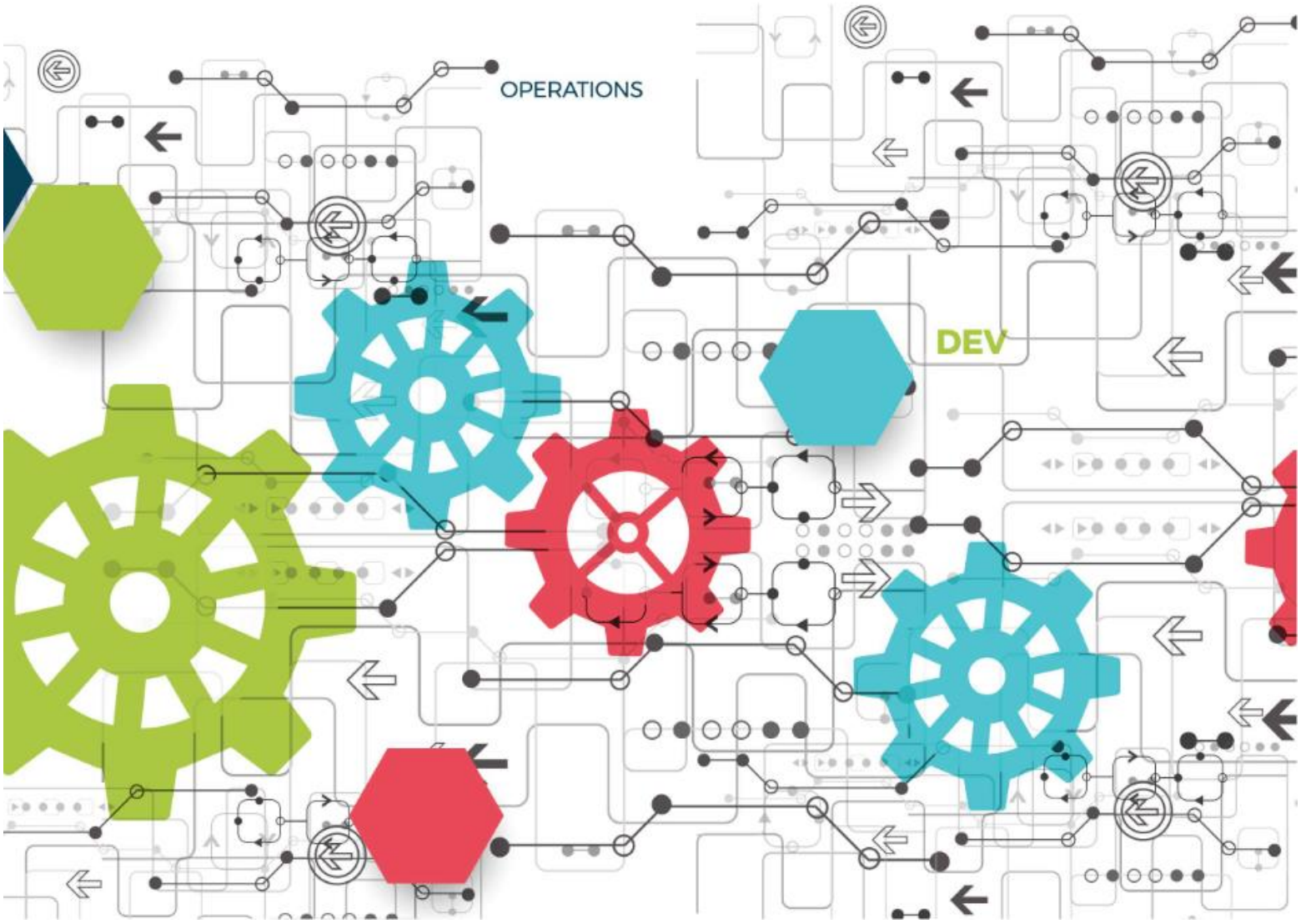
Xebia

B.Tech Computer Science and Engineering in DevOps

System Provisioning and Configuration Management

MODULE 2

On Premise Provisioning



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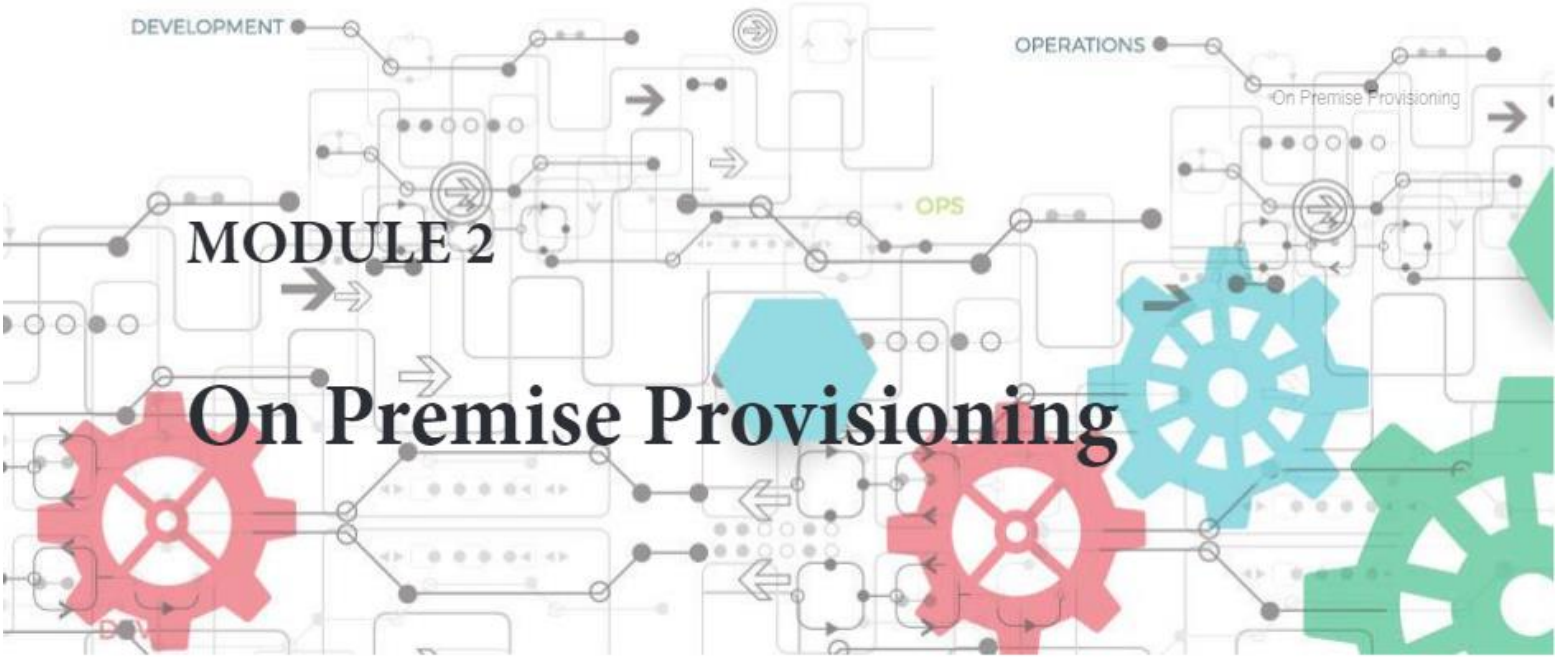


MODULE 2

On Premise Provisioning

Facilitator Notes:

Welcome the participants and give them an overview of the module. Tell them that they will learn about 'On Premise Provisioning'

You will learn about 'On Premise Provisioning' in this module.

Module Objectives

At the end of this module, you will be able to:

- Describe the concept of on premise provisioning infrastructure
- Explain server templating

Facilitator Notes:

Explain the module objectives to the participants.

Module Topics

Let us take a quick look at the topic that we will cover in this module:

- On Premise Provisioning Infrastructure
- Server Templating

Facilitator Notes:

Inform the participants about the topics that they will be learning in this module.

2.1 Understanding 'On Premise Provisioning'

What is 'On Premise Provisioning'?

On Premise Provisioning' means the software which you have installed in your personal computer or group of personal computers in your residence/office/laboratory, etc., gets proper license, is genuine software, is not pirated, is not a cracked version, has requisite authentication depending upon the subject of association and extension of license facilities.

Facilitator Notes:

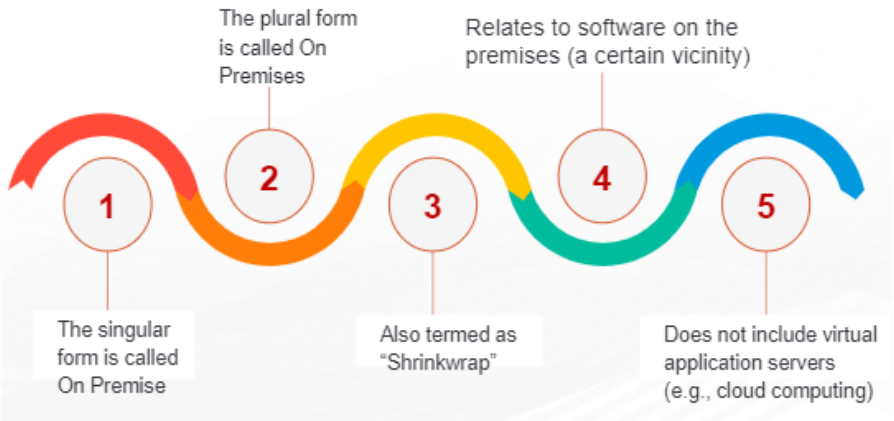
Inform the participants about 'On Premise Provisioning'.

What is On Premise Provisioning?

As we have discussed in the previous presentation about provisioning, which basically means allocating a software with a license so that its usage is authenticated with proper authorization. So 'On Premise Provisioning' means the software which you have installed in your personal computer or group of personal computers in your residence/office/laboratory, etc., gets proper license, is genuine software, is not pirated, is not a cracked version, has requisite authentication depending upon the subject of association and extension of license facilities. This whole setup is called On Premise(s) Provisioning.

2.1.1 What is On Premise?

Let's look at these steps to understand about On Premise.



Facilitator Notes:

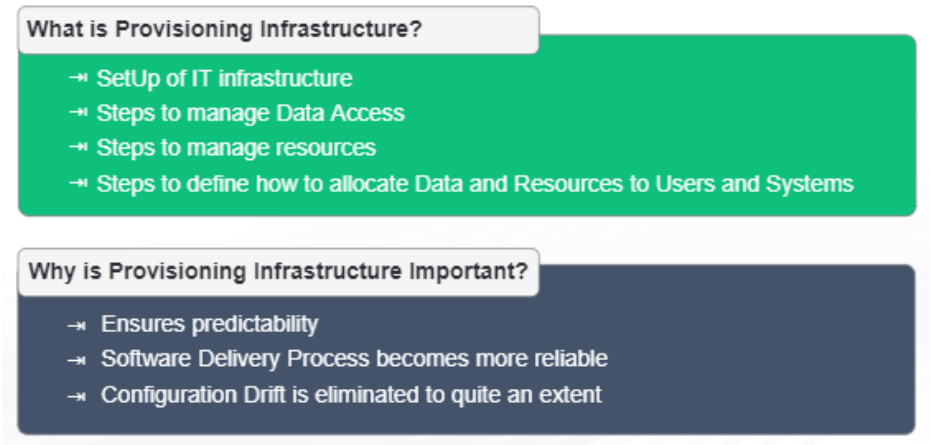
Explain the participants what is On Premise.

Our topic of discussion 'On Premise' or we can call it 'On Premises' [with respect to software] means the information of the software which is installed and operational on the premises(office/ Residence/Laboratory, etc.) of any individual/organization/educational institution, etc., rather than the software being installed at a remote destination such as Cloud server.

For example, you have a laptop or a desktop at home and you have a Windows 10 machine and you are using AVG Antivirus paid subscription for 1 year, and you are getting notifications to upgrade the same to 2 more years with a good discount offer.

This is 'On Premises software for your own personal computer. You have installed the AVG Antivirus software to safeguard your personal computer.

2.1.2 Provisioning Infrastructure



Facilitator Notes:

Inform the participants about the provisioning infrastructure.

Lets understand this in terms of a real life scenario. You are a small entrepreneur and your idea of entrepreneurship happens to be 'Opening an Internet Café'.

So what all things will you procure setting up this business?

Let's list down a few.

1. Procurement of hardware
2. Setup of the hardware, all the wires, LAN, UPS, Batteries or inverter set up
3. Setup and configure software components, e.g., Antivirus, Auto-Cut off after time interval, etc.

These are among a few of the parameters which you need to decide to setup the provisioning. This is known as Provisioning Infrastructure. But, what about the challenges that could be faced even in this simpler looking setup. So, in a layman's term Provisioning Infrastructure also includes the challenges that are encountered during such a setup.

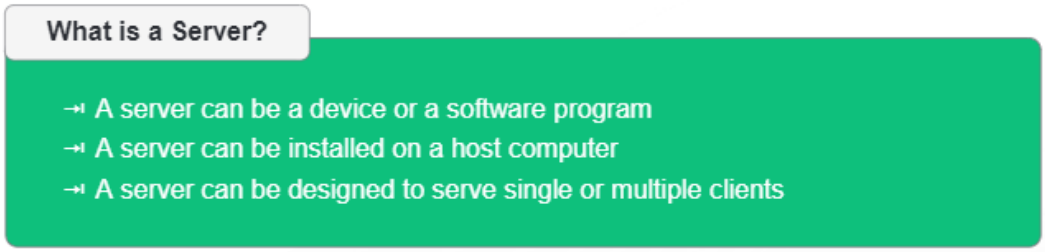
Challenges which could be encountered:

1. Awaiting order of hardware
2. Encountering faulty hardware and ordering a replacement
3. Software licenses might fail or certain patch might fail

Since the last 2 decades, industry folks have realized that certain aspects of any business which involves computers or group of computers can always enhance like introduction of data centers, managed hosting, cloud provisioning, etc.

Hence, provisioning infrastructure is actually quite a progressive curve and its importance is clearly reflective with its new and improved states of affairs that speeds up and simplifies the processes. It also comes with its drawbacks, but has contingencies to tackle them.

2.2 Server Templating



Facilitator Notes:

Explain the participants about server templating.

A server is a computer system (could be hardware or software). Its basic work is to accept a certain request made over a network and respond to that request.

Let's consider an application which has both web application and mobile apps. Let's go for Amazon. So when you type www.amazon.in and www.amazon.ca there is a certain difference. Please try this in your respective laptops or desktops and you will see that if you type www.amazon.in then the Indian Amazon website shall open and if you type www.amazon.ca then the Canadian Amazon website will open.

So what is happening? Technically, there are multiple servers. Let's consider these servers are regional servers confined to a particular geographical region and these respond as per the certain request (the request differs as .in or .ca) and they respond accordingly by opening Indian and Canadian websites.

We will discuss more about this in the upcoming slides.

2.2.1 Server Templating

What is the use of a Server?

⇥ A server helps run services to serve the needs of other computers.

Facilitator Notes:

Explain the participants about use of a server.

- Prolific management of network resources
- Access permission/restriction to a specific network or group of networks
- Send/receive email
- Website hosting
- Calculations
- Multitasking — Email, DNS, FTP, Multiple Website handling

2.2.2 Connectivity with Servers

Now, we will learn about connectivity with servers.

- A connectivity server can have one or more connectors
- provides connectivity with Exchange sites
- More connectors == More hardware requirement

Facilitator Notes:

Discuss the concept of connectivity with servers with the participants.

Let's say you are in a local network just like a small computer lab in your college. So the server connects via a router or a switch. And all the other computers are also connected to that router or switch. So what happens here is all the other computers get access to that server as well. And also its features.

In case of Internet server, the scale is much larger as the target audience is much more. Typically, the Internet server has an IP Address and you can find this using ipconfig command in your command prompt.

Users connect with a server using a Domain Name. And this name is translated to the Server's IP Address via DNS Resolver.

Even you can make your personal computer a server. All you have to do is install an FTP Server Program in your home computer. Though you have to take care of certain security concerns which might arise.

2.2.3 What is a Client?

A client is a hardware device or a software program that accesses a service made available by a server.

Facilitator Notes:

Discuss about client with the participants.

Client is a computer which connects to a server. It uses the resources of that server.

Let us take an example of your personal computer and an Internet Server. Let's say you are using an IDE to write some form of code, let's say you are using Java and you have written a simple code to open a browser and the respective website. So when you execute the code, in a few seconds the browser opens and the website also opens.

Now, we will establish what happened here. What is the client-server connection here. Let's understand the activities involved:

- Code in any language binding form is written in your personal computer or the client
- Code is executed, which sends a certain request response to the server
- Server acknowledges the request and processes the requests and responds in the form of a reply
- This reply from the server is the browser and the browsing in that browser

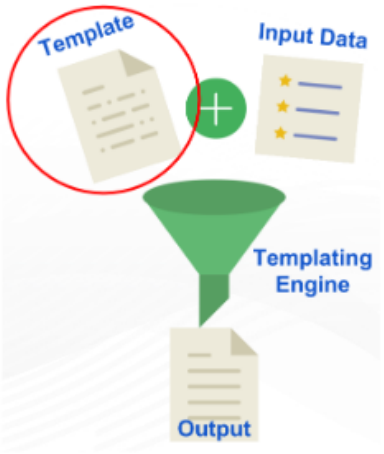
The request from the client or your personal computer goes in an API format which could be a JSON Wire Protocol or XML and that is received by the server which helps interact with the browser Executables and then with the browsers and then it sends the response back. The interactive response between the browser drivers and browsers could be in http via HTTP Server.

Generally, the response received from the server is in a simpler format. Otherwise imagine the response coming in forms of code or binary values instead of the website you requested.

2.2.4 What is Templating?

The key details about templating are as follows:

- Processing of Data from one form to another
- Uses a programming language



Facilitator Notes:

Inform the participants about templating.

Templating is a programming approach to simplify processing of data. It processes data from one form to another. Even templating is often termed as Templating Systems. Most of the Apps (let's focus on Web Apps for now – we will talk about mobile apps later) were designed and developed with (Server Side Languages + Templating Systems such as Ruby, PHP, Perl, Python, JAVA, C#).

So Templating in simple terms means:

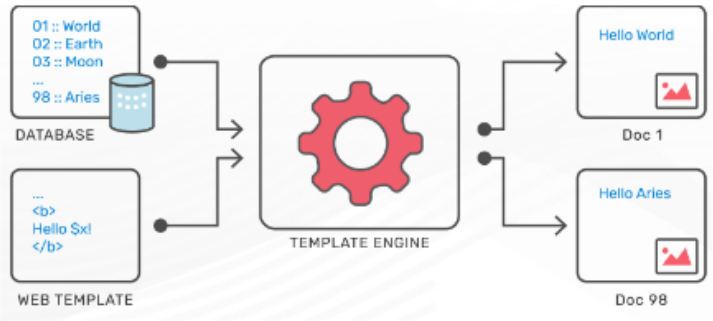
A programming language which has various kinds of data type layer[String is the predominant data type] that acts as interpolation which renders in building presentation layer at load time.

Templating Systems should not be rudimentary, rather it should be quirky in terms of syntaxing.

2.3 Server Side Templating

Following are the key details about server side templating:

- Occurs on the server rather than on the client
- Server prepares the entire html page and reverts to the browser as a document
- Server Side Scripting Language is old fashioned, but concrete



Facilitator Notes:

Explain the participants about server side templating.

Server Templating is also termed as a Server Side Templating. As the name suggests, the templating occurs on the server and not on the client. Server side templating means that the HTML Code, which we call as backend Server – this content gets rendered.

2.3.1 Challenges of Server Side Templating

Following are the challenges of server side templating:

- Storing dynamic data is quite a challenge
- Templating systems to be installed on the server
- Vulnerable to security concerns

Facilitator Notes:

Discuss the challenges of server side templating with the participants.

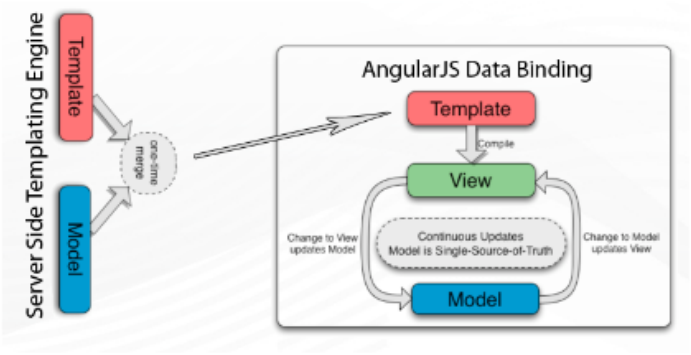
Let's learn about these challenges.

- **Storing dynamic data is quite a challenge:** Many Server Templating (Scripts) and Management System tools require respective databases to store their dynamic data.
- **Templating systems to be installed on Server:** The scripting software, let's say it is Java, then we have to install jdk and jre in the server itself to further proceed. Explanation: Suppose you have to work within a Firewall and the company has its own repository of accessible files. Let us consider another scenario where you are working on a project which has no restrictions to open source software to be installed in the system. In both the cases, let's say dedicated dependent softwares have been downloaded, configured and installed in the System to make sure the IDE (Integrated Development Environment) tool at least works as intended.
- **Vulnerable to security concerns:** Blackhat hackers can gain access to these systems.

2.3.2 Advantages of Server Side Templating

Following are the challenges of server side templating:

- Single templating for entire website
- Flexibility of using content management
- Loading is faster
- Introducing external files



Facilitator Notes:

Discuss the advantages of server side templating with the participants.

Let's learn about these challenges.

- **Single templating for entire website:** A single templating coding language can be used for the entire website whether it is SPA or not. SPA is Single Page Applications.
- **Flexibility of using Content Management:** A content management system makes it easier for editing. Introducing flash and other web elements. Use Server Side Templating gives the developers a flexibility to do so which is not that concrete in Client Side Templating.
- **Loading is faster:** It is faster than applications designed on the basis of Client Side Templating.
- **Introducing external files:** Server Templating allows to add external files in the system in a simplistic manner. Like Browse and Upload buttons to add various files or images even videos.

2.3.3 Server Side Templating Vs Client Side Templating

Server Side Templating	Client Side Templating
Server-side is the systems that run on the server	Client-side is the software that runs on a user's web browser
Server-side rendering is able to display a fully populated page on the first load for any route of the website	Client-side rendering manages the routing dynamically without refreshing the page every time a user requests a different route
Server-side is about working behind the scenes to manage data	Client-side web development involves interactivity and displaying data

Facilitator Notes:

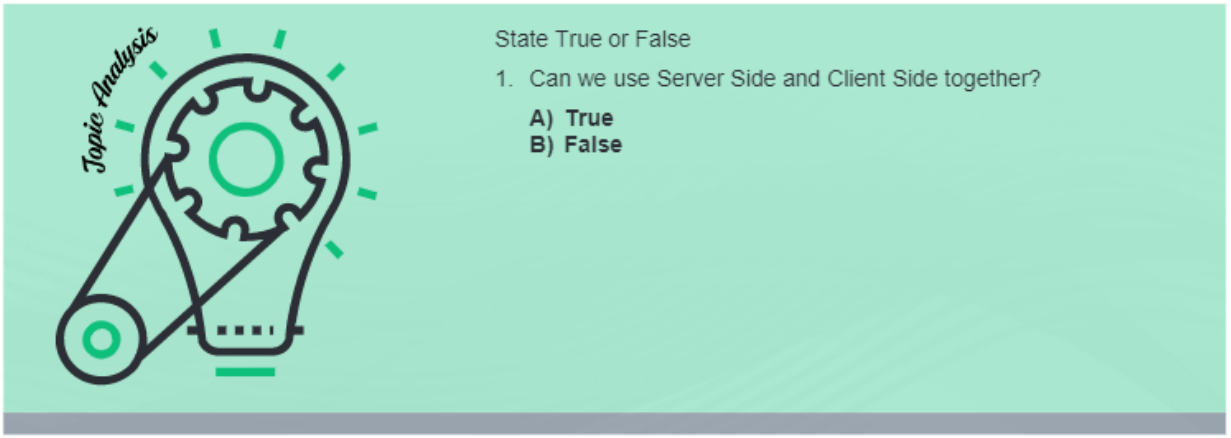
Discuss the participants about server side templating vs client side templating.

Client Side: Initial page load will be slower. As communication in the network is slow. But, the upside is once the user gets to see the content, then the page loads of subsequent pages will be much faster.

Server Side: It will operate at a faster speed in the initial stage, but then the progression in speed is linear. It will retain its speed with subsequent page loads. It will not speed up.

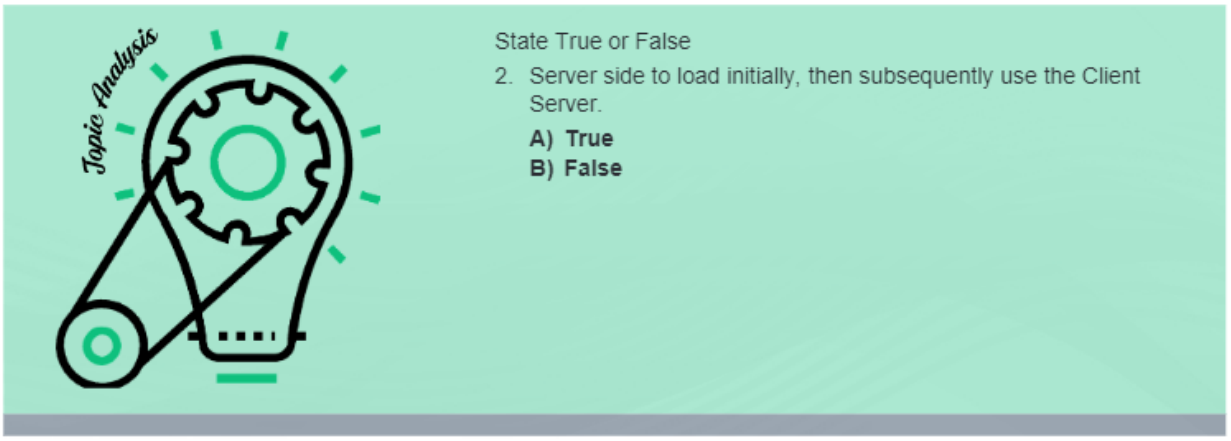
Server Side: Let's say you decide to upgrade your server — that is fine, we can upgrade, but the users who are using the devices — you do not have a hold to make them update their devices. So what happens here is in case you have a device with 1Gb Ram and an older processor and you want to view your Facebook app or Twitter app (just imagine because of the device laginess your date is gone) — so this problem is related to client side. Hence, there would be certain pros and cons to using both server side and client side.

What did you Grasp?



Facilitator Notes:

Answer: A. True



Facilitator Notes:

Answer: A. True

In a nutshell

In this module, you have learned:

1. On Premise Provisioning Infrastructure
2. Server Templating

Facilitator Notes:

Share the module summary with the audience.

Ask the participants if they have any questions. They can ask their queries by raising their hands.

