

Cloud Computing

2



Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.



“Cloud computing is a style of computing where massively scalable IT-related capabilities are provided as a service across the Internet to multiple external customers”

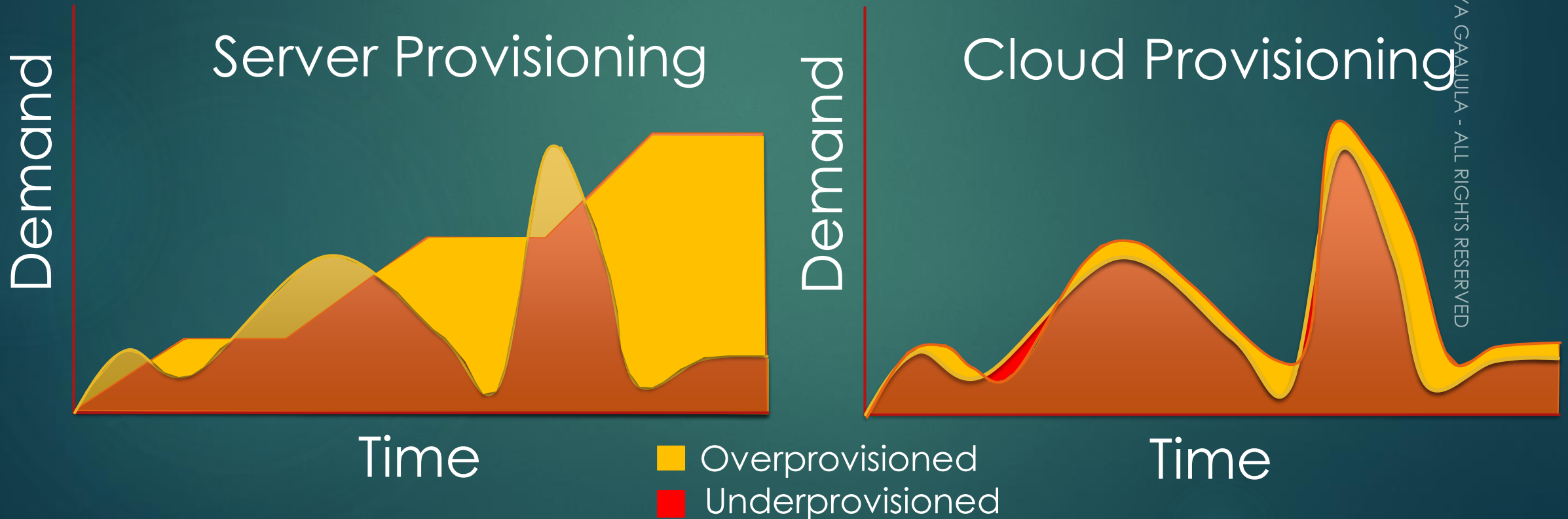


“Cloud computing is Web-based processing, whereby shared resources, software, and information are provided to computers and other devices (such as smart phones) on demand over the Internet.”

What is a “Cloud”?

3

- ▶ Cloud: on-demand, scalable, multi-tenant, self-service compute and storage resources



Cloud Vendors

4



Cloud Computing Characteristics

5

5 Essential Characteristics



Service Models

Infrastructure as a Service (IaaS):
basic compute and storage resources

- ▶ On-demand servers
- ▶ Amazon EC2, VMWare vCloud

Platform as a Service (PaaS): Cloud application infrastructure

- ▶ On-demand application-hosting environment
- ▶ E.g. Google AppEngine, Salesforce.com, Windows Azure

Software as a Service (SaaS): Cloud applications

- ▶ On-demand applications
- ▶ E.g. Office 365, GMail, Microsoft Office Web Companions

Cloud: Efficiency Versus Control

7

= Managed for You	Standalone Servers	IaaS	PaaS	SaaS
Applications				
Runtimes		✗	✗	✓
Database		✗	✓	✓
Operating System		✗	✓	✓
Virtualization		✗	✓	✓
Server		✗	✓	✓
Storage		✗	✓	✓
Networking		✗	✓	✓

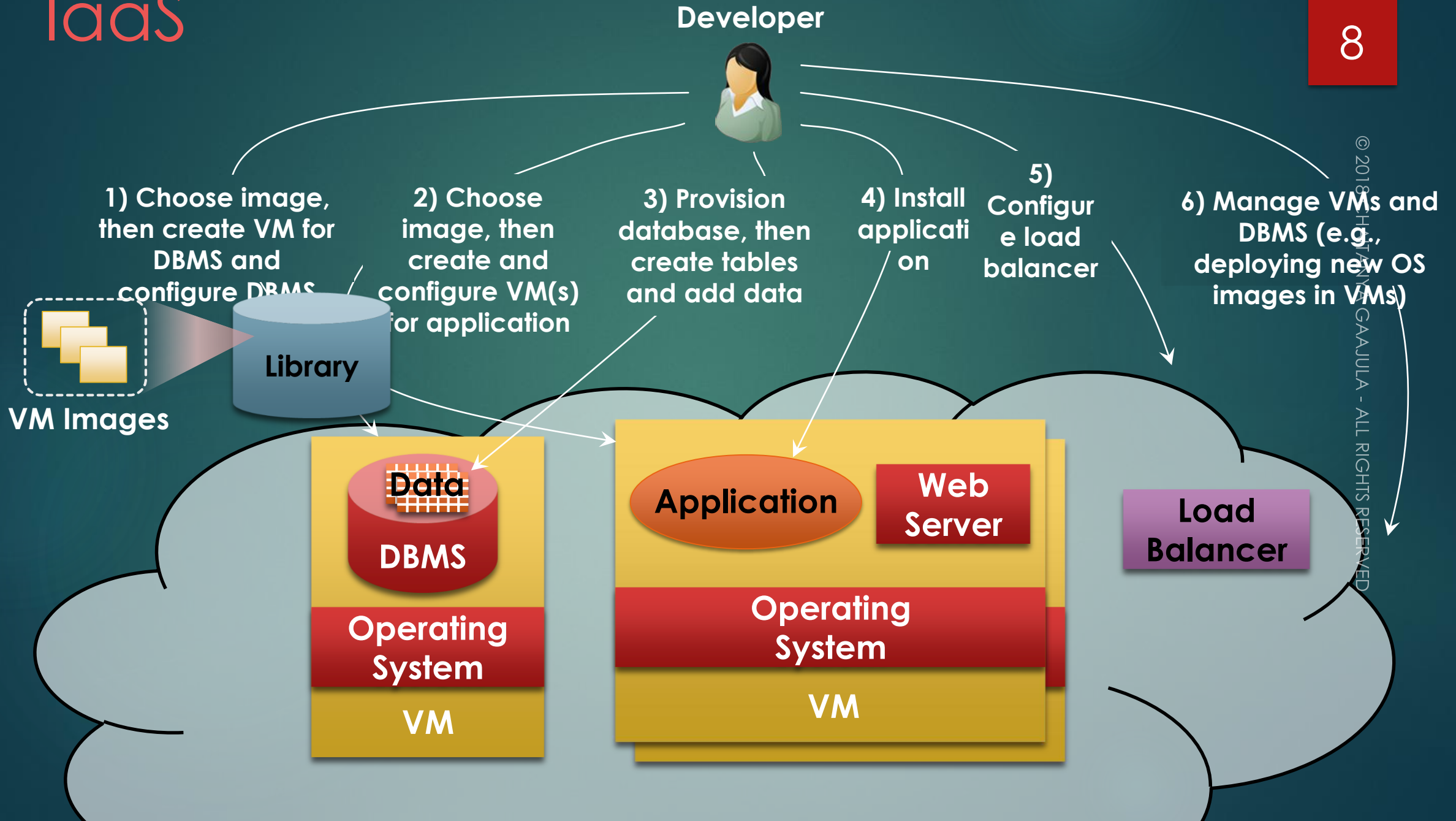
Efficiency



Control+Cost

IaaS

8



PaaS

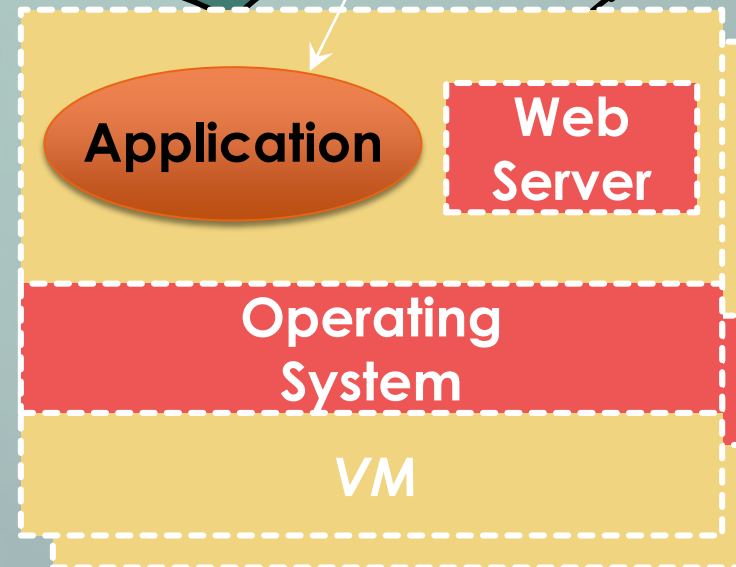
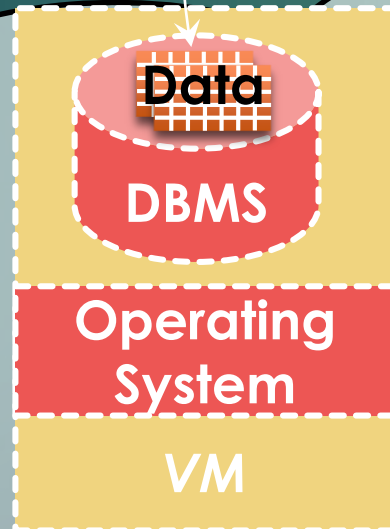
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Developer



1) Provision
database, then
create tables
and add data

2) Deploy
applicati
on



SaaS Examples, General Market

SaaS For Enterprises



SaaS For Consumers



Deployment Models

11

