



Exchange Server 2007

File 01 - Duration: 26:09

Welcome to the introduction for Exchange Server 2007.

In this nugget, we will talk about an introduction to exchange 2007. First we'll start by talking about what is exchange server, then we'll discuss about how it works with active directory, and finally we'll talk about what are the new server roles.

You know the Chinese supposedly have the expression: "May you live in interesting times". Some say it was meant as a curse, and others say it's as blessing. Well, in either case, there's no doubt about it, we are definitely living in interesting times, especially with regard to technology.

Exchange 2007 is the latest Microsoft has to offer in terms of messaging and collaboration services. And whether or not it's a curse or blessing, is really up to us. It all depends on how well we know it. So, let's get started.

Now in this nugget, I'm going to use whiteboards to lay the foundation for concepts that will make demos for future nuggets we have, to really come to life. For now, we're going to lay that foundation and in the future, you'll see how exchange works step by step.

So to get started, what is an exchange server?

Well, an exchange server is used for messaging and collaboration purposes. Now, it's not used when you have two or three people in a company; that's not when you setup an exchange server. But when you start having a hundred, a thousand, ten thousand people, you're definitely going to need some in-house email services, and

that really, simply puts what exchange is: an email server. But you're going to find that it does much more than that.

So just to go through a quick history of exchange, exchange was released in 1996, the 4.0 version of it, and in 97 we received 5.0, and then we received 5.5. Now 5.5 was very interesting because it was sort of a testing ground for active directory. And 5.5 had its own directory service, and we were able to see how information would replicate between servers, between domains, between sites, and all this information was then pooled in active directory later on. So in 2000 we received Windows 2000 Server with Active Directory and exchange was no longer its own directory service, but it worked with active directory. Then we had 2003 and now we have Exchange 2007 which still relies on Active Directory. So you're going to see in a moment, how exchange works with active directory, and it's important for you to know exactly how active directory works in order for you to troubleshoot problems within your exchange environment.

Let's take a moment to discuss some of the exchange clients. Now the primary client for exchange server is Outlook. The current version is outlook 2007. The reason for this is, outlook is specifically designed to work with an exchange server, and so there's a variety of additional features and facets to exchange that can only be taken advantage of, if you're using an outlook client. Calendars, tasks and all sorts of other things synchronies and work with the exchange server. So, if you really want the most robust client for exchange, you're going to use outlook. However, there are a few other options at your disposal. For example, there's outlook web access, and this is really improved tremendously over the years because, now it's so difficult to determine when you're using outlook web access, you can access your email through a web browser, and it looks so good, that it's hard to determine if you're in outlook or if you're in the browser. And we have outlook mobile. Now outlook mobile allows persons with wireless and mobile phones, PDAs, smart phones, all these individuals to access their exchange data. In addition we have outlook anywhere.

Now outlook anywhere allows you to use your outlook 2007 or outlook 2003 clients to connect to an exchange server over the internet using RPC over HTTP. And this allows you to do this without creating a virtual private network, so although this is not a new feature, it was available in exchange 2003, in 2007 they simplified the arrangement for outlook anywhere. You simply have to set it up on the exchange 2007 server that's running the client access server, and automatically the mailboxes are enabled for anywhere access. Then we have outlook voice access. Outlook voice access is very new to exchange, and it's part of the whole unified messaging structure, and what's great about voice access is, you're able to call in to your exchange server, and you can actually retrieve voice mail messages, but you can also retrieve your email, because it will play it back using text to speech. You can check-in on your meetings, you can accept or decline a meeting or see if a meeting is being postponed or cancelled through the phone. So you see, this is being a great feature.

You know, the US Census Bureau says that the average American spends over 100 hours each way commuting to work every year. So during that time, perhaps you're not able to use a laptop or some other device while you're in transit, but you can use your cell phone and you can check-in with your exchange server and get your messages and be able to start working before you get there.

Now, some of the other clients that are available are outlook express and windows mail, which is the new vista client. These are POP3 clients that have been around for a while and you can use those to connect into an exchange server as well as other POP3 and IMAP clients, one very popular these days is, Mozilla Firebird clients, and there's a host of other clients that we can talk about. We can talk about other outlook clients like outlook for Macintosh, we can talk about other POP3 and IMAP clients, but it's really good to know that the outlook family is the focal point for exchange clients.

Other clients will work, but you're going to get the most functionality out of outlook especially outlook 2007. In order to really understand exchange, you have to start by

understanding active directory. Now active directory has two different sides to it. There's a logical side and there's a physical side. The logical side involves the various structures that are created, really an organizational hierarchy behind active directory, and the physical side really relates to the various placements of domain controllers, the location of different sites, and how active directory information is replicated. Now to start with, active directory is a database. It's a database which holds information about your organization, various objects, those objects can be user objects, and those objects can have various attributes to them, including for example if it's a user, the address of the person that's been created, or the various cell phone numbers, all that information is held within the active directory and replicated based upon your logical and physical structure.

Now, behind the scenes, the logical structure, the hierarchy we can see here a little bit, we have the forest. The active directory forest is made of one or more trees, and these trees share common configuration and schema information. There's an automatic trust relationship between trees and domains within a forest. This is important in relation with exchange, because you can only have one exchange server organization per forest. So when we get into the installation in the next nugget, we're going to setup and organization for exchange. If you have multiple forests, there's no way to have a single exchange server organization. You'll have to combine those forests into one single forest in order to have a single exchange server organization, or you'll have to go with multiple exchange organizations.

An active directory tree is made up of more than one domain. And here we have a parent domain, and these are child domains. Now if you recall, an active directory domain is a collection of computers that share a common directory database. It also shares common security policies, and security relationships with other domains. Within a domain you create user accounts and computer accounts and these are held in organizational units. While this is supposed to be an organizational unit, but it looks more like a DU. So instead of an organizational unit, what we have here is

maybe a dis-organizational unit. It's really supposed to be an OU, an organizational unit and the purpose of an organizational unit again, is to try to structure your information in a logical way. Basically you use organizational units in order to logically structure your domain, and logically structure and organize hierarchical arrangement of these various accounts. So you might have a sales organization unit where you put all the users and computers for sales in that OU. That doesn't necessarily mean that those individuals have physically changed any locations. It's simply a way for you to structure your organization in a logical way, and then from there you can also apply group policy settings to that organizational unit, so that's the logical side to active directory that you need to be aware of in order to have exchange working. But now let's talk a little about the physical side. When you think about the physical side of active directory, first try to rap your mind around the fact that active directory is a huge repository for all sorts of data. It's a huge database that can contain everything from a user cell phone information, to the location of a computer or printer, and all that information has to be replicated around the active directory domain in order for that information to be accessible. But really there are a lot of other players involved here. For example, if we get started talking about domain controller. A domain controller is used for individuals that are logging on. They actually get their authentication from the domain controllers. But the domain controllers are also locations for domain where all of the information of that domain, all of the database information for the domain, is replicated to each and every domain controller. Now that creates quite a bit of replication, so one of the things that's important to keep in mind is, there are times when you need to create multiple sites. In this case we have two different sites. Now why would you create multiple sites? Well, for one thing, let's say you have two different locations. So let's say site number 2 here is located in Fiji, and site number 1 is located in north America.

When you have multiple locations and you want to retain everything in the same domain, you have to keep in mind that information on all your users, all the objects

and attributes for your organization is going to now want to replicate to this domain controller. However, by creating different sites which means that these have two different IP addressing schemes, by creating a separate site, you can now schedule that replication in between site 1 and site 2. Why is that useful to you when it comes to exchange?

Well, it's important to know that exchange, in previous versions you had to setup your own replication structure, but with active directory, the structure of active directory is what's going to dictate the structure of your exchange replication as well. Now in addition to domain controllers, we have DNS servers.

DNS servers are very important to an exchange, because exchange servers use the DNS server in order to communicate with active directory. In order to retrieve information about various recipients and information about other exchange servers that are out there. Because when an exchange server is established, it registers itself with DNS, and DNS can then keep track of where all the other exchange servers are and where all the domain controllers are. In addition, DNS tells your exchange servers where the global catalog servers are. Now you might say what's the difference between a standard domain controller and a global catalog server? Well, looking at active directory 1.0.1 we recall that within a domain, domain controllers replicate all of the objects and attributes for the objects within their domain. That's a lot of replication. However, as we expand this matter, remember we were talking about the logical structure, we were talking about trees and forests, and all these other things, well that's too much to replicate sometimes, so what a global catalog server does, is instead of retaining all of the objects and attributes of every single object in your forest, the global catalog server will retain a subset of those attributes.

So the global catalog server does keep track of all of the objects in the forest but instead of having all of their attributes it just retains a subset of those attributes, only the most important pieces of information. So, just keep that in mind, to make

controllers replicate everything, global catalog servers maintain a list of the subsets of attributes for all of the objects in your forest.

Now why is that important to you? It's important to you because the global catalog actually holds all of the email attributes for all your mail enabled and mailbox enabled objects. These are all replicated to the global catalog server. So let's say when you do a search for a specific user in your global address list, that list is generated from the list of recipients in the active directory forest global catalog. In addition, when mail is being sent to various individuals in the organization, it's the global catalog server that assists in delivering messages to the proper recipients mailbox. So, the global catalog server is a very important role within your exchange environment, the DNS server is another important role obviously, because exchange uses those DNS servers to find the global catalog server as well as to find other domain controllers. And here you can see that replication between sites is another important topic to keep in mind when you're discussing exchange and active directory.

So, when you're dealing with problems, when you have a problem within your exchange environment, you start to suspect that it's active directory giving you the problem, you want to check your DNS, you want to check that your global catalog servers are working properly, you want to check that replication is occurring between various sites. So, you have to be very familiar with active directory in order to all that troubleshooting. So, now that you have a good understanding of active directory and how it works with exchange 2007, let's get into the discussion of the 5 server roles. Now, these roles in some cases are new, and brand new server roles like unified messaging server and edge transport server. However, in theory these other roles existed before, but what is new is that in this case, now with exchange 2007 you have the ability to split up the function of your exchange server and you can place those roles or a combination of roles on different servers within the organization.

Now, why might you do that? Well, you might do it for performance reasons, you might want to for example setup servers that handle the various routing of messages, separate from your mailbox servers themselves. Or you might do it for management purposes, or might do it because you don't have a choice. For example, with edge transport servers, this is a server which is not even part of a domain, so you cannot include it as part of one of your other server roles. It has to be on its own server as part of its own role. So there's a variety of reasons why you'd want to break-up the server roles. But keep in mind that at the same time you can install multiple server roles on one server, or you can have one server that handles all of the necessary server roles for your exchange organization. So let's discuss each of these server roles individually. We'll get started with the mailbox server role.

The mailbox role is the easiest to discuss, because it's really the role that holds all of your exchange databases which hold your user mailboxes, or your public folder databases. Most likely within your organization, you'll have more mailbox servers than any other server role. For one thing, your mailbox server has to be part of the active directory domain. In addition, you want to make sure that your mailbox server has plenty of hard drive space, because your mailbox servers are the ones that are going to hold all of the email for your organization. In fact, you can have a maximum of 50 storage groups for each mailbox server.

Now we're going to talk about what a storage group is in a future nugget, but for now it's important to keep in mind that a storage group is basically a collection of your mailbox or public folder databases and within each of your storage groups you can have a maximum of 50 databases. Those databases will be holding either your public folders or holding your mailboxes for all of your users.

Some other considerations you want to make when it comes to your mailbox server is your backup-recovery plan, because your mailbox server is your most important server to backup for your exchange organization. It holds all of the mail. So in nugget number 10, we're going to discuss backup-recovery solutions. In addition you want

that mailbox server up and running for as long as possible. You want 100% uptime if possible. So we're going to be talking about high availability solutions that are available in exchange 2007 in nugget number 11.

Although mailbox servers retain the email that come into it, one thing it doesn't do is, it doesn't transfer mailbox messages between mailboxes. This service is provided by a hub transfer server. So let's discuss that role next. Now the hub transport server is responsible for all of your internal mail flow. And this role if you remember from previous versions of exchange or exchange server 2000 or 2003, we had bridgehead servers. Well the hub transport server is pretty much the same thing. Now the hub transport server is installed within your active directory as well. Now what happens with the hub transport server varied depending or not you have an edge transport server or not. We haven't talked about the transport role yet, but it's good to know that mail that comes in from the internet will go into the edge transport server. That server will provide antivirus and antispam functionality for your organization before passing on the mail to the various mailbox servers and various mailboxes. In the event that you have an edge transport server for sending mail out, the mailbox server will send mail out to the hub transport and then that mail will be sent to the edge transport and it will go out. In the event you don't have an edge transport server, it's okay, because your hub transport server can actually pick-up the services of the edge transport server. You can actually enable antispam and antivirus features on the hub transport server. And then in that case, instead of having mail go through the edge transport, it would go in and out of the hub transport server to the mailbox servers. Well now that we've done so much talking about the edge transport server, we might as well discuss what that role is.

So now let's talk about the edge transport server. The edge transport server is installed on the edge of your network. And it's not part of the domain. It has to be installed on a standalone server that's separate from the domain. Now you might say that how does it keep in touch with active directory then? It uses active directory

application mode (ADAM for short) to synchronize active directory with the edge transport server. ADAM along with another component called edge synch are used to make sure there is a one way synchronization of the configuration and recipient information from active directory. And this allows the edge transport server to perform recipient lookups as well as spam filtering. Now the entire purpose of an edge transport server is really protection. It's whole goal is to protect you from different things coming in from the internet and so you setup your antivirus and your antispam right on the edge transport server.

In addition you can establish edge transport rules which are used to protect your exchange organization. Now these rules are a little different from antivirus and antispam. The edge transport rules are based on the SMTP and MIME addresses, words in the subject or message body and SCL ratings. You may be wondering what does exactly SCL stand for? It stands for spam confidence level and the SCL rating is a value from 0 to 9, that's a sign to emails as a classification of their likelihood of being spam. 0 indicates low probability, 9 indicates near certainty of the email being spam. Now what happens is when spam comes into the edge transport server, it pretty much sits there until an administrator can take a look, and can either delete the spam from the quarantine area, or it can allow messages that are tagged as spam, it can allow them to go through. So as we mentioned before, all mail that comes in and out of an organization, that has an edge transport server will have that mail go through the edge transport server. It will go through the hub transport server to the edge transport server and then mail will travel back from the hub transport server to the mailbox of recipients themselves. So the edge transport server is very valuable. However, again you can configure the same exact settings on your hub transport server in the event that you want to reduce the number of servers that you're using for an organization or let's say the organization is not so large, that you feel it requires that many extra servers.

Okay, so now let's talk about client-access server. Now the client-access role might be confusing at first because you might be thinking, why would I need a client access server? I can access my mail directly when I'm in the organization. And that's exactly true. From outlook you can access your mailbox server directly. However, when you're outside the organization, when you're coming in either through outlook web access or a browser, or whether you're using your mobile device, using exchange active sync, whether that be Mobile 5 Smartphone or Pocket PC 2002 or 2003, you'll need to go through a client access server. Remember we talked about outlook anywhere, in that case as well, you'll be coming through the internet, through the firewall to your client access server and the client access acts more like a front-end server similar to an exchange 2000 or 2003, you had front-end servers while the client access role performs in exactly the same function. So the client access role is similar to a front-end server role that we had in exchange 2000 or 2003, the client access role stands pretty much in the frontline there and if you're using either outlook anywhere or outlook web access or exchange active syncs with your mobile devices to connect in, you go through the client access server to access your mailboxes.

And last but not least we have our unified messaging server. Now this is one of the most amazing server roles because this server role allows you to merge your voice or VOIP infrastructure within your exchange organization. So what this allows you to do actually is a couple of different things. For one thing you have your voice mail that comes in and you want to check it. Well, if you only have access to the internet, that might be frustrating. However, no because of the unified messaging role, you can check your voicemail through your internet server through outlook web access.

In addition, let's look at a situation where you want to check an appointment in your calendar or you want to get your email for the day. Well if you remember, we talked about outlook voice access through the unified messaging server role, you can call your servers and you can have access to your mailbox information, your

appointments and access all of your voicemail as well. Now what this essentially means is, you will have the ability to access your voicemail, fax and email all from one location using multiple access interfaces, whether it be your phone, email or web browser. Now for all this to work properly, you're going to need some additional hardware. For example you'll need an IPPBX or if you have a legacy PBX, you'll need a Voice Over IP Gateway.

So there you have the 5 server roles. The mailbox server role handles all of our email including the public folder database. The hub transport server has varying roles depending on the situation. If there's an edge transport server in place which handles mail going in and out for our protection from viruses and spam, then the hub transport server works with it. If there is no edge transport server, that's okay, the hub transfer server can function all on its own. The client access server handles situations where individuals are coming from the outside like outlook web access or mobile devices and then we have our unified messaging server which is a wonderful new addition and it handles Voice Over IP, individuals calling in to get their information or retrieval of your voicemail through your outlook web access or through one of your other devices.

So each one of these server roles plays its own part, but we're called that you don't have to have an individual server to handle all of them. In fact, these three right here, the mailbox, client access and hub transport server role, these three function all on their own on a server and you only need those three roles in order to get your exchange organization up and running.

So in this nugget we discussed our introduction to exchange 2007. We talked about what exchange is as a messaging and collaborative software solution. We talked about some of the history with exchange and the various flavors as it has progressed over the years and then we talked a little bit about how it works with active directory. We talked about domains and forests and we need to remember that you can only have one exchange organization per forest, so that's important to keep in

mind in terms of getting ready for our next nugget on installation and then finally we talked about the 5 new server roles and really we appreciate how each of these server roles plays its own part and yet at the same time they can function together except for the edge transport server. The edge transport server role must exist outside the active directory and has to be installed on a member server all by itself and it cannot exist with any other server roles. I hope this has been informative for you and I'd like to thank you for viewing.