Knowledge Management
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Lecture – 23
Developing the KM System

Okay so in continuation of the earlier lecture now we are going to discuss about that,

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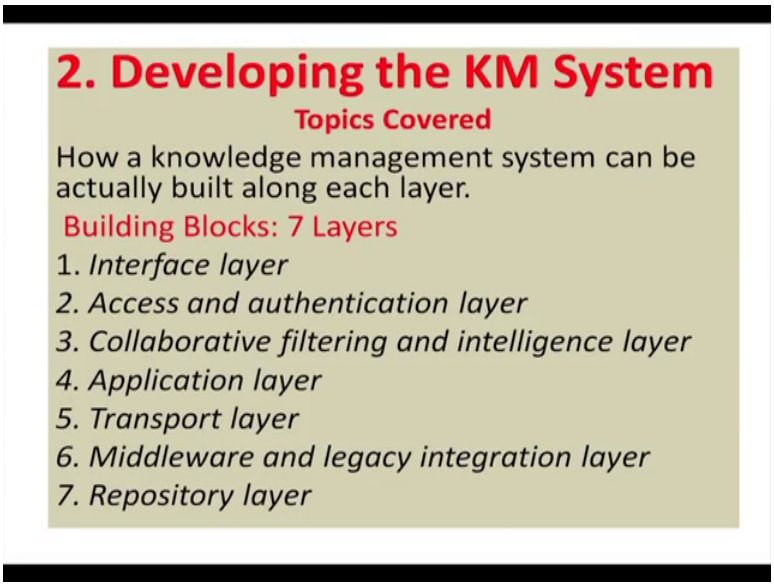

How to develop the knowledge management system, so basically hear what we are going to cover is that how we are going to built different layers of the game system and basically we have already talked about it in a little bit in the earlier module but here we are going to discuss it in detail about each layer and how each layer gets connected integrated with other layers and it is very important to develop the knowledge management system along these layers.

So that it works effectively and these layers include interface layer, access and authentication layer, collaborative filtering and intelligence layer and then we have application layer and transport layer, then we have middleware and legacy integration and finally we have repository layer. So will discuss about each one of them in some detail so we start with the first part that is the interface layer.

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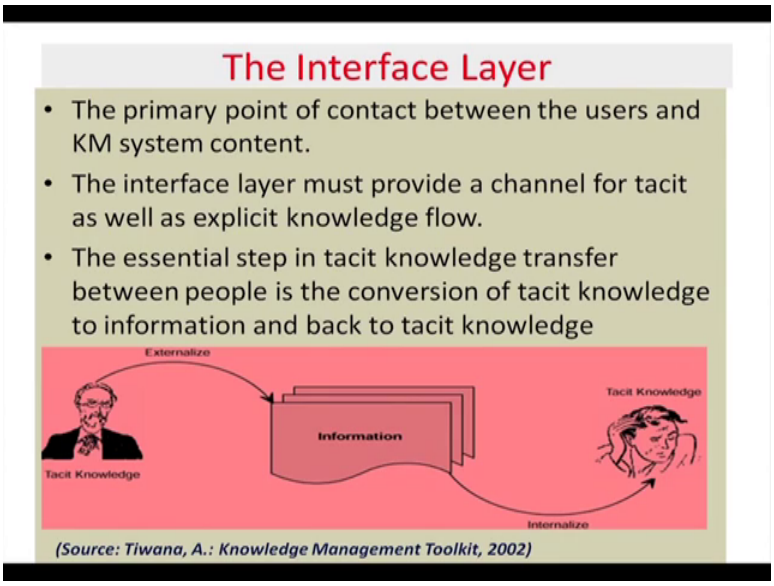

Interface layer look at the figure it shows that how the person is going to interface with the KM system okay, so this layer actually basically is the primary contact point between the users and the KM system content so suppose you want to access the content from the KM system as a user, so this is the layer where you are going to interact with the system and basically it provides channel for accessing both kind of knowledge that is tacit as well as explicit.

Now look at this you can find out that how the information moves from one person to another person okay, now if look at this the two processes which have been shown here is internalization and externalization so look at this internalization process what happens, that is related to passive knowledge which is moving from one person this is from this person to this person, through internalization.

So the information is internalized and then he is going to understand and make use of it that is related to tacit knowledge, so this is more personal which is moving from one person to another person. If you look at explicit knowledge that is in the form of externalization, so what happens the knowledge is there in the system and then the person is going to make use of that system and that is what we know as externalization.

So when we talk about transferring tacit knowledge that is between two people, when one person transfers the knowledge to the other person, so it is in the form of tacit knowledge and when the

knowledge is documented and that knowledge is going to another the person in a documented form that is basically the explicit knowledge. So whether it is tacit knowledge or explicit knowledge the knowledge is transferred to the person and this is the layer at which the user is going to have interaction or contact with the system.

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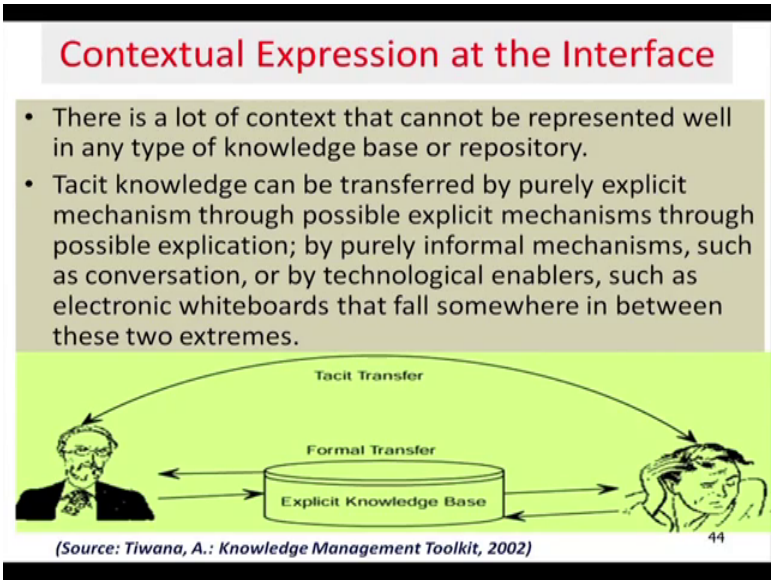

Now how it happens if you look at it so whenever you're going to transfer any knowledge whether it is tacit or explicit you are going to use a medium right and at the same time does a context to that, so this context is not always represented in a knowledge base or repositories knowledge base or repositories only have knowledge, it has only explicit knowledge but this knowledge base is without a context.

So somebody has made a program so programs is available that's how to code the program is available but in what context is program written, what is the use of this this is not available this context is not represented in the knowledge base or repository right, but when we are talking about tacit knowledge and when it is being transferred through explicit mechanism okay, then it is possible maybe that through informal mechanism.

Or either through conversation or through technology using white boards or the other things you are going to add some context, when you are going to transfer tacit knowledge from one person to another person. Now if you look at this is not through conversations or the other forms that a

tacit knowledge is communicated between the two people, but this is a knowledge base which is not have a context and this is basically being formally transferred from this person to another person, after in this person to another person alright.

So it may be somewhere in between the extremes of knowledge without a context with knowledge with full of context right it could be tacit or it could explicit.

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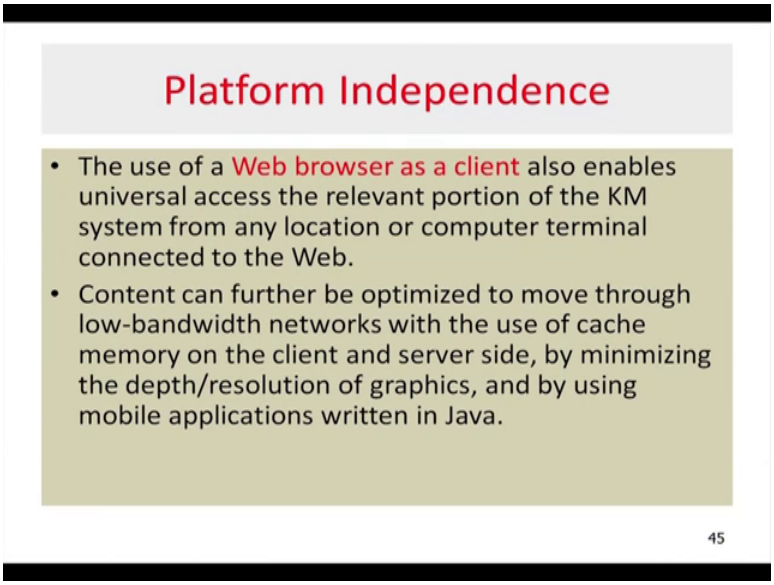

Now how it is happening if you are talking about technology, basically if you look at this most cases we are using Internet or web so web browsers basically act as an interface, because it helps you to access the KM system from your computer terminals which is connected to the web. So when you are going to access to KM system or the repositories that is explicitly deposited in the repository what you do you try to see that how this can be accessed okay.

So access point is basically through the Internet and you are connected to the web and as a client you have access to the portions which you require to access the relevant portion of KM system which is going to be useful for you, now if you want to see that how it can be optimized so what needs to be done so we have to be see that the technology you are using the network, the other kind of things the servers.

So this much better so that you don't have any issue related to access, issue related to the memory or the servers or when you going to look at the graphics or whatever it is I mean if you looking into the technical aspects of this, so that you make sure that technical part is for the technical mechanism is optimized to such an extent. So that you have access to the content in any form and that is advantage of this kind of platform when you are going to use it similarly if you look at this when you are using internets or intranet.

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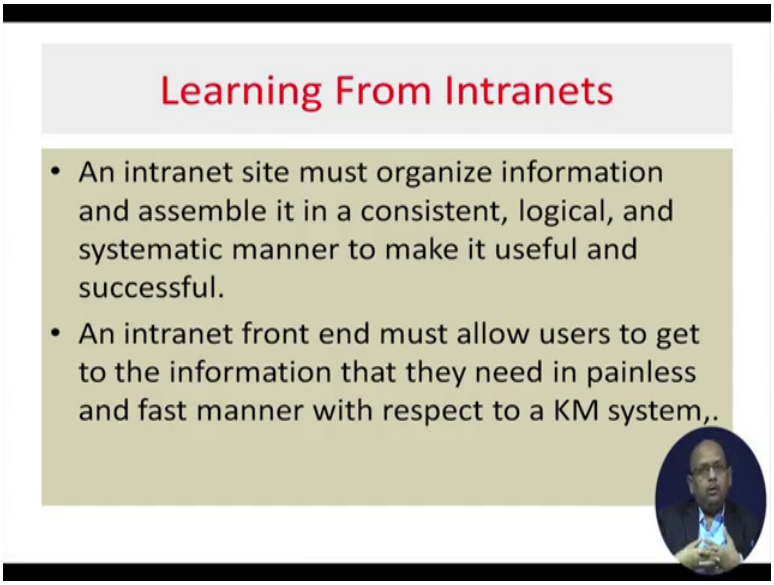

So you are going to see that the information that is available is consistent, logical and systematic so that you are going to make use of it in a proper way, now see if you are going to use Internet or intranet the going to get the relevant information which is required without any problem provided, the technology is seamless if you have the kind of technology which is required to have access with that is videos or graphics whatever it is.

And then basically intranet most of the organizers now have Internet in both which help them to have access to the KM system.

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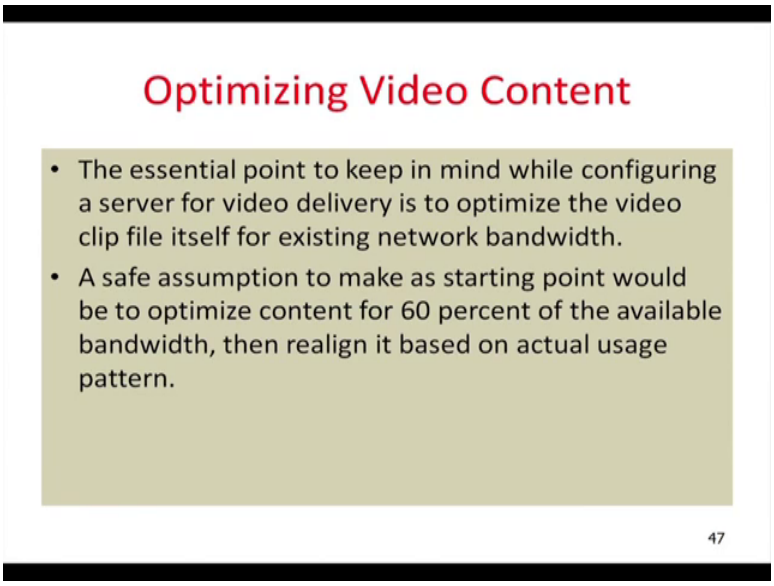

And similarly you also need to see that how can optimize the video content, so you have to see that see when you are going to optimize text content it the kind of system that you require is not that sophisticated, it is not configured well but we are going to have video content you have to see that yes it has the requisite went with another kind of things, so that you can make use of these kind of things actually look into the processes.

Because most of the processes which are observed and record it and if it's available with the KM system cannot be accessed if the system does not allow you to have access to it in a proper way right, so and that is why you need to see that how you can optimize it similarly you have to see that when you're using different kind of platforms right.

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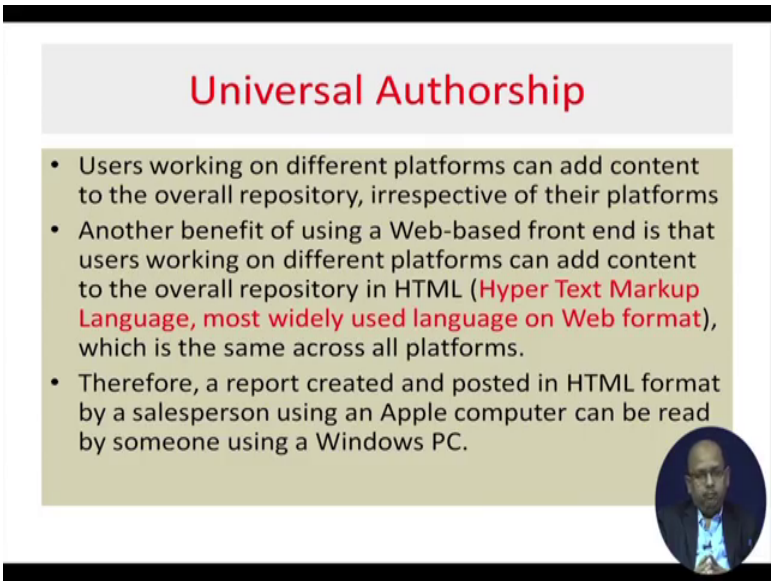

You need to see that whether you can integrate whatever content you are having across platforms and whether it can be viewed across platforms are not, so the repository respective to the kind of platform whether you are using Windows, whether you are Android based platforms or whether you are Apple based platform whatever platforms you are using, so any platform that is web based you have to see that you have to integrate it.

And so that you are going to use a language which is universal across this platforms and that is how that is where we are going to use HTML it is popularly known as hypertext markup language, it is basically the most widely used language in the web format because it provides same access to across all platforms that's why it is required you need anything any content must be created and posted in HTML format.

And if it is done in that way weather using Apple computers or Window based computer you can have access to that.

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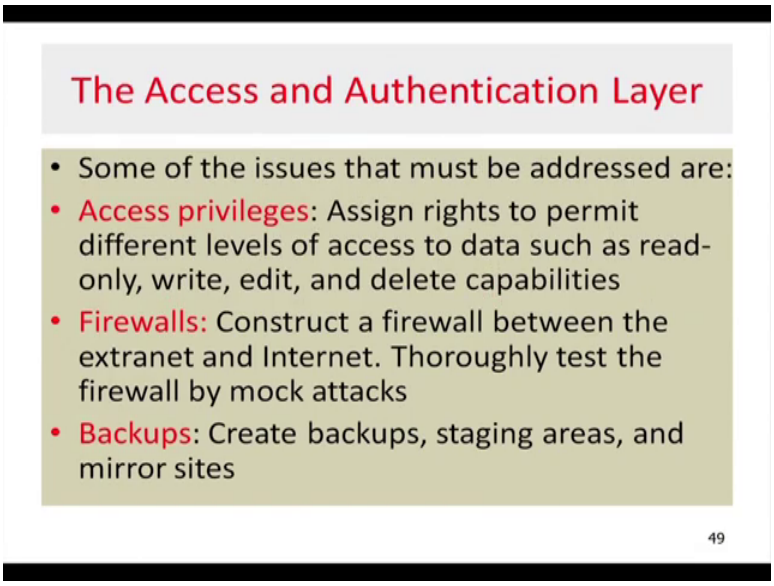

Then moving to the next part that that second is access and authentication layer, now when it comes to access and authentication there are certain issues that how you will have access and how you are going to make sure that the information that you are going to have is access and authenticated. So the lot of issues related to access because you know that not everybody have access right to have data related in KM system.

And that is where you provide access privileges to people concerned at different levels in the organization, so you have to assign rise to permit different levels of access for data for example at lower level they can have access to only part of data, where top management may have access different kind of data and so you know that similarly we also have different formats of access like you can read only or they cannot write or they cannot edit or delete certain things.

At the middle level or senior level managers may have different kind of privileges where they can interact with the data they can make changes and modifications in the data then authentication is provided by certain software likes you may heard firewall between the extranet and the intranet. So that the materials where is coming from outside is not being attacked by say various viruses and these kind of things similar it is very very important for having a back-up data.

Because if suppose there certain problems the data is hacked, then the data has gone away so whatever the repositories that you have created become a wasteful expenditure, so you need to create a back-ups at different areas and then you also have mirror side facing areas, where you can basically create a similar data fits provided, your KM access is not working or certain problems so you can use it as a backup to restore that databases or the others.

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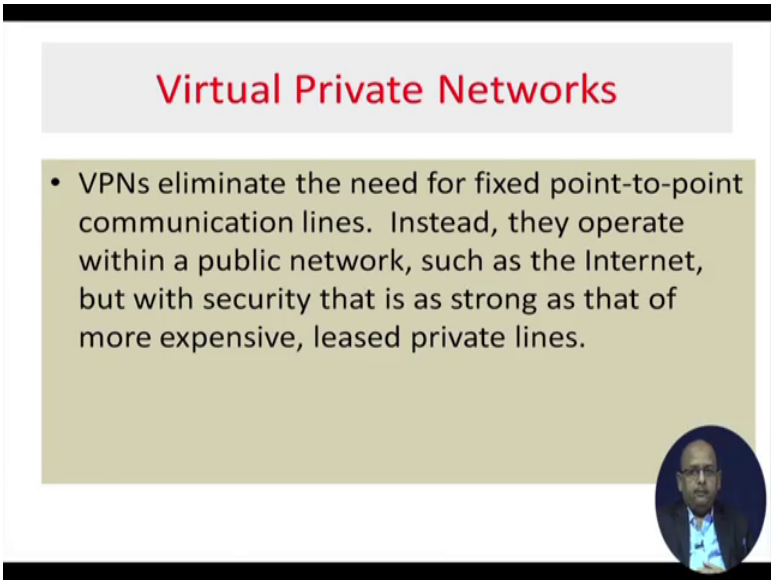

And then the important point is Virtual private networks and I am talking about virtual private networks basically these provide you fix to fix point communication lines rights, like I am sitting over here and somebody is there in a different part of the country, so we are communicated through that through email, fax and other communication modes like internet other things. So that we can connect the only thing you need to ensure that it is secure.

So that whatever is being communicated is safe and because it may be privileged information, copyrighted information related to the organization.

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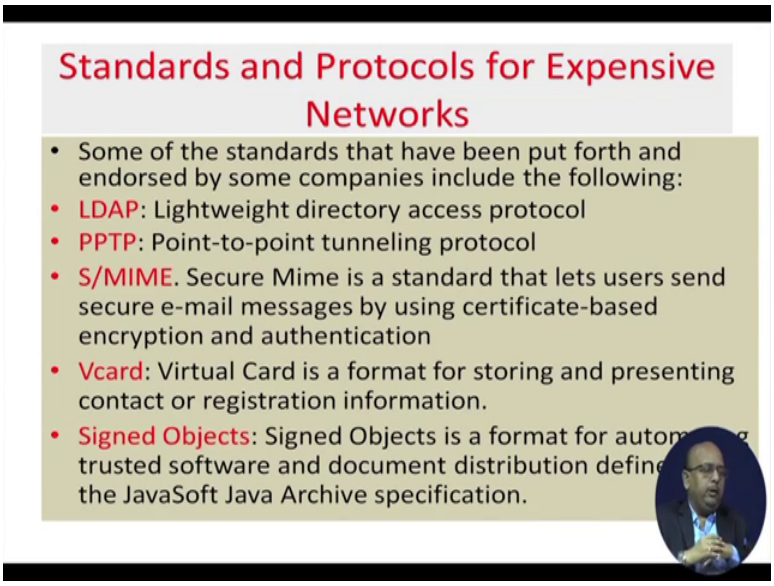

Now how we go about standardization and creating a protocol for these kind of networks, because it is within the organization and they use different kind of say systems or networks for this purpose so that the data is safe and protected and it is not hacked and are some of the examples which is given here and you can see this, these are different kind of standards and protocols for networks which is used like you have lightweight, directory access protocol, analyzer and layer plan.

You have point-to-point tunneling protocol, so these are the different kind of standard protocol that are used then you have secure my standard that users send secure email messages using certificate based encryption authentication, so suppose you are sending a mail and other person receives then down the line you found that okay this sent to they, so this shows that it is gone through the secure line, so that and this is certified okay this database is certified.

So it is only between the sender and the receiver right, so whatever information is being sent is secured and it does not have access to other persons right then you have virtual card for storing and presenting to contact and other kind of information in the system then assigned objects basically this software or document diffusion is basically which is done by technical programs like java software specifications.

So basically we are using these kind of things for networks for these reasons as I told you earlier for access, for security or creating backup, so whatever we have network protocols we are using here that is for these kind of things so that it is safe.

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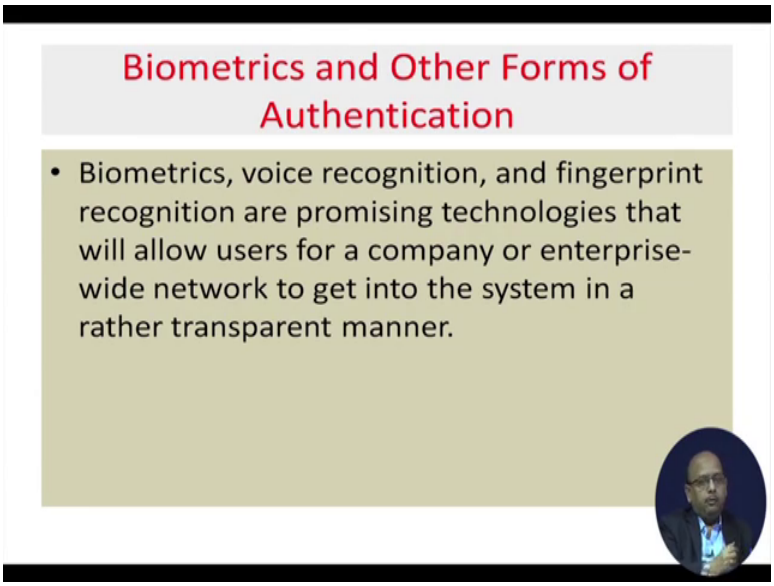

Then other form of authentication that is used in today's world is biometrics, biometrics very popular form of authentication, so that the information is not access by the wrong kind of person like you go for face recognition or voice recognition or fingerprint recognition. So suppose you have access to system you are sitting in front of a PC, so you cannot open unless the system recognizes either your voice or fingerprints or the face right.

So these are new technologies that is being used by the organizations so that I do not have an access to the system in a very transparent manner that other persons or other people or other third parties are not able to get into system and get the information that is going to provide you some kind of advantages, so biometrics is being is widely used on these days and it could have different formats as I told you now apart from this.

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We are moving to the third part that is collaborative, filtering and intelligent and now collaborative, filtering, intelligent what is that? okay is basically it is when you are going to say access information or interact with the system to access the information you need authentication and access system to access it but before you access it you have to see that how the knowledge is being filtered by the system okay.

So this filtering intelligence layer basically is going to help you to see that you get the relevant information so you use text, attributes and other knowledge elements and they are basically either automated procedures or manual procedures through which you will be able to get relevant information just like in case of artificial intelligence what happens, suppose you want to access certain information related particular task to solve your problem.

Now when you are searching for that this collaborative filtering entering will help you to get the relevant information filters out all irrelevant information based on knowledge element attributes or texts that you have typed over there.

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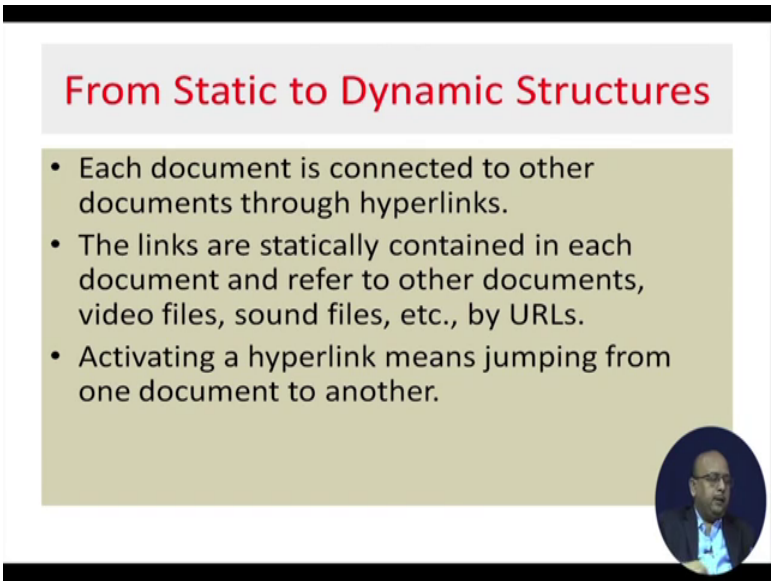

Then you have two kind of structures of knowledge management systems that could be static or dynamic, static means you know that whenever you create a document and then you have access to the document through the KM system and this document can be accessed directly or through hyperlinks, there are two options to access the document wherever it is uploaded in the system or the repository.

So now this one when you are talking about static structures it means the nature of the document does not changes, it could be video files, it could be sound files, it could be text files whatever it is right, so what actually happens when you are moving from one system one document to another document and each document there is a link which takes you to the document, so once you activate these hyperlinks it means that you are moving from one document to another document.

So for example if I am searching certain things on Wikipedia, so if you look at with Wikipedia the first phase will show the superficial information, so if you want to get deeper into that information then what you do there are links that is provided in the text and if you click that link it will take you to and the set of information and from there you can go much deeper and depending upon the kind of information or the depth of the information or level of information that you are looking forward to you move various set of information.

And the set of information now when I am talking about the dynamic structures means that the nail nature of the document will keep on changing in the sense that when you are able to manage the changes in the documents again, so sometimes it is not possible when a static documents like a video file or a sound files, but if it is a text files other kind of files that is where you are going to make certain changes okay it becomes dynamic but video files or sound files are static in nature.

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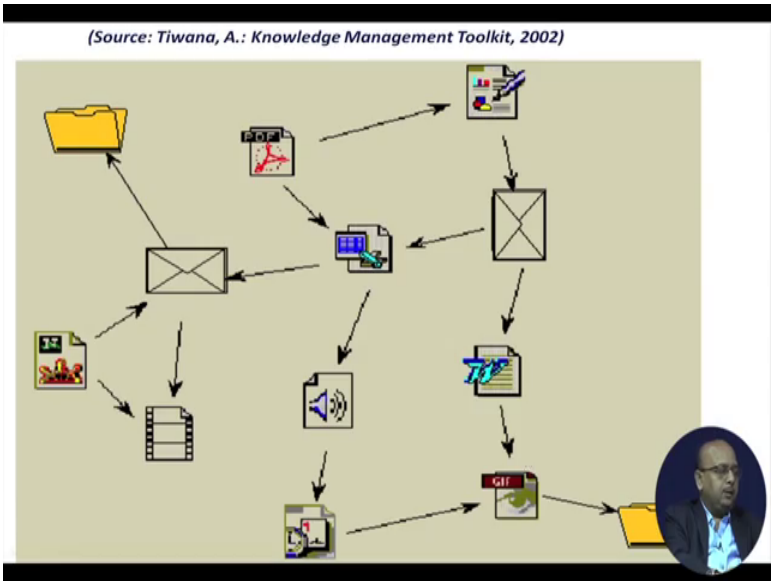

See this now if you look at this these are the different of kind of things there is a sound, a system here it is now it talks about both kind of things static structure and dynamic structures, this is a text file and this could be a main there is a video there are sound and this is a GIF and this is a portal, this is a graph, now if you look at this how this is connected and here the access is there if you look at this you have access to this, this is where you have access to this.

But you cannot make changes in these files right you can only see that so most of the time you will find the nature is more static compared to dynamic right and then you move to this then and then it take for you to this suppose you are moving at watching a certain text and then text to find a link to the video, then you go to the video, so that is how it moves but it is static in nature because you cannot change anything out of it right.

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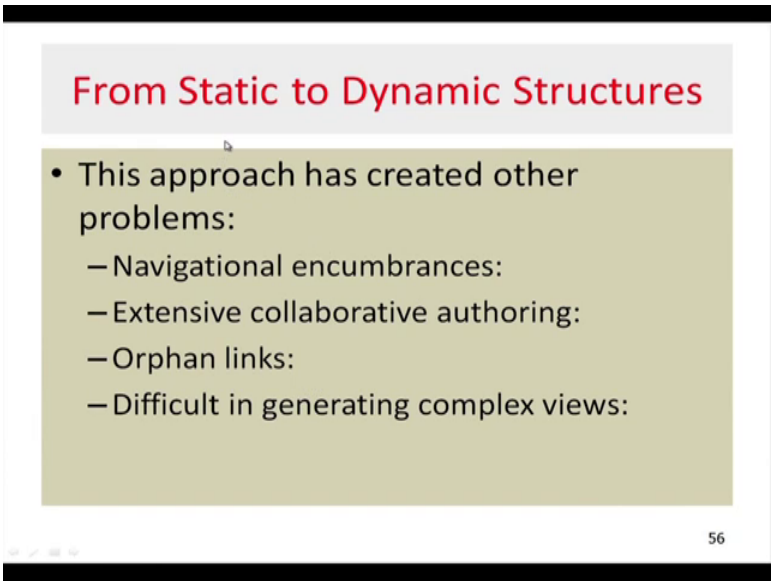

So when you are moving from static to dynamic structures say basically you have to see that the navigational issues are not there and it is collaborative, collaborative in the sense that you are able to move from one to other one right, for example from here we are moving to here when you are moving here and again you can go to this place right, so you make sure that it is there is a extensive collaborative authoring it means that it takes you from one place to end up in okay.

And this often links are not there it means that there is no link somewhere you do not end up anywhere right, so you need to avoid these kind of links so that you get complete information and then you have to see that but it does not actually happens usually because most, see for example from here it do not have any links, so say for example if you from here, you go from here, you can go this place here, here and then it takes to get here.

But suppose if you are here in a word file then you move to this but beyond that there is no information, so you are struck up and it does not give you quality information right, so sometimes it does not create complex information because of static nature so you have to see that kind of information that is available in the repository, is not only static but also dynamic in their structures.

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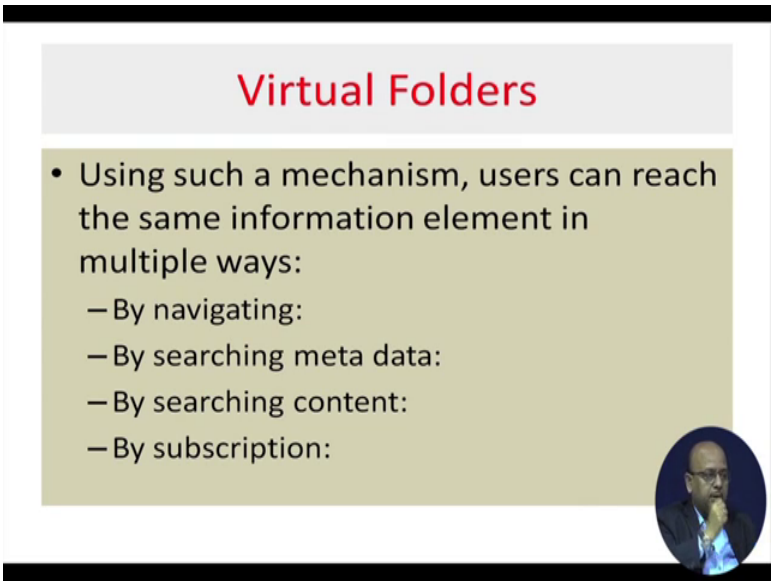

Then you have virtual folders, Virtual folders like we will have folders somewhere else which can be accessed in different ways through navigation by searching the metadata, looking into the content or by subscription because these folders are not available to you all the time but you have to search for it for example the people use cloud computing today's right so the red eye is not actually with you.

But if you go to whole drive and then you will get the information through navigations or you are searching metadata and their systems certain subscription-based databases suppose you want to have access to that then you have to look at metadata and then you look for the content which was looking forward to like if you are doing research in the area business, you have XCode database right.

So Xcode database automatically does not provide you the data because these are metadata which are classified data into different formats relative different business areas, then what you look all the content but these are not available freely, but you have to subscribe this kind of databases, so that you can have access to the relevant information.

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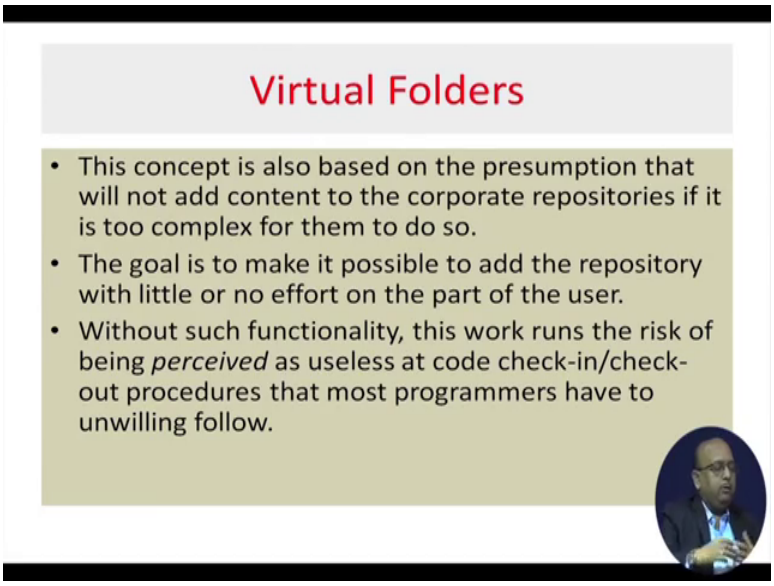

So now this virtual folders is very very important today because it you do not need to say have all kind of repositories with you but also have repositories elsewhere which can be used and as which is required are you connect to this repository, but actually it is not with you but and you do not run the risk of being perceived the user list because in that case suppose you have very less repositories.

So if you have subscription or access to data these kind of databases then you can use it so these kind of accessibilities are very, very important, so that you become relevant not useless and similarly you have to see that not you add to the repositories, without any effort on the part of area because you have access to those repositories which are there in the virtual folders right.

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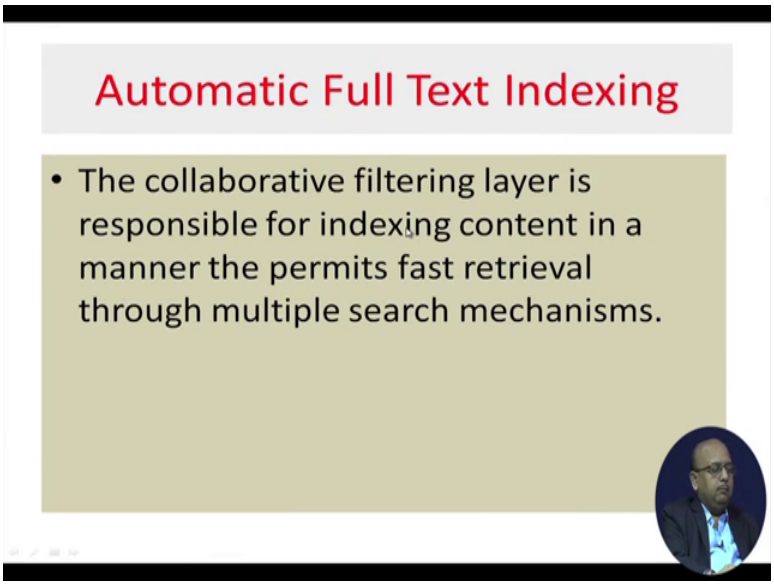

Then going to automatic full-text indexing, basically if you look at the collaborating filtering layer which is responsible for indexing content in a manner that permit fast retrieval through multiple search mechanism, so it is the data is classified in such a way that it filters out the relevant information based on the content that you are looking for and it is very fast because the retrieval is easy and you have access to it using some searching mechanism.

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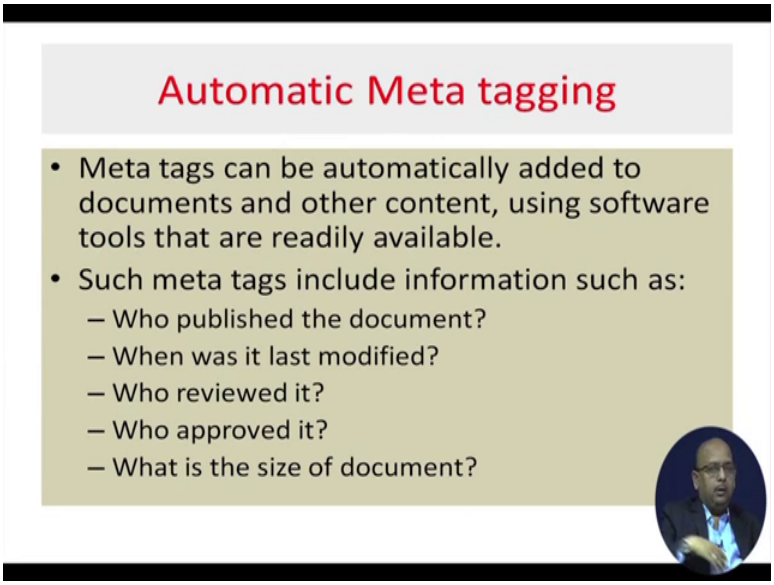

Then when you go for meta tagging as I told you, you see meta tags are basically nothing else but these are the documents and contains which can be made available using certain software and these also have certain contexts like who published the document, how and when it was

modified, who reviewed it, approve dates, what is the size of the document and you have all the information related to the document or the content that you want to make yourself.

So now they are the software which do this up and you will find all the data related to the document like the source of the data, approval, what is the size, what is the files, for example if you right click a word file then you get all the information right, when it was created, when it was modified, what is the size, all kind of things okay so this what we know as meta tagging of a document or content and that done automatically by the software.

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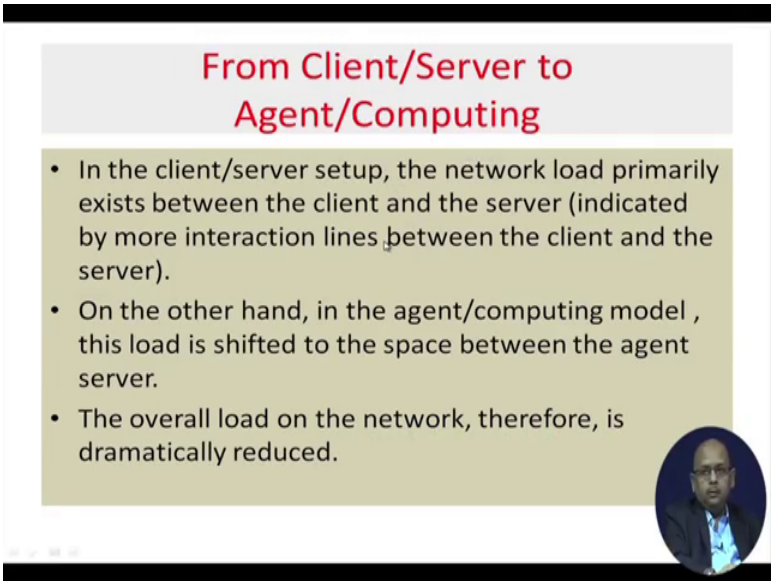

Then from client server to agent computing in this what happened client server setup, the network load primarily between the client and the server, there is a client with visible sitting on the PC and the server through which you are connected and through the networks or internet you are going to have information related to that one, but in the agenda of computer model what happens this load is shifted to the space between the agent server.

So you don't worry about it so the load on the network is reduced and that is why it is very important to have client server so that the load on the network is very, very less.

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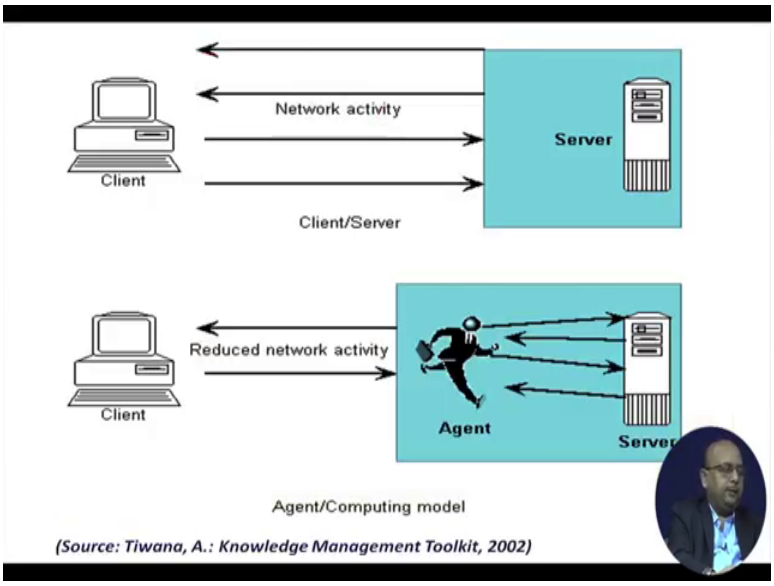

Now you look at this they have direct network activity between the client and the server and there has not in between the server and the client which basically reduces the network activities, so from the server it goes to the event and from there it is going on here and similarly from the client it goes to here and then it goes to the server so there is not moderate, mind moderate filter collaborate whatever is required by the system right.

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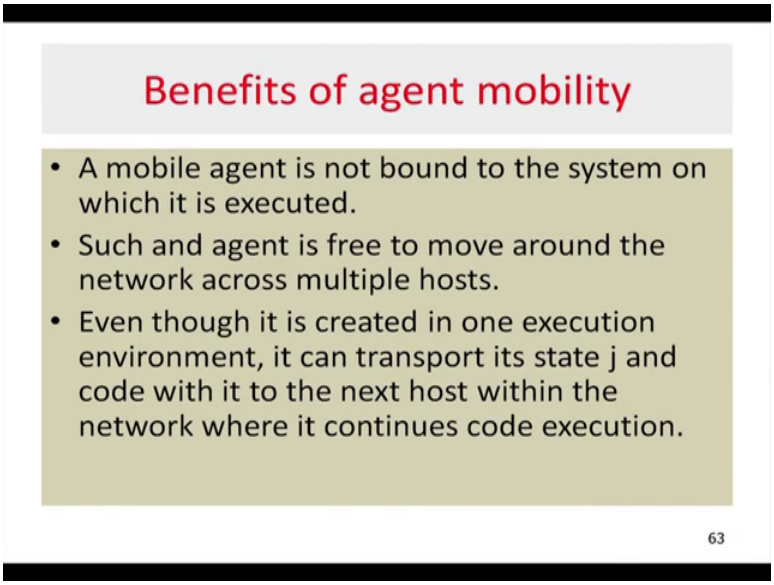

Now what is the benefits of having an agent okay, mobile agent okay, so the benefit is that it is free to move around the network, hire multiple hosts, if it is created in normal execution environment it can transfer it straight from one code to another code, that is why if you look at

this figure again find that okay this is in a moving position, so it is depending upon the context it is going to move from here to here to here to here.

And that basically reduces a network activity and that is why these are the benefits of being having a mobile agent right.

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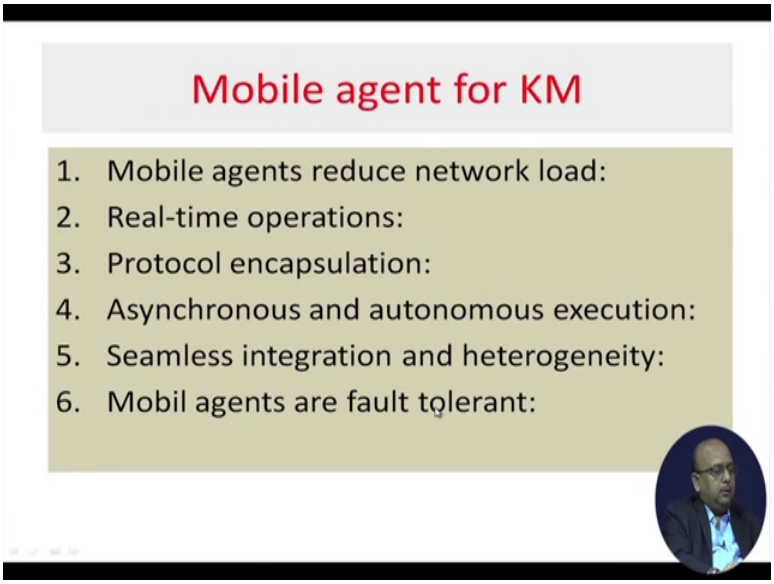

And then this what are the benefits actually if you look at this it basically it acts on a real time basis, reduces of the network load and also follows the protocols and it can go for all kind of not only Asynchronous and autonomous institution, so it since it is automated software look at this you no need to make any effort by mobile as it does its job automatically, because it is connected through the software.

And it also integrates and seamless integration ring and with the different kind of data and information and they are fault all right so these are the some of the benefits of having a mobile agent in between the system let's look at this how between the client and the server this agent is going to work.

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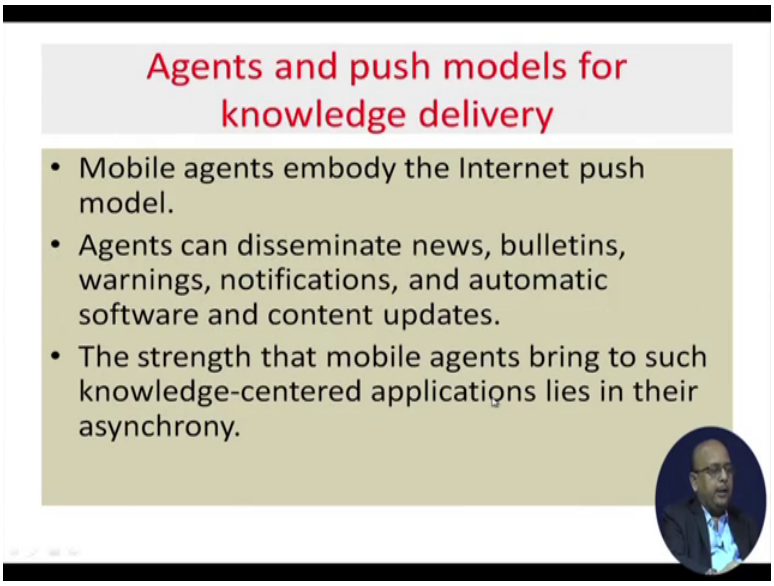

Then you also have push model of deliveries, basically they embody the internet push model basically really nothing else but whatever information is coming it is passing on to you through bulletins, warnings, notifications and distance is that it brings knowledge interpretations, so these are some of the benefits.

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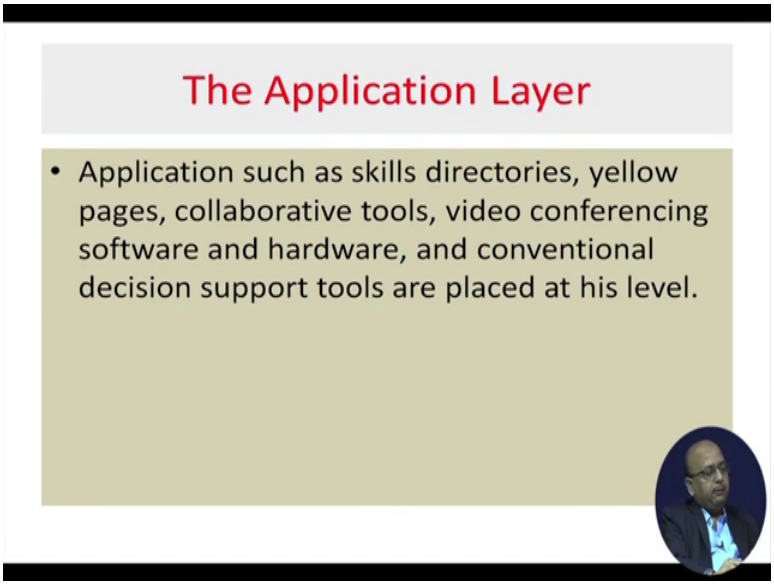

The next one is Application Layer like to have applications such as directories, yellow pages, collaborative tools, video conferencing software and hardware and conventional decision support systems these are the application software which are put in the system, so that you can access to them to get the relevant information through them the relevant information, so that is nothing

else but it is a different kind of software and hardware like you can have yellow pages, directories.

When this video conferencing software as you have this support systems which is the part of the system.

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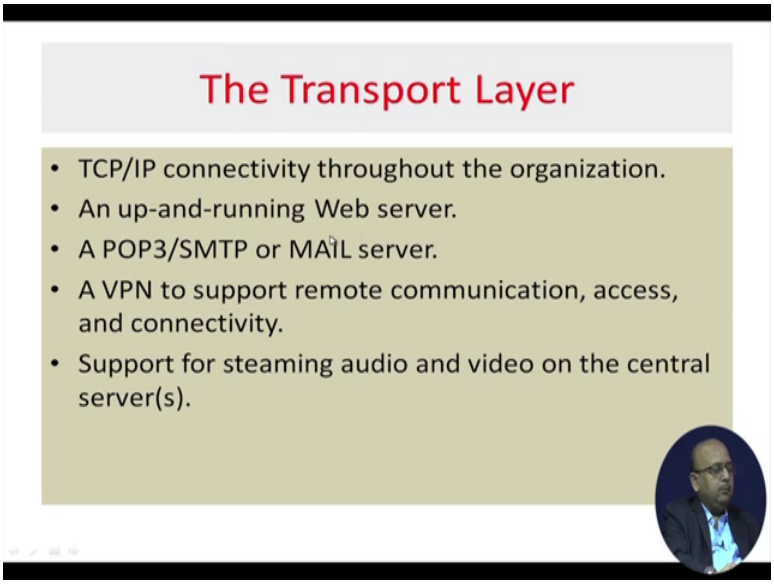

Then moving to the transport layer how the information move and that will more technical in the things because you have internet calls that you are that is how you are going to connect through the network or system and you have web servers or mail severs or private networks to support the remote communication access, for example I am sitting at Kolhapur and I want to communicate to somebody in Delhi.

Actually this VPN supports routine communications and command here connectivity and when it also supports basically streaming audio and video through central servers.

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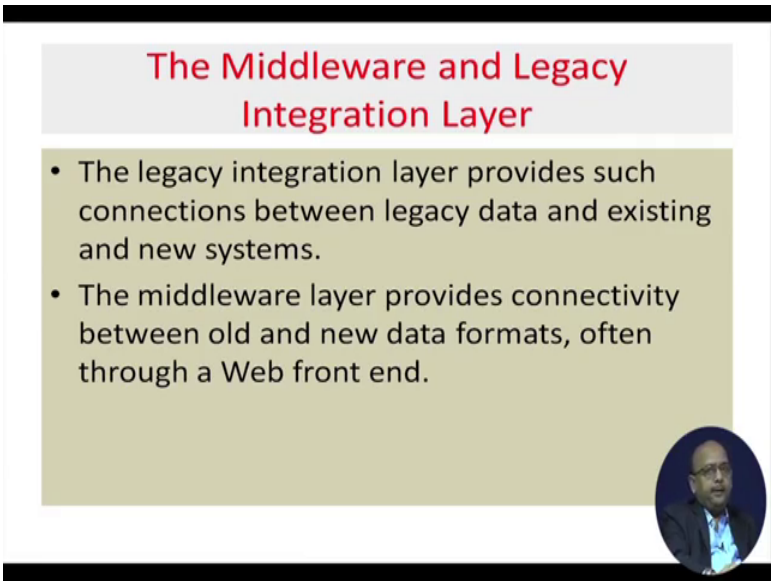

Then the next part is what to call the Middleware and the legacy integration layer, this basically provides connection between legacy data and existing new systems suppose you have W back-end system and already you have certain system, so how that old system is going to integrate it with the new KM system, so the middleware layer provides connectivity between old and new data formats and that is basically done through the web front.

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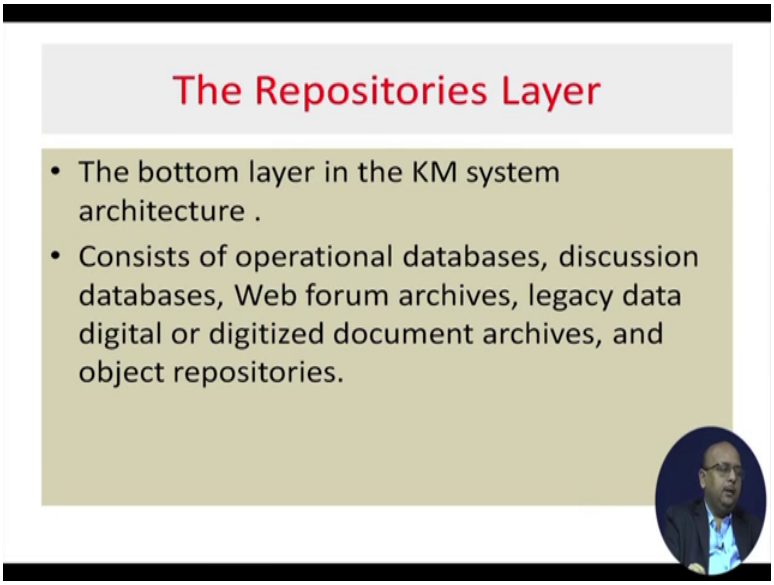

Then ultimately you have the repository layer and this repository layer is basically the bottom layer which consists of databases with Archives, Legacy data, documents, other repositories maybe explicit documented forms, videos and are different kind of files so this is the power of

repository layer very, very important because this repository layer actually that is what you are going to have access.

And then you have middleware, transport layer, application layer then you have this what you call collaborative, filtering layer and their access layer and find then ultimately where what you call the interface layer and that is how we have these seven layers in the system starting with Interface layer, Repository layer and any what we have discussed there is that how each layer works and how each layer is getting connected and integrated through different layers.

So that is what we have discussed in this part so this how we are going to conclude the fifth module, Multi-Layer repositories, thank you.