



SNS COLLEGE OF TECHNOLOGY



(An Autonomous Institution)

Re-accredited by NAAC with A+ grade, Accredited by NBA(CSE, IT, ECE, EEE & Mechanical)
Approved by AICTE, New Delhi, Recognized by UGC, Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER APPLICATIONS

COURSE

23CAE717
Cloud Computing

UNIT III

Cloud
Infrastructure

TOPIC

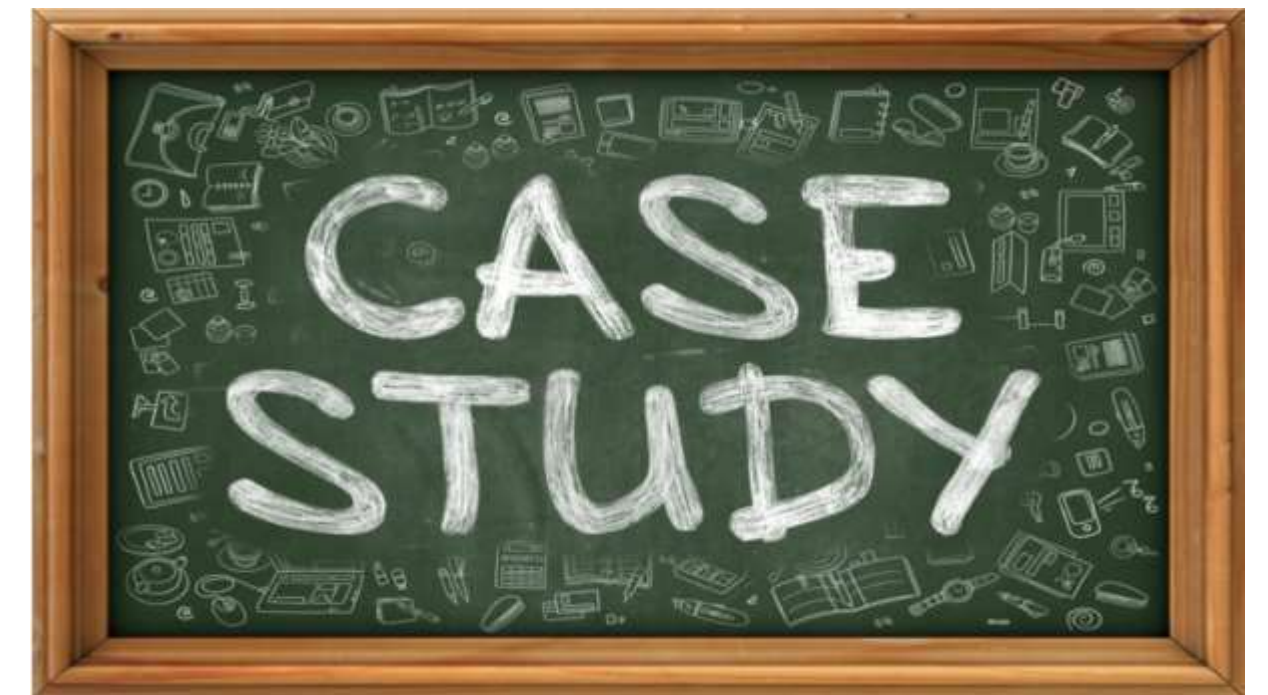
Global exchange of
cloud resources

Semester

II Semester /
I MCA

❑ A global technology company offer software services to the multiple business domain has a private cloud. They require reliability engineering services for supporting in the following areas

- Cloud automation
- Infrastructure support
- Application monitoring
- Increased productivity, efficiency etc..





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



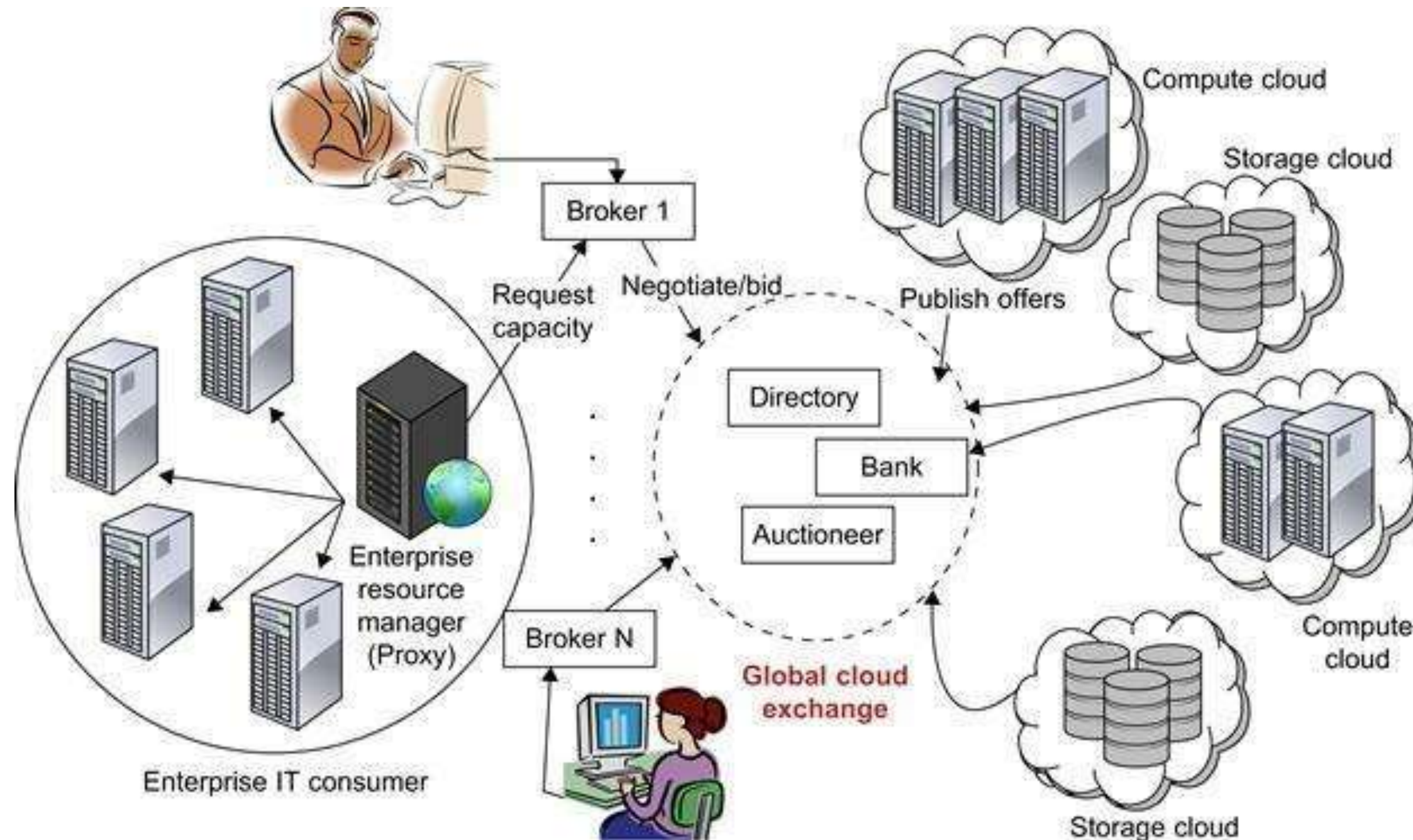
Global Exchange of Resources

- Market directory
- Banking Systems
- Brokers
- Price setting mechanism
- Admission control
- Resource management
- Consumer utility
- Resource management proxy





Market Oriented Cloud





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



- ❑ **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



Cex Components – Consumer



- ❑ **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



Cex Components – Consumer



- ❑ 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

A Lacazette

Job description



Cex Components – Provider



- ❑ **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



Cex Components – Provider

- ❑ 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 system** provides functionalities such as advance reservations that enable guaranteed provisioning of resource capacity



References

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- ❑ Kumar Saurabh, “Cloud Computing – insights into New-Era Infrastructure”, Wiley India, 2011.
- ❑ Toby Velte, Anthony Velte, Robert Elsenpeter, “Cloud Computing, A Practical Approach”, TMH, 2009.
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With Thanks