DEPARTMENT OF COMPUTER APPLICATIONS

COURSE

23CAE717
Cloud Computing

UNIT III

Cloud Infrastructure

TOPIC

Inter Cloud Resource Management

Semester

II Semester / I MCA

❑ A single common functionality combines many different individual clouds into one seamless mass in terms of on-demand operations

❑ For scalability and better service provisioning, clouds have to communicate with other clouds and share their resources

Global Exchange of Resources

❑ Enterprises currently employ Cloud services in order to improve the scalability of their services

❑ Enterprise service consumers with global operations require faster response time

❑ Save time by distributing workload requests to multiple Clouds in various locations at the same time

❑ Cloud computing to mature, it is required that the services follow standard interfaces, BECAUSE,

- No standard interfaces/ compatibility between vendor's systems
- No uniform rate

Market system, modeled on real-world exchanges

Global Exchange of Resources

❑ University of Melbourne proposed InterCloud architecture (**Cloudbus**)

❑ Supports brokering and exchange of cloud resources for scaling applications across multiple clouds

❑ **Cloud Exchange** (CEx) acts as a market maker for bringing together service producers and consumers

❑ It aggregates the infrastructure demands from application brokers and evaluates them against the available supply

❑ It supports trading of cloud services based on competitive economic models such as commodity markets and auctions
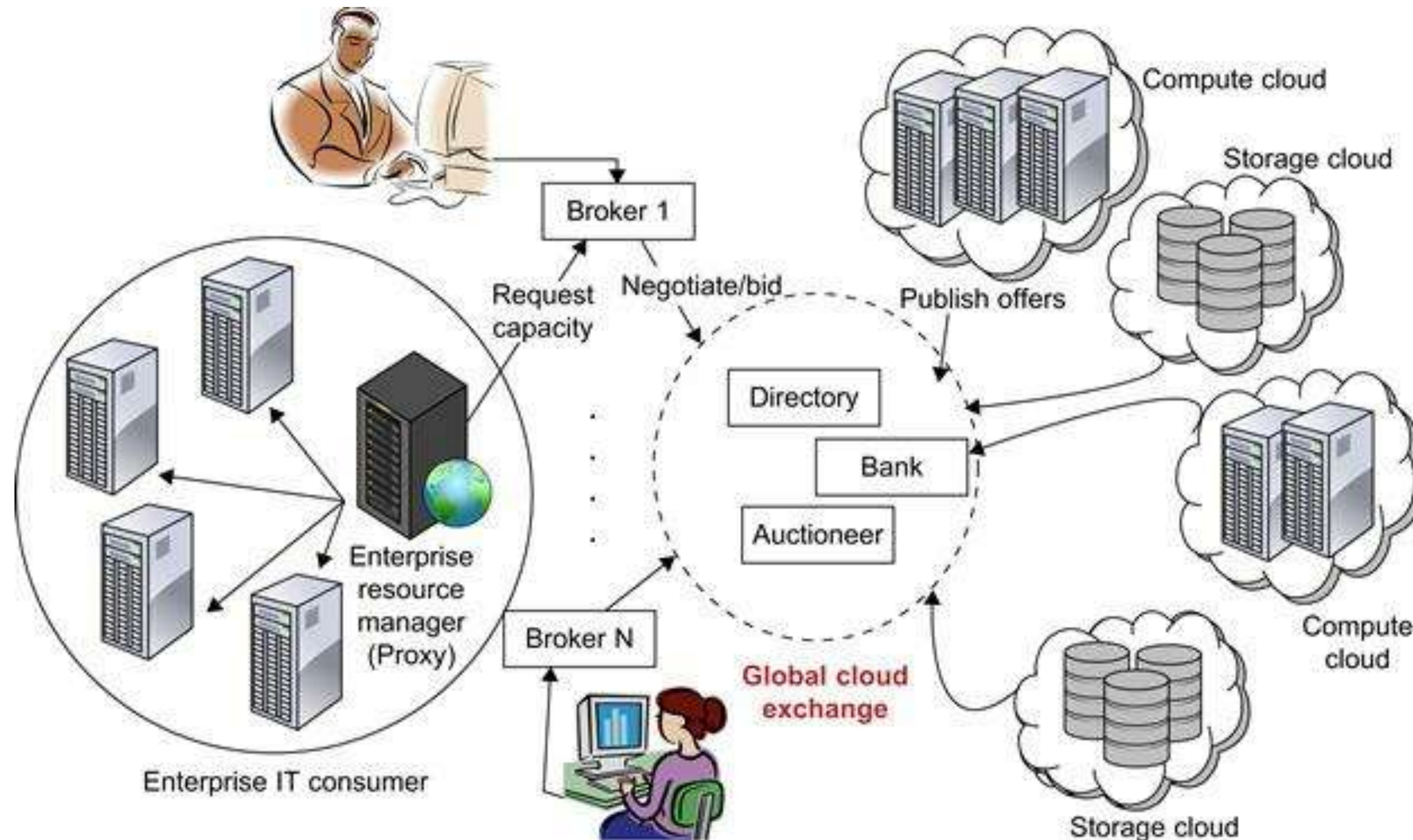
Global Exchange of Resources

- ❑ Market directory

- ❑ Banking Systems

- ❑ Brokers

- ❑ Price setting mechanism

- ❑ Admission control

- ❑ Resource management

- ❑ Consumer utility

- ❑ Resource management proxy

Cex Components

- **Market directory** allows participants to locate providers or consumers with the right offers

- **Auctioneers** periodically clear bids and asks received from market participants

- **Banking system** ensures that financial transactions pertaining to agreements between participants are carried out

Cex Components - Broker

- **Brokers** mediate between consumers and providers by buying capacity from the provider and sub-leasing these to the consumers

- Has to choose those users whose applications can provide it maximum utility

- Interacts with resource providers and other brokers to gain or to trade resource shares

- Equipped with a negotiation module that is informed by the current conditions of the resources and the current demand to make its decisions

❑ **Consumers**, brokers and providers are bound to their requirements and related compensations through SLAs

❑ SLA specifies the details of the service to be provided in terms of metrics agreed upon by all parties, and penalties for meeting and violating the expectations, respectively

❑ consumer participates in the utility market through a resource management proxy that selects a set of brokers based on their offering

❑ Then forms SLAs with the brokers that bind the latter to provide the guaranteed resources

❑ then deploys his own environment on the leased resources or uses the provider's interfaces in order to scale his applications

❑ **Providers** can use the markets in order to perform effective capacity planning

❑ A provider is equipped with a **price-setting mechanism** which sets the current price for there source based on market conditions, user demand, and current level of utilization of the resource

❑ **Negotiation** process proceeds until an SLA is formed or the participants decide to break off

❑ An **admission-control** mechanism at a provider's end selects the auctions to participate in or the brokers to negotiate with, based on an initial estimate of the utility.

❑ **Resource management syst**em provides functionalities such as advance reservations that enable   guaranteed provisioning of resource capacity

References

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With Thanks