet

Mobile

Cloud Solution

IaaS Design Example

- 3 Tier Ecommerce Application

Front End
Web Server

Middleware
Application
Server

Back End
Database
Server

Compute and Storage

Front End
Web Server

Middleware
Application
Server

Back End
Database
Server

Virtual machines on
shared physical servers

Virtual machines on
dedicated physical servers

Dedicated bare-metal
servers

SAN Storage

SAN Storage

Local Disks

Networking

Internet

Global load balancer

Local load balancer

Web server

Web server

Application load balancer

Application server

Application server

Database server

Database server
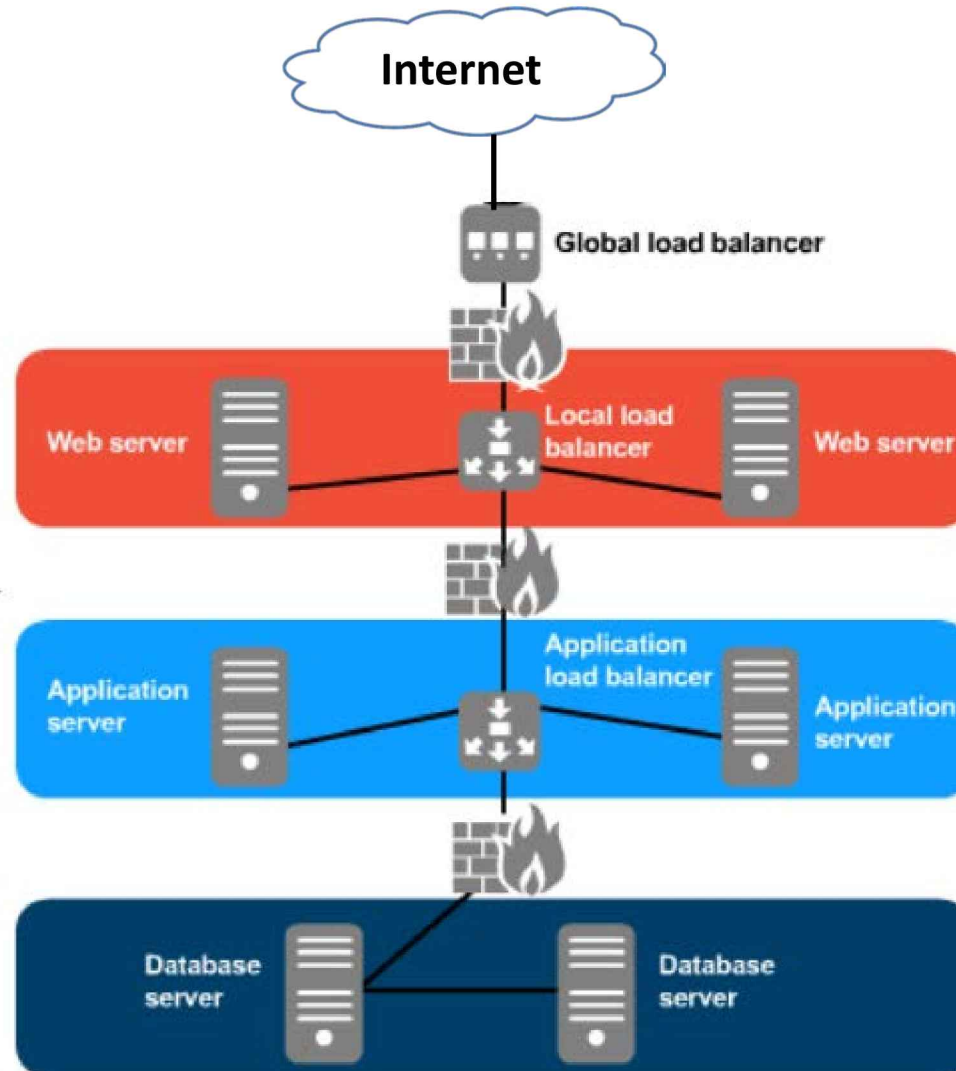
Server Farms can be automatically scaled

Management access over Internet VPN or Direct Connection

Backups

- Just as with an On Premise solution, you need to consider backups

- The Cloud Provider will not automatically back up your data

- The Cloud Provider's data center is a hardened facility with no single points of failure, but this does not protect your data against regional disasters or data corruption

- You have network connectivity to the cloud facility, so you can back up back to your office using your existing backup solution

- You can also back up to the Cloud Provider's storage

- Data should always be backed up to an offsite location

Disaster Recovery

- If the data center is lost, you will be able to recover to a different location from backup

- In this case, you will lose all new data since the last backup was taken (Recovery Point Objective)

- It could take a significant amount of time to deploy the infrastructure in the new location and restore the data (Recovery Time Objective)

- You may want to provision a Disaster Recovery solution to reduce the RPO and RTO

Disaster Recovery