

Introduction to Cloud Computing

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1950-60s: Mainframe Computers



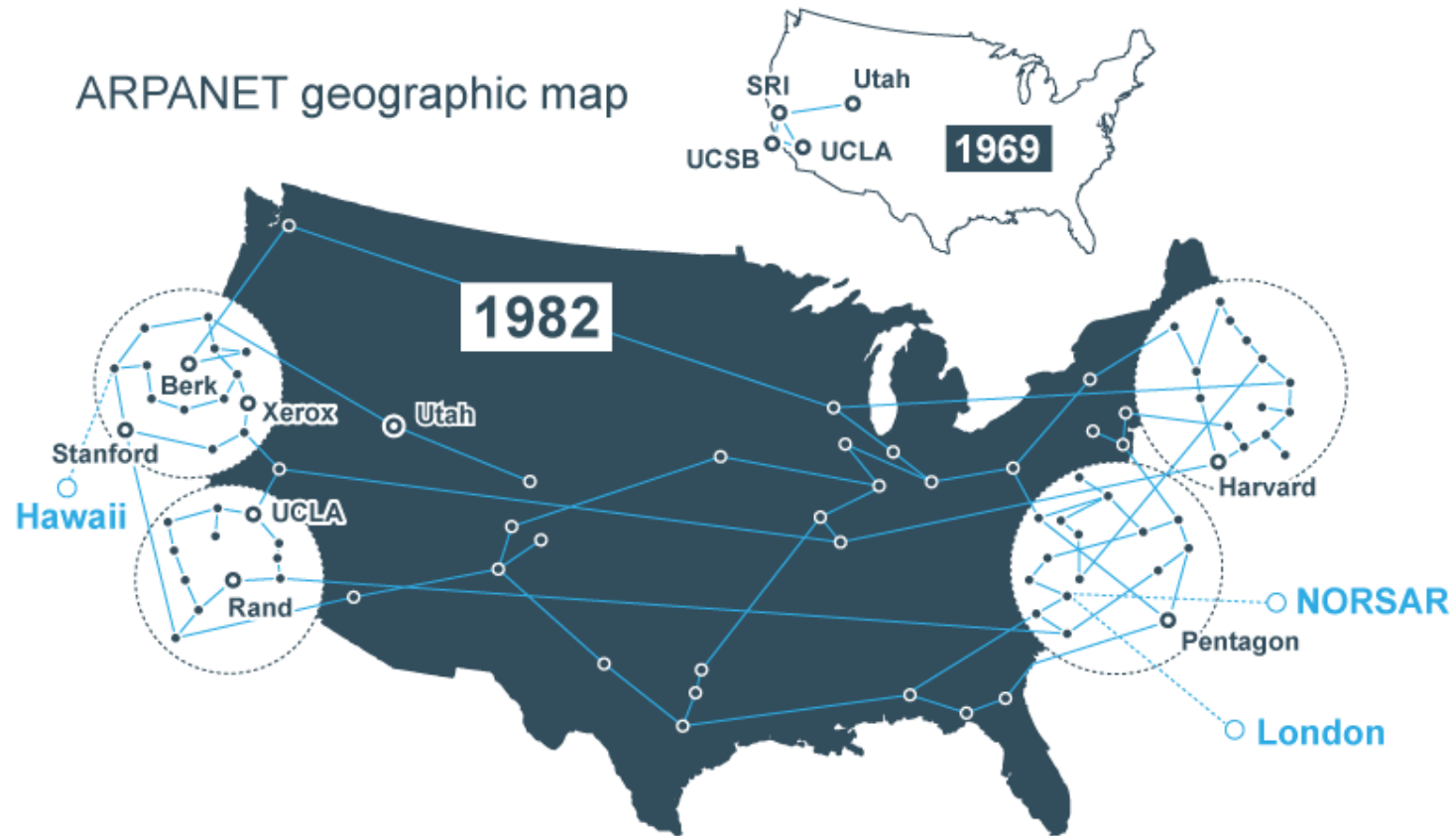
Virtualization

Virtualization relies on software to simulate hardware functionality and create a virtual computer system. This enables IT organizations to run more than one virtual system – and multiple operating systems and applications – on a single server. The resulting benefits include economies of scale and greater efficiency.

Virtual Machine

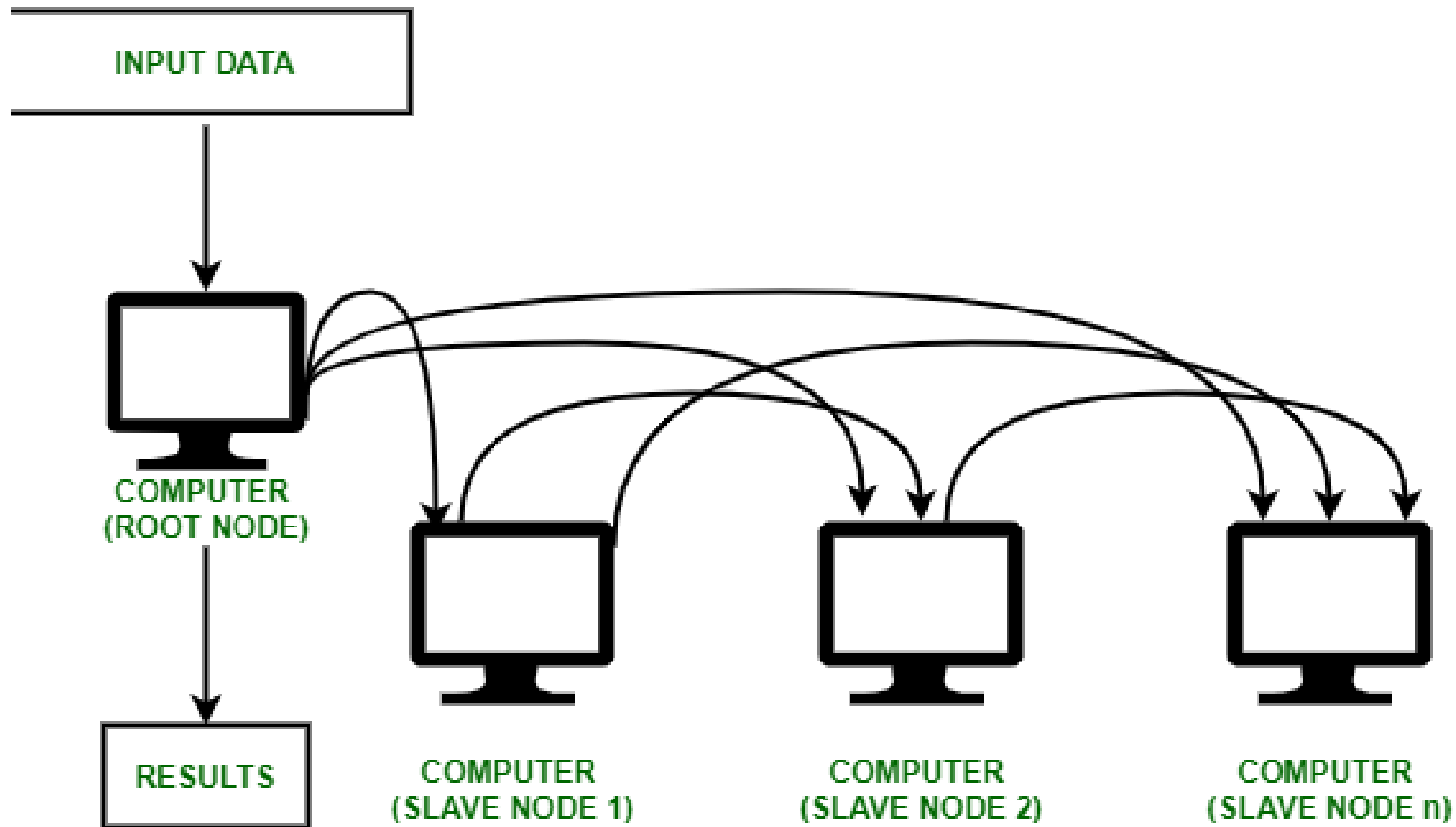
A tightly isolated software container with an operating system and application inside. Each self-contained VM is completely independent. Putting multiple VMs on a single computer enables several operating systems and applications to run on just one physical server, or “host.”

1970s: ARPANET

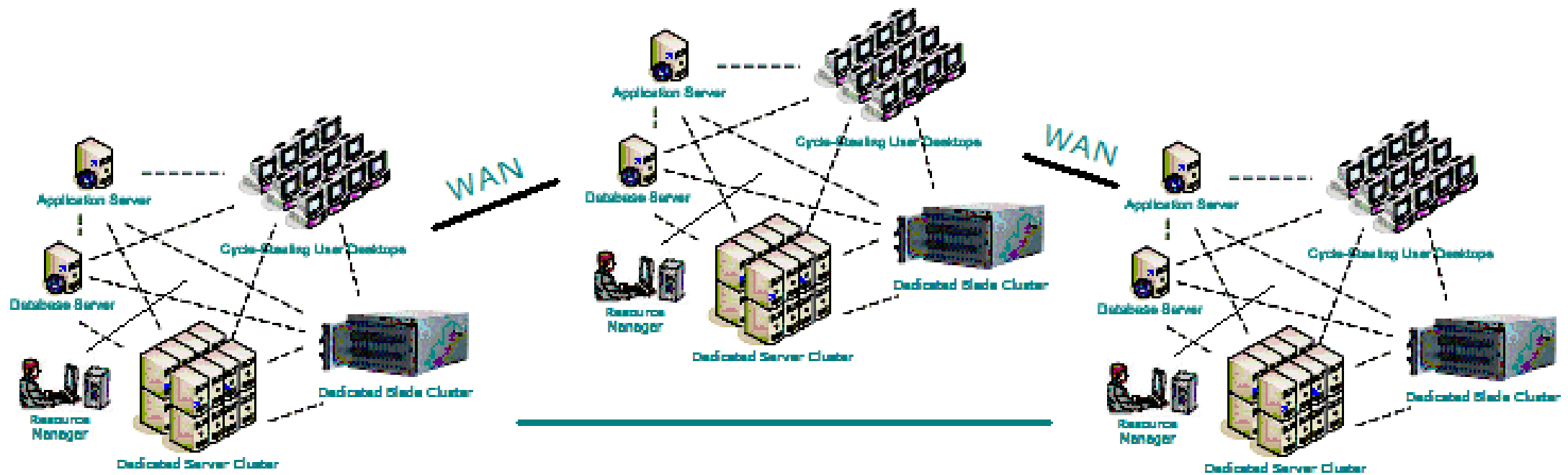


Gave birth to
Internet

1980s: Cluster Computing



1990s: Grid Computing



Quick jumps



Prof. Ramnath K. Chellappa, PhD

- 1997: The term **cloud computing** used by Prof. Ramnath Chellappa
- 1999: **In 1999, Salesforce.com** started delivering of applications to users using a simple website
- 2006: Amazon launched **Elastic Compute Cloud (EC2)**
- 2006: **Google Doc Services**
- 2009: **Google Apps** also started to provide cloud computing enterprise applications.



Amazon
EC2



Docs



iCloud

Cloud Computing

"...a style of computing in which scalable and elastic IT-enabled capabilities are delivered as a service to external customers using Internet technologies."

Gartner

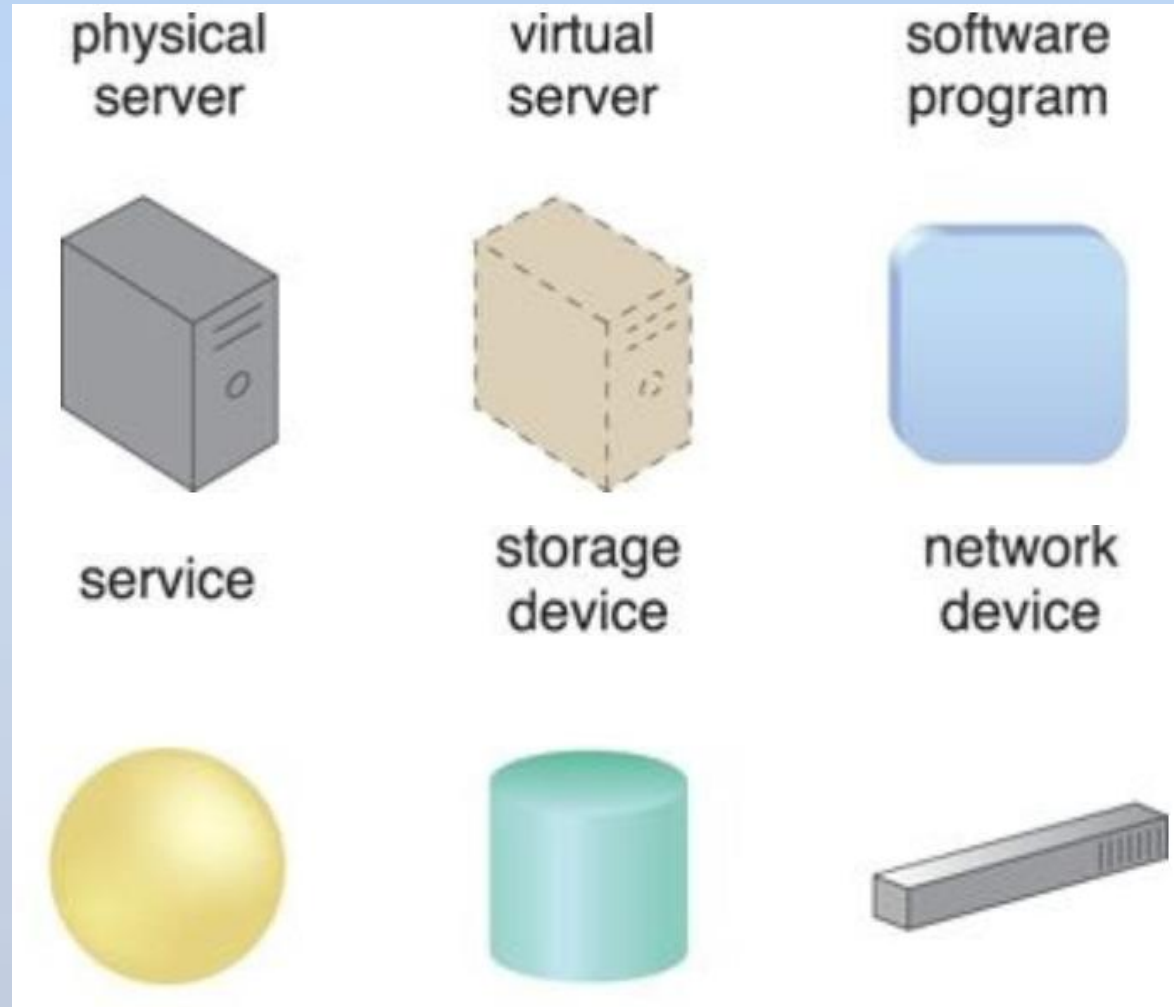
"Cloud computing is a specialized form of distributed computing that introduces utilization models for remotely provisioning scalable and measured resources."

National Institute of Standards and Technology

"...a standardized IT capability (services, software, or infrastructure) delivered via Internet technologies in a pay-per-use, self-service way."

Forrester Research

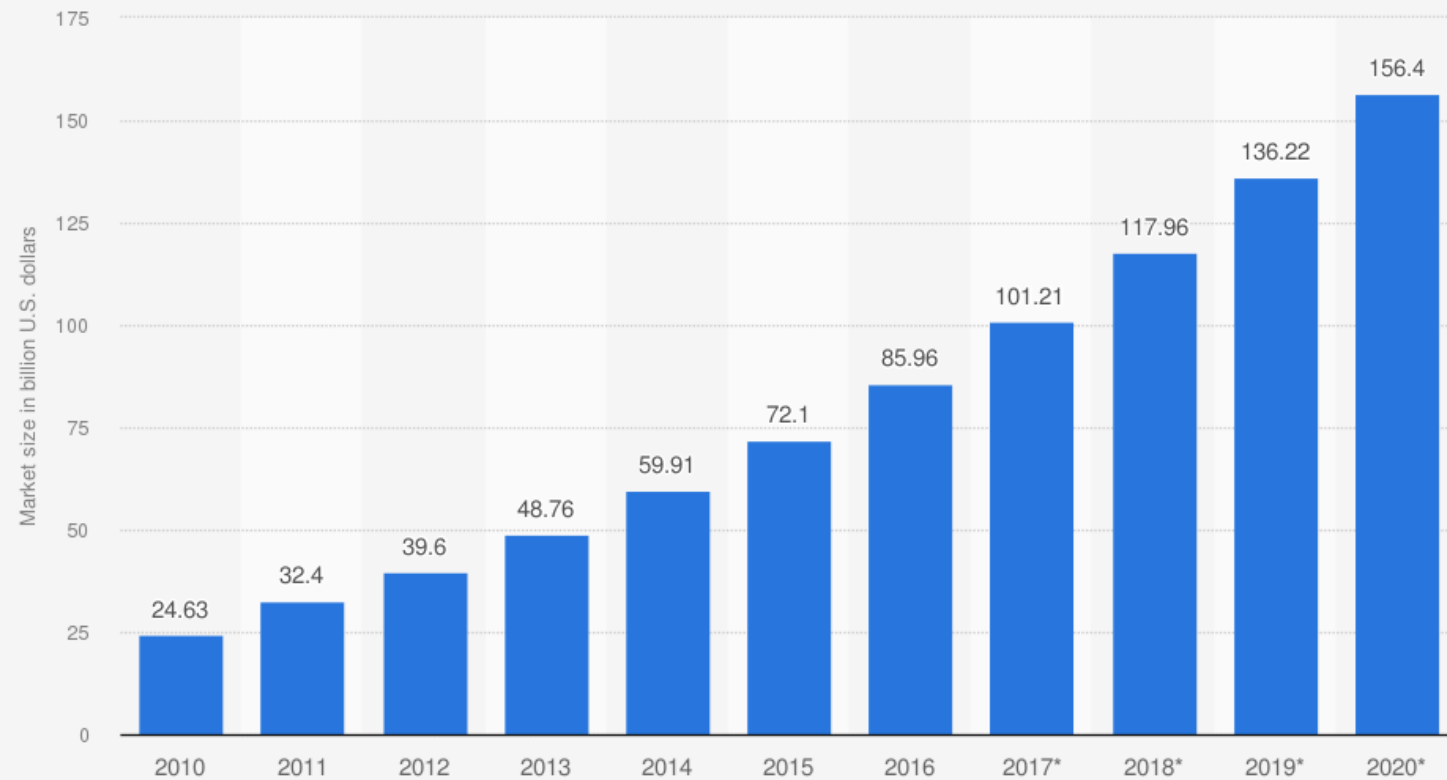
IT Resources



Provisioning

Cloud provisioning is the allocation of a cloud provider's resources and services to a customer.

Size of the cloud computing and hosting market worldwide from 2010 to 2020 (in billion U.S. dollars)**



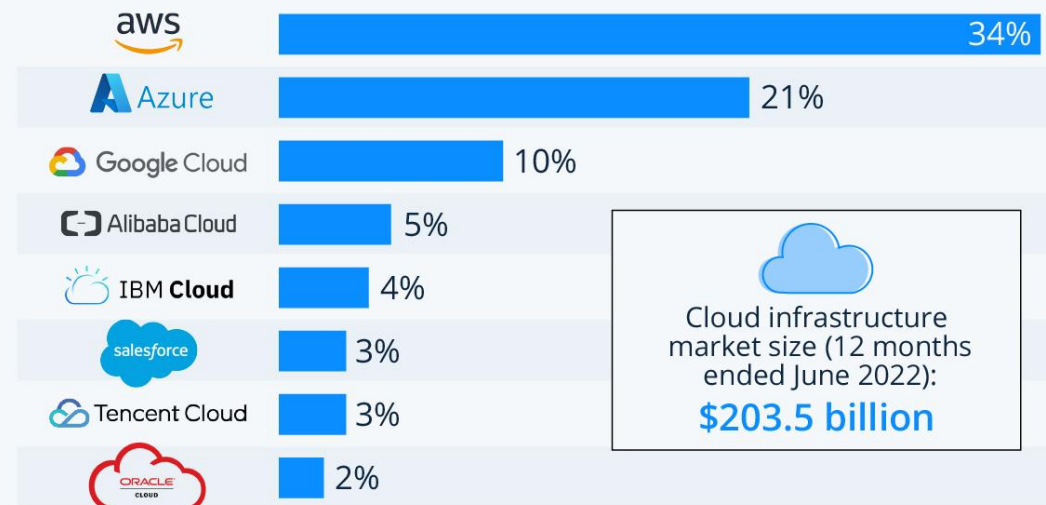
Source
451 Research
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Additional Information:
Worldwide; 451 Research; 2010 to 2017

Market Leaders

Amazon Leads \$200-Billion Cloud Market

Worldwide market share of leading cloud infrastructure service providers in Q2 2022*



* includes platform as a service (PaaS) and infrastructure as a service (IaaS) as well as hosted private cloud services

Source: Synergy Research Group

