

## Exchange Server 2007 Email Routing - The basics

Exchange Server 2007 contains a completely new animal of the email routing variety. Each of the AD service sites where Exchange mailboxes live must have a Hub Transport server role to control messaging between them, even within a single site.

**Message Flow Architecture** The Hub Transport server role is essential for each Exchange Server 2007 to route internal and external emails. The service running on these servers is the Exchange Transport Service (MSExchangeTransport.exe). Inbound Email Inbound email is email that is delivered from outside Exchange Server 2007, for example, from the Internet. We should have a gateway server implemented which can be an Edge Transport server role or Hub Transport server role. This depends on what internet connectivity and firewall structure is implemented. Best practice should be installing an Exchange Server 2007 Edge Transport server role residing in the perimeter network (also known as DMZ) without the need of Active Directory. This server then routes incoming messages into your Exchange Server 2007 organization. Outbound Email Outbound email means messages that are being sent from internal mailbox users to external recipients residing on the Internet. After a Hub Transport server has processed the mail and identified it as outbound mail, the server routes it to the Internet, either directly or again by passing a gateway server. This gateway server can be an Edge Server Transport server. Local Email Local mail flow refers to messages that are processed by a Hub Transport server in an Exchange Server 2007 organization and delivered to a mailbox on the same Active Directory Site. Remote Email Remote Email flow refers to messages that are processed by a Hub Transport server in an Exchange Server 2007 organization and delivered to a mailbox on a different Active Directory site from the source mailbox. SMTP Connectors SMTP connectors are Exchange Server 2007 components that support one-way SMTP connections. Due to this new restriction (based on earlier versions of Exchange Server) we need two connectors: SMTP Receive Connectors SMTP Send Connectors An SMTP Receive connector is required for an Exchange Server 2007 server system to accept any SMTP connection. It is used to enable an Exchange Server Hub Transport role or Edge Transport server role to receive email from any other SMTP server on the Internet, other Exchange Server 2007 Hub Transport server roles, Edge Transport server roles or other Exchange Server 2007 environments. You can configure multiple SMTP Receive connectors with different parameters on a single Exchange Server due to implementation or high availability reasons. You do not have to create SMTP Receive connectors to route mail between Hub Transport server roles within the same forest. An SMTP Send connector is required for an Exchange Server 2007 system to send any SMTP email. It is required to send email to any SMTP server on the internet or to any SMTP server within the same Exchange Server organization. You can manage each of them using the Exchange Management Console or Exchange Management Shell. To manage connectors using the shell use the Set-ReceiveConnector and Set-SendConnector cmdlets. Message Transport Components To work with Exchange Server and troubleshoot message transport problems you should know the internal workings of Exchange message routing. Messaging Components are: Submission Queue Store Driver Microsoft Exchange Mail Submission Service Pickup Directory Categorizer Messages from outside your Exchange organization enter the transport pipeline through an SMTP Receive Connector. Messages inside enter the pipeline through the Hub Transport server role. Submission Queue Each Transport server role (Hub or Edge Transport) has one submission queue that is created by the categorizer when Exchange Transport Service starts. It stores all messages on the local hard disk until they are processed by the categorizer for delivery. They are then finally removed from this queue. Store Driver Messages sent by a mailbox user enter the transport pipeline when they reach the sender's outbox. The store driver on the Hub Transport retrieves it from the user's Outbox and then transfers it to the submission queue. After the message has been successfully added to the submission queue, it is moved from the sender's Outbox to the sender's Sent Items. Messages are stored in MAPI format and must be converted to Summary Transport Neutral Encapsulation Format (S/TNEF) before being placed in the Submission Queue. This conversion is the job of the store driver, too. If this conversion is unsuccessful, a non-delivery report (NDR) is generated. Microsoft Exchange Mail Submission Service The Microsoft Exchange Mail Submission Service is a notification service that runs on Mailbox server roles. It notifies the Hub Transport server role to pick up the message from the sender's Outbox. If there are multiple Hub Transport server roles on one Active Directory site, the Message Exchange Mail Submission service attempts to evenly distribute notifications between each transport role using static load balancing. Pickup Directory Each message that is transferred to the pickup directory has been successfully submitted to the submission queue via the categorizer. Messages placed in the Pickup Directory must be in the appropriate format and have read/write permissions configured. It allows you to take a properly formatted text file and have the Hub Transport server role process and deliver it. This can be very helpful when mail flow is being validated in the organization or relaying specific messages or returning to the transport pipeline. Even 3rd party applications may place messages in the Pickup directory rather than communicating directly with the Exchange Server. Categorizer The categorizer always picks the oldest message from the Submission queue and checks whether this message has to be routed internally in the Exchange organization or externally. On each Hub Transport server the categorizer performs the following tasks: Identification and verification of recipients Expansion of distribution lists Determination of routing paths Conversion of content formats Application of message policies Implementation of Message Transports Every time you install Hub Transport server roles in Exchange Server 2007 environments, message routing is enabled by default, but you may need to configure additional options on the Hub Transport server role. This process can look like this: Configure server-specific settings Configure authoritative domains and email address policies Configure a postmaster mailbox Configure Internet message flow Configure messaging policies Configure administrative permissions: Exchange Organization Administrators Exchange Server Administrators Exchange View-Only Administrators Each of these configuration settings are unique and need to be defined in a design document before the configuration for each company.