Exchange 2013

Deployment, Coexistence, Virtualization

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Agenda

- Fundamentals of Deployment
- Upgrade and Coexistence
- Public Folder Migrations
- Virtualization

Fundamentals of deployment

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Exchange 2013 prerequisites

- Supported coexistence scenarios
  - Exchange Server 2010 SP3*
  - Exchange Server 2007 SP3 (+ coexistence RU*)

- 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

Exchange 2013 prerequisites

- Active Directory
  - Windows Server 2003 forest functional level or higher
  - At least one Windows 2003 SP2 or later GC/DC in each site
  - No support for RODC or ROGC
- Supported Namespaces
  - Contiguous
  - Disjoint
  - Single label domain
  - Non-contiguous

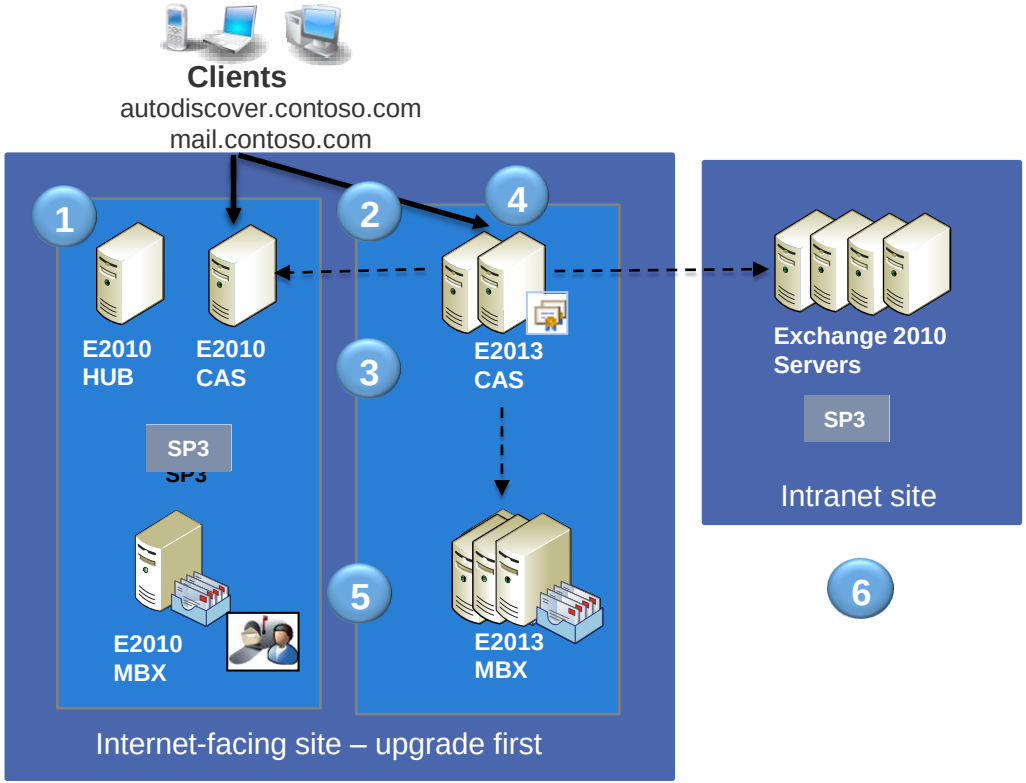
Exchange 2013 prerequisites

- Operating System (64-bit)
  - Windows Server 2008 R2 SP1 Standard or Enterprise
    - Standard - for Exchange 2013 Client Access servers
    - Enterprise - for Exchange 2013 Mailbox servers in a DAG
  - Windows Server 2012 Standard or Datacenter
- Other IIS and OS components
- .NET Framework 4.5
- Windows Management Framework 3.0
- Unified Communications Managed API (UCMA) 4.0

Upgrade and coexistence

Upgrading to Exchange 2013

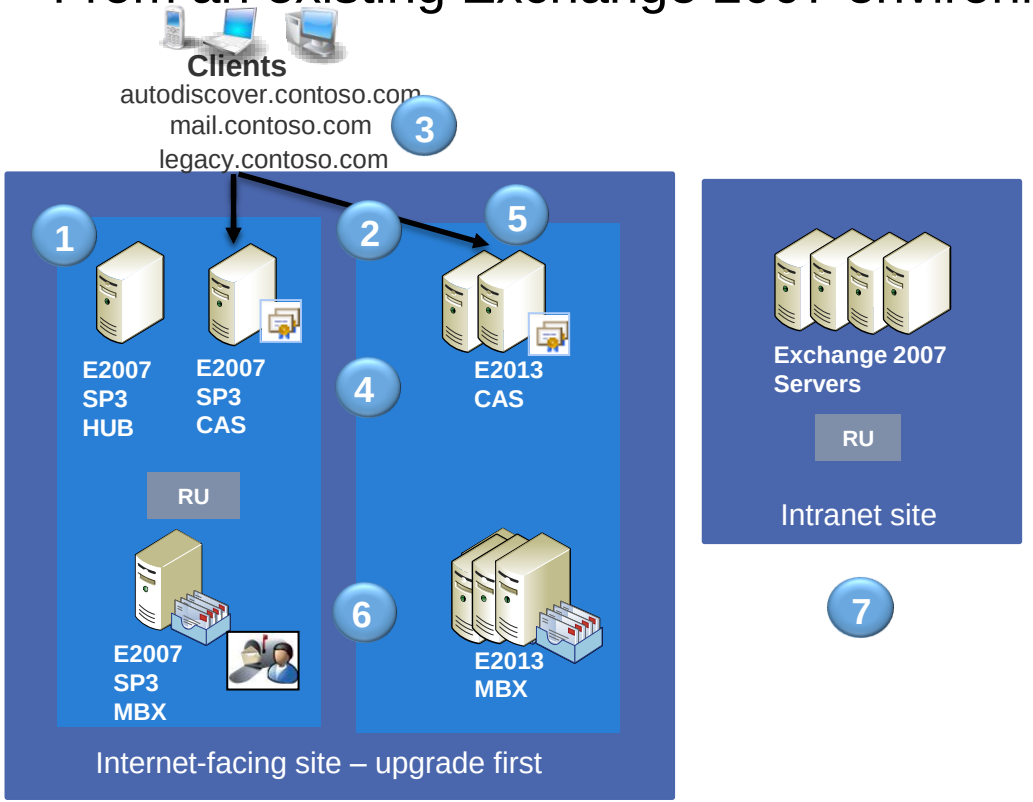
From an existing Exchange 2010 environment



1. Prepare
   - Install Exchange 2010 SP3 across the ORG
   - Prepare AD with Exchange 2013 schema
   - Validate existing Client Access using Remote Connectivity Analyzer and test connectivity cmdlets
2. Deploy Exchange 2013 servers
   - Install both Exchange 2013 MBX and CAS servers
3. Obtain and deploy certificates
   - Obtain and deploy certificates on Exchange 2013 Client Access Servers
4. Switch primary namespace to Exchange 2013 CAS
   - Exchange 2013 fields all traffic, including traffic from Exchange 2010 users
   - Validate using Remote Connectivity Analyzer
5. Move Mailboxes
   - Build out DAG
   - Move Exchange 2010 users to Exchange 2013 MBX
6. Repeat for additional sites

Upgrading to Exchange 2013

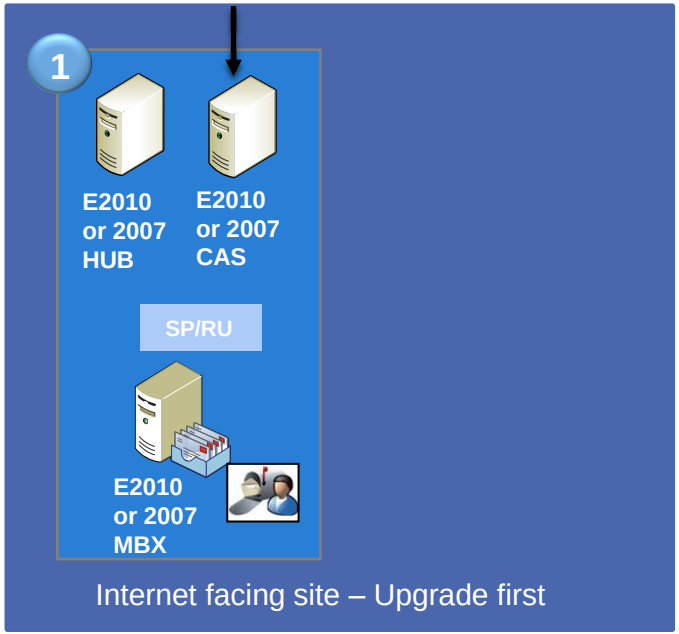
From an existing Exchange 2007 environment



1. Prepare
   - Install Exchange 2007 SP3 + RU across the ORG
   - Prepare AD with Exchange 2013 schema and validate
2. Deploy Exchange 2013 servers
   - Install both Exchange 2013 MBX and CAS servers
3. Create legacy namespace
   - Create DNS record to point to legacy Exchange 2007 CAS
4. Obtain and Deploy Certificates
   - Obtain and deploy certificates on Exchange 2013 CAS servers configured with legacy namespace, Exchange 2013 namespace, and autodiscover namespace
   - Deploy certificates on Exchange 2007 CAS
5. Switch primary namespace to Exchange 2013 CAS
   - Validate using Remote Connectivity Analyzer
6. Move mailboxes
   - Build out DAG
   - Move Exchange 2007 users to Exchange 2013 MBX
7. Repeat for additional sites

Upgrading to Exchange 2013 (Cont'd)

Clients
autodiscover.contoso.com
mail.contoso.com



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7. Repeat for additional sites

Preparing for Exchange 2013

Prepare 1

- Install coexistence update on all servers in the organization
  - Install Exchange 2010 SP3 using same steps as previous Exchange 2010 Service Packs
    Install Exchange 2007 SP3 + coexistence RU using same steps as previous Exchange 2007 roll-ups
- Prepare Active Directory with Exchange 2013 schema
- Validate existing client access using Remote Connectivity Analyzer and test connectivity cmdlets
  http://www.exrca.com

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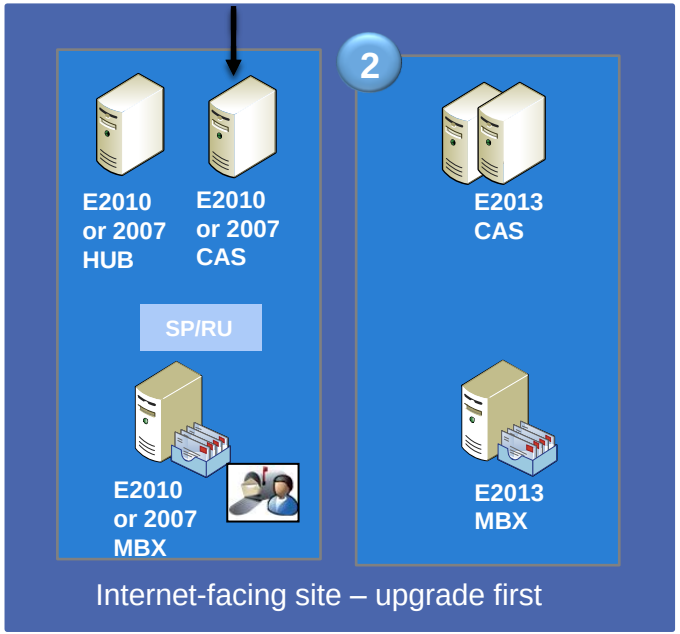

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Exchange 2013 Setup

2

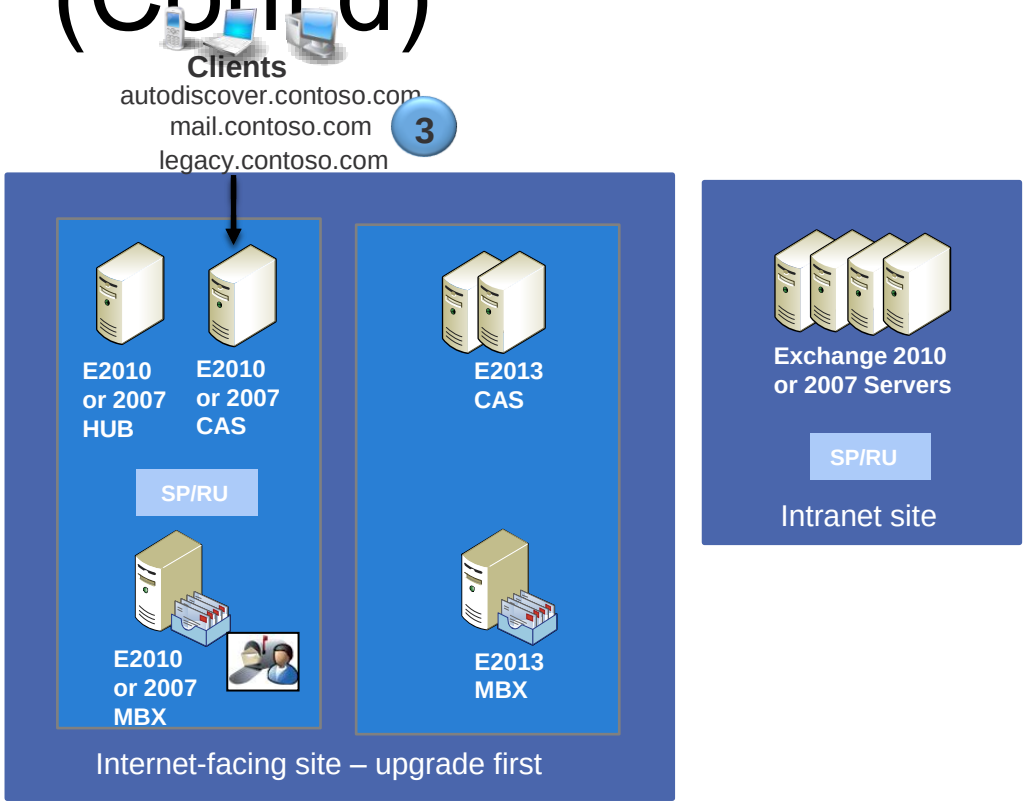
```
Install

   – Setup.exe /mode:install
     /roles:clientaccess
   – Setup.exe /mode:install
     /roles:mailbox
   – Setup.exe /mode:install
     /roles:ManagementTools

Other required parameter
- /IAcceptExchangeServerLicenseTerms
```

- Install both MBX and CAS Servers
  - MBX performs PowerShell commands
  - CAS is proxy only
- Exchange 2013 Setup
  - GUI or command line
    In-place upgrades not supported
  - Updated to reflect Exchange 2013 roles
- Parameters
  - New required parameter for license terms acceptance

Upgrading to Exchange 2013 (Cont'd)



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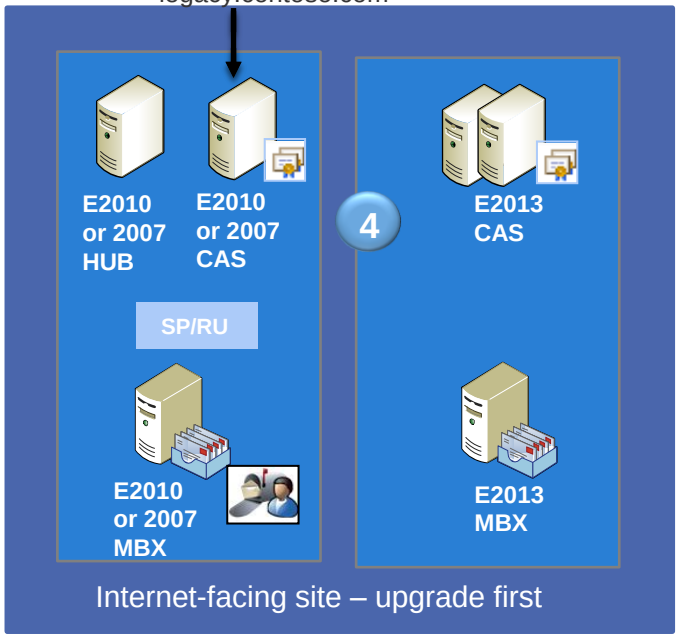
Create Legacy Namespace

3

- Required for Exchange 2007 coexistence only
    - Used to access Exchange 2007 during coexistence
- Create DNS record in internal and external DNS for legacy namespace
  - Legacy.contoso.com
  - Validate legacy namespace creation via Remote Connectivity Analyzer
  - http://www.exrca.com

Upgrading to Exchange 2013 (Cont'd)



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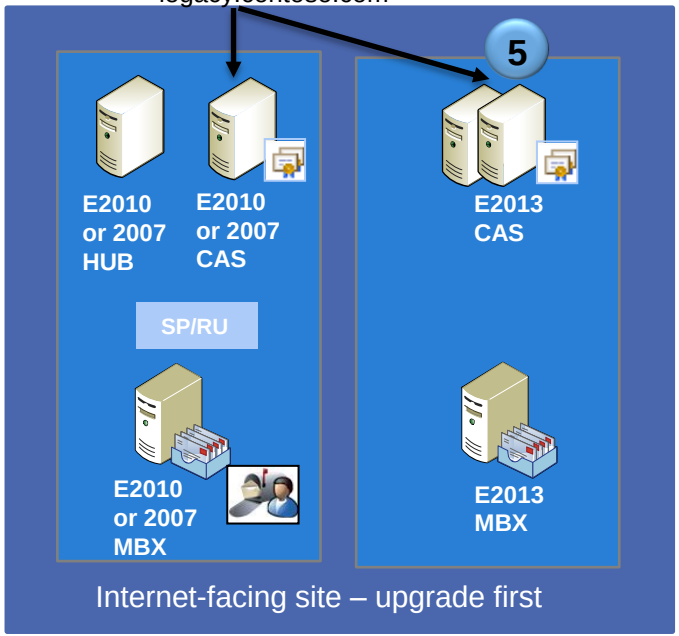
Certificates

- End-to-end Certificate Wizard in the Exchange Administration Center (EAC)
- EAC provides notification when an Exchange 2013 Client Access server's certificate(s) is about to expire
  - First notification shown 30 days prior to expiration
  - Subsequent notifications provided daily

Certificates - Best Practices

- Minimize the number of certificates
- Minimize number of host names
  - Use split DNS for Exchange host names
    - mail.contoso.com for Exchange connectivity on intranet and Internet
    - mail.contoso.com has different IP addresses in intranet/Internet DNS
  - Don’t list machine host names in certificate host name list
    - Use load-balanced (LB) arrays for intranet and Internet access to servers
  - Use “Subject Alternative Name” (SAN) certificate

Upgrading to Exchange 2013 (Cont'd)



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Client Access Server Upgrade

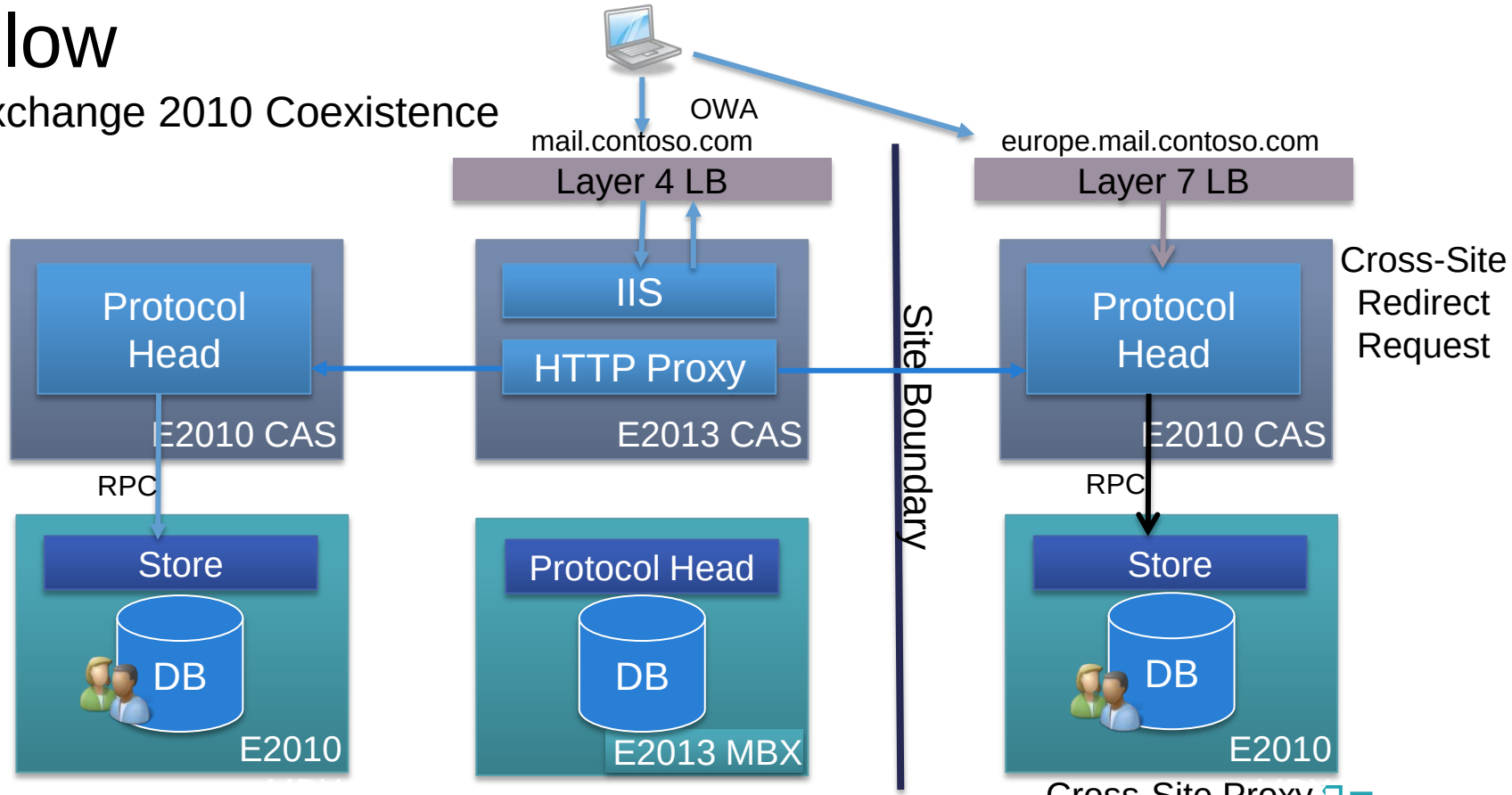
- Validate legacy namespace creation
- Configure Load balancing
  - Layer 7 load balancers are no longer required for primary Exchange 2013 namespace
  - Layer 4 is supported and recommended
  - Legacy namespace is separate VIP configured with Layer 7 load balancing
  - Configure the AutoDiscoverServiceInternalUri on Exchange 2013 CAS Servers to a LB value
  - Configure AutoDiscoverSiteScope

Switching to new Client Access Servers

- Update internal and external DNS to point Mail and Autodiscover to CAS 2013
- Update publishing rules for legacy namespace
- Use Remote Connectivity Analyzer to test access to all CAS servers
  - Test both externally and internally

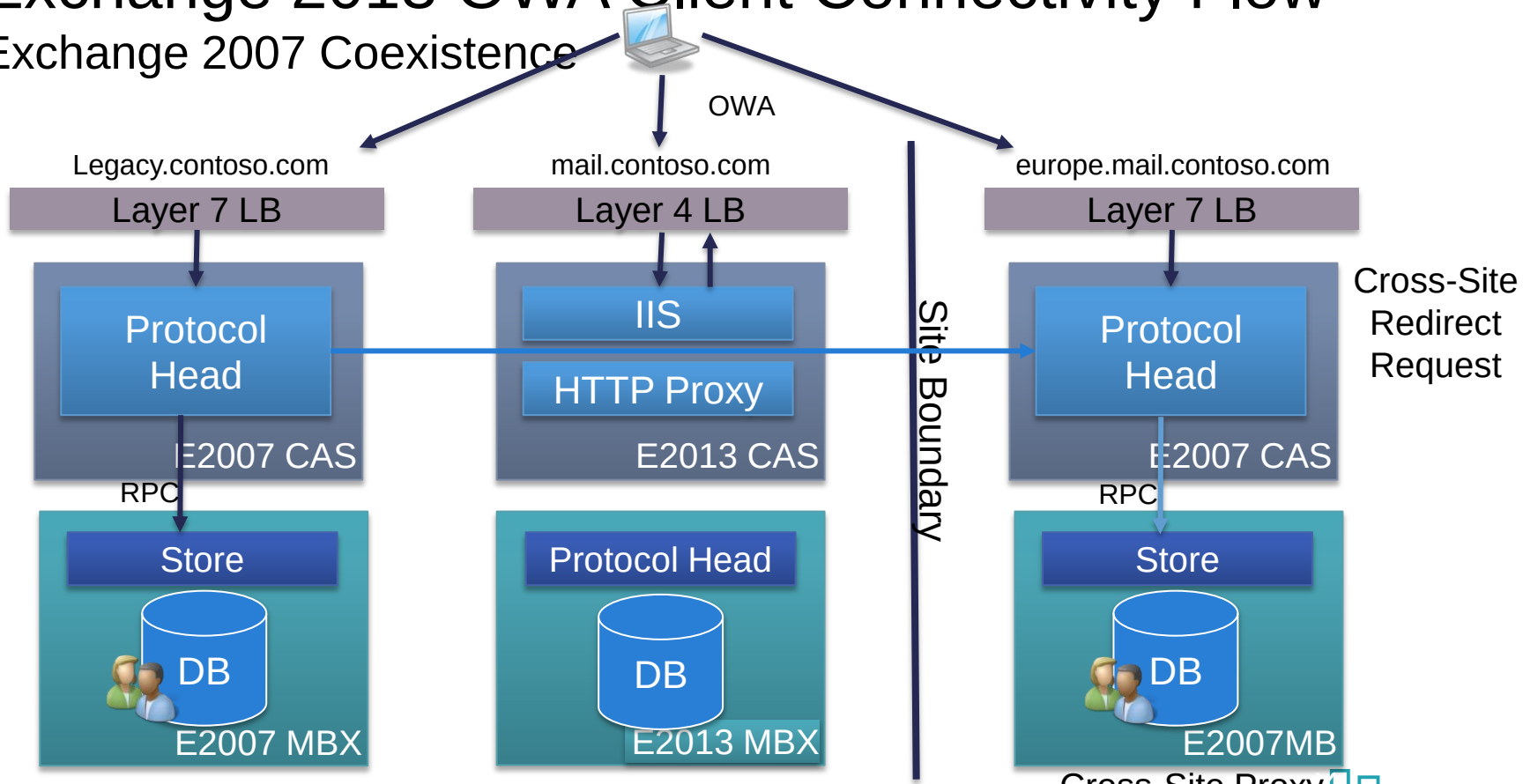
Exchange 2013 OWA Client Connectivity Flow

Exchange 2010 Coexistence



Exchange 2013 OWA Client Connectivity Flow

Exchange 2007 Coexistence



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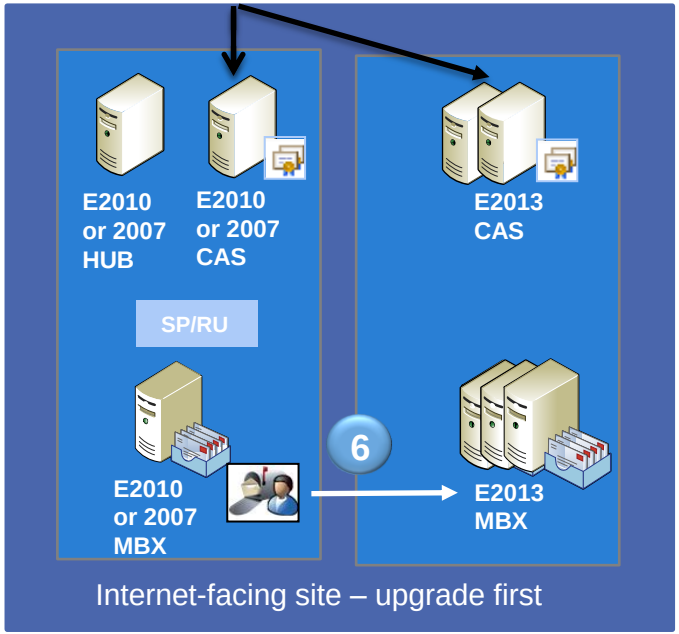

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   - Build out DAG
   - Move users to Exchange 2013 MBX
7. Repeat for additional sites

Exchange 2013 Public Folders

- 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
- 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

Public Folder Migration Process

- Analyze existing Public Folders
  - Tool available to analyze existing Public Folder hierarchy to determine how many Exchange 2013 Public Folder mailboxes are recommended
- Copy Public Folder data
  - Users continue to access existing Public Folder deployment while data is copied
  - Data migration happens in the background
- Switch clients to Exchange 2013 Public Folders
  - There will be a short downtime while the migration is finalized
    Once migration completes, everyone switches at the same time
  - Can switch back, but any post migration Public Folder changes are lost

Upgrade and Coexistence Summary

- Updates are required for Exchange 2013 coexistence
  - Exchange 2010 Service Pack 3
  - Exchange 2007 SP3 with a coexistence rollup (RU)
- Exchange 2007 requires a legacy namespace when coexisting with Exchange 2013
- Certificate deployment and management is improved
- Exchange 2013 Public Folders now utilize the mailbox architecture and require migration planning

Virtualization

Why Talk About Virtualization?

- A common reason for virtualizing workloads is to consolidate and better manage resources
- Exchange 2013 can be virtualized
- Exchange 2013 is designed to do a great job of managing resources, hypervisor resource management adds complexity and doesn't connect well to Exchange

Supported

- Hypervisors
  - Windows Server 2008 R2
  - Hyper-V Server 2008 R2
  - Windows Server 2012
  - Hyper-V Server 2012
  - Third-party hypervisors (SVVP)
- Exchange roles
  - All Exchange 2013 roles supported for virtualization
- Storage
  - Block-level
  - Same support as Exchange 2010
- Host-based clustering
  - All Exchange 2013 roles supported
- Migration
  - All Exchange 2013 roles supported
- Jetstress in guests
  - Yes, on supported Windows hypervisors or ESX 4.1 (or newer)

Not Supported

- Dynamic memory & memory overcommit
  - Not supported for any Exchange 2013 role
- Hypervisor snapshots
  - Not supported for any Exchange 2013 role
- Differencing/delta disks
  - Not supported for any Exchange 2013 role
- Apps on the root
  - Only deploy management, monitoring, AV, etc.
- Significant processor oversubscription
  - Limited to 2:1, best practice is 1:1

Windows Server 2012

- Hyper-V adds many new features
- Many deployment-blocking limits removed
- Customers who virtualize Exchange Server 2013 will have a great experience on Windows Server 2012 Hyper-V
- Important to be aware of what does & doesn't work (and supportability limits)

Best practices for virtualized deployments

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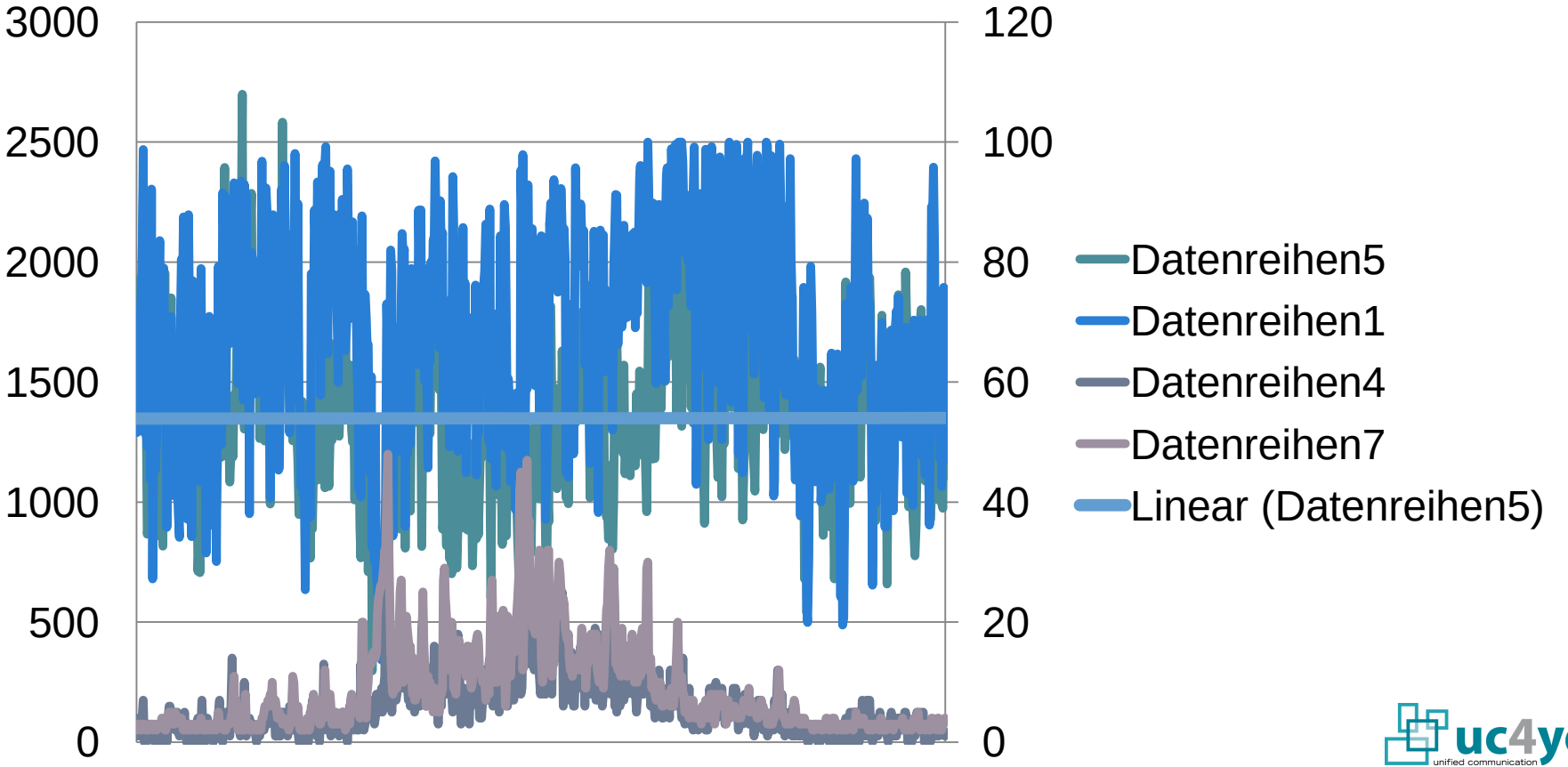
The Memory Mess

- Dynamic memory technologies are fantastic for lab environments
- For production Exchange servers, just don’t do it!
- Exchange code doesn’t deal well with disappearing memory
- End result for the mailbox role is cache served from the page file or very small DB cache

Dynamic Memory At Work



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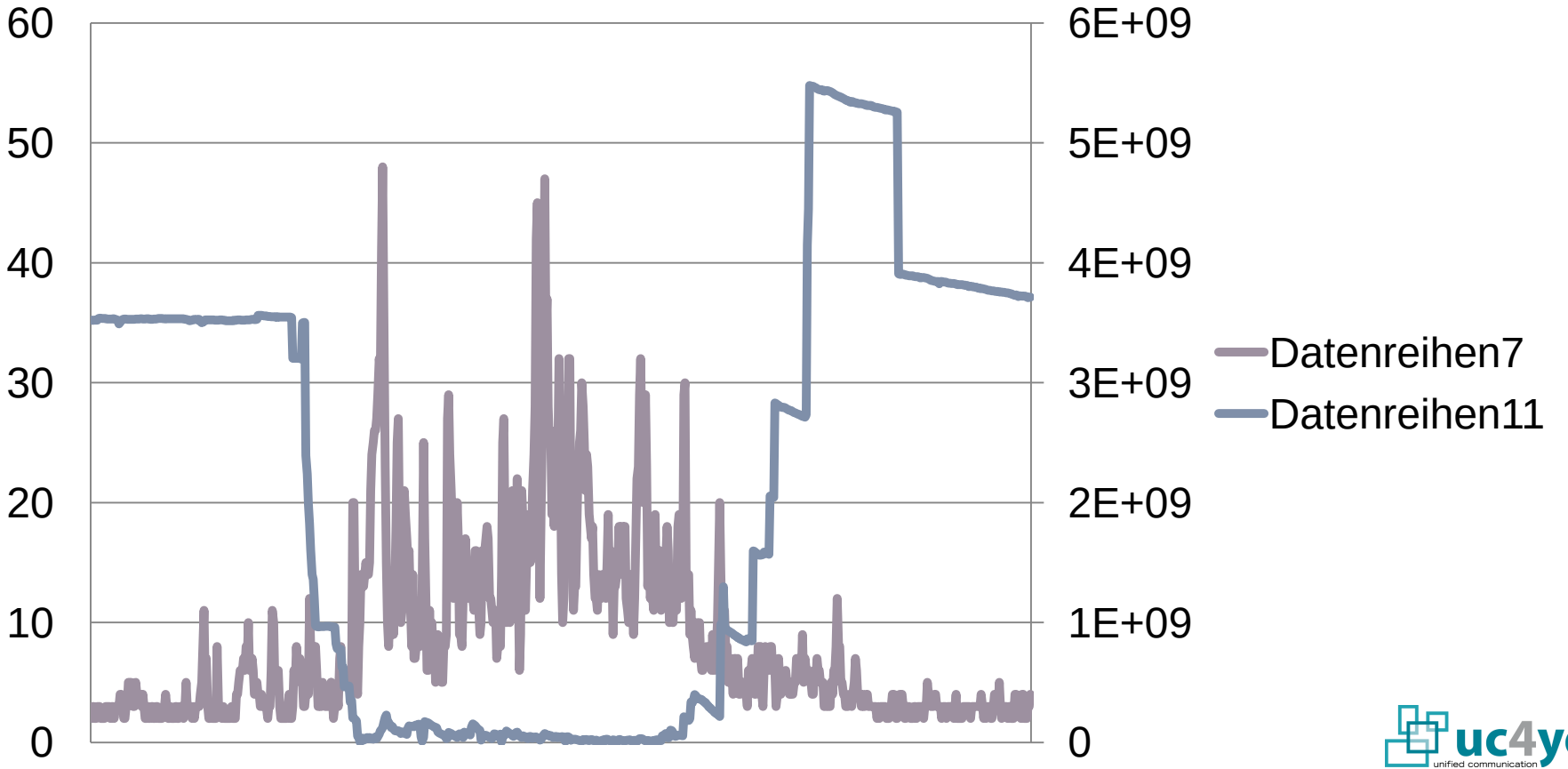

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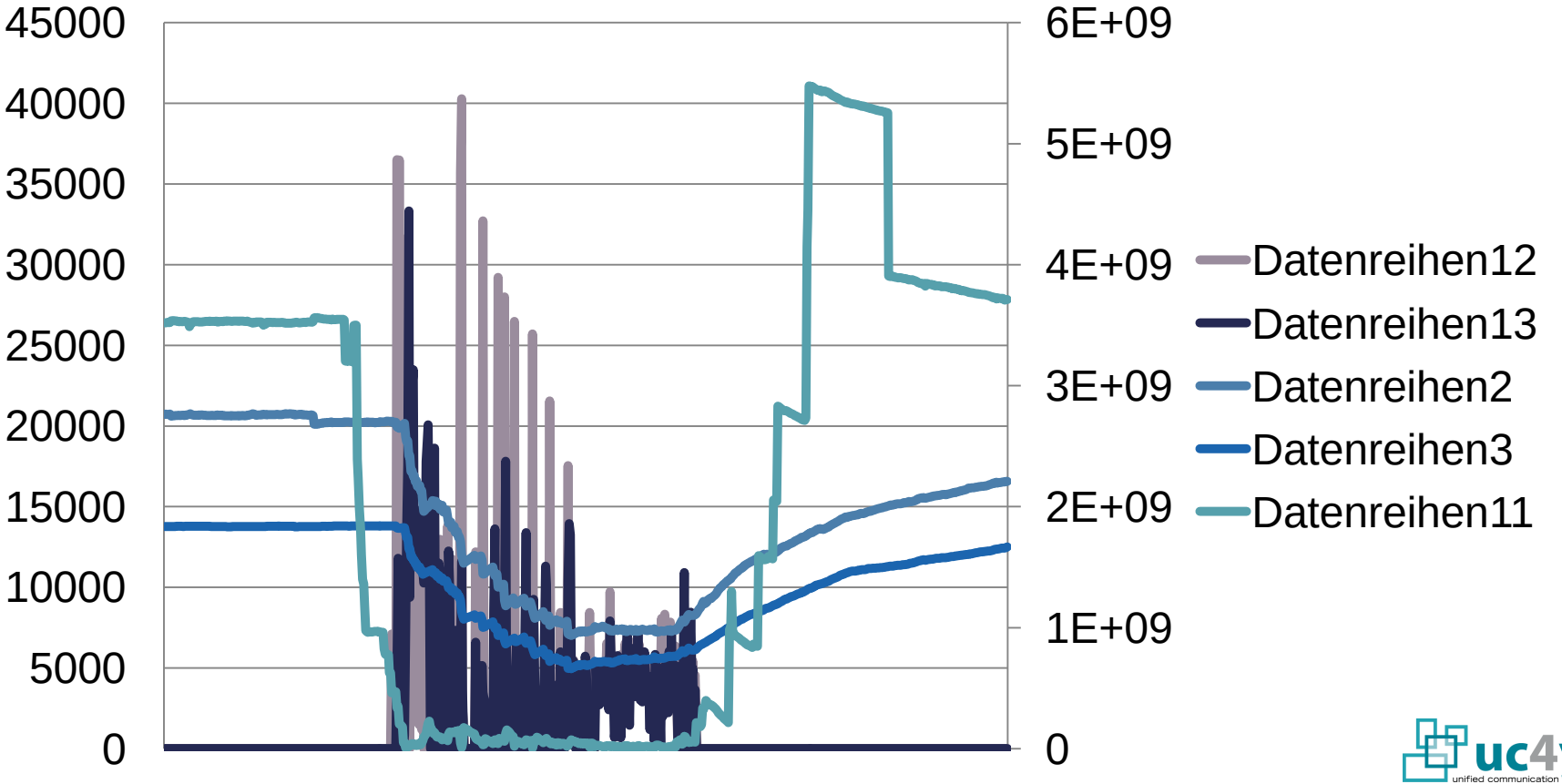

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Time Traveling

- Hypervisor snapshots make lab testing much easier
- Resist the temptation to use hypervisor snapshots in production – they aren't supported!
- Aspects of the Exchange system do not handle time travel well (log shipping)
- Use caution with snapshots in the lab (multiple machines may need to roll back simultaneously)

Too Much Work, Too Little Time

- Hypervisors are pretty cool… but they don't make CPU appear out of thin air
- While oversubscription can help with hardware consolidation, it doesn't help provide reliable high-performance Exchange services
- Proper Exchange sizing ensures that resources are available on-demand, so don't allow hypervisors to yank those resources away
- CPU constrained Exchange servers will experience reduced throughput:
  Delivery throughput reduction = queue growth
  Content indexing throughput reduction = increased IOPS
  Store ROP processing throughput reduction = RPC latency & end-user pain

Questions?

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