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TRACK NAME

Cloud Solution Architecture

P@SHA
Pakistan Software Houses Association for IT & ITES

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SOFTWARE EXPORT BOARD

S. No.	Topics
1	Pre-Requisites Of Cloud
2	**Basics of Security and Privacy**
3	**CapEX and OpEx in Cloud Computing**
4	Compute
5	Storage
6	Networking
7	VPN- Virtual Private Network
8	Data Center
9	DR site - Disaster Recovery
10	Mapping of on-prem Infrastructure setup to Cloud
11	Cloud TCO

The Basics of Security and Privacy

The Basics of Security and Privacy.

- Companies have to make sure that their cloud storage and cloud-based applications remain safe from hackers and other malicious attacks.
- You should be familiar with the best practices to prevent cloud and cybersecurity threats, cross site scripting injections, phishing attacks etc, as they mitigate the risk of a successful hacking attack substantially.

The Basics of Security and Privacy.

Examples of cyber security treats:

- 1. Malware

Malware is malicious software such as spyware, ransomware, viruses and worms. Malware is activated when a user clicks on a malicious link or attachment, which leads to installing dangerous software.

- 2. Emotet

The Cybersecurity and Infrastructure Security Agency (CISA) describes Emotet as “an advanced, modular banking Trojan that primarily functions as a downloader or dropper of other banking Trojans. Emotet continues to be among the most costly and destructive malware.”

The Basics of Security and Privacy.

Examples of cyber security treats:

- 3. Denial of Service

A denial of service (DoS) is a type of cyber attack that floods a computer or network so it can't respond to requests. A distributed DoS (DDoS) does the same thing, but the attack originates from a computer network. Cyber attackers often use a flood attack to disrupt the "handshake" process and carry out a DoS.

- 4. Man in the Middle

A man-in-the-middle (MITM) attack occurs when hackers insert themselves into a two-party transaction. After interrupting the traffic, they can filter and steal data, according to Cisco. MITM attacks often occur when a visitor uses an unsecured public Wi-Fi network.

The Basics of Security and Privacy.

Examples of cyber security treats:

- 5. Phishing

Phishing attacks use fake communication, such as an email, to trick the receiver into opening it and carrying out the instructions inside, such as providing a credit card number. “The goal is to steal sensitive data like credit card and login information or to install malware on the victim’s machine.”

- 6. SQL Injection

A Structured Query Language (SQL) injection is a type of cyber attack that results from inserting malicious code into a server that uses SQL. When infected, the server releases information. Submitting the malicious code can be as simple as entering it into a vulnerable website search box.

The Basics of Security and Privacy.

Examples of cyber security treats:

- 7. Password Attacks

With the right password, a cyber attacker has access to a wealth of information. Social engineering is a type of password attack that Data Insider defines as “a strategy cyber attackers use that relies heavily on human interaction and often involves tricking people into breaking standard security practices.” Other types of password attacks include accessing a password database or outright guessing.

Aspects of Cloud Security

Technology

- Access Control
- System Protection
- Identification
- Authentication
- Cloud Security Audits
- Identity & Key Management
- Physical Security Protection
- Backup, Recovery & Archive
- Core Infrastructure Protection
- Network Protection

Operation

- Awareness & Training
- Incident Management
- Configuration Management
- Contingency Planning
- Maintenance
- Media Protection
- Environmental Protection
- System Integrity
- Information Integrity
- Personnel Security

Management

- Updated Security Policy
- Cloud Security Strategy
- Cloud Security Governance
- Cloud Security Processes
- Security roles & responsibility
- Cloud Security Guidelines
- Cloud Security Assessment
- Service Integration
- IT & Procurement security requirements
- Cloud Security Management

Cloud Security Challenges

You have to be familiar with multiple cloud security tools and encryption models, that can implement these tools according to our needs in cloud computing environment,

The Basics of Networking.

- In cloud computing, networking focuses on hosting some or all network resources from the cloud.
- This includes v**irtual firewalls, virtual routers, network management software, bandwidth, etc.**
- You should start with learning about IP addresses and how they work.
- Understanding the concept of IP addresses is fundamental to learning the advanced concepts of networking.
- The network in a cloud-based solution allows the user to connect with the cloud services.

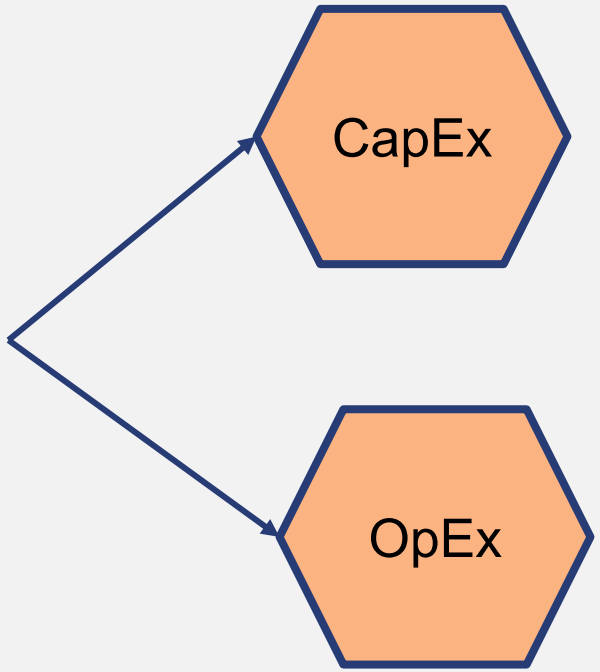
Q and A Session

1. Why do we use databases?
2. Why security is important for your infrastructure?
3. More questions by students

CapEx vs OpEx in Cloud Computing

CapEx vs OpEx.

- The enterprise IT landscape has rapidly changed over the past decade.
- With organizations opting for the advantages of the cloud versus on-premises data centers.
- With this shift, businesses are seeing an increase in OpEx and a decrease in CapEx.



CapEx vs OpEx

Capital Expenditure (CapEx):

- It is the initial spending of money (whole together) on physical infrastructure, and then deducting that up-front expense over time.
- The up-front cost from CapEx has a value that reduces over time.
- All expenses incurred for long-term benefits in the future lie under CapEx.

CapEx vs OpEx

Operational Expenditure (OpEx):

- ➔ It is like a pay-as-you-go service.
- ➔ You can deduct this expense in the same year you spend it.
- ➔ There is no up-front cost, as you pay for a service or product as you use it. It is as the name suggests, the expense of daily operation.

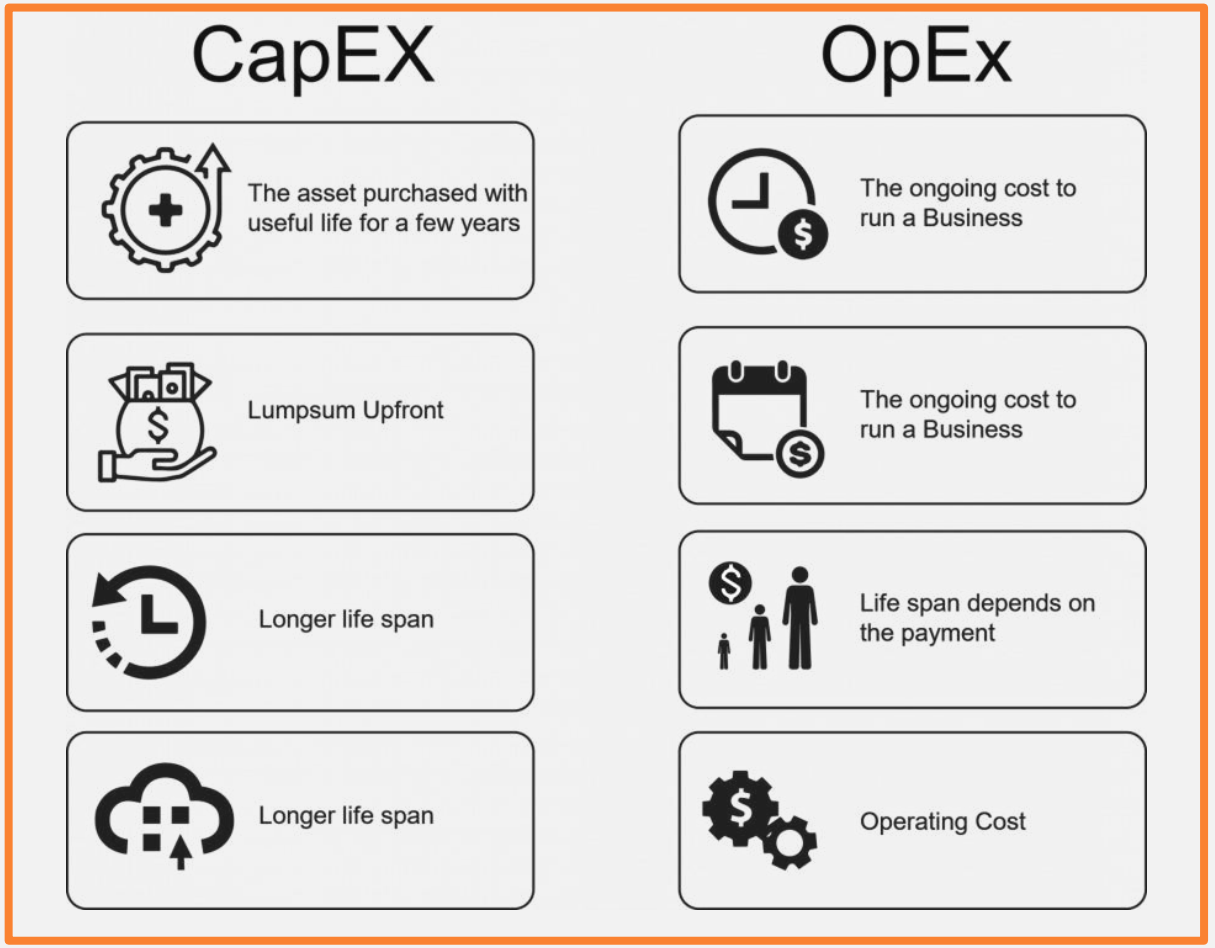
CapEx vs OpEx Examples.

Examples of CapEx:

- Server costs
- Storage costs
- Network costs
- Backup and archive costs
- Organization continuity and disaster recovery costs
- Datacenter infrastructure costs

Examples of OpEx:

- operating costs
- recurring cost
- pay-as-you-go pricing
- Scaling charges based on usage/demand



CapEx vs OpEx Differences.

Expenditure	CapEx	OpEx
Purpose	Assets purchased with a useful life beyond current year	Ongoing costs to run a business
When Paid	Lump sum up front	Monthly or annual recurring
When Accounted for	Over 3-10 year lifespan while asset depreciates	In the current month or year
Listed As	Property or equipment	Operating Cost
Tax Treatment	Deducted over time as asset depreciates	Deducted in the current tax year

- Review Of the Topics
- Discussion