

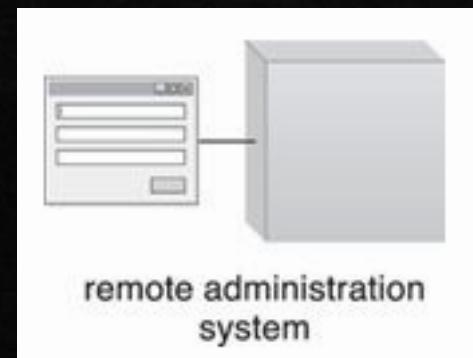
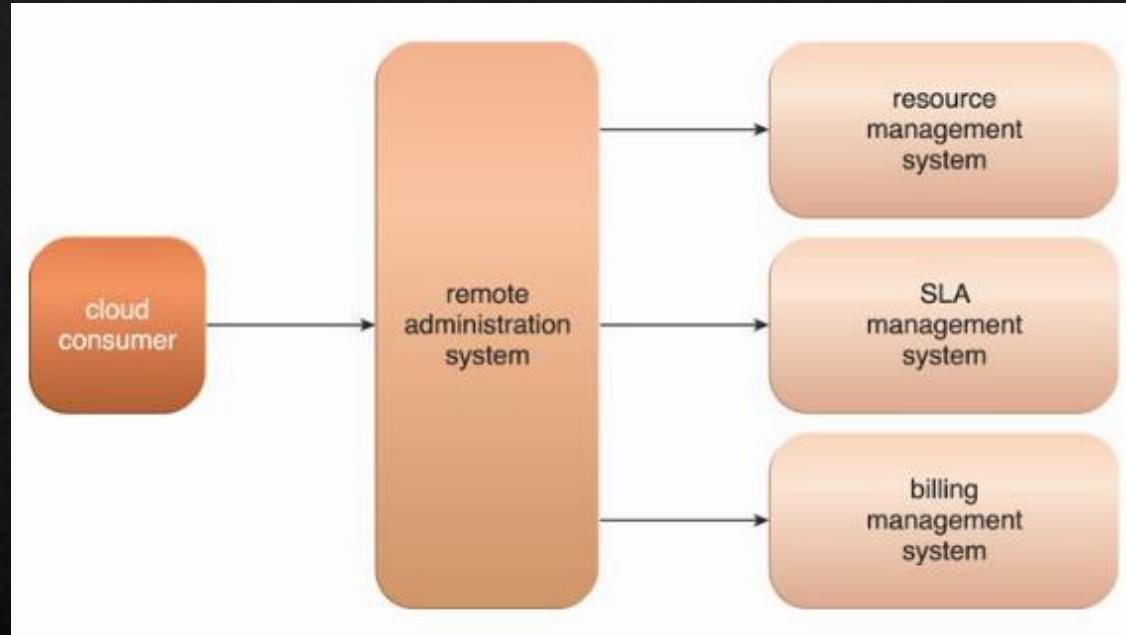
# Cloud Management Mechanisms

# Management Mechanisms

- ❖ Remote Administration Mechanism
- ❖ Resource Management Mechanism
- ❖ SLA Management System
- ❖ Billing Management System

# Remote Administration Mechanism

- ❖ This mechanism provides tools and user-interfaces for external cloud resource administrators to configure and administer cloud-based IT resources.
- ❖ It establishes a portal for access to administration and management features of various underlying systems, including the resource management, SLA management, and billing management systems.



# Remote Administration Mechanism

- ❖ Tools and APIs provided by Remote Administration Mechanism are typically used by a cloud provider to develop and customize online portal.
- ❖ Two types:
  - ❖ Usage and Administration Portal
  - ❖ Self-service Portal

# Usage and Administrative Portal

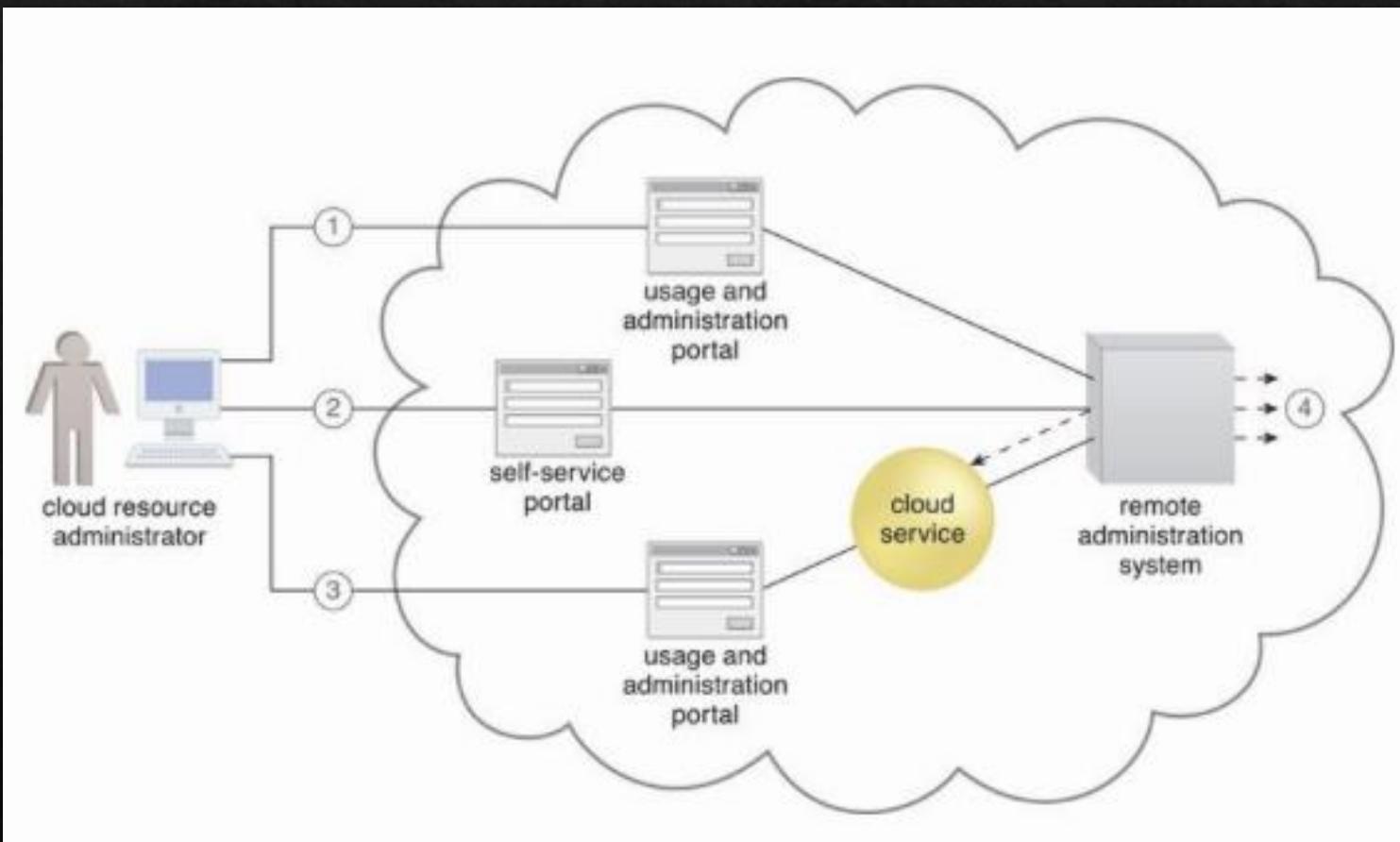
- ❖ A general purpose portal that centralizes management controls to different cloud-based IT resources and can further provide IT resource usage reports.



# Self-service Portal

- ❖ A portal that allows cloud consumers to search an up-to-date list of cloud services and IT resources that are available from a cloud provider. The cloud consumer submits its chosen items to the cloud provider for provisioning.





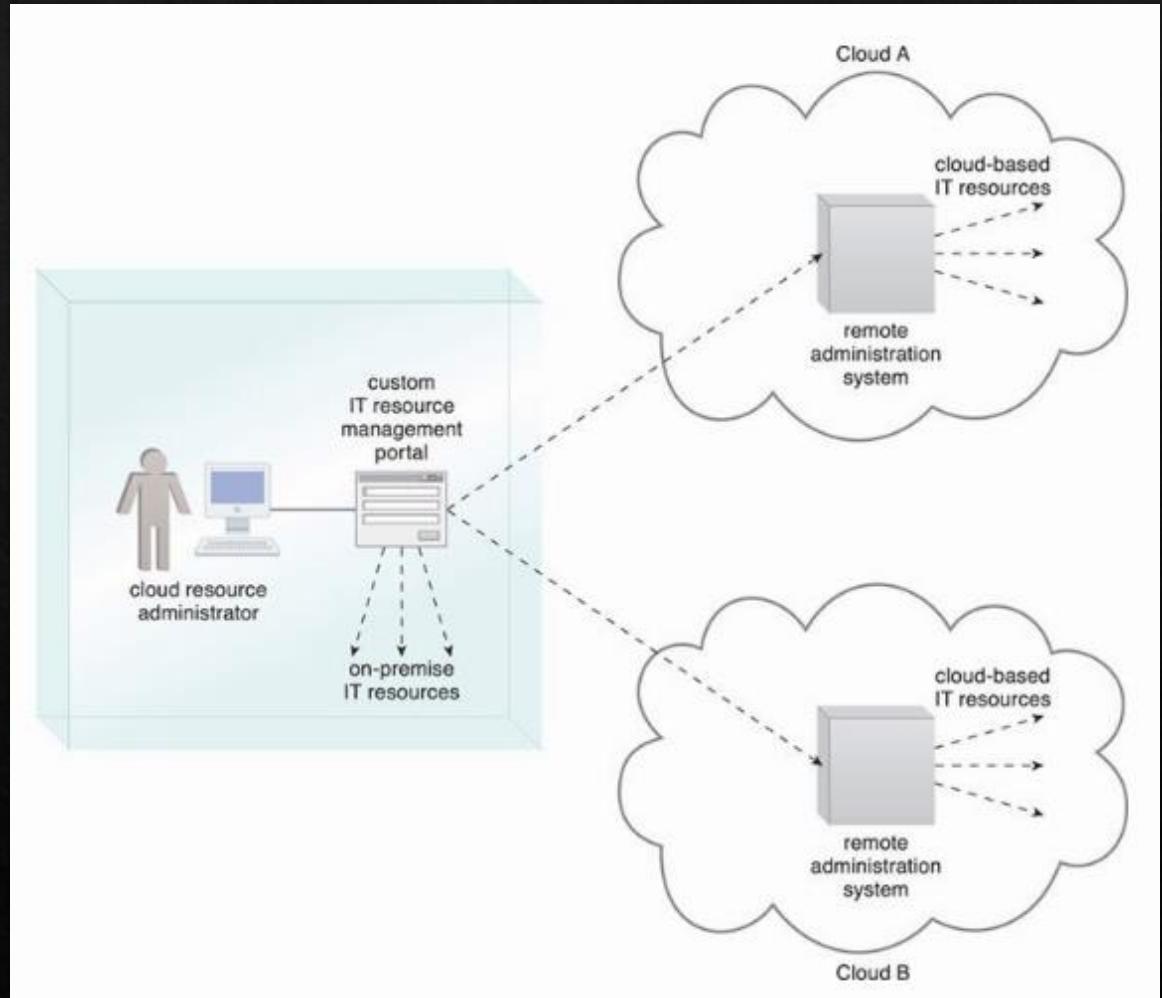
# Things Cloud Consumers Can Do

- ❖ Configuring and setting up cloud services
- ❖ Provisioning and releasing IT resource for on-demand cloud services
- ❖ Monitoring cloud service status, usage, and performance
- ❖ Monitoring QoS and SLA fulfillment
- ❖ Managing leasing costs and usage fees
- ❖ Managing user accounts, security credentials, authorization, and access control
- ❖ Tracking internal and external access to leased services
- ❖ Planning and assessing IT resource provisioning
- ❖ Capacity planning.

- Standardized API is preferred.

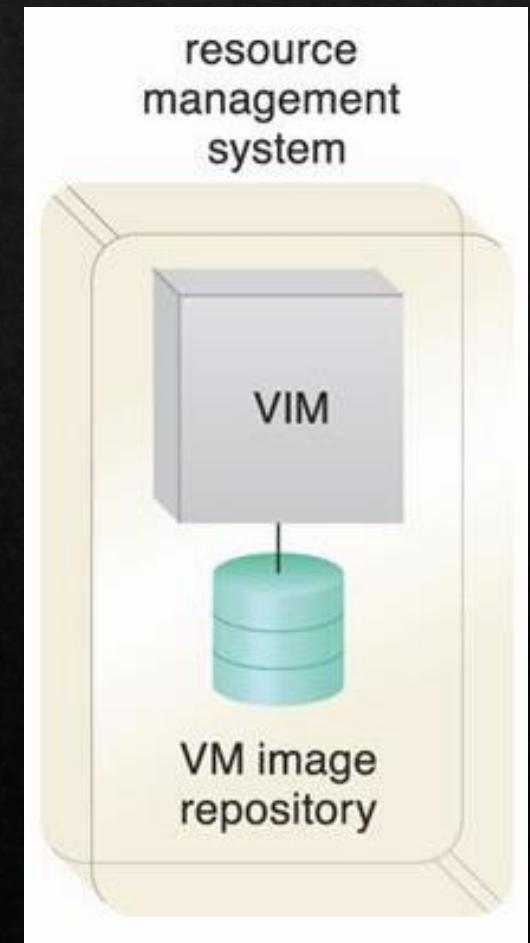
Easy to migrate

Easy to manage IT resources on multiple clouds



# Resource Management System

- ❖ This mechanism helps coordinate IT resources in response to management actions performed by both cloud consumers and cloud providers.
- ❖ Core to this system is the virtual infrastructure manager (VIM) that coordinates the server hardware so that virtual server instances can be created from the most expedient underlying physical server.
- ❖ VIM can create and manage multiple instances of a hypervisor across different physical servers or allocate a virtual server on one physical server to another (or to a resource pool).

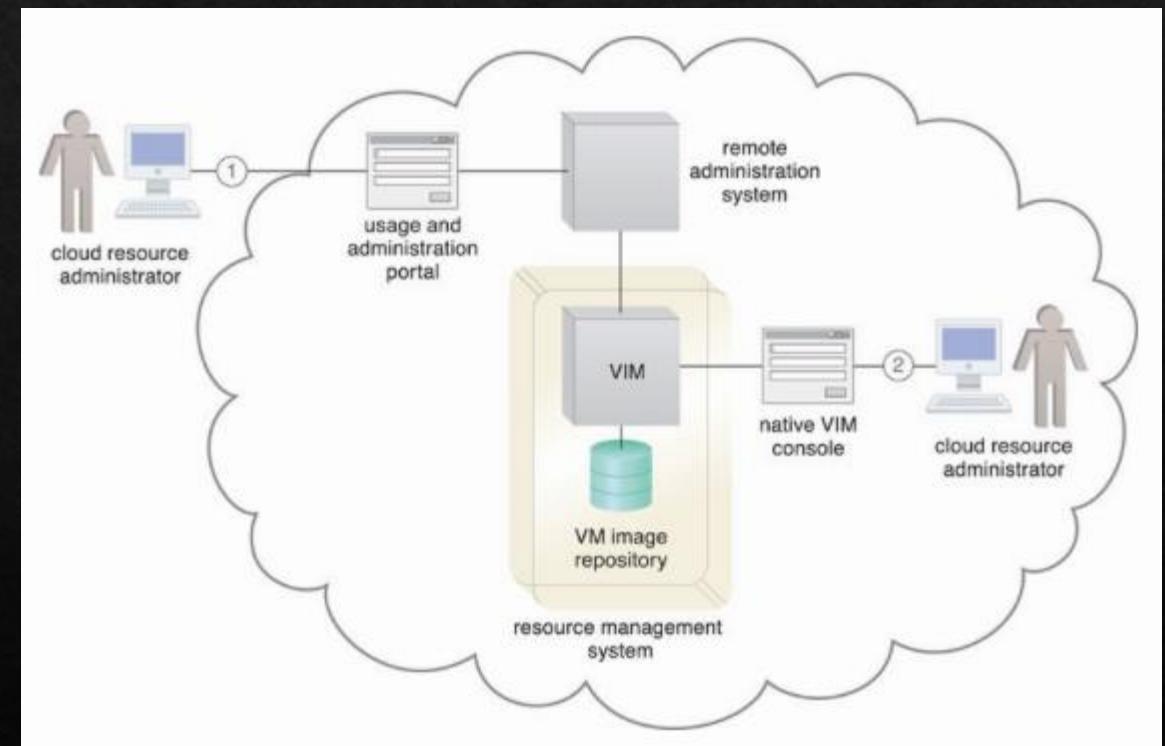


# Tasks Done Thru Resource Management System

- ❖ Managing virtual IT resource templates that are used to create pre-built instances, such as virtual server images.
- ❖ Allocating and releasing virtual IT resources into the available physical infrastructure in response to the starting, pausing, resuming, and termination of virtual IT resources instances.

# Tasks Done Thru Resource Management System

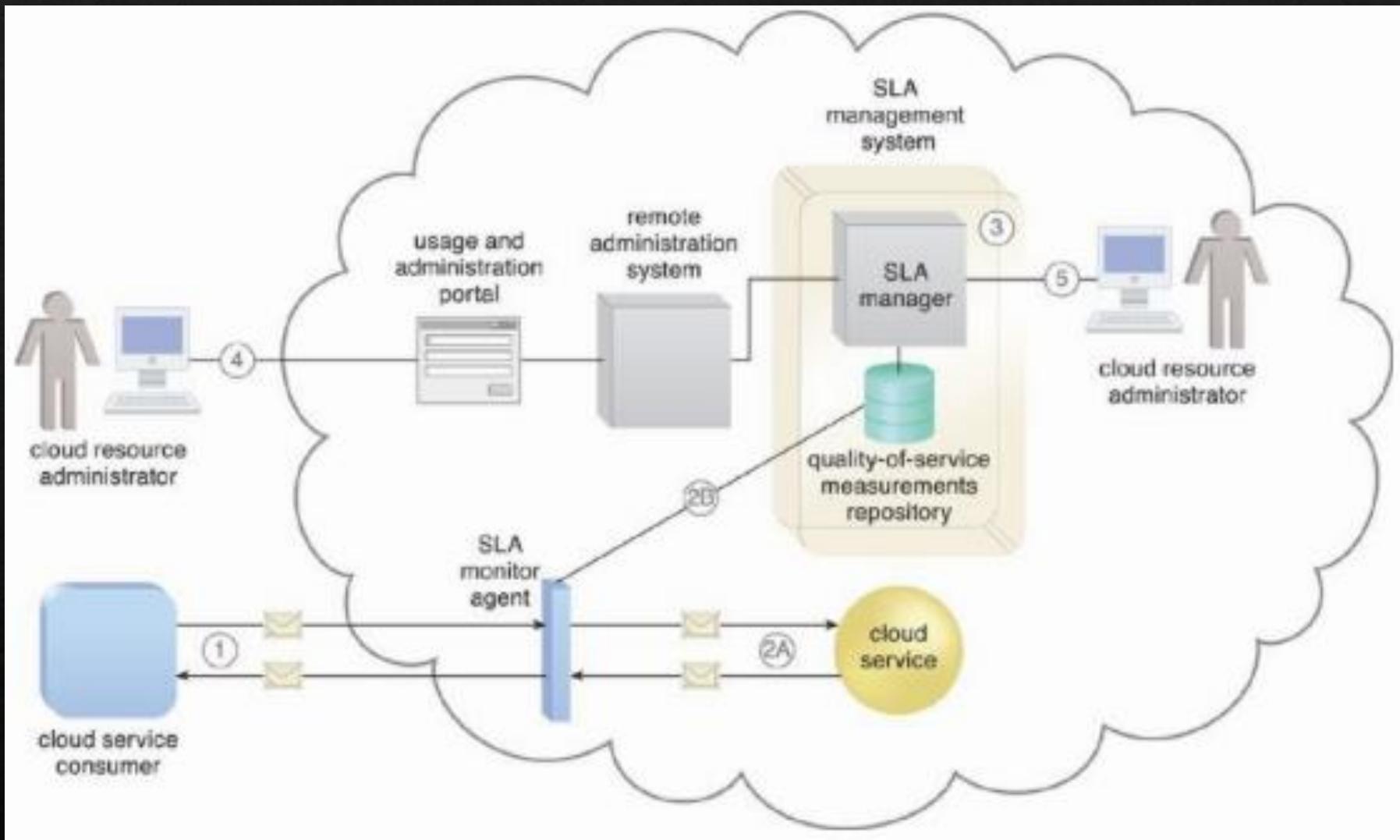
- ❖ Coordinating IT resources in relation to the involvement of other mechanisms, such as resource replication, load balancer, and failover system.
- ❖ Enforcing usage and security policies throughout the lifecycle of cloud service instances
- ❖ Monitoring operational conditions of IT resources.



# SLA Management System

- ❖ This mechanism represents a range of commercially available cloud management products that provide features pertaining to the administration, collection, storage, reporting, and runtime notification of SLA data.
- ❖ An SLA management system deployment will generally include a repository used to store and retrieve collected SLA data based on pre-defined metrics and reporting parameters.





# Billing Management System

- ❖ This system is dedicated to the collection and processing of usage data as it pertains to cloud provider accounting and cloud consumer billing.
- ❖ Specifically, the billing management system relies on pay-per-use monitors to gather runtime usage data that is stored in a repository that the system components then draw from for
  - ❖ billing,
  - ❖ reporting, and
  - ❖ invoicing purposes.

