

# Cloud Security

SIRC of ICAI

13<sup>th</sup> January, 2020

# Cloud

## Benefits



Cost Efficient



Storage Space



Fault Resilient



Scalability



Lean Management

## Market Share of Landing Cloud Service Providers

28%



10%



7%



5%



4%



3%



## Concerns



Security



Data Privacy



ROI

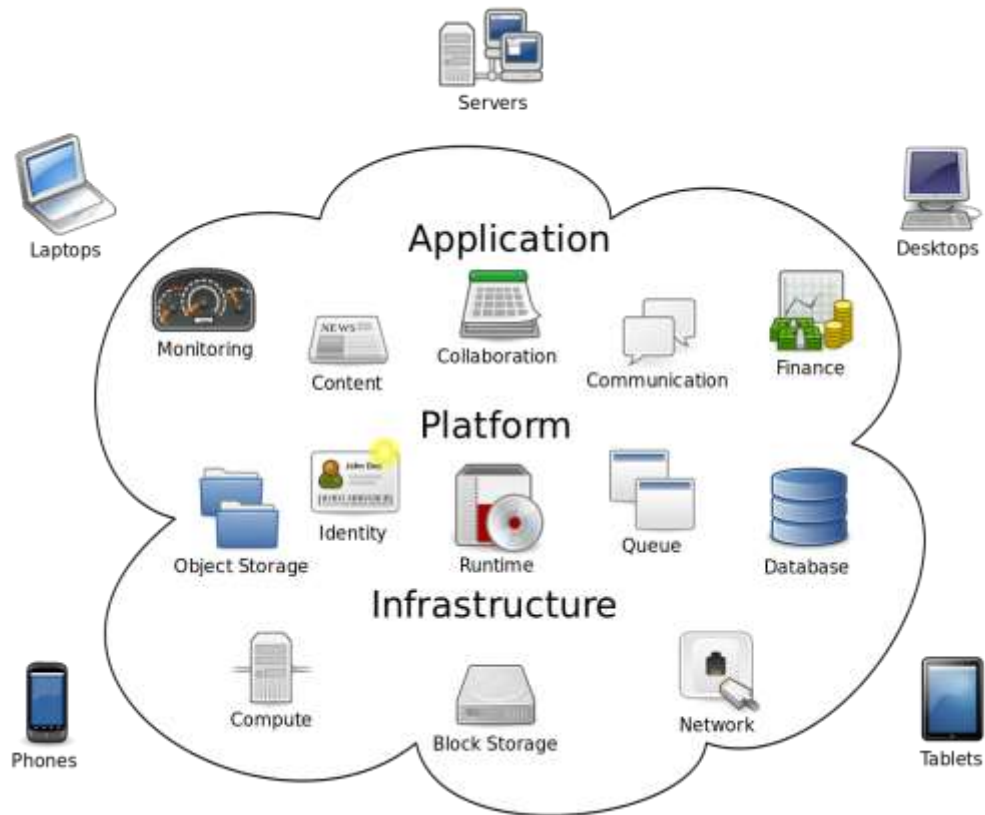


Implementation Cost

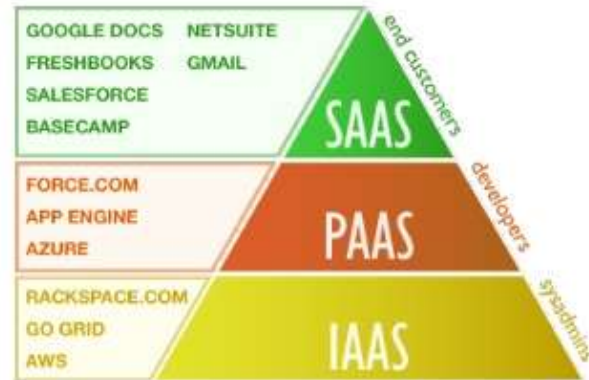
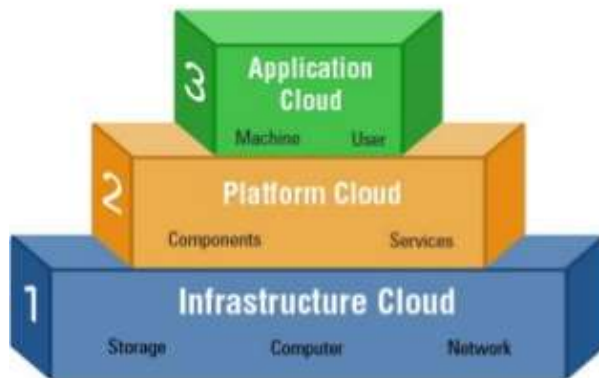


Integration Issues

# Cloud



# Cloud



# Lets test !!

# Cloud

- Tally ERP 9
- Gmail
- SAP S4
- HANA
- Expense tracker/To do Lists
- Google apps
- Company hosting their inhouse application at a Third party Data centre

# Cloud

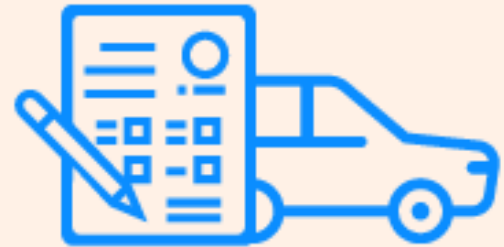
## YOUR OWN CAR

On-premises solution



## LEASED CAR

IaaS



## TAXI

PaaS



## BUS

SaaS





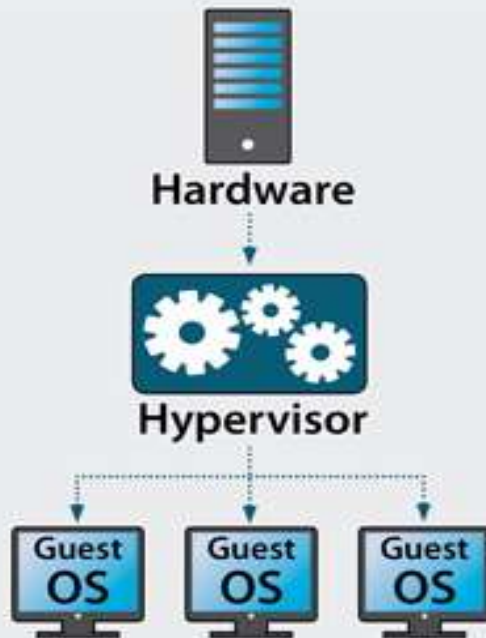
**Cloud**

Hypervisor

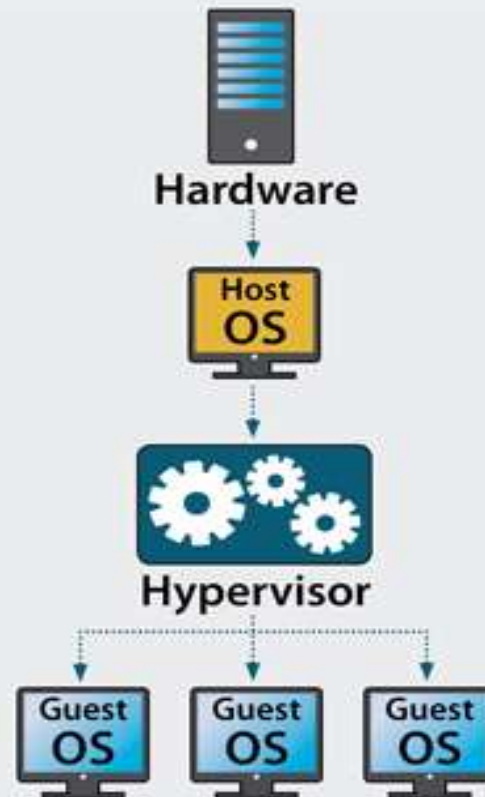
# Cloud

## Hypervisor or Virtual Machine Monitor (VMM)

### Type 1 Native (bare metal)



### Type 2 Hosted





# Cloud



Security

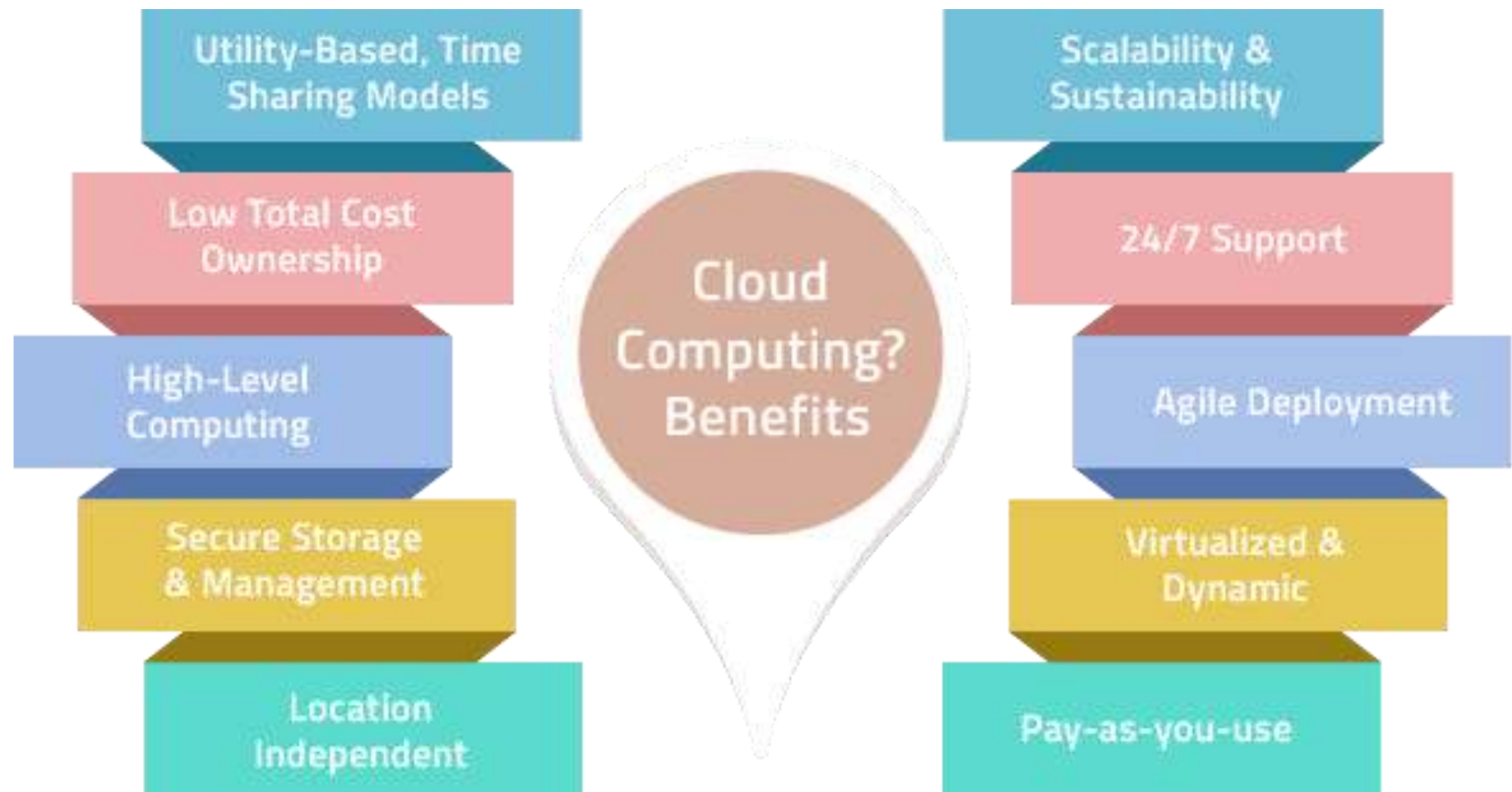
Economical

Flexible transfer of data

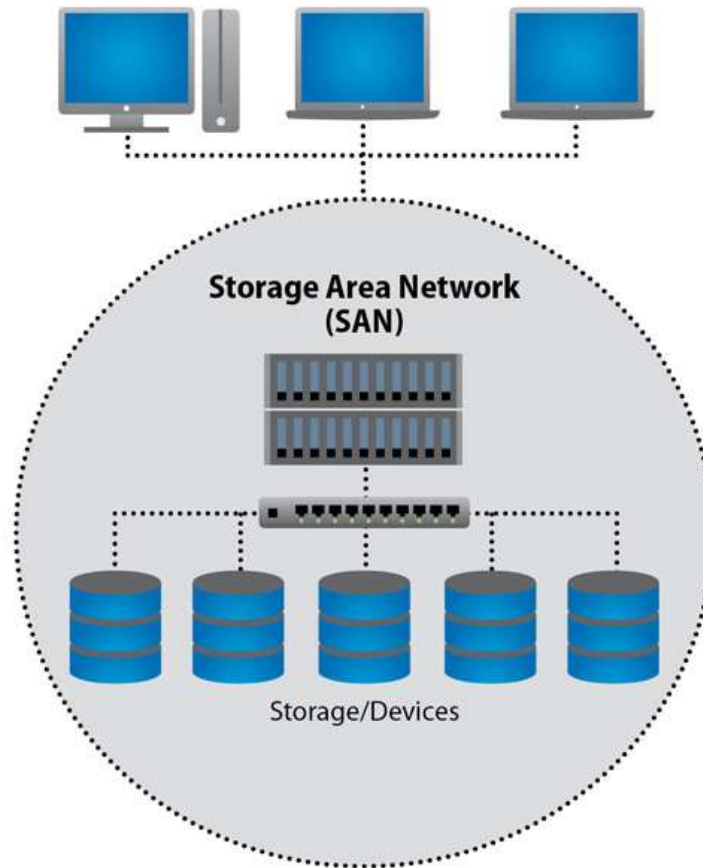
Flexible Operations

Eliminates the risk of  
system failure

# Cloud



# Cloud



A decorative header featuring a red background with white clouds. The word "Cloud" is written in a bold, purple font inside a white cloud shape. There are other smaller white clouds on the left and right.

**Cloud**

# Cloud Risks

# Risks

## Cloud

- **Loss or theft of intellectual property**
- **Compliance violations and regulatory actions**
- **Loss of control over end user actions**
- **Malware infections that unleash a targeted attack**
- **Contractual breaches with customers or business partners**
- **Data breach requiring disclosure and notification to victims**

# Security

# Cloud

- Cloud security is the protection of data, applications, and infrastructures involved in cloud computing.

(Many aspects of security for cloud environments whether it's a public, private, or hybrid cloud are the same as for any on-premise IT architecture)



# Cloud

- **Centralized security**
- **Reduced costs**
- **Reduced Administration**
- **Reliability**



**Cloud**

Is our in house security systems  
implemented better than what is  
implemented in cloud?



# Threats

## Cloud

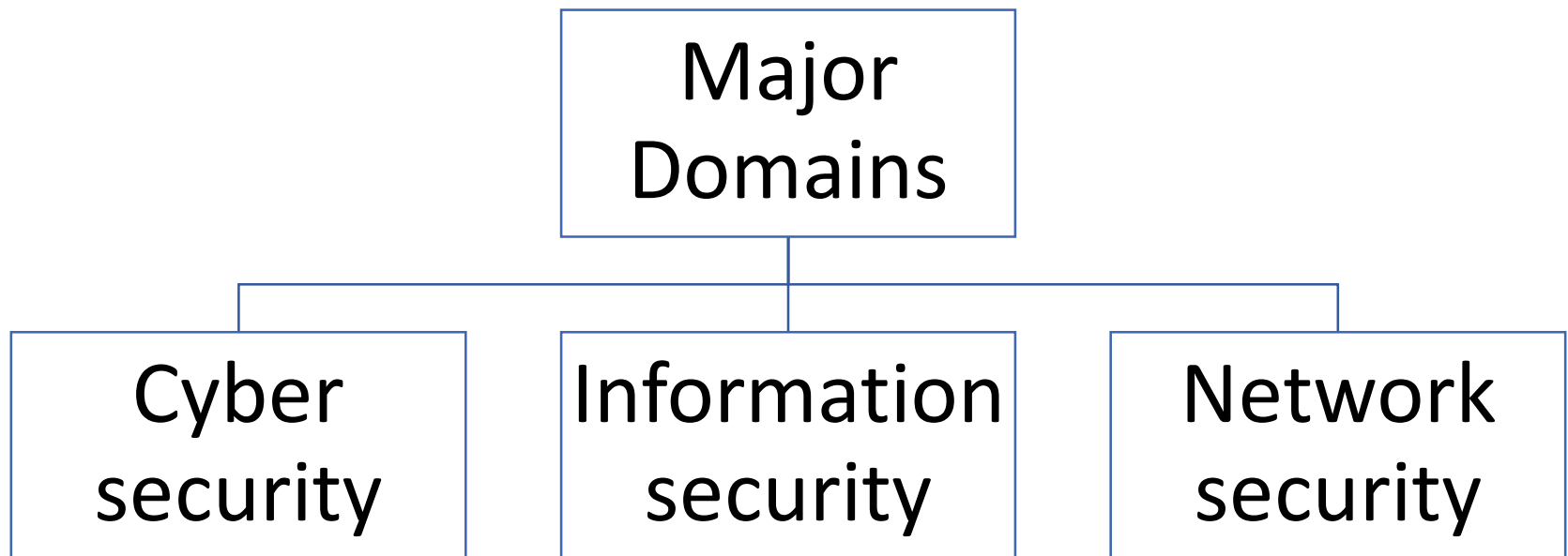
- data breaches
- data loss
- account hijacking
- insecure API's
- denial-of-service
- malicious insiders
- abuse of service
- insufficient due-diligence, and
- shared technology



**Cloud**

How Cloud Security Works??

# Cloud



# Cloud

## Shared Responsibility Model for Security in the Cloud

On-Premises (for reference)	IaaS (infrastructure-as-a-service)	PaaS (platform-as-a-service)	SaaS (software-as-a-service)
User Access	User Access	User Access	User Access
Data	Data	Data	Data
Applications	Applications	Applications	Applications
Operating System	Operating System	Operating System	Operating System
Network Traffic	Network Traffic	Network Traffic	Network Traffic
Hypervisor	Hypervisor	Hypervisor	Hypervisor
Infrastructure	Infrastructure	Infrastructure	Infrastructure
Physical	Physical	Physical	Physical

 Customer Responsibility

 Cloud Provider Responsibility

# Controls

# Cloud

Access control

Physical security

Monitoring

Configuration and Change Management

Back up

Contingency Planning and Disaster preparedness

# Implementation of Ctrl

A large, stylized white cloud with a red outline is positioned on the right side of the header. Inside the cloud, the word "Cloud" is written in a bold, purple, sans-serif font. The background of the header is a gradient of red and orange, with several smaller white clouds scattered across it.

**Cloud**

- Perimeter security
- Firewalls
- Antivirus
- Data Leak Protection
- Mobile Device Management
- Vulnerability assessment
- Penetration Testing
- Network Operations centre
- Security Operations centre

The header features a red background with white cloud shapes. The word "security" is written in white lowercase letters on the left side of the clouds.

# security

The header features a red background with white cloud shapes. The word "Cloud" is written in purple uppercase letters on the right side of the clouds.

# Cloud

- Data Encryption
- Firewalls
- Antivirus
- NOC
- SOC

# Frameworks

## Cloud

- ISACA – Auditing standards, guidelines and procedures
- COBIT – Control Objectives for information and related technology.
- ISO 27001 – Information security management systems
- ITIL – IT service management



# Service org- Guidelines

A stylized white cloud with a red outline, containing the word "Cloud" in a bold, purple, sans-serif font. The cloud is set against a background of red and pink clouds.

**Cloud**

- Standards on auditing 402- type 1 and type 2 reports
- Service organisation controls – type 1 and type 2
- Statement on Standards for Attestation Engagements no. 16 (SSAE 16)



**Cloud**

Thank you!!