Two days workshop
on

Hands-On With Cloud Computing

at

Bapuji Institute of Engineering and Technology
Davangere-577004

By

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Overview of Workshop

- Key Concept
  - Cloud Computing
  - Amazon Web Services

- Developing Static Web Site on Amazon.
- Developing Dynamic Application on Amazon.
- Developing REST API on Amazon.

Some Commercial Cloud Offerings

What is Cloud Computing?

Cloud computing refers to **applications and services** that run on a **distributed network** using **virtualized resources** and accessed by **common Internet protocols** and **networking standards**. It is distinguished by the notion that **resources are virtual and limitless** and that details of the physical systems on which software runs are **abstracted** from the user.

Cloud provides

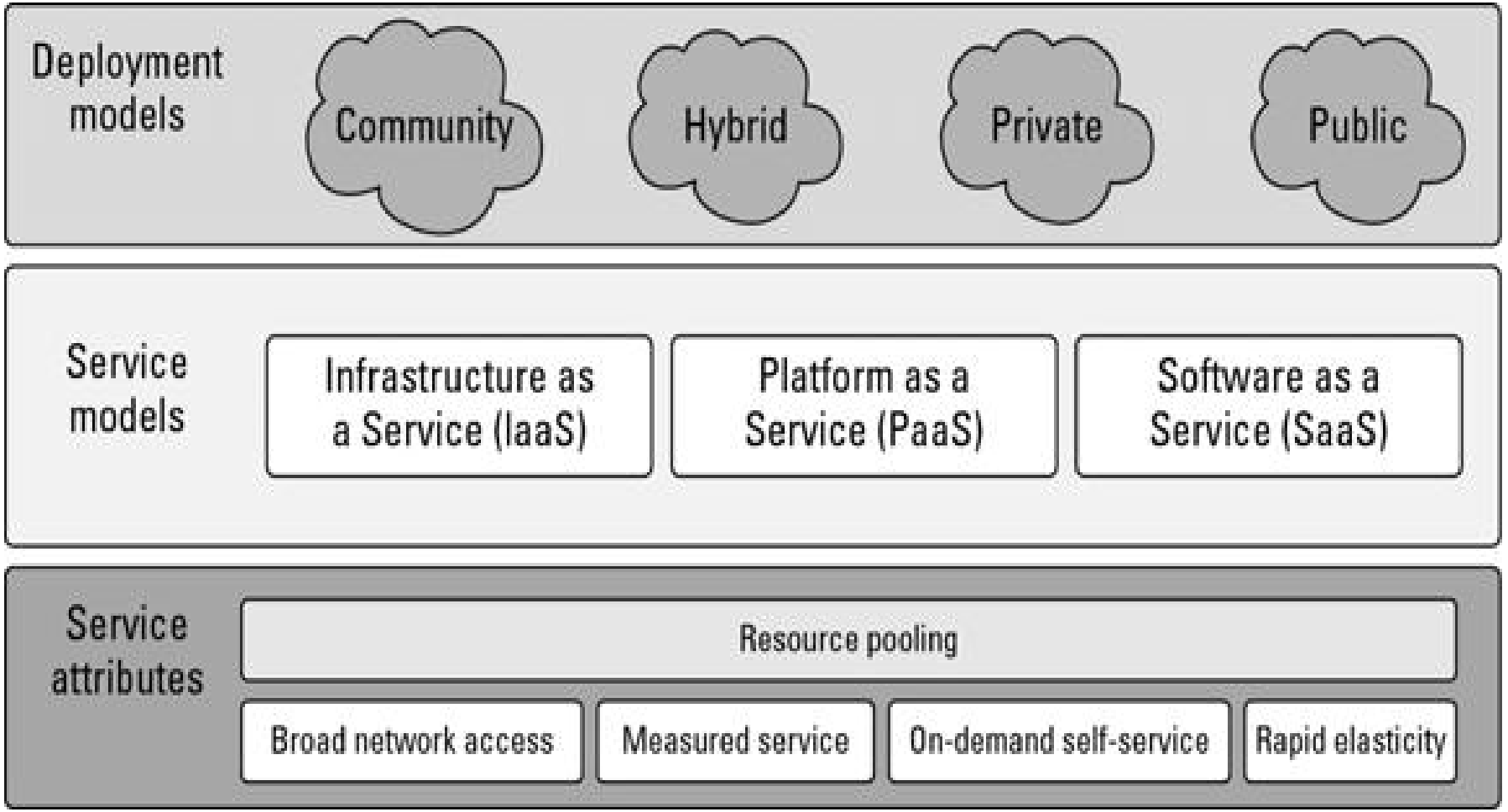
- On demand services, that are always on, anywhere, anytime and any place.
- Pay for use and as needed.
- The hardware and software services are available to general public, enterprises, corporations and business markets.

Cloud Types

- **Deployment model :** The deployment model tells you where the cloud is located and for what purpose. **Public, Private, Community, and Hybrid** clouds are deployment models.

- **Service model**: Service models describe the type of service that the service provider is offering. The best-known service models are **Software as a Service, Platform as a Service, and Infrastructure as a Service—the SPI model.**

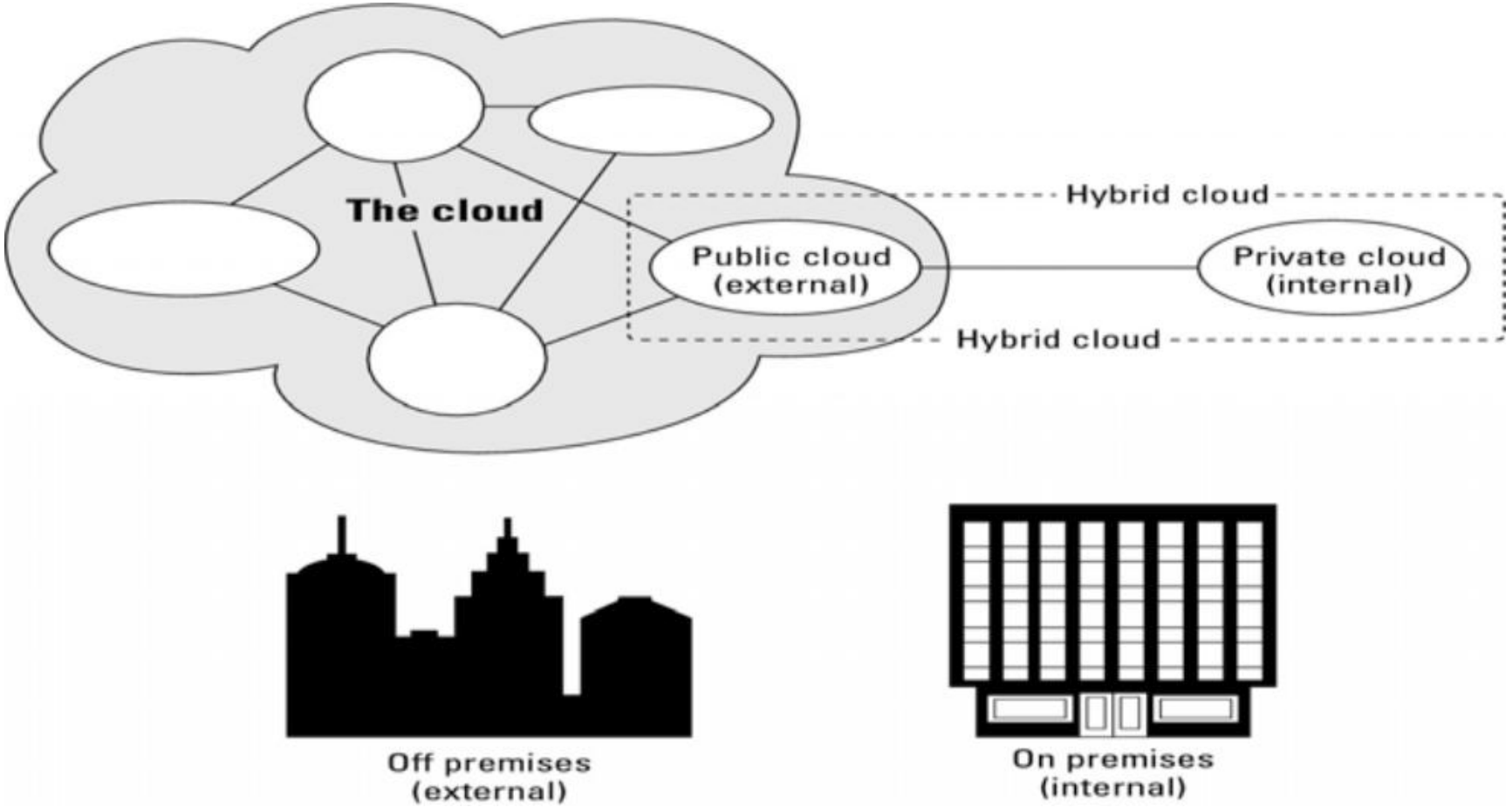
Cloud Computing definitions



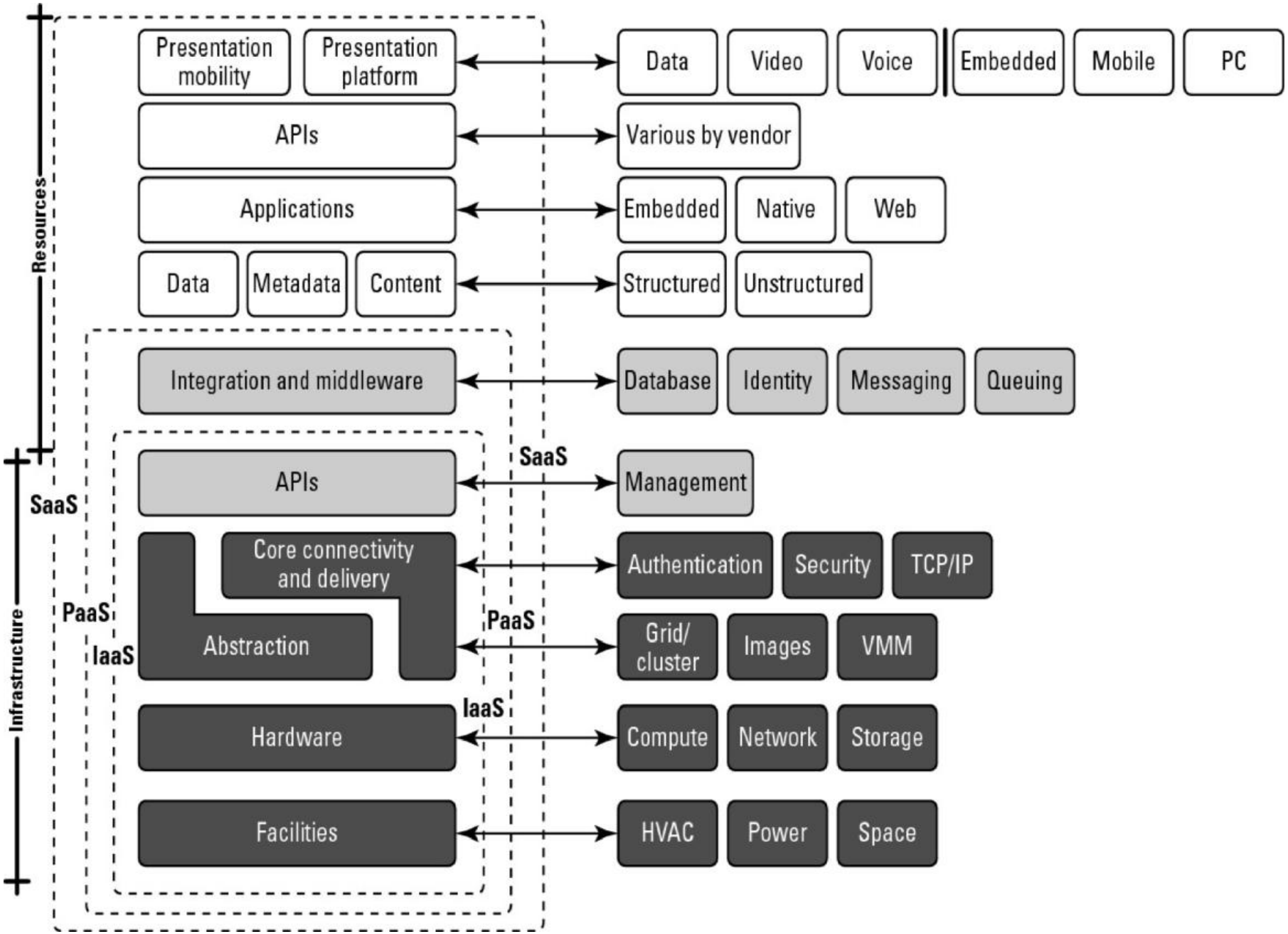
The definitions for the four deployment models

- **Public cloud:** The public cloud infrastructure is **available for public use** alternatively for a large industry group and is owned by an organization selling cloud services.
- **Private cloud:** The private cloud infrastructure is operated for the **exclusive use of an organization**. The cloud may be managed by that organization or a third party. Private clouds may be either on- or off-premises.
- **Hybrid cloud:** A hybrid cloud combines **multiple clouds** (private, community of public) where those clouds retain their unique identities, but are bound together as a unit. A hybrid cloud may offer standardized or proprietary access to data and applications, as well as application portability.
- **Community cloud:** A community cloud is one where the cloud has been organized to serve a common function or purpose.It may be for **one organization or for several organizations**, but they share common concerns such as **their mission, policies, security, regulatory compliance needs,** and so on. A community cloud may be managed by the constituent organization(s) or by a third party.

Deployment locations for different locations



Cloud Reference Model



Cloud Computing Service Layers

	Services	Description
Application Focused	**Services**	Services – Complete business services such as PayPal, OpenID, OAuth, Google Maps, Alexa
	Application	Application – Cloud based software that eliminates the need for local installation such as Google Apps, Microsoft Online
	Development	Development – Software development platforms used to build custom cloud based applications (PAAS & SAAS) such as SalesForce
Infrastructure Focused	**Platform**	Platform – Cloud based platforms, typically provided using virtualization, such as Amazon ECC, Sun Grid
	Storage	Storage – Data storage or cloud based NAS such as CTERA, iDisk, CloudNAS
	Hosting	Hosting – Physical data centers such as those run by IBM, HP, NaviSite, etc.

Cloud Service Models

Real time example

SalesForce CRM

LotusLive (IBMSmartCloud)

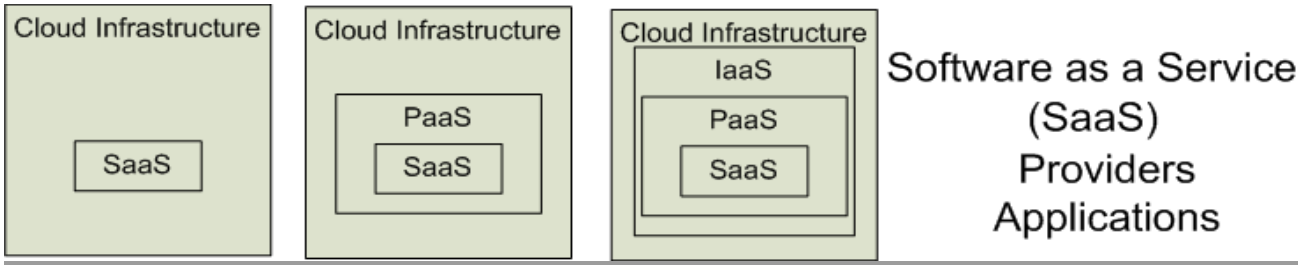
Google App Engine

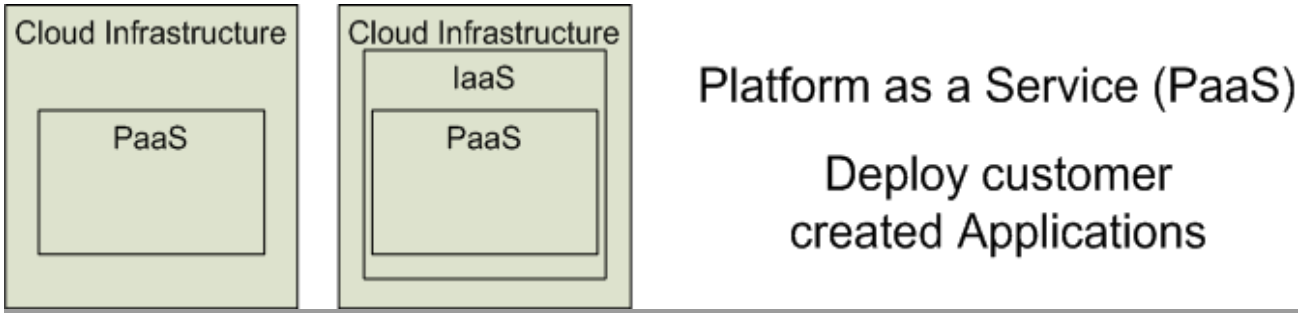
Windows Azure
The Future Made Familiar

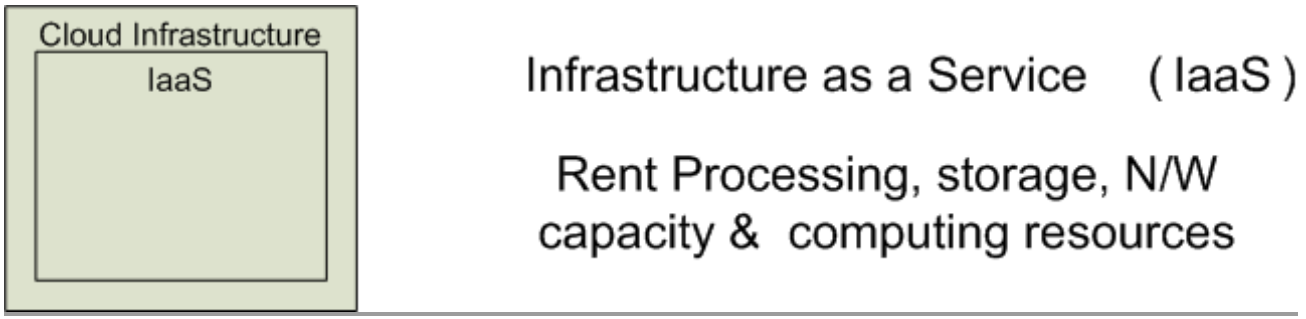
amazon web services

rackspace HOSTING

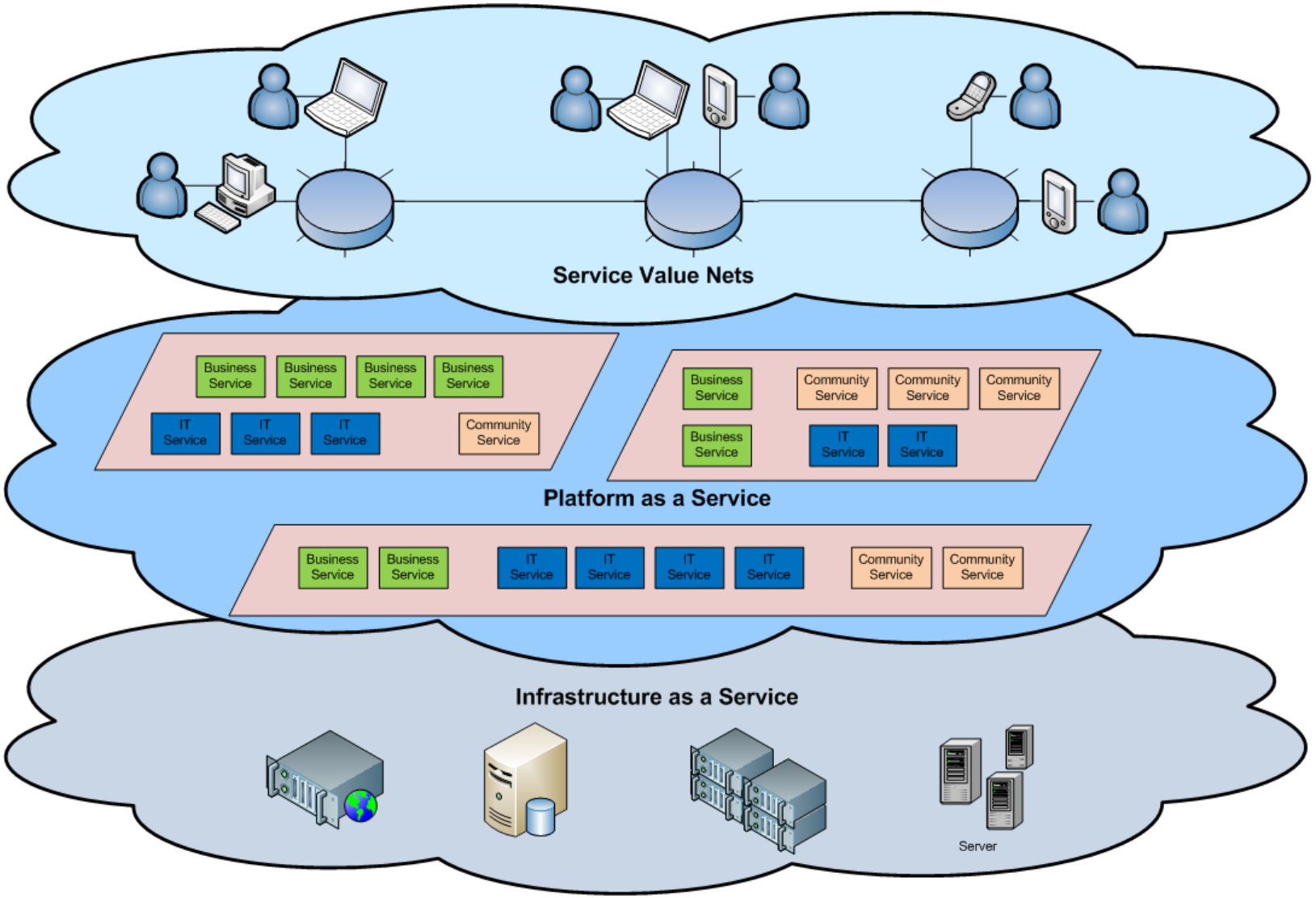
Software as a Service (SaaS)	Platform as a Service (PaaS)	Infrastructure as a Service (IaaS)







Cloud Architecture



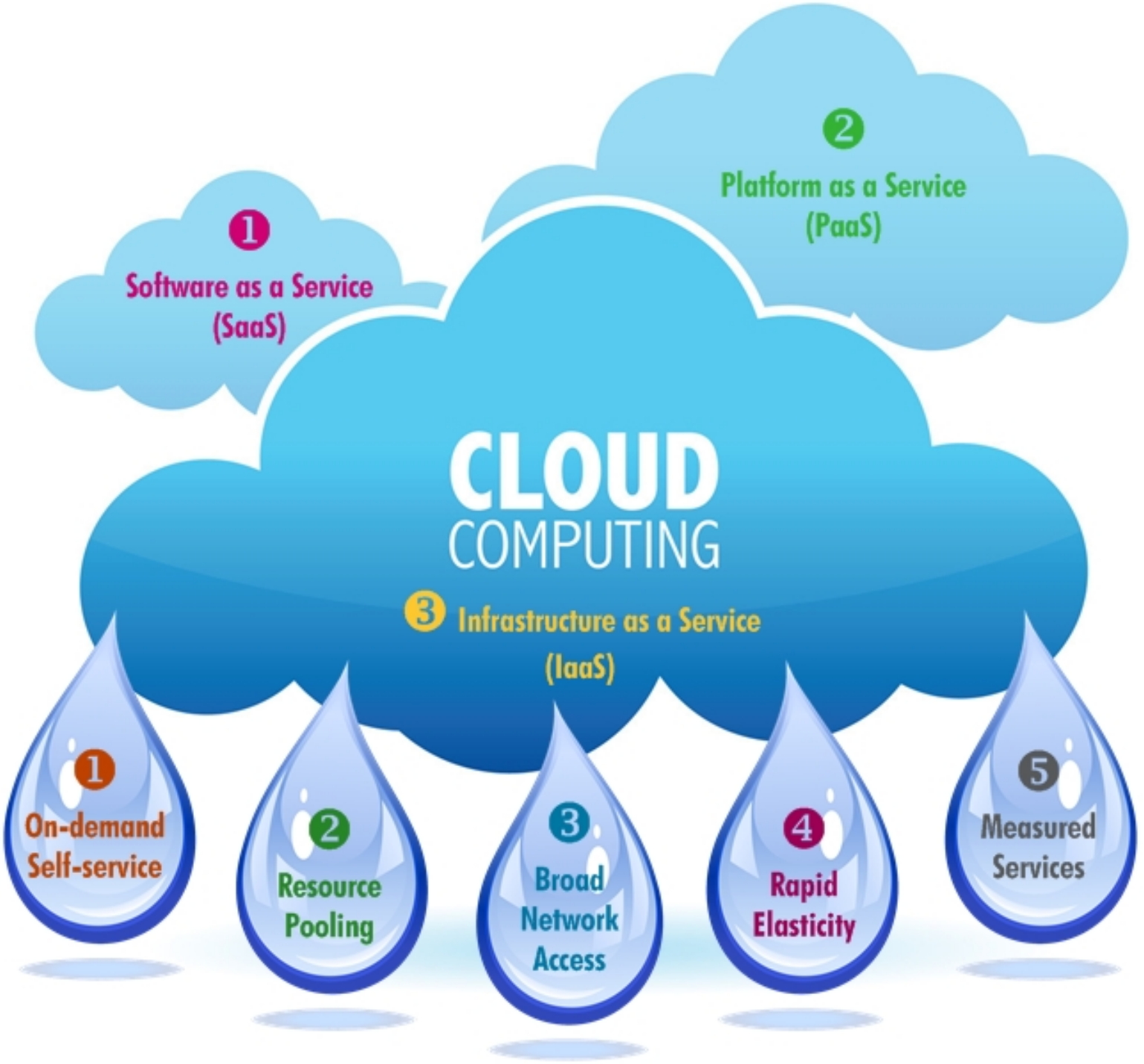
Cloud Computing Characteristics

- **Common Characteristics:**

Massive Scale	**Resilient Computing**
Homogeneity	**Geographic Distribution**
Virtualization	**Service Orientation**
Low Cost Software	**Advanced Security**

- **Essential Characteristics:**

On Demand Self-Service	
Broad Network Access	**Rapid Elasticity**
Resource Pooling	**Measured Service**


1
Software as a Service
(SaaS)
2
Platform as a Service
(PaaS)
CLOUD
COMPUTING
3
Infrastructure as a Service
(IaaS)
1
On-demand
Self-service
2
Resource
Pooling
3
Broad
Network
Access
4
Rapid
Elasticity
5
Measured
Services

Service Models

- **Infrastructure as a Service:** IaaS provides **virtual machines, virtual storage, virtual infrastructure,** and other hardware assets as resources that clients can provision.
- **Platform as a Service:** PaaS provides **virtual machines, operating systems, applications, services, development frameworks, transactions, and control structures**. The client can deploy its applications on the cloud infrastructure or use applications that were programmed using languages and tools that are supported by the PaaS service provider. The service provider manages the cloud infrastructure, the operating systems, and the enabling software.
- **Software as a Service:** SaaS is a complete **operating environment with applications, management, and the user interface.**

Public cloud Providers

- Amazon AWS.
- Windows Azure.
- Google Compute Engine.
- Rackspace Open Cloud.
- IBM SmartCloud Enterprise.
- HP Enterprise Converged Infrastructure.

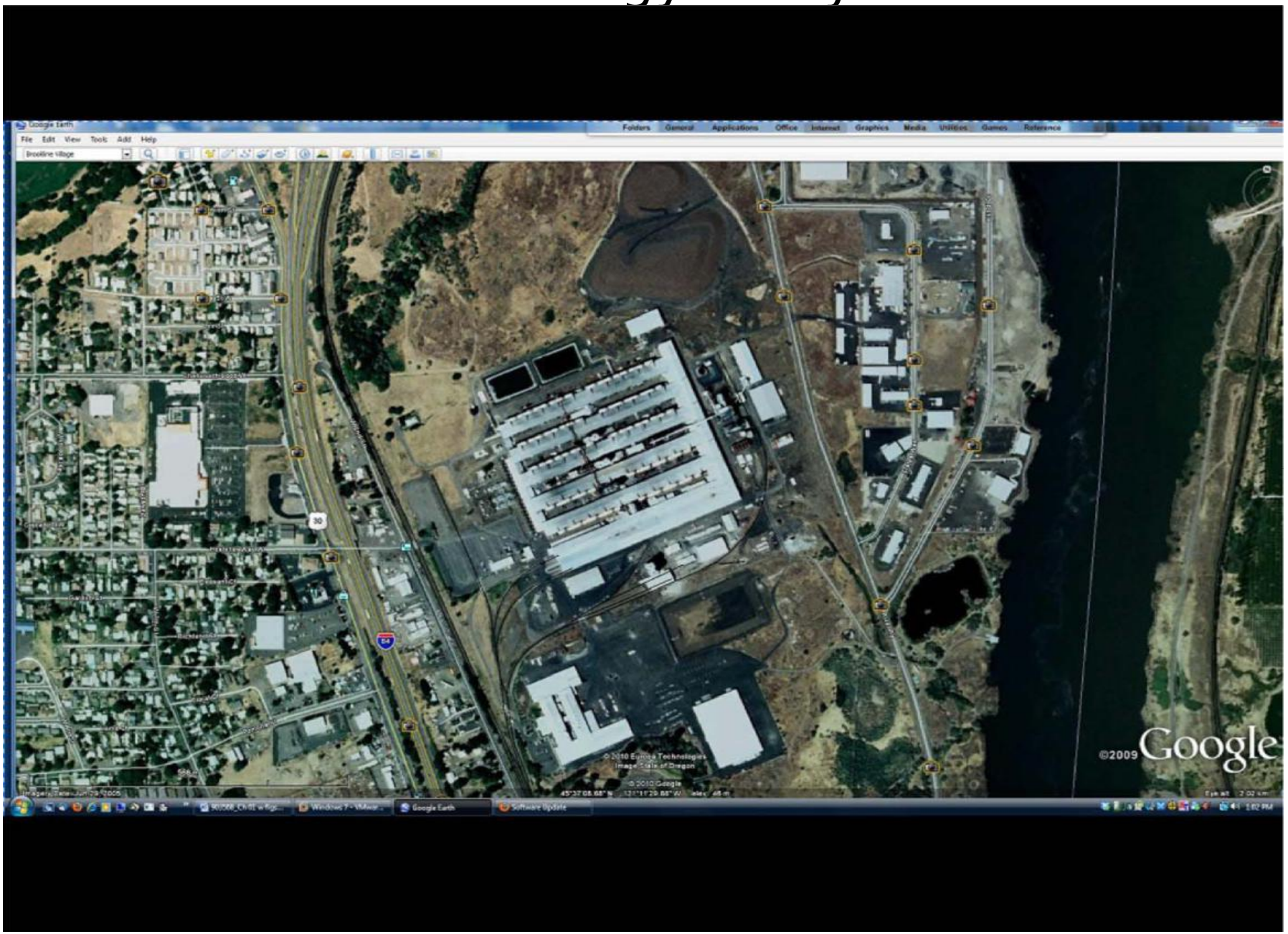
Private cloud providers

- Abiquo Private Cloud Solutions.
- Amazon Virtual Private Cloud (Amazon VPC)
- BlueLock Virtual Private Clouds.
- BMC Cloud Lifecycle Management.
- CA Technologies Cloud Solutions.
- Cisco Private Cloud solutions.

Hybrid cloud Providers

- VMWare. VMWare's vCloud Hybrid Service (vCHS) helps establish control over the business cloud environment through vSphere. ...
- Amazon Web Services (AWS) ...
- Microsoft. ...
- Rackspace. ...
- EMC Corp. ...
- Hewlett-Packard. ...
- IBM. ...
- Cisco Systems

The Google Dalles, Oregon, datacenter shown in Google Earth is an industrial-sized information technology utility.



Advantages of Cloud Computing

- Cost
- Self-service and on demand
- Global scale
- Productivity
- Reliability

Disadvantages of Cloud Computing

- Downtime
- Security
- Vendor Lock-In
- Limited Control


Thank
you