

**\\ice:2013**

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24.08.2013 :: Lingen/Ems

# Migration zu Exchange Server 2013

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# Wer bin ich?



- Marc Grote
- Seit 1989 hauptberuflich ITler
- Seit 1995 Selbststaendig
- Microsoft MVP seit 2004
- Microsoft MCT/MCSE Private Cloud, Messaging /MCLC /MCITP /MCSA /MC\*
- Buchautor und Autor fuer Fachzeitschriften
- Schwerpunkte:
  - Windows Server Clustering/Virtualisierung/PKI
  - Forefront TMG/UAG/SCEP
  - Exchange Server seit Version 5.0

# Agenda

- Exchange Server Komponenten im Zusammenspiel
- Migration von Exchange Server 2010 zu 2013

# Infrastruktur

- EX2013-2 – Exchange Server 2013
- MSX2010-EN – Exchange Server 2010
- W2K8R2-EN – Domain Controller
- W8-CL1 – Windows 8 Client / Office 2013

# Exchange 2010 Rollen

④ 5 server roles

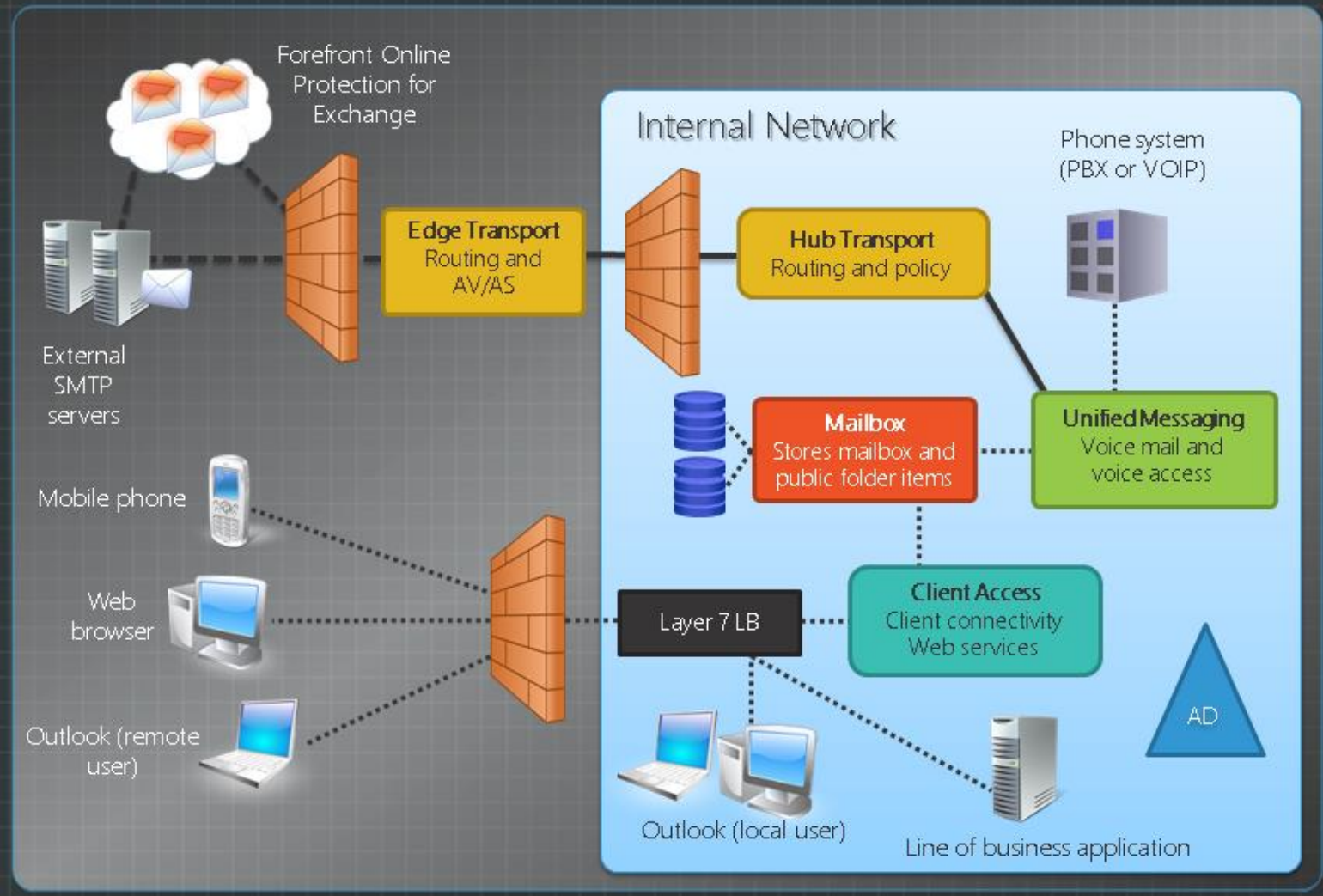
④ Tightly-coupled  
in terms of

④ versioning

④ functionality

④ user partitioning

④ geo-affinity



# Exchange 2013 Rollen

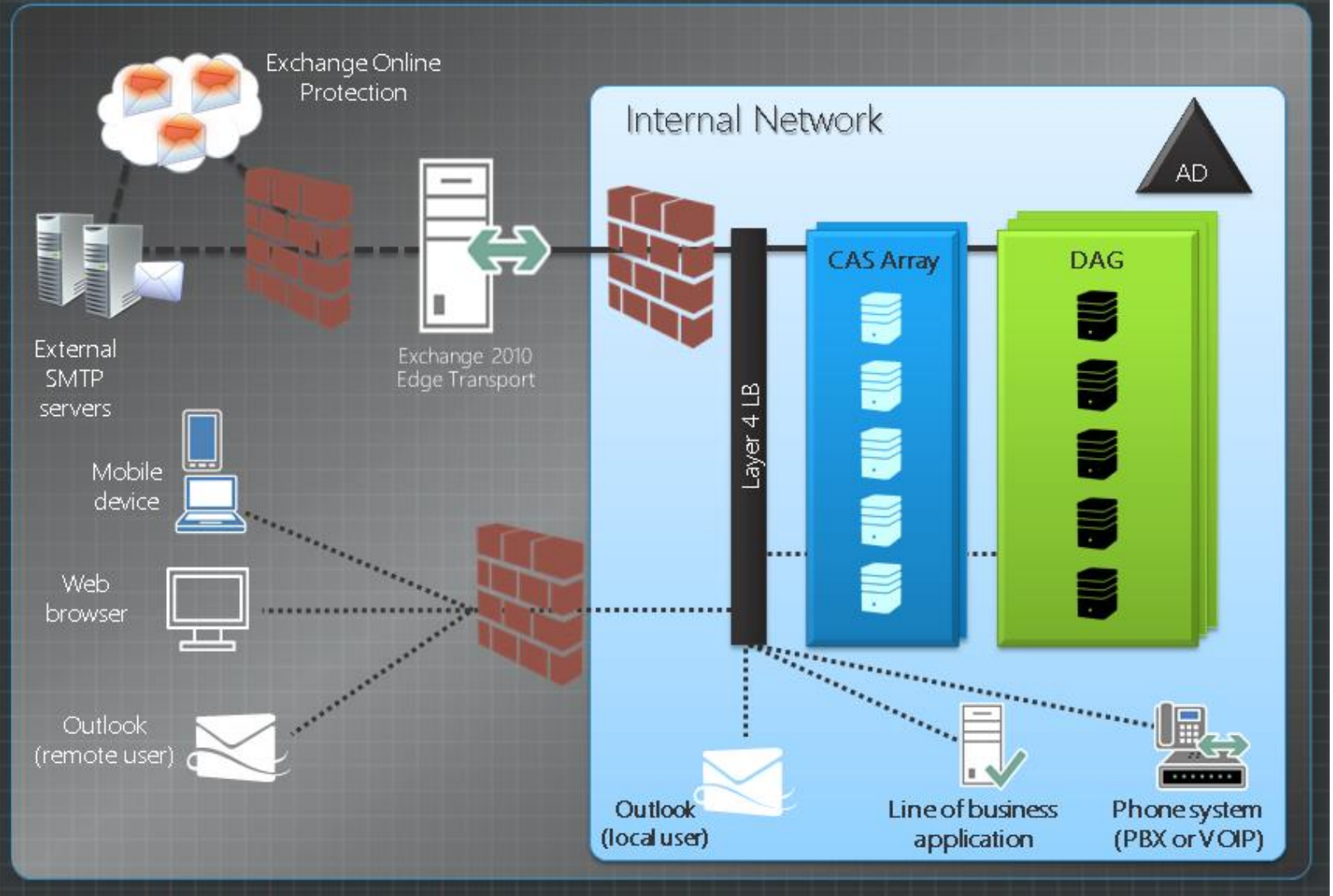
## Building Blocks

Client Access server

- CAS Array
- Mailbox server
- DAG

## Loosely-coupled

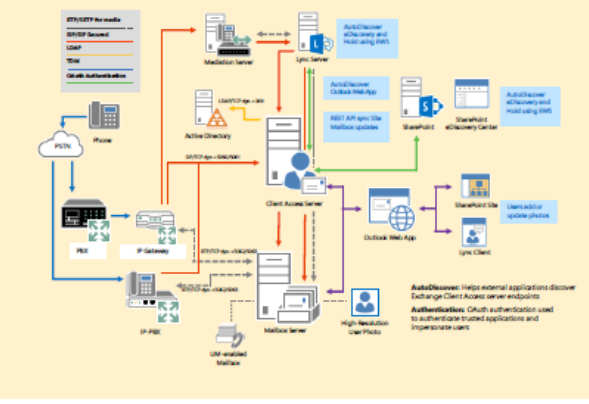
- ⌚ Functionality
- ⌚ Versioning
- ⌚ User partitioning
- ⌚ Geo-affinity





# Microsoft Exchange Server 2013 Architecture Overview

## Unified Messaging Integration, Lync and SharePoint Integration



### SharePoint eDiscovery Center

- Perform eDiscovery search across SharePoint 2013 site, documents, and the Exchange Server 2013 mailbox (Lync 2013 archived conversations and meetings stored in Exchange 2013 mailbox and SharePoint 2013 sites)
- Place an in-place hold on Exchange 2013 mailbox and SharePoint 2013 sites
- OAuth authentication (service and user impersonation)
- Use Exchange 2013 Role-Based Access Control (RBAC) permissions for eDiscovery searches from SharePoint 2013
- Mail-Exchange Search API to search mailbox content
- SharePoint Search results
- Support eDiscovery search results from Exchange 2013 PST files with appropriate metadata stored in EDX metadata

### Unified Messaging

- Archives Lync 2013 conversations and meetings in Exchange 2013 mailbox
- OAuth authentication
- Active conversations using DNS
- Compliance management (hold and eDiscovery) of Lync content using Exchange 2013
- Unified Content: Store with Lync 2013 contacts stored in Exchange 2013 mailbox

### User Photos

- SharePoint 2013, Lync 2013 client, and Outlook 2013 use the Outlook Web App (OWA) gallery to add or update user photos
- High-resolution user photos stored in Exchange 2013 mailbox; low-resolution user photos stored in Active Directory
- User photos accessed by Outlook Web App, Outlook, Exchange 2013, and Lync 2013

### Client Access Protocol

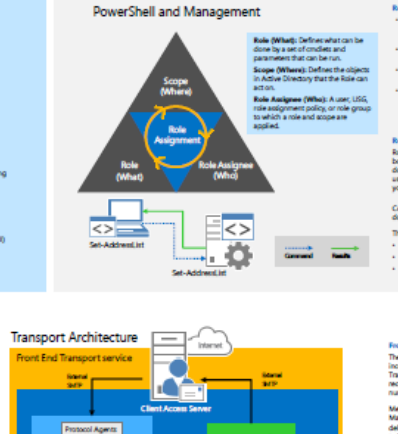
#### Exchange Web Services

- Exchange Web Services (EWS) provide the functionality to implement client applications that access and manipulate Exchange data
- EWS provides programmatic access to the data stored within Exchange
- EWS clients can integrate Exchange information into line-of-business (LOB) applications
- OWA provides the messaging framework for messages sent between the client application and the Exchange server
- The Managed API provides an easy way to use the Microsoft .NET interface with EWS

#### Outlook Connector

In Exchange 2013, RPC/TCP has been removed and all Outlook connectivity takes place via Outlook Anywhere (RPC over HTTPS). This provides several benefits:

- Simplify the protocol stack
- Provide a reliable and stable connectivity model
- Maintain the RPC session on the Mailbox server that hosts the active copy of the user's mailbox
- Eliminate the need for the RPC Client Access Array and its management
- Inline reply for Desktop view
- Extensibility: implements APIs such as the Bing Maps app for Outlook and features to the search experience



### Exchange Server 2013 role architecture

- Exchange Server 2013 role architecture of Windows Management Framework 3.0, which includes PowerShell 5.0 and Exchange Management Shell
- All Exchange management tools are built on Windows PowerShell
- Exchange Server 2013 roles are divided into client-computer commands and server-side Exchange management tools

### Role-Based Access Control

- Role-Based Access Control (RBAC) enables you to control, at both local and precise level, what administrators and users can do
- RBAC also enables you to more clearly assign roles to users and administrators with the actual role they hold within your organization. RBAC is built into all management tools

Configuration is done using Exchange management tools, with support of default role pre-configured and easily customizable.

Three ways of assigning permissions:

- Exchange Management Shell
- Management Role Assignment Policy
- Direct User Role Assignment

### Integrating Voice in Your Exchange Organization

There are three types of voice integration with Unified Messaging:

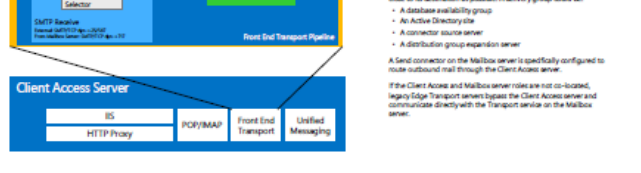
- With a legacy PBX and VoIP gateway, VoIP gateway transmits TDM protocols to VoIP protocols
- With an Unlicensed PBX (UPBX), the UPBX transmits the TDM protocols to VoIP protocols
- With Lync Server, an advanced IP gateway and mediation server transmits the TDM protocols into VoIP protocols

### Client Access Server

Client Access Server is a thin, stateless front-end machine that provides a unified framework, authentication, and network security as well as proxy and redirection. Transport is processed by the Front End Transport service which provides mailbox locator services.

### Client Access Server

- Handles the logic to proxy or redirect a specific protocol request from a client to the correct Mailbox server
- Is designed to work with TCP offload—does not require application session affinity
- Provides an SMTP Front End proxy and a Lync call center
- Handles all inbound and outbound external SMTP traffic via Front End Transport Service and provides a client endpoint for SMTP traffic

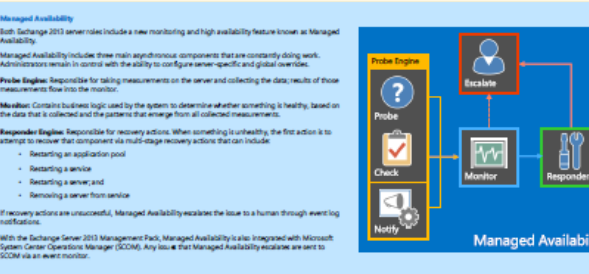
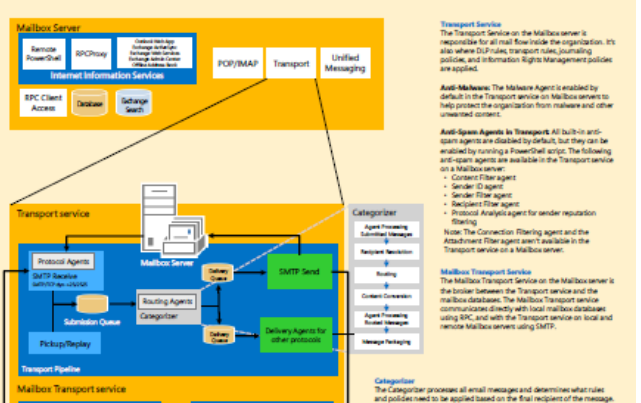
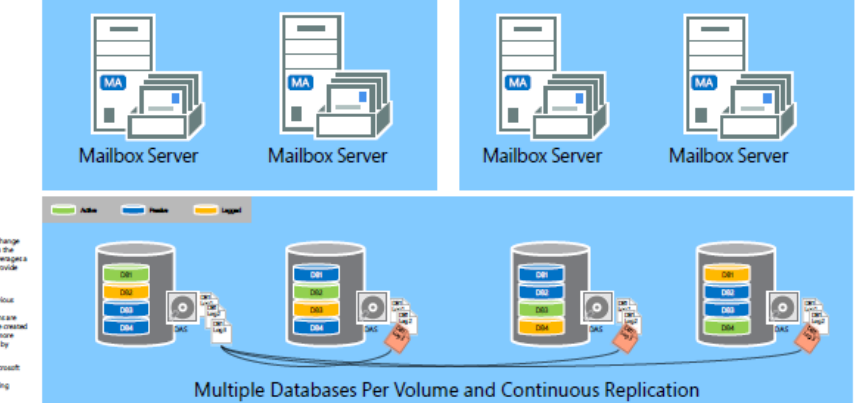


### Mailbox Server

Mailbox Server is the core of Exchange 2013, providing mailbox services and components previously associated with other Exchange Server 2007/2010 server roles: Unified Messaging, Client Access, Hub Transport, and Information Store. All processing for a specific mailbox happens on the Mailbox server that hosts the active copy of the user's mailbox. Client connectivity takes place through the Client Access server.

### Mailbox Server Role Components

- In-Place Archive:** Provides client with an alternate storage location to store historical messaging data. Appears below the user's primary mailbox in Outlook or Outlook Web App. Search across primary and archive mailboxes in Outlook and Outlook Web App. Get and set items separately from primary mailbox.
- Exchange Online Archiving:** Provides a cloud-based archive for on-premises mailboxes.
- In-Place Hold:** Query-based in-place hold on specific items in a mailbox-based query (journaling).
- Time-based in-Place hold:** Specifies a time-based in-place hold on specific items for a specified duration.
- Litigation hold:** A legacy feature, can also be placed on a mailbox hold on the user's mailbox.
- Recoverable Items Folder:** These folders are not visible to the user. They include the Audit sub-folders, which contain mailbox audit and granular logging entries.
- Deleted Items:** Deleted items are not deleted from Deleted Items folder. Accessed through Outlook "Recover Deleted Items".
- Witnesses:** Original and modified copies of items when either in-place hold or Single Item Recovery are enabled.
- Parent:** Hold-delimited items when either in-place hold or Single Item Recovery are enabled.
- Discovery Hold:** Data that matches the in-place hold criteria is copied to this folder.
- Types of Mailboxes:** There are several types of mailboxes in Exchange 2013.
- Authorization:** Used for handling moderated recipients and distribution group membership approval.
- Autobackup:** Used as a secondary mailbox for users in Exchange 2013. The Managed Store is written to, and rights are managed with the Microsoft Exchange Protection service (MExchangeProtection). It is a server process model and a static database caching algorithm to provide higher availability through failure isolation and improved resiliency.
- Exchange Search:** Exchange Search is different from full-text indexing available in previous versions of Exchange Server. Exchange Search includes contextual innovations in performance, content indexing, and search. New items are indexed in the transport pipeline or stored immediately after they are created or delivered to the mailbox, providing users with a fast, stable, and more reliable way of searching mailbox data. The goal is to drive the distribution of users across the number of volumes that wait, providing you with a synthetic design where during normal operations each DAC member holds a combination of active, passive, and optional "logged" copies on the same volumes.
- Another benefit of using multiple database per volume is that it reduces the amount of time to restore data protection in the event of a failure that necessitates a restore (for example, disk failure).**
- Autobackup:** Autobackup is designed to automatically poll the database redundancy after a disk failure by using state disks that have been provisioned on the system. In the event of a disk failure where the disk is no longer available to the operating system, or is no longer available, a spare volume is substituted by the system, and the affected database copies are reseeded automatically. Autobackup is managed with multiple database per volume and it is capable of restoring redundancy for multiple databases in parallel.



### Multiple Databases Per Volume

Exchange 2013 is optimized so that you can use large, multi-terabyte disks in a RAID configuration more efficiently. With multiple databases per volume you can have the same size disks storing multiple database copies, including logged copies. The goal is to drive the distribution of users across the number of volumes that wait, providing you with a synthetic design where during normal operations each DAC member holds a combination of active, passive, and optional "logged" copies on the same volumes.

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### High Availability Message Flow

- A Mailbox server receives a message from any SMTP server outside the Transport high availability boundary. The Transport high availability boundary is a database availability group (DAG) or an Active Directory site in non-DAG environments.
- Before acknowledging receipt of the primary message, the primary Mailbox server initiates a new SMTP session to a database Mailbox server within the Transport high availability boundary and makes a shadow copy of the message in DAG environment, in a remote Active Directory site if preferred.
- The primary server processes the primary message and delivers it to users within the Transport high availability boundary or waits to be redelivered. The primary server queues a discard notice for the database server that indicates the primary message was successfully delivered, and the primary server routes the primary message to the local Primary Safety Net.
- The shadow server periodically polls the primary server for the discard notice of the primary message.
- When the shadow server determines the primary server successfully delivered the primary message or indicated to the next hop, the shadow server routes the shadow message into the High Shadow Safety Net.
- The message is received in the Primary Safety Net and the Shadow Safety Net until the message expires.

### Principles of Transport High Availability

Messages in transit are redundantly persisted before they are acknowledged to the sending SMTP server.

Redundant copies of messages processed by Transport are kept in Safety Net for redistribution in the event of a mailbox failure, and Safety Net built-in Mailbox redundancy on another server.

Message redundancy does not require database failover or mailbox database failover are fully automatic and does not require any manual intervention.

# Exchange CAS 2013

Domain-joined machine in the internal Active Directory forest

Thin, stateless (protocol session) server

Comprised of three components:

Client access protocols (HTTP, IMAP, POP)

SMTP

UM Call Router

Exchange-aware proxy server

Understands requests from different protocols (OWA, EWS, etc.)

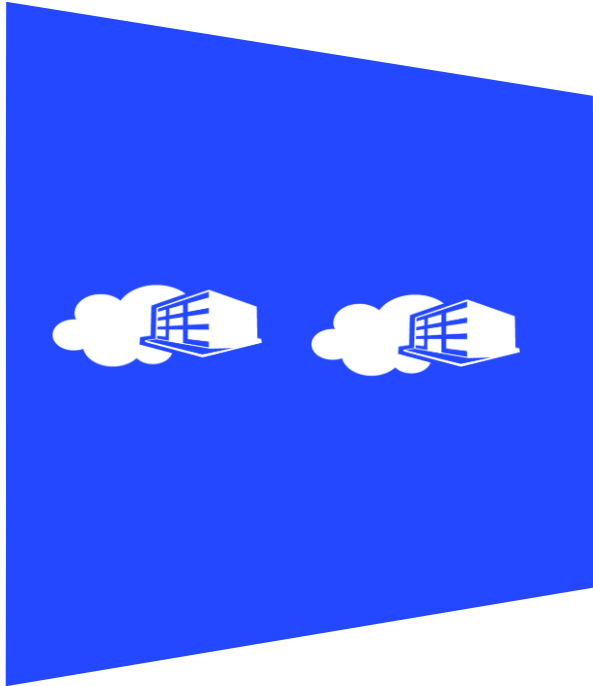
Supports proxy and redirection logic for client protocols

Capable of supporting legacy servers with redirect or proxy logic

Contains logic to route specific protocol requests to their destination end-point

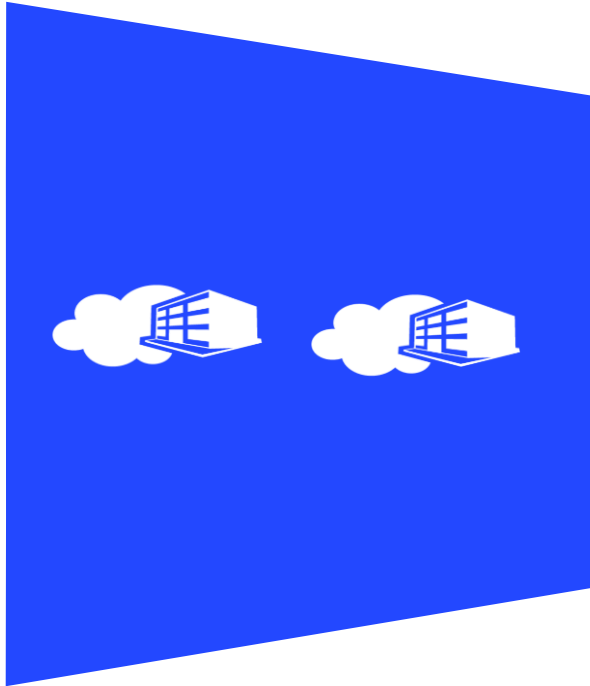


# FrontEnd Transport Service



- Handles all inbound and outbound external SMTP traffic for the organization
- Does not queue mail locally and is stateless
- Functions as a layer 7 proxy and has full access to protocol conversation
- Listens on TCP25 and TCP587

# Mailbox Server Rolle

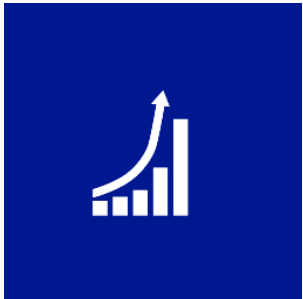


Server that hosts the components that process, render and store Exchange data  
Includes components previously found in separate roles

Only Client Access servers connect directly to the Mailbox server

Clients connect to Client Access servers  
Connectivity to a mailbox is always provided by the protocol instance local to the active database copy

# Public Folder – doch noch da!



Public folders based on the mailbox architecture

Single-master model

Hierarchy is stored in a PF mailbox (one writeable)

Content can be broken up and placed in multiple mailboxes

The hierarchy folder points to the target content mailbox

Because it's a mailbox, it's in a mailbox database...thus,

High availability achieved through continuous replication

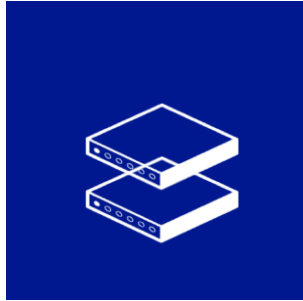
No separate replication mechanism

Similar administrative features to current PFs

No end-user changes

Demo

# Exchange Koexistenz



Supported coexistence scenarios  
Exchange Server 2010 SP3  
Exchange Server 2007 SP3 (+ RU10)



Supported client access methods  
Outlook 2013, Outlook 2010, Outlook 2007  
RPC over HTTP is only method of connectivity  
for Outlook clients



Entourage 2008 for Mac, Web Services Edition  
Outlook for Mac 2011



# Legacy Coexistence

Protocol	Exchange 2007 user / Exchange 2013 namespace	Exchange 2010 user / Exchange 2013 namespace
Requires	Legacy Namespace	No additional namespaces
OWA	Non-silent redirect (not SSO) to CAS2007 externally facing URL	<ul style="list-style-type: none"> <li>• Proxy to CAS2010</li> <li>• Cross-site silent redirect (not SSO) which may redirect to CAS2010 or CAS2013</li> </ul>
EAS	Proxy to MBX2013	Proxy to CAS2010
Outlook Anywhere	Proxy to CAS2007	Proxy to CAS2010
<u>Autodiscover</u>	Redirect to CAS2007 externally facing URL	Proxy to CAS2010
EWS	<u>Autodiscover</u>	Proxy to CAS2010
POP/IMAP	Proxy to CAS2007	Proxy to CAS2010
OAB	Proxy to CAS2007	Proxy to CAS2010
RPS	n/a	Proxy to CAS2010
ECP	n/a	<ul style="list-style-type: none"> <li>• Proxy to CAS2010</li> <li>• Cross-site redirect which may redirect to CAS2010 or CAS2013</li> </ul>

# Migration

Prüfen der Upgrade Bereitschaft einer Exchange 2010 Organisation

- ExBPA, Exchange 2013 Deployment Assistant

Active Directory Vorbereitungen

- AD Health Check, Schema Erweiterung, Domänen Vorbereitung

Installation Exchange Server 2013 MBX und CAS

- Notwendige Rollen / Funktionen / UCMA etc.

Validierung der Installation

- Exchange Logfiles, Active Directory, Event Viewer

Grundkonfiguration

Zertifikate einspielen

Namespace ändern – Mailrouting anpassen

Validierung

- ExRCA

Mailbox move

Public Folder move

Weitere Anpassungen (Connectoren, OAB Gen etc.)

Jetzt geht's los

# Exchange 2013 Public Folder Migration

Database-centered architecture replaced by mailbox

- Existing Public Folders can be migrated to Exchange 2013

- Public Folder Replication is removed

- End user experience doesn't change

Public Folders are supported in Exchange 2013 CU1 OWA as Favorites

Migrate Public Folder users before Public Folders

- Exchange 2013 users can access Exchange 2010/Exchange 2007 Public Folders

- Exchange 2010/Exchange 2007 users cannot access Exchange 2013 Public Folders

- Migration of Public Folders is a cut-over migration

- Similar to online mailbox moves → aha – so so 😊

# Exchange 2013 Public Folder Migration

Step 1: Download the migration scripts

Step 2: Prepare for the migration

Step 3: Generate the .csv files

Step 4: Create the public folder mailboxes on the Exchange 2013 server

Step 5: Start the migration request

Step 6: Lock down the public folders on the legacy Exchange server for final migration (downtime required)

Step 7: Finalize the public folder migration (downtime required)

Step 8: Test and unlock the public folder migration



Jetzt geht's los

# Powerhell ohne Ende – Teil I ☺

## **Statistiken**

Get-PublicFolder -Recurse | Export-CliXML C:\PFMigration\Legacy\_PFStructure.xml

Get-PublicFolderStatistics | Export-CliXML C:\PFMigration\Legacy\_PFStatistics.xml

## **Keine existierende PF Migration auf Ex 2013?**

Get-OrganizationConfig | Format-List PublicFoldersLockedforMigration,  
PublicFolderMigrationComplete

Get-PublicFolderMigrationRequest | Remove-PublicFolderMigrationRequest  
-Confirm:\$false

## **Keine Public Folder auf Ex 2013?**

Get-Mailbox -PublicFolder

Get-PublicFolder

## **Ermitteln der PF auf Ex 2010**

.\Export-PublicFolderStatistics.ps1 MSX2010-EN C:\PFMIG

## **Mapping Datei der PF auf Ex 2010 erstellen**

.\PublicFolderToMailboxMapGenerator.ps1 2000000000 C:\PFMIG\MSX2010-EN  
C:\PFMIG\MSX2010-EN-MAPFILE

## **Neue PF Mailbox auf Ex 2013**

New-Mailbox -PublicFolder PTE -HoldForMigration:\$true

# Powerhell ohne Ende – Teil II ☺

## **Migration starten**

Bad Item Limit setzen – wenn Exchange 2007

```
$PublicFolderDatabasesInOrg = @(Get-PublicFolderDatabase) $BadItemLimitCount = 5 + ($PublicFolderDatabasesInOrg.Count -1)
```

Von Ex 2013

PF Mailbox Namen in Mapping File anpassen

New-PublicFolderMigrationRequest –SourceDatabase MyPublicFolderDB -CSVData (Get-Content C:\PFMIG\MSX2010-EN-MAPFILE -Encoding Byte) → Mapping File auf Share ablegen oder vorher auf Exchange 2013 kopieren

## **Migration erfolgreich gestartet?**

Get-PublicFolderMigrationRequest | Get-PublicFolderMigrationRequestStatistics -IncludeReport | Format-List → Status *Queued* oder *InProgress* → Status *AutoSuspended* = Ready fuer den naechsten Schritt

# Powerhell ohne Ende – Teil III ☺

## **Zugriff auf PF stoppen**

Auf Ex 2010

```
Set-OrganizationConfig -PublicFoldersLockedForMigration:$true
```

## **Finalisieren**

Auf Ex 2013

```
Set-PublicFolderMigrationRequest -Identity \PublicFolderMigration -  
PreventCompletion:$false
```

```
Resume-PublicFolderMigrationRequest -Identity \PublicFolderMigration
```

## **Testen**

```
Set-Mailbox -Identity Administrator -DefaultPublicFolderMailbox PTE
```

Zugriff in Outlook und/oder OWA testen

## **Migration abschliessen**

Auf Ex 2013

```
Get-Mailbox -PublicFolder | Set-Mailbox -PublicFolder -
```

```
IsExcludedFromServingHierarchy $false
```

```
Set-OrganizationConfig -PublicFolderMigrationComplete:$true
```

Optional? Public Folder Anzahl / Groessen vergleichen / PF DB von Ex 2010 entfernen

# Noch was vergessen? .... Bestimmt!

- Hub Transport Server in Sendecnectoren angepasst?
- OAB Generator Server
- Alle CAS FQDN verweisen auf Exchange Server 2013?
- Alle Exchange spezifischen Postfaecher verschoben?
- Alle Exchange 2010 CAS Arrays entfernt?
- Haben sich alle User / Devices am neuen Exchange angemeldet?
- Monitoring angepasst?
- Dokumentation angepasst?
- Firewallregeln bereinigt?
- Kein Server / Device / Anwendung nutzt mehr den Exchange 2010?
- Backup angepasst?
- AD Gruppen bereinigt (Exchange Trusted Subsystem etc.)



# Und von Exchange 2003 zu 2013?

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## Exchange 2013 Deployment Assistant

► Welcome

◄ On-Premises Deployment Questions

Select your on-premises deployment

Select your on-premises deployment

Select your deployment scenario to get started...

- New installation of Exchange 2013
- Upgrade from Exchange 2007
- Upgrade from Exchange 2010
- Upgrade from Exchange 2007 and Exchange 2010

**Call me ...**

# Lust auf Links?

Exchange 2013 Prerequisites

[http://technet.microsoft.com/en-us/library/bb691354\(v=exchg.150\).aspx](http://technet.microsoft.com/en-us/library/bb691354(v=exchg.150).aspx)

Exchange Server 2013 Deployment Assistant

[http://technet.microsoft.com/en-us/library/jj218681\(v=exchg.150\).aspx](http://technet.microsoft.com/en-us/library/jj218681(v=exchg.150).aspx)

Ask the Perf Guy: Sizing Exchange 2013 Deployments

<http://blogs.technet.com/b/exchange/archive/2013/05/06/ask-the-perf-guy-sizing-exchange-2013-deployments.aspx>

Exchange Poster

<http://blogs.technet.com/b/exchange/archive/2013/06/10/exchange-server-2013-architecture-poster-pdf-download-available.aspx>

ExRCA als Download

<https://testconnectivity.microsoft.com/ClientDownload/Microsoft.Exchange.Connectivity.Analysis.Tool.application>

Test Exchange Connectivity Online

<https://www.testexchangeconnectivity.com/>

Migrate Public Folders

<http://technet.microsoft.com/en-US/Library/jj150486>

Public Folder Migration Scripts

<http://www.microsoft.com/en-us/download/details.aspx?id=38407>

**Fragen?**

The word "Fragen?" is written in a bold, orange, sans-serif font. To the right of the text, there are three overlapping question marks. The first is a medium blue, the second is a darker blue, and the third is the darkest blue. They are arranged in a slightly overlapping, stacked manner, with the darkest one being the largest and most prominent.

# Kontakt

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