00:00:03 good evening everyone and welcome to the next lecture uh in the last uh lecture we were we were discussing about various types of service models right and as part of different types of service models we came up with large number of services which uh which may fit well into one of these service model like data as a service we uh we discuss the difference between database as a service versus data as a service iio people who were part of promissio enjoying promissio they have watched Saturday's lecture if not you

00:00:46 have to okay so continuing that discussion we kind of covered till authentication the first part the left most side then there are other types of services like backup as a service so based on our definition criteria how will you um how will you justify whether backup as a service is a software as a service or platform as a service so what do you think backup as a service should be part of which category online people can unmute and offline people can raise your hand and start answering four of you are attending this class

00:01:37 first time so what do you mean by backup mean in which category you will put backup as a service ask pass or ask no idea so maybe platform because we'll be backing up the data off site right yes so what is the application features here in backup as a service and who maintains those features go by the definition go by the image which is in the background which is saying uh which part are responsible responsibility of consumer and which parts are responsibility of service provider then backup as a service when

00:02:38 you say it's a platform as a service the application is maintained by consumer right sir it should be SAS software as a service like GitHub backup our data there but the user or the client does not have to manage uh GitHub for example backup is functionality which is coming from the application and that application is being provided as a service the application as a service lies into software as a service because the application which is responsible for maintaining backup is being taken care by service provider not

00:03:37 by service consumer okay and backup as a service I hope everyone is clear what do we mean by backup as a service can you give me some example of backup as a service Google Drive yes Apple Cloud iCloud which keep takes of your takes care of your mobile phone data backups right okay Dropbox Dropbox is also uh storage and backup as a service yes okay S3 is not backup as a service S3 is a storage to use S3 you need to write your own code yeah good evening sir uh yes yes sir can can I ask a simple query sir our mail I

00:04:38 have I'm I'm using Outlook as my official email ID emails and after they have storing some old emails uh after one month in drives so that can be backup in Cloud servicer yes archival backup they as but whether they are as a service or not that you need to figure it out after three month three months automatically the males are in tore store in that online platform that means that is archal as a service backup is different from archive backup is your secondary copy okay in in the case which you are

00:05:21 describing it's not secondary copy it's your primary Copy being taken out of your local storage and being stor stored in Central Drive right okay sir okay okay so one drive is also example of backup as a service now comes to desktop as a service so what do you mean by desktop as a service uh Citrix or virtual box they provide desktop or a whole computer system to businesses um you have to explain a bit more okay so instead of the businesses owning their systems they can just ask a service provider to provide n number of

00:06:15 system with a specific uh RAM or storage or specification course to its members so that way the organization will not have to manage its own infrastructure so uh you are uh you are explaining the scenario where your organizational people will use some kind of thin client right no sir sir for example Citrix or uh Windows 365 right so those are desktop as a service so what is desktop as a service that's what I'm asking it's a whole computer basically it's a way uh like uh so that uh users can connect uh uh desktop from

00:07:05 any device like as previous uh you said also Citrix or AWS workspace like that uh some kind of uh VPN or access tokens will be given by that we'll be able to log to the desktops remotely so you are able to log in into your desktop remotely that comes by definition right that is the definition of cloud computing remotely accessible shared pool of resources so desktop is now remotely accessible then it's a desktop as a service so do you need a Thin Client to access those services for all services yes right yes so why virtual

00:07:47 machine is not called as desktop as a service AWS VM which you can access uh remotely through SSH that is not desktop as a service right because you quoted example of Windows or CTIC for desktop as a service but not AWS VM in AWS VM we only get a terminal we don't see the desktop okay some answer is coming from offline no SC AWS is equally scalable as Windows or CX desktop as a service Cloud by definition is scalable that's why we are building Cloud if it's not scalable then because rapid provisioning and elasticity is

00:08:51 part of definition of cloud so AWS VM what is provid is like Services host hosted on AWS sites that is still Cloud hosted but if you log to C Trix uh those applications you can like remotely use as well like it will be providing you the applications and into that virtual desktops that you are logging into through any uh VPN or Citrix or any kind of that uh uh terminal that I can think of the difference actually but that is in users difference right how they are being implemented yeah kind of desktop has a

00:09:36 service versus virtual machine as a service yes so one answer has come down desktop as a service actually require virtual machine as a service not necessary so what is desktop as a service all of you are using desktops right if you are on laptop you might have an icon named desktop or my desktop or my PC those are metaphors for desktop right now we are providing this desktop as a service so what is the key difference coming up if you provide it as a service one one by one raise your hand you can use any desk or VNC and

00:10:46 access some remote machine but they are not desktop as a service they remote desktop viewer kind of service that is not a service these are simply software we are discussing what is as a service brings in what value desktop as a service brings in to your organization if you decide to get rid of desktops but use desktop as a service for your organization security data security mostly now data security is part of service providers responsibility Y what else um standardization across uh teams standardization across uh all the

00:11:35 organization everybody has similar desktop configurations so they will get all similar configuration or similar kind of wallpapers or customization whatever you would say and access to uh secure systems that you don't have to provide access to each and every deop what you who is you you mean like the infrast organization right the organization the service consumer don't need to buy Capital uh equipments like heavy machines but still they need to buy thin clients so all of you who are using Citrix or Windows uh 365 or whatever

00:12:21 Office 365 you need a machine to access those Services one more example for this is GeForce now they enable to play games uh giving this service like desktop as a service people don't have to buy heavy machines is that application as a service or it's a desktop as a service so both uh it depends on the uh game or the configuration you need so if you want a PC specific PC specific configuration you can actually get it there okay Shivam is mentioning host the video so that VMS could work provide the INF

00:13:05 vdi I'm unable to corate with the ongoing discussion can you explain a bit more so it's like to provide the infrastructure uh as in vdi so that we can enable the remote what is vdi virtual disk image uh yes sir like vdi is vdi is vda is extension of virtual disk image not exactly so virtual disk virtual desktop infrastructure sort of so that VM could work no uh VM is more fundamental like in the last class on Saturday we discussed that if someone is providing SAS ultimately they are also providing us but it's

00:13:56 hidden one without having infrastucture you cannot provide platform without having a platform you cannot provide software as a service and desktop is lying into software as a service category or you can also categorize as a platform as a service what value it brings to your organization is imagine all of you are using I jpur Labs physical labs and any of you can go to any of the system just login with your account and your desktop will come there whatever file you store there whatever software or libraries you

00:14:39 install whatever program you have written you log out you loging back into any system in the lab your desktop will come there with all the installation services now your desktop or your operating system services or interface which you are using is not binded with your Hardware in conventional sense our laptop is tightly coupled with our operating system in desktop as a service we are decoupling your operating system from your hardware and in operating system you can log in and you can log in in using any

00:15:26 hardware remotely or in person in the physical Labs loging into any system your desktop will come there now here comes the importance of when you install any application it generally ask whether you want to install this application for all the users on this system or only for single user by default in desktop as a service where application is get installed only for that specific user not for everyone on that Hardware so today you can login into say physical machine 1 tomorrow you can login into

00:16:06 physical Machine 2 whatever changes are happening they will be migrated to physical Machine 2 now bringing all your data to new physical machine whenever you log in might be Network intensive task and there you may uh have some delay in getting the initial interface but after that things works it smoothly because your local resources are being used now if you doing any file editing or if you are running a program your local CPU local Ram will be used the Library part the software part will be remotely brought but for

00:16:52 computing power Hardware computing power local resources will be used in case of virtual machines we are not using local resources we are using remote Computer Resources remote Ram remote CPU clear to everyone so desktop as a service lies into software as a service where you have to use your local power but if you look at uh okay it's a debatable point now your desktop also let you create files write program and install softwares so it can let you do many things which can change system configuration but only changes for you

00:17:40 so since desktop is allowing you to develop something you can make it as you can offer it as a platform as a service as well as per definition right but then there's a uh very fine limit between what is plate form as a service what is desktop as a service go back to who is responsible for what if your desktop backup or your desktop software installations are managed by a service provider then you are getting desktop completely as a software as a service solution but if you are responsible for your backup part or uh your desktop can

00:18:27 uh can lost or installation is happening on local system anytime you loging into new physical machine to your desktop you have to again install your system so then these are not Services provided by the service provider you are responsible for anything changes you are doing then it's a uh platform as a service because you need to write your own backup code or your own installation things maybe so solution one of the solution possible is you carry one uh uh external hard disk you mount it to your Thin Client

00:19:12 you login in your desktop as a service system the desktop as a service system will use that externally mounted hard disk and any installation any secondary storage things will happen on the external hard disk now you carry your system with with you the live examples uh you can uh think of is Intellis have you seen Intellis it's like USB pen drive uh one finger size USB pen drive but it has all CPU Ram secondary storage within it so that you can use as a Thin Client to migrate your desktop related solution

00:20:00 from one client to another one physical machine to another physical machine another examples are nvidia's Jetson's uh production line so Jetson is a small portable compute resources includes Ram CPU GPU and storage on it and network also inis also has Network okay so desktop as a service is clear in which category generally it is in software as a service s yes louder mostly yes mostly because of most of the management is happening at the provider's end you look at this diagram again and again who is responsible for

00:21:02 managing the resources and then you can justify there's no right or wrong nowadays so many services are there it depends one service provider is offering more features others may ask you to do it manually then manual things will go into platform as a service or us and everything is automated goes into SAS yes web applications are applications or they are as a service let's take example of IRCTC everybody is aware about that web application IRCTC ticket loging uh login applic application the ticket booking

00:21:55 application raway ticket when you loging into IRCTC are you consumer of web services or consumer of IRCTC that cloud on which application is hosted consumer of that service I'll come again I'll explain again IRCTC ticket booking application is for example is built by HCL infotech and just taking any IT company example name now SC manages IRCTC web application for Ticket booking who is IRCTC it's an organization who has given contract to SC are they consumer of IRCTC web ticket booking app you are consumer of IRCTC

00:22:56 booking typ but you are not IRCTC now individual client who is consuming the services are not service consumer here service consumer here is IRCTC the organization now myctc has outsourced this web application management to SC infotech now ml is hosting a cloud data center on which they might be hosting IRCTC they also might be hosting some other banking application solution now infotech becomes the cloud service provider and IR CS is their client or any bank is their client and this consumer and service

00:23:47 provider are at that level not at individual level so doubt is clear now so if web application when a web application becomes as a service all of you are using some web application as a service give me example any social media app for that matter no as service okay as a service sorry sorry come again uh sir any mobile application especially the uh which we are using for the transaction on the daily basis banking application could be the one of them no Gmail Gmail Gmail yes see Google Maps iitj email

00:24:45 ID you are end users right who is the service provider Google inclusive who is the service consumer IIT jodpur and you are all individual users of IIT jpur and you get Gmail access now for all of your account all of for all of your storage I jpur is paying uh charges to Google inclusive so now in Gmail you have some level of customization right you see IJ logo at one corner your storage space restriction it's no more it's 15 GB for you yeah yeah 15 for us it's more so so those are not these features are

00:25:42 not available when I use Gmail as a individual user my personal Gmail ID I they get only 15 GB of free storage which comes right or 2 GB 15 GB is there yes okay so now in case of Gmail it's as a service IAT jpur is using I roer is using I Monday is using most of the newer I are using Gmail as a service but if you go to some older iits they started when Gmail as a service was not available so they have habit of or experience of Hosting their own email services like a squirel email is a open source

00:26:34 email service it can uh during my time they were using squ email services so we had our own SMTP server IMAP server POP 3 server and on one nice day when there was Northern India went into blackout and due to Great failure our our email server also went down so we were not receiving any email we were not able to send any email as well sending is fine we were not able to send we know we are unable to send we don't know what email we missed because we did not receive them it was crucial time because it

00:27:23 was uh off job offers were coming or some people St offers were coming from outside India and those emails were missed and nobody knows how many emails got missed now with this Gmail as a service this scenario will not happen so this is one advantage going to cloud of course your data is also leaving your premise in case of holder I all data all email were res ing within the premise here everything is on Google's data center which comes under the US National Security Law in case of any threat they can access your

00:28:12 emails all your data it might be encrypted Google might not give them Google might allow them have only encrypted access but decryption is possible with NSL like agency anyways uh when uh we also faced uh email out um we were also unable to get emails in it jpur when there was DNS server of it jodpur failed in jaur because of electricity cut in BSNL data center so clouds is not full FL Sol tion Cloud can also has outage but Gmail Services were running so we were able to receive emails once our services

00:29:09 started but if email were sent within country then they were referring to DNS entry in jaur and that was not working so we were getting email from outside India but within India we were not able to get emails because the local DNS server was at def fault okay so when you become a cloud engineer after this course you have to take care of all aspects of systems you cannot say that no no I not interested in operating system I will not bother about these concerns that's not possible some people are laughing they might not

00:29:49 have exposure to operating system or database courses or networks but it's fine you can become Cloud managers Ro going to Cloud manager you ask your subordinates to manage your Cloud for you okay balakrishna mentions mentions about WordPress so in what context you mention WordPress bishna web as a service okay so okay there are two things a web application as a service and web as a service what is web fundamental what is web Jal right someone answer Jal Network connected dots connected notes can

00:30:54 create a web randomly connected notes will create a web so what is web as a service providing connected node connected nodes internet internet okay what is internet with a small I and what is internet with capital I which internet you are referring is small I or capital i I have to guess it sir I don't clearly know it fine you can guess it's okay uh small small I is what small I is capital I is what internet what is the difference sir small I is I think big I no sorry big I is global internet and small I is not the global

00:32:06 internet you are favoring big eye because it's big for big eye but not like you are correct for big eye but incorrect for small eye uh like small I is like for the like internet we call it basically like like to like have internet word for that two offices are connected between different locations something like that or within a country if you have an internet then it is called as small internet small I small I internet is within a country or region or something like that no so is capital I internet is

00:32:48 what you pay for what you subscribe right the your mobile data B for Capital I Internet it's small internet is the definition of interconnected networks and one of the application or one of the scalable or largest example of smaller internet is the capital internet caps logs come or animal case comes when you pronounce someone's name so that big ey internet is a name uh and that internet is known as worldwide web so that W my guess was correct sorry sir Capital Li your guess was correct the global

00:33:38 internet through which you can connect to us Europe or talu one you might not be aware of these countries but still you can connect that is capital internet and that internet is known as worldwide web now someone is saying web as a service now tell me what do you mean by web as a service when there's a worldwide web or before that let me ask another question what is worldwide web it's an internet but what is [Music] it physically what is it worldwide web sir in worldwide web uh mainly the all the systems Sol

00:34:29 tell me what is phys physically what is worldwide web can you touch worldwide web it's a network computers over the yeah can you touch it Network we can but we have to physically present to that place fine suppose you get Superman powers okay can you touch it is it tangible yes sir it is tangible because there is a servers room out there so we can you want to answer something I don't think so tangible it is the information which is there web pages we are talking about here no we are talking about worldwide

00:35:15 web worldwide is the short form for that worldwide web you'll laugh at the answer when I will give you what is actually worldwide web and those Who develops web applications they know what is worldwide web you'll also realize yes that is World web is not tangible is a collection of like all the your data then your like all the whatever we are seeing on B is saying set of HTML documents referencing each other that is hyper text HTML feature yeah that ISL is hosted on worldwide web but what what is worldwide

00:36:05 web not it is a virtual system consist consisting of interconnected web pages no server it's a web of services available over internet okay suppose I give you server will you call it wordwide web no server is different from wordwide web that is clear like whatever all the systems which are connected over all over the world okay if I I give you a word level walkietalkie system or mobile network is mobile network the calling call Channel only before internet came on mobile there was call we used to work with I know your

00:36:50 generation doesn't know that face but that calling channel is not known as worldwide web that was limited yes no even South African countries which are underdeveloped they only have call network not Data Network so it's not that limited but we will not call it worldwide web it is not www. 9597 number why you write ww w dot and for some of the URLs you don't type www dot you just type the main URL why so web developers come on you have to answer it so some like some of the URLs are hosted on the local server so they are

00:37:50 accessible locally or or on the internet but not on the we are not using any protocol for it like TCP or any protocol that's why we are not writing for www do they are not their domains are not registered over there so how not okay if you say register your domain yes then also sometimes you don't type www because the system Itself by itself that look at right now your Google meet URL it is not www but it's a hosted service says I think it is a protocol to host the document protocol to host document is

00:38:45 not there but protocol to transfer documents are there like FTP or SFTP they are document transfer protocols file transfer protocol is FTP or hyper text transfer protocol uh protocol is HTML document transfer protocol HTTP so what is www it's a subdomain address okay go further uh how do you define this www subdomain it's a common right many websites why use www why not xyg or ABC you're answering something how many of you web developer I'll not ask question but they are connected bya hyperlinks that's why

00:39:42 that is HTML already discussed hyper markup language that is to refer to a specific domains earlier to resolve the domain nams no IP is different from this one it is called one by because it is accessible across the world right so what is it which is accessible across the world that particular domain W is different from W DNS servers is www so DNS is different from WWW right or you're saying they are same they are same DNS stands for domain name server which help you resolve URL to IP address through that

00:40:49 uh what is the protocol in computer networks which gives the IP Address given the URL I'm forgetting the name you ReDiscover what is the IP address of the machine this ARP address resolution protocol and what is DNS it's an application which helps you resolving your url to IP address and that application is running on a server machine giving you remote Services that's why you generally call it server so DNS is nothing it's a application running on a hardware it can also have some URL because it has the machine it DNS

00:41:40 machine itself has IP address so it can have a URL it can also have www in that URL so what is www right you should give him party so uh if you mention www you reach to a certain location in the server and what is location in that server yes that folder in which you put your index HTML file so what is www it's a folder in your system but FTP sorry FTP is also a folder in our system then yes I agree I'm not opposing this argument the FTP is also a protocol by default it uses one folder in which it

00:42:51 copies all the files same thing ww also doing ww is only using for the viewing then it's not a protocol but what is www whatever web server you are running that web server exposes that folder to outside word through your network interface so if you type your IP address why it does not go to any other folder but only to www or HT docs for some web server the default uh folder is HT docs for other uh web server the default folder is www so www is nothing it's a folder which is accessible through any system

00:43:37 on the network and that what constitutes your worldwide web but again like I'm little bit confused then what's the difference between the FTP and the WW now okay FTP does the multiart transfer protocol uh it can copy file from one system to another system HTML or your web services pick PHP for example PHP converts into HTML and gives you HTML display and you can download HTML web pages and you will only get HTML CSS code you not get the python or PHP code which is running at the server end FTP does not let you configure the

00:44:39 things it's not interactive in the sense but in HTML you can fill forms you can submit forms you can read forms you can delete forms basically you can perform FR operation FTP does not allow you to do cred operation SFTP is a software solution built upon FTP protocol using SFTP of course you can create files or delete files now you say you are able to create perform cred operation but but it is SFTP software which is using intern FTP protocol this is question from physical class yeah no you can change your web server

00:45:37 configuration and make it make some other folder as a default folder H whatever web server I mentioned for some web server HT docs is also there in fact for Apache web server itself for some of versions HT dos was the default folder so if someone ask in your interview what is www it's a folder which is available for worldwide web worldwide access web access so now I hope you will be able to answer what is web as a service can you give me example of web as a service Google Maps API that is why that is not application

00:46:39 as a service why it is web as a service because it can be integrated like uh Google Maps can be integrated in a number of applications fine so your application can have apis and that can be integrated into another applications but I'm not asking what is web application as a service you are I think giving answer for web application as a service my question is for what is web as a service it's a company Port www will become web service these protocols search engines search engine is no no search engine is purely application they are

00:47:27 not as a service at all no company portal something like IJ Shopify as a service okay if you are cting any example you have to give me justification payment G I'm guessing is not allowed as we see I mean company portals which we create that company portals like any company future example is coming like uh GitHub service it allows you to uh store your repository and host some applications so that is platform as a service I agree so it's a hosting as a service how it is web as a service is Wikipedia giving you

00:48:33 web it's giving you web provider web as a service sorry any of the internet service provider any of the internet service provider uh but all internet service provider are using that big gu internet uh blockchain can be an example yes blockchain service providers can be example of web as a service because they provide that network of miners or users as a service or uh NASA's experiment sat at theate home which uh annotates terabytes of images using small mobile application clients that can be considered if you

00:49:21 use that service that can become web as a service or your your favorite bit torrent Services they are giving you Rim made web or network of notes by the then the like mining of the this that also will become a b service what blockchain is actually coming under this category because they are providing the miners the web of miners which you can utilize or access in bit Tor you know torrent yeah yes in torrent is like P2P protocol bit torrent is one of the application which uses that p2b protocol for file transfer

00:50:11 and the moment you install that bit tent it immediately gives you for uh for your file which you are searching for the seats uh once you have and you know the local peers or Global peers who are hosting those files but also providing you some Network some web which you can consume the website as a service web application as a service or web as a service they are different moral of today's class and I hope all of you are also kind of convinced that these three are different types of services the moment you become web as a

00:50:53 service company you are hardcore system admin guy but if you are hosting web application as a service you are web developer only most likely okay messaging as a service give me example of messaging as a service M WhatsApp WhatsApp okay if WhatsApp is messaging as a service then why it is not application uh Google Chat we can consider for is giving you Services it's just giving you message exchange why you are calling it message as a service is it available scalable provision provisionally available on demand is

00:51:53 something like that with WhatsApp yeah s uhou if you take SMS actually you have those kind of things like um you can take a package which gives you this many number of messages uh per month that kind of and then we use their apis to send them API to send them uh talking about will like Services yes which uh which can send SMS on your your Beal on your application that is not also messaging as a service uh email protocols can be considered as yes now when you call any email service as messaging as a

00:52:47 service nice example when it become messaging as a service and when it becomes Gmail or software as a service sir we also have like option of like satellite messaging like sending messages through satellite and all that is satellite messaging as a service I agree yeah because satellite is not owned by you yeah and you have to rent you have to rent pay rent for using satellite services WhatsApp is an application they're using what and everybody using same application you are not creating your custom application out

00:53:30 of WhatsApp say uh if WhatsApp allows me to create say itj WhatsApp similarly WhatsApp allows other organizations also to create such messaging platform and within that IJ WhatsApp itj people can communicate to each other not outside so IJ can host those WhatsApp like IJ is right now using a Gmail then IJ will use WhatsApp then it becomes as a service as on know it is simply a service it's not as a service and the difference between service and as a service is what same IRCTC infotech and individual

00:54:21 users so anything is service individual users are directly using it anything as a service you have some intermediat service consumer and then end users so in that case can we say SNS and sqs which are provided by AWS messaging services where one application can uh send a message to other application yes or rabit mq kind of services which rabit mq provides those are messaging as a service sorry uh okay Apache Flink or Apache spark what they are are they messaging services or they are the tool using

00:55:15 which you can create messaging cues they are developers tools using which you can create Ming cues now suppose you create aache Flink uh messaging pipeline for collecting uh uh local GPS data from some locality and you are using it for say hyper local market now you are providing this services to the local shopkeepers now so that they can Lage the hyper local market now that then it will become as a service Apache link on top of that you have created an application but apach link itself is not as a service

00:56:09 example who is this yes message Brokers okay there's a brokering message brokering service are they providing messages messages are generated by publisher and you subscribe to those messages and then there's a message broker which gives you this pup up kind of service but if you build a message broker and offer it as a service to multiple organizations and those organizations can configure their message broker through the same application which you are hosting so ultimately now there are three message Brokers coming out of your

00:56:57 one single message broker uh I'll explain the example right now I generally use to discuss that example much later in this course but since we have talked about this message broker and services some of you have already attended my previous course so you might be knowing the difference between Gmail WhatsApp what is the difference technically don't say they are using different protocols okay functionality point of view what's the difference you have to tell me the difference which are impossible for

00:57:40 Gmail to implement which WhatsApp is giving or impossible for WhatsApp to implement which what GMail is giving by policy they might have decided that we will not support documents larger than 25 GB that's only policy level decision you can make it feasible by changing the that macro or that hardcore number and compile your application again and it's working so difference between WhatsApp and Gmail buy new Sims you have multiple WhatsApp so they use different protocols for the I said don't mention about the different

00:58:35 protocols it's only messaging passing Q right ultimately they are passing message from one user to another user whether you use po IMAP or your proprietary protocol who cares at the end functionality is what passing real time messages right people argue Gmail is not real time why do you argue you see our inboxes at the day of grade uh display our email Services work like chat immediate responses comes from other end the Gmail is also as fast as WhatsApp uh in the Gmail uh our data is stored on the server but in the case of

00:59:29 WhatsApp it is stored on our device so is uh something is there who is stopping WhatsApp not to store data on server sir I've seen one uh small message uh in WhatsApp like when we are doing some uh communication like phone calls or something it could be an encrypted but that service will not be available in Gmail do you mean Gmail is not encrypted but but it will not a big allegation against Gmail right not like that all okay it's ention sorry Gmail is server side encryption like when we send an email it

01:00:19 generally Gmail client is not encrypting and just in the Midway enced to Gmail guess it's a 2, time so WhatsApp is like peer toer uh communication I think uh it's it uses a different way okay that brings to another question before that there are two more opinions coming but is G uh is is it really possible for Gmail to delete that means not impossible for G Gmail to include that functionality they can include right yeah yeah they can include yes is it not possible for Gmail people to include read recipients some of Vex

01:01:13 uses some software yeah disable they can include the Dre recipents also on it and some privacies also what WhatsApp provides the same also and beyond that also they can do see privacy in my opinion you don't have but if you believe you have you have in both WhatsApp and Gmail brings me to P2P what is P2P perer top P to so what is it I did not ask for the full form what is it P2P it uses UDP I think instead of TCP most I'm not sure about UDP uses P2P transfer actually from one device to another device okay let's take an example let's

01:02:09 build a P2P Network how will you start you bring one node yes start it you'll bring another node another machine you will start it are they connected no how we will make that connection happen like is it like decentralization or I agree with decentralization but let's it uses a topic or a channel through which they both get connected where that topic or channel is hosted network network can't host it will be in some machine right through Network they will get connected agree yeah through Network you will only get

01:03:00 connection but that topic or Channel some code will be return somewhere it's in the server it's on server now we are connecting a pier to server you access the information about another perer and then you are directly talking to peers between peers right but initially you needed a server my question is can a pure P2P system exist in the world yes like you make it happen let's come to broadcast uh torrent sorry Torrance even the blockchain have a server the uh the seed files you download the seed file and then you know

01:04:05 where all those seats or your files are available in those hosts what about blockchain blockchain is also centralized in that sense you broadcast a list of transactions on blockchain and through that broadcasted list your miners uh uh then the walki talk PR top communication sorry walki talkie so let's come back to the question how do you set up two Walky talk which can talk to each other with the frequency we you don't need a like it is not necessary to have a like one central tower to communicate they can

01:04:49 independently also can communicate so they have trans receiver in that case yes transmitter also and receiver also yes now your transmitter is transmitting some radio waves and receiver is receiving the signal right and uh say uh T1 and R1 are on physical machine one one first walki talkie T2 and R2 transy transmitter two and receiver two are on another walket talk fine that will be the now transmitter is only transmitting receiver is only receiving isn't is equivalent to client and server B2B are supposed to be

01:05:42 equivalent but here only transmitter is transferring the radio waves receiver is receiving the radio waves so can a pure P2P system exist in the world I guess like need a medium for it it can exist now tell me how it will there might not be any real word example available because pure P2P becomes very expensive system to work with it's not scalable at all but it can exist when you say WhatsApp is P2P and I just mentioned P2P system are very expensive and they're not scalable WhatsApp in it's early days for

01:06:43 handling some millions of users with only seven computers yeah seven computers like notes so WhatsApp is a scalable system and P2P cannot scale to that level forget about Millions P2P pure system your messaging complexity of sending message to each other getting to know dynamic topology the problem becomes NP hard it's not Pol normally time solvable for our current systems so now when you argue WhatsApp is P2P there is actually a server and the proof is suppose you are not connected to Internet someone sent you a

01:07:35 message the moment you connect to internet do you get those messages yes or no all by the way you don't know right do you really know until unless the other person says that I sent message didn't you receive has it happened to you for WhatsApp yes like we not in the internet coverage area or something no no even after connecting to internet are you sure you get all the messages if people have sent you through multiple groups or broadcast no no no sir no no sir it is many many times the WhatsApp even shows a notification of W

01:08:26 for new messages no even after it has been connected to net for a while then it so it also displays some message right uh there's some issue or it's trying to load the new messages yes yes yes this message might take time for loading from where it LO senders machine server the WhatsApp is P2P no it's simply a client server application now Gmail is also a client server application uh it has happened with me that someone sent me a message I also did not get any notification whether it's downloading new message or

01:09:15 something is there new message which is the other person sent to me I received that new message but in between I lost that particular message and this particularly happens when WhatsApp server has some issue they lost your messages and it's quite visible many times if WhatsApp server has issues it goes on X Twitter right now uh why we came to WhatsApp and Gmail oh P2P okay uh so what is the difference between Gmail and WhatsApp don't argue about group sending or group chats possible on Gmail also you can

01:10:04 reply all reply to only one reply privately they are equivalent function functionalities UI is different I agree with your argument but so like WhatsApp it's like a decentralized application and Gmail it's like why it is decentralized my question is why do you think it's a decentralized sir uh exactly I'm not sure why it's been what's the reason behind that but as part of the discussion our conversation now we can say that that's a major difference between the two applications no no so how come you to

01:10:39 this conclusion that WhatsApp is decentralized I did not argue anything like that I in fact said that WhatsApp is client server application not P2P I argued against that it's decentralized it's actually centralized that's why WhatsApp server out affects all the WhatsApp users uh WhatsApp uses our phone number but uh Gmail uses our email ID so we can discover each other only about the ID you can also have ID or phone number or ID of email ID the only thing is your ID has to be unique people also argue that WhatsApp

01:11:18 people cannot communicate to telegram but Gmail people can communicate to Yahoo mail services or but that's only the domain barrier Nothing is Stopping You Sending message from WhatsApp to Telegram in fact nowadays the share option in Android OS or iPhone also allows you to copy a message and pass in to some other application maybe telegram or anything but there is no difference between them I guess in that case you are running away from the discussion by saying this which is not possible for next 14

01:12:02 minutes so communication type is synchronous and asynchronous like uh which one is synchronous WhatsApp WhatsApp why do you think it synchronous and why do you think Gmail is asynchronous both questions are there like we can't talk in a simultanous come again uh you are measuring synchronicity at the level of user multiple messages you can send anyway it will be one by one because our devices are serial uh connections Gmail also you can have mail merch you can send mass email to large number of people in fact Google

01:13:03 Classroom announcement is example of that sending email to large number of people at once so sir in the case of Gmail or any email Services the when the message is sent it is sent to our email whether we are online or not onl offline it doesn't matter but in the case of WhatsApp we have to online to receive a message your last sentence is also true for Gmail to receive any message you have to come online no but it is delivered in our email address already so you are saying the delivery time okay email protocol works is your

01:13:46 Gmail ID is a actually what it's a q data structure Q you remember yes yes sir inbox is actually a que outbox or sent items is another que so on your server these two cues are implemented for you incoming and outgoing cues whoever sent you message that comes into incoming queue whereever you send message it comes in your outgoing CU your server takes care of connecting your outgoing message to others incoming Q now when you comes online it downloads your messages from your incoming queue same is true for WhatsApp

01:14:36 working they also have incoming and outgoing VI but the delivery time will be different in both the cases why do you think so because go for real time no what if I'm not a like if I'm not online in the case of WhatsApp the message will not be delivered to me but in that case it is already delivered to my email inbox no but your WhatsApp message is also delivered to your incoming queue on your WhatsApp server corresponding to your phone number right that's the reason okay think uh imagine a scenario person a sends sends a message

01:15:21 on WhatsApp to person B when person is sent person a has to be online for sending message person B is currently offline now after this time is time person a goes offline person B comes online will you get the message which person a sent why because that message is there in the incoming queue of the person B on the WhatsApp server same happens with your Gmail the moment you open your Gmail on your browser or Gmail in uh through any application or Gmail app on your mobile the moment you connect to internet all

01:16:05 those messages which are in your incoming queue comes to your system right the one difference is coming I never uh mention differences Gmail also is offering Gmail as a service but is anything there which is stopping WhatsApp to provide WhatsApp as a service imagine that one scenario right and WhatsApp business is going towards that direction if you talk about we you know VJ mhm uh in terms of features and advancement alternative for whatspp yeah you can check out about WhatsApp uh sorry vat ecosystem which is working in

01:17:10 China booking cers LPG gas cylinders on VCH we buying tiets on VCH Metro tickets on vat we're paying your electricity bills on VCH ultimately everything is there on VCH and WhatsApp is nothing in Fr of that one Delhi Metro I tried to book buy WhatsApp uh ticket through WhatsApp it failed at that time couple of months back so feature wise vat is an ecosystem providing as a service lots of things as a service what is a transaction it's a message delivery from one another Point buying the ticket is actually in terms

01:17:56 of machine language it's a transfer of message you pay money some message goes from here to there they verify some message from the banking server by send exchanging messages then again message comes that your ticket is booked for this birth everything is at the end message exchange so WhatsApp is if it's a message exchange or Gmail if it's a message exchange or vat is message exchange then ultimately solution to all the domains your banking applications are also message exchange and you can easily map it from

01:18:37 your knowledge of transactional processing what is a definition definition of a transaction set of atomic instructions supposed to be performed together either all or none right so your WhatsApp transaction is what sender sends message receiver receives it that's the transaction if it's not complete WhatsApp will most likely keep that message in the server for 4 days or seven days or something if message becomes older WhatsApp says that they have deleted from the server but we don't know right they say that they deleted it

01:19:26 but we don't know okay so Gmail and WhatsApp looks like technically similar functionality might be using different protocols might be using different types of UI which is fine now think about creating a super messaging application which you can sell meta for offering WhatsApp like service and you sell that to Google to provide Gmail like services using one singly hosted app and that will become that application as messaging as a service kind of service through the same service you are also offering WhatsApp through

01:20:20 the same service you are also offering Gmail like services and selling it to some different companies and they have further end users possible technically possible right yes or no yes sir as a project then I will believe you so generally I discuss in the later lecture when I discuss about the multi-tenant applications for cloud multi tency for cloud applications right so there again we'll touch this example that will uh that will increase our understanding about the cloud applications now it also brings me to

01:21:13 the point when I say building a applications for cloud is different from building in any application of course you can build any application host it on cloud no one is stopping you but when you build an application to host on cloud you can Leverage The Cloud features which are elasticity on demand provisioning but if you host traditional application on cloud you actually not leveraging the cloud features it's like joining IIT but not coming to lecture rooms because you have actually paying I fees and you are studying from internet

01:22:03 which you could have done for any you know free college in government somewhere where Fe is not much but you are not leveraging the lecture Arts which I is hiring to teach you something so if you are hosting your application on cloud make make sure that you have also architect your application to leverage the functionality or features of cloud otherwise like uh some funny example is coming in my mind you are using gold metal water bottle but drinking normal water from your tab you're not leveraging the you know your

01:22:55 richness to buy black water which vat Ki drinks right there the concept of Black Water by the way don't start drinking directly it costs a lot okay so that brings our discussion to a intermediate conclusion that what is messaging as a service could be okay then Secrets as a service who mentioned it and what do you mean by Secrets as a service it's there we still have three minutes to discuss what is Secrets as a service sir I meant secret keeping as a service after this much discussion like Hashi provide like you can always store

01:23:49 key and the value against it your password manager of your browser is something like that yes yes absolutely sir but when it will become as a service instead of just service so like I mentioned that there are uh Services provided by AWS or hashicorp that you can actually use it in application so that application is going through yeah or vault yeah he's mentioning Vault balakrishna that is what I want wanted to mention so uh VA is uh I'm I'm also not clear whether Vault should be application as a service or

01:24:39 Secrets uh what about KMS AWS KMS uh what is KMS sir Amazon Key Management Services okay see yes so AWS Key Management Services might be as a service because there are multiple clients who are using KMS at different capacity you will be charged more if there are more keys goes into KMS you will be charged less or something but vault is looking like me as a software as a service no maybe I don't know it's not platform as a service and secrets as a service I'll say uh suppose you have some applications which require some secrets

01:25:30 to access do applications in different way in different types of access authorization now the your secrets management or token Management Service you can use that token Management Service as part of your application offering to your clients someone else can use that token Management Service to offer secret or token Management Services to some other client then it say a service so uh okay we'll stop here but you start thinking about when you call something as a service versus you call it just a service is I jpur providing you as a

01:26:16 service or service it's a service right it's not as a service we are not providing services to multiple engine colleges in turn they are providing the services to the students it's just client server application I output sir can futur be considered as a service futur can be considered at a as a message broker or load balancer or something like that but not as a so like you were quoting that you're not providing it to multiple engineering colleges however uh futur in over here is doing uh you know taking multiple

01:27:00 iits and uh using that balancing or pops up kind of thing okay AIC then will be considered as service then in this case AIC is which gives the grading to uh all the colleges universities for the technical educ is also service why it's as a service that was my question was it's a service it's not as a service okay continue again from this screenshot and now you know this screenshot is how valuable it is for your life

Summary

The text discusses web services, file management, interactivity in web development, and the importance of cloud architecture.

Highlights

🌐 Web Development: PHP and JavaScript enable dynamic and interactive web pages.

📂 FTP vs. WWW: FTP handles file transfer, while WWW hosts and displays web content.

🗂️ Backend vs. Frontend: FTP is for backend management; WWW is focused on frontend development.

🌍 Web as a Service: Examples include Google Maps API and blockchain services.

💬 Messaging Services: WhatsApp and Gmail illustrate the concept of messaging as a service.

⏳ Communication Types: Differences between synchronous and asynchronous communication are highlighted.

🔐 Secrets Management: Services like AWS KMS and Vault illustrate the importance of secure data management.

Key Insights

🔄 Dynamic Content Creation: Utilizing PHP and JavaScript is crucial for building engaging web applications that meet users’ needs.

⚖️ File Transfer Protocols: Understanding the distinction between FTP and SFTP is essential for secure file management in web environments.

🏗️ Architecting for Cloud: Designing applications with cloud features in mind maximizes performance and scalability in web services.

📊 APIs in Modern Development: Integrating APIs like Google Maps enhances functionality and user experience in web applications.

📱 Evolution of Messaging: Developing a super messaging application can unify various communication tools, streamlining user interactions.

🕒 Synchronous vs Asynchronous: Grasping the differences in communication methods helps in creating more responsive applications.

🔒 Importance of Secrets Management: Implementing solutions like AWS KMS is vital for safeguarding sensitive data in cloud applications.