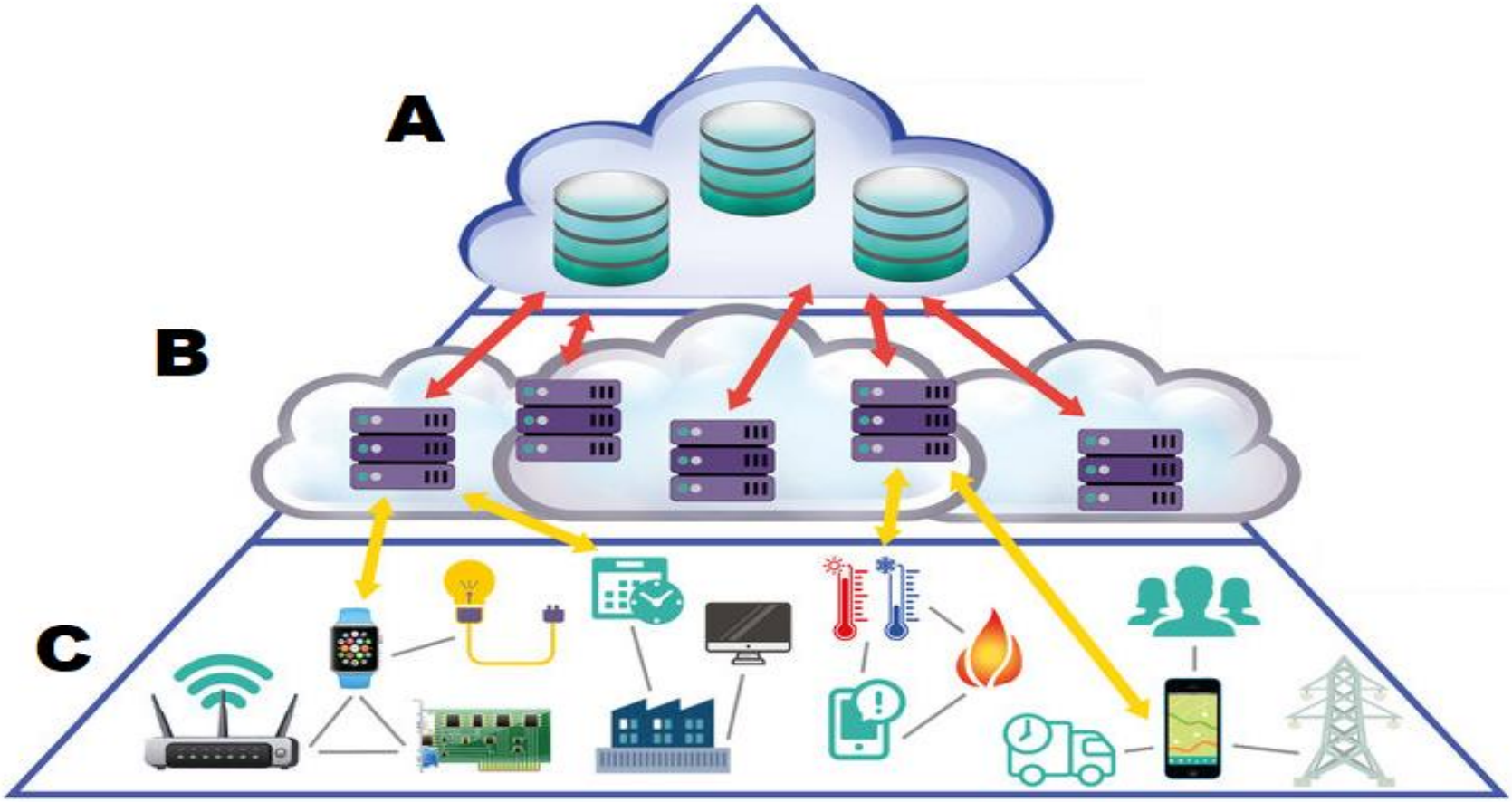
Basics of Cloud Computing

Review



1. Mist Computing 2. Fog Computing 3. Cloud Computing
4. Edge Computing 5. Dew Computing

A Simple Example

- ABC Corporation is an e-commerce company
- They have traditionally hosted their website on an on-premise server
- Recently, they have been getting a lot of business
- Their IT head, Bob, observes that their server sometimes operates very near its capacity
- What options does Bob have?

Two Options

Horizontal Scaling

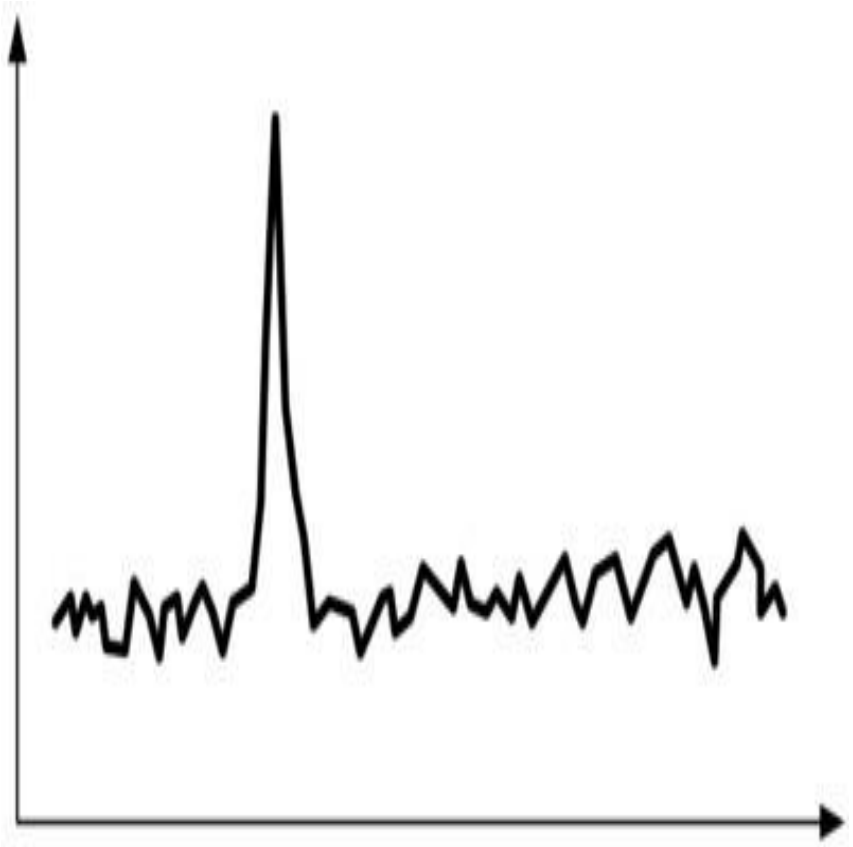
- Add more systems to handle the extra load
- Usually less expensive in the long run
- No downtime
- Potentially unlimited scaling

Vertical Scaling

- Upgrade the existing system
- Usually expensive in the long run
- Possible downtime
- There is a limit to which scaling can be done

But what if…

- But what if the website only shows a spike in usage during holiday season?
- If you upgrade, your new hardware remains unused most of the year
- If you don’t upgrade, the company loses out on important revenue



Secret Option #3

- Bob decides to move their business to the cloud
  - Automatic scaling when usage increases
  - When usage decreases, the server resources are scaled back
  - No upfront capital cost
  - Pay only for the resources that are used

A Formal Definition of Cloud Computing

“ 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”

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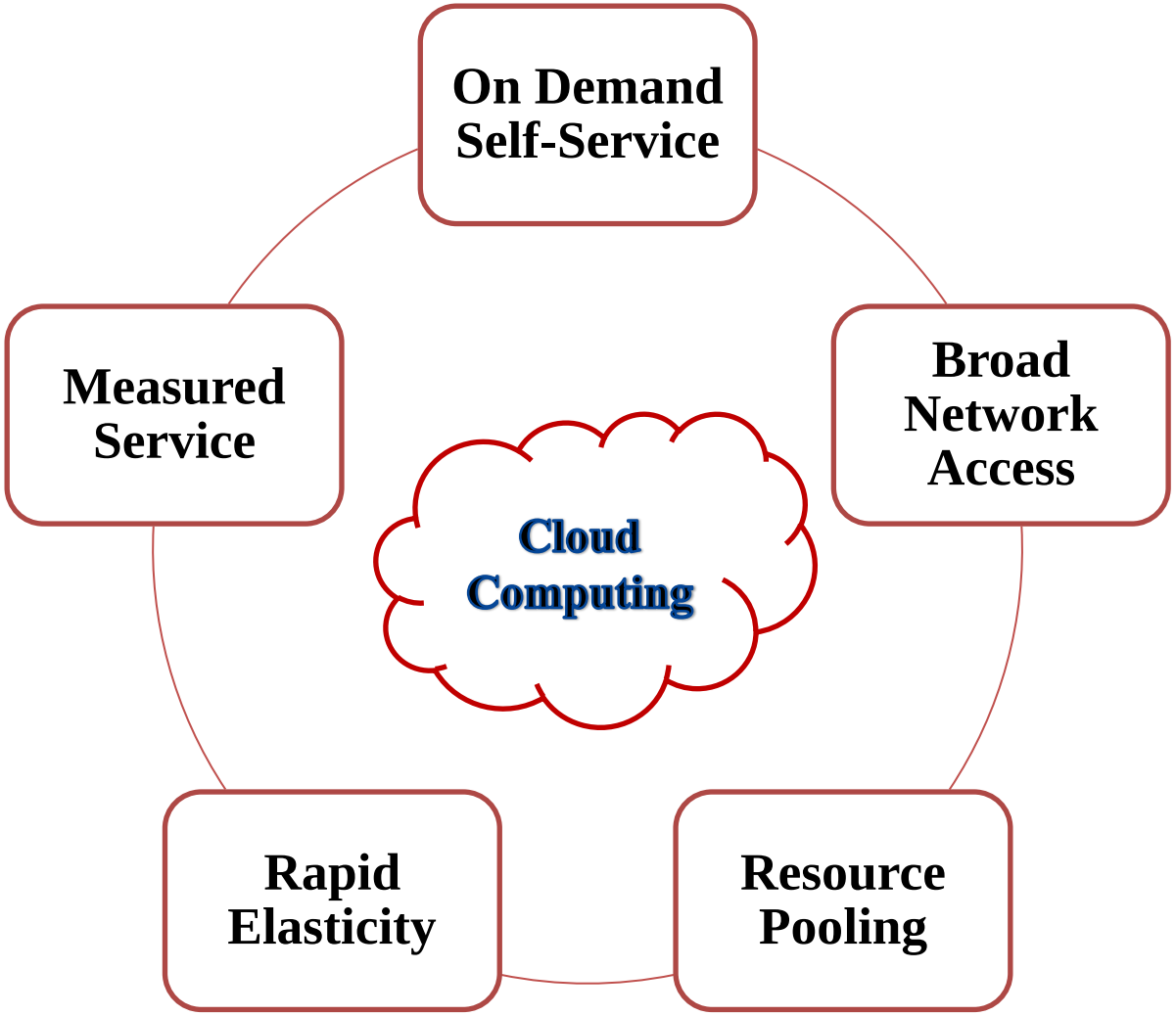
Features of Cloud Computing



Features of Cloud Computing

1. **On Demand Self – Service**
   - Resources can be provisioned and released as an when needed
   - No need for human interaction
2. **Broad Network Access**
   - Resources can be accessed over the network
   - Any device – smartphone, tablet, laptop, thin client, PC etc.

Features of Cloud Computing

3. **Resource Pooling**
   - Service provider has a pool of resources that can be allocated and deallocated to customers
4. **Rapid Elasticity**
   - Resources can be allocated on the fly
   - Customers get an illusion of unlimited resources
5. **Measured Service**
   - Pay per use

SLA – The Warranty for Cloud Services

- SLA (Service Level Agreement) is a bond for performance negotiated between the cloud services provider and the client
  - Availability and Performance
  - Security / privacy of the data
  - Disaster Recovery expectations
  - Location of the data
  - Access and portability to the data
  - Process to identify problems and resolution expectations
  - Dispute mediation process (e.g. escalation process, consequences)
  - Exit Strategy with expectations on the provider to ensure smooth transition

Cloud Architecture

User / Client Layer

Network Layer

Cloud Management Layer

Hardware Resource Layer

Anatomy of the Cloud

Application

Platform

Virtualized Infrastructure

Virtualization

Server / Storage / Datacentres

Enabling Technologies for Cloud Computing