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Exchange 2013
Server Architecture: Part 1

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Agenda

- Part 1
  - Overview of the new Architecture
  - The Client Access server role

- Part 2
  - The Mailbox server role
  - Transport Architecture
  - Service Availability Improvements

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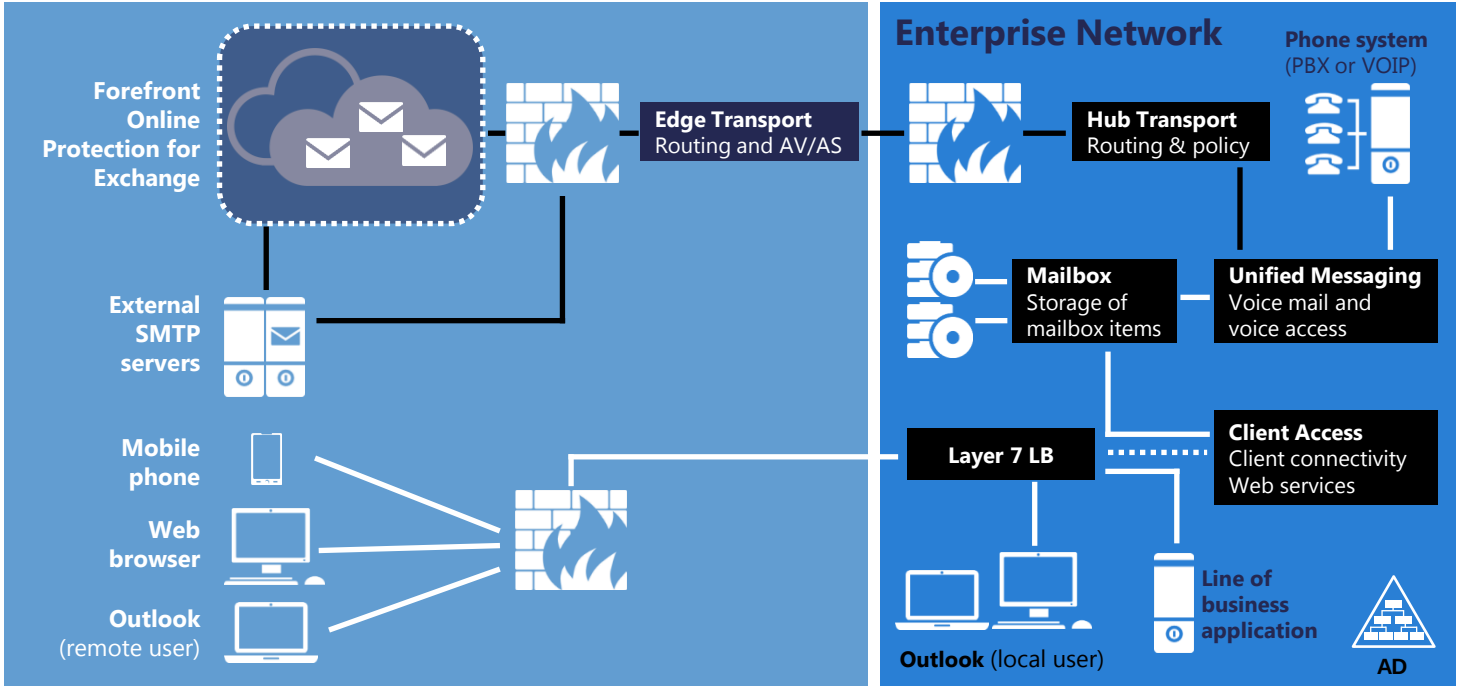
E2007/E2010 Server Role Architecture

5 major roles

Tightly coupled

- Functionality
- Geo affinity
- Versioning
- User partitioning



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What's wrong with the existing model?

- Exchange deployments are overly complicated
- Doing Exchange load balancing "right" is hard and often requires expensive solutions
  - Requiring session affinity at the load balancer significantly impacts scalability
  - Many hardware load balancing solutions are expensive and thus, are a luxury many of our customers can't afford or don't have the expertise to deploy
- Customers deploy based on dedicated server roles
  - This means that in many cases, hardware is deployed that is unutilized (e.g., DIMM slots and disk slots, etc.) or under-utilized
- Too many namespaces are required (especially in site resilient designs)

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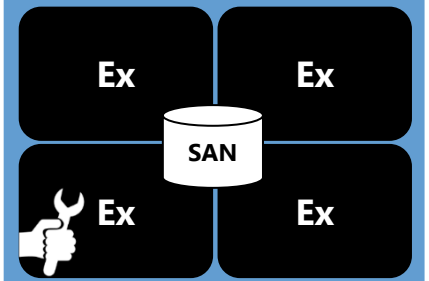
Exchange: The evolution

2000/2003

Role differentiation through manual configuration

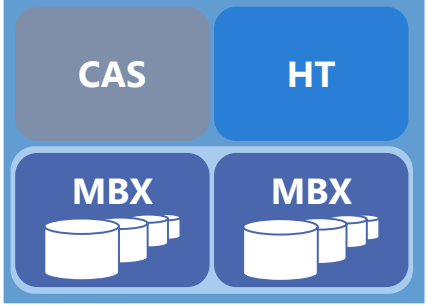
Hardware solutions for “reliability” ($$$$)



2007

Separate roles for ease of deployment and mgmt. segmentation

Support cheaper storage



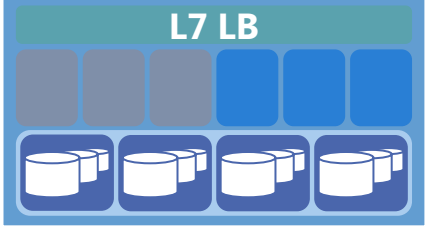
2010

Separate HA solutions for each role

Introduced the DAG

Rich management experience using RBAC

Leaves resources on the ground in each role

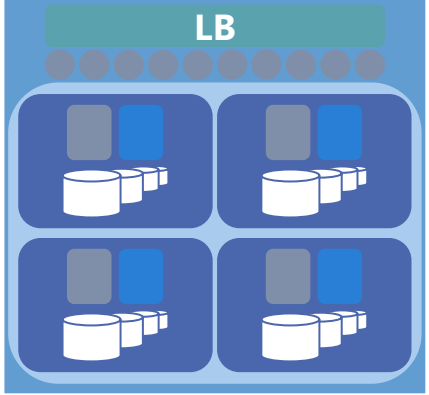


2013

Simplify for scale, balanced utilization, isolation

Integrate HA for all roles

Simplify network architecture



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The new server role architecture

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Exchange 2013 architecture theme

Use **Building Blocks** to facilitate deployments at all scales – from self-hosted small organizations to Office 365

- Server role evolution
- Network layer improvements
- Versioning and inter-op principles

Benefits

- Hardware **efficiency**
- Deployment **simplicity**
- Low friction cross-version **inter-op**
- Failure **isolation**

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Exchange 2013 server role architecture

2 Building Blocks

Client Access Array

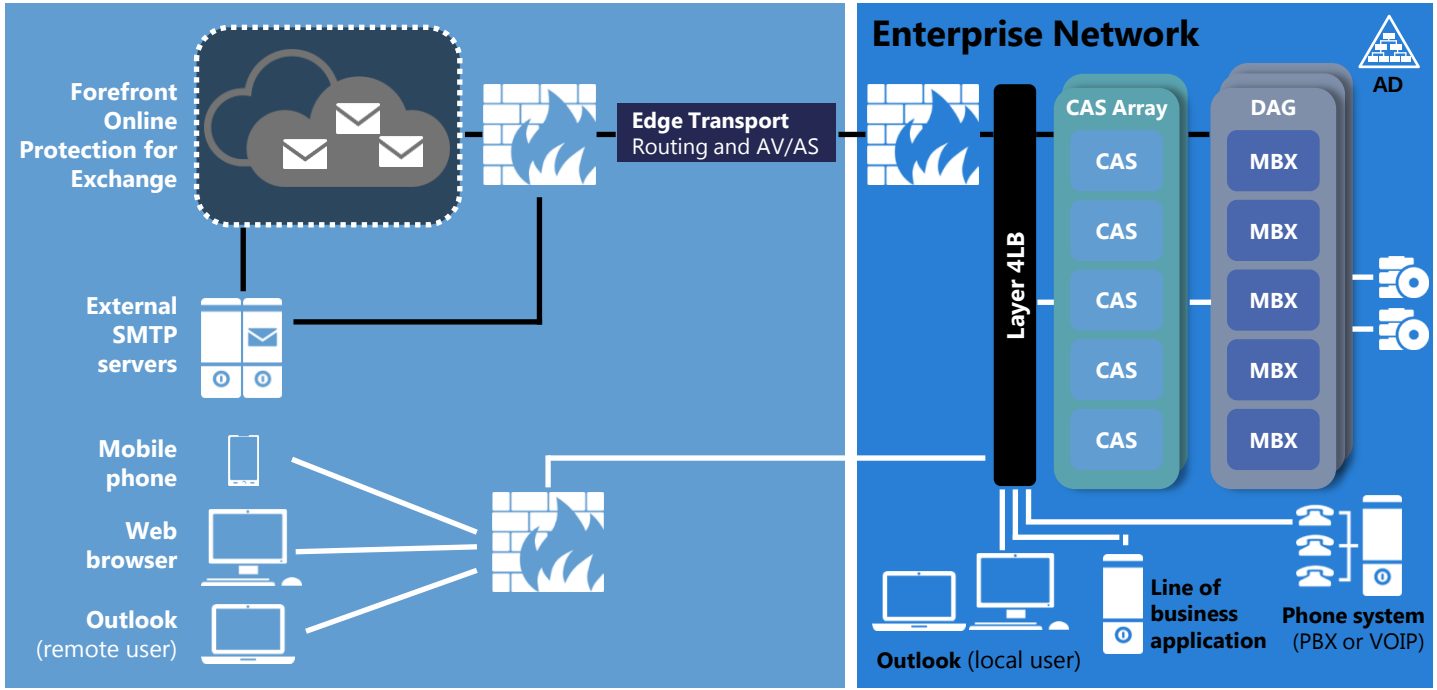
- Evolution of E2010 CAS Array
- SMTP Front-End

Database Availability Group

- Evolution of E2010 DAG
- Includes core server protocols

Loosely coupled

- Functionality
- Versioning
- User partitioning
- Geo affinity



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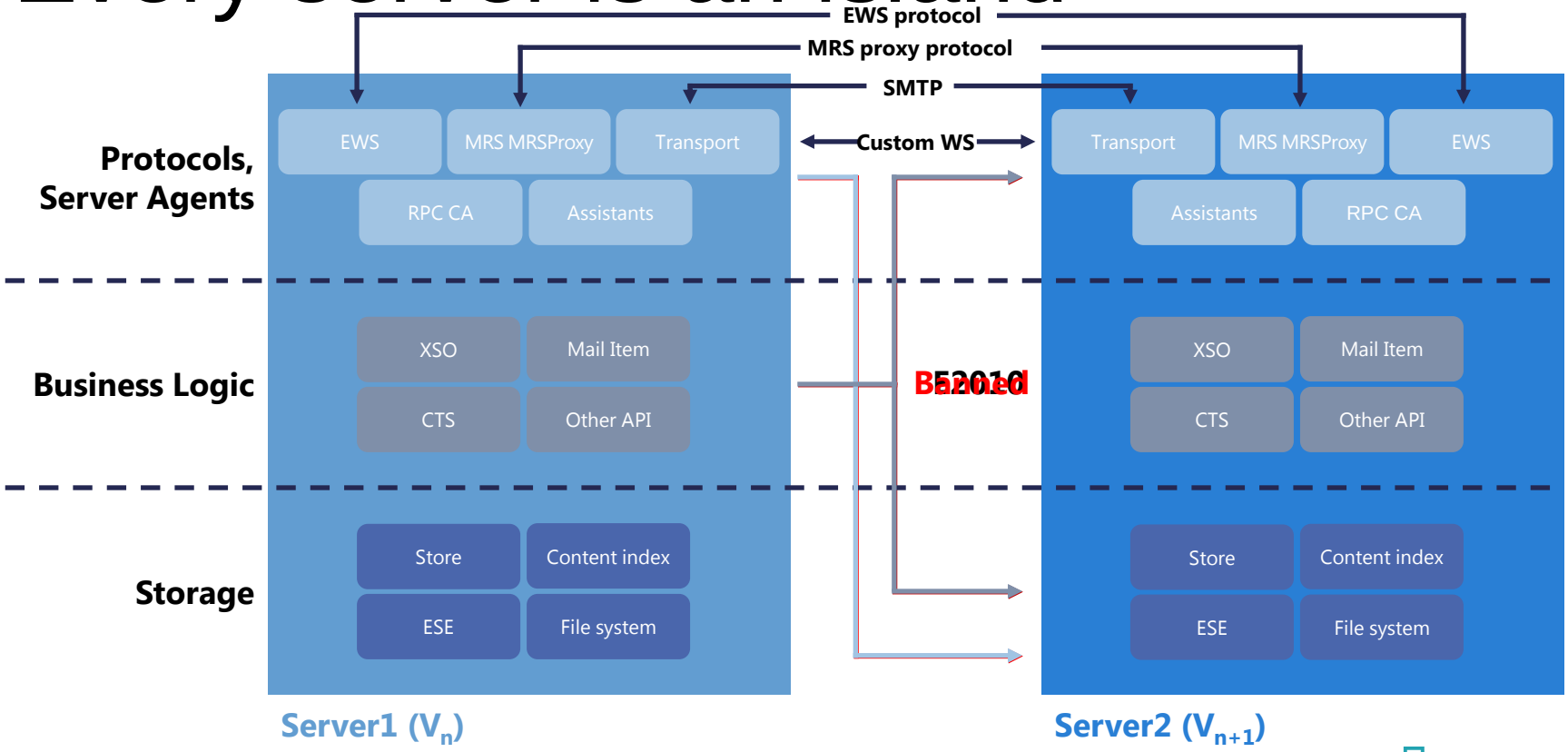
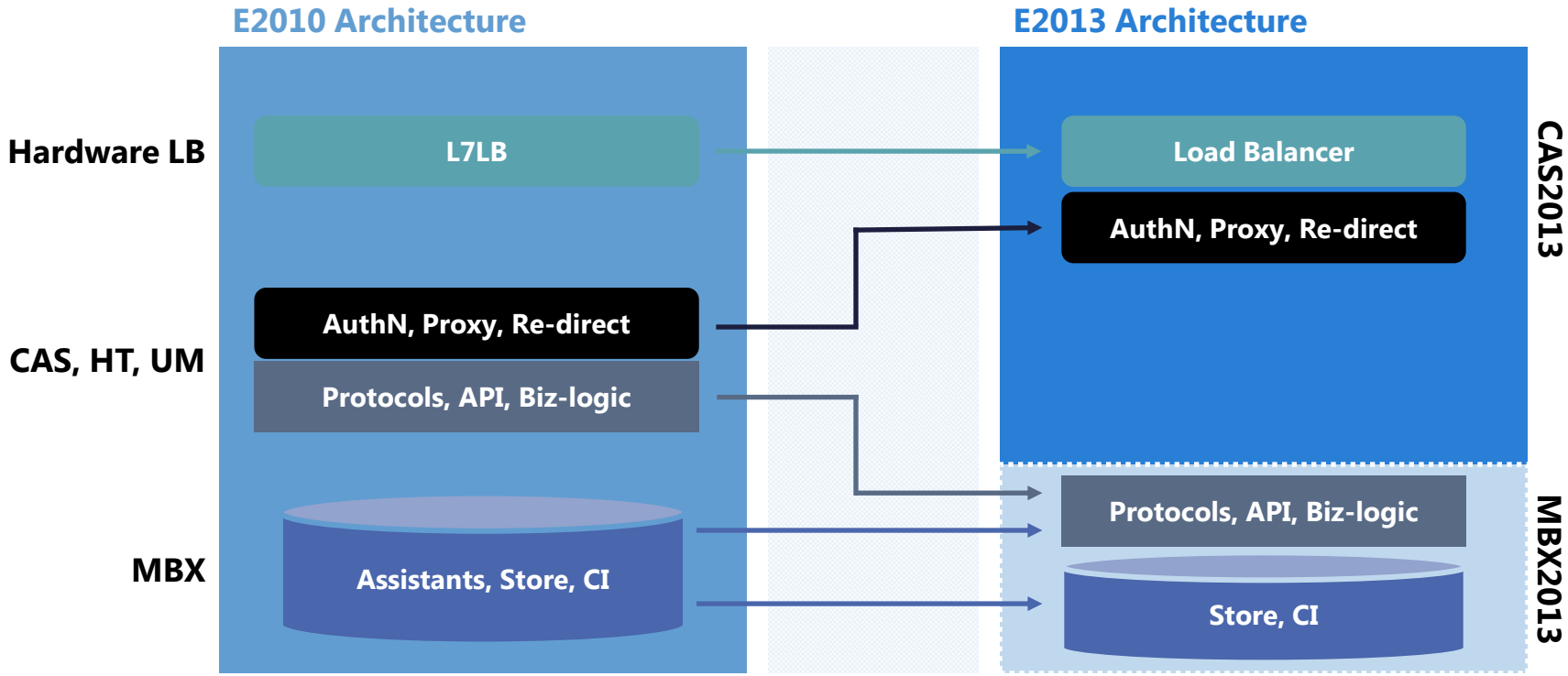
Every server is an island



Functional layering



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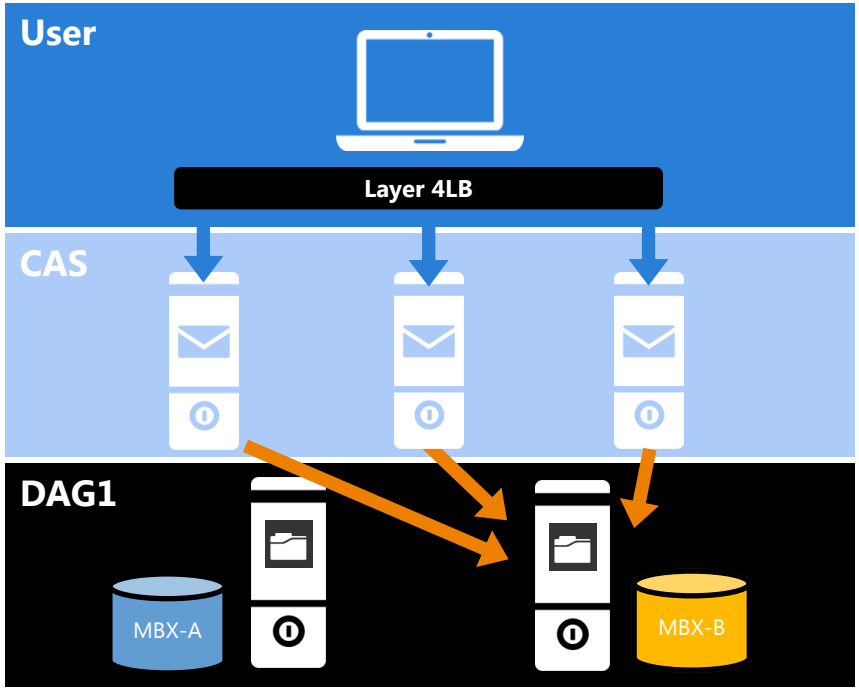
The key to enlightenment…

For a given mailbox's connectivity, the protocol being used is always served by the server that hosts the active database copy

Each CAS determines the right end point for the traffic, and so all sessions, regardless of where they started, end up in the same place

This means that the rendering for clients like OWA occurs on the Mailbox server, Transport transcoding is occurring on the Mailbox server etc.…



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The client access server role

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What is the CAS2013 role?

- CAS2013 is comprised of three components:
  - Client protocols (HTTP, IMAP, POP)
  - SMTP
  - UM Call Router
- Thin, stateless (protocol session) servers organized in a load balanced configuration
  - Session affinity NOT required at the load balancer
- Provides a unified namespace and authentication for clients
- Where the logic “lives” to route a specific protocol request to the “correct” destination end point
  - Capable of supporting legacy servers with redirect or proxy logic
- Is a domain-joined machine in the corporate forest

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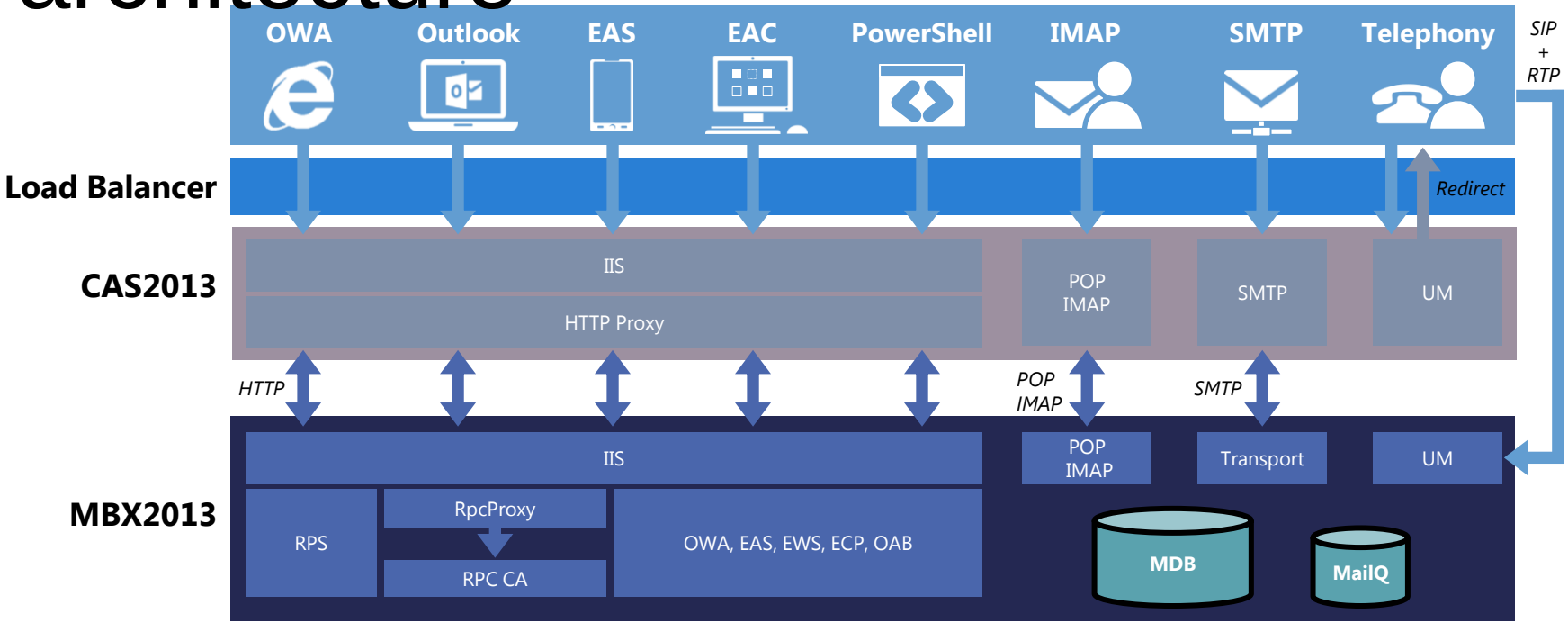
CAS2013 client protocol architecture



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Outlook Connectivity

RPC/HTTP and the death of RPC/TCP

- What are the benefits?
  - Does not require a “RPC CAS array namespace” for the DAG
  - No longer have to worry about “The Exchange administrator has made a change that requires you to quit and restart Outlook” during mailbox moves or *over events
  - Extremely reliable and stable connectivity model – the RPC session is always on the MBX2013 server hosting the active database copy
- What changes?
  - RPC end point for Outlook client is now a GUID (and SMTP suffix)
  - Support for internal and external Outlook Anywhere namespaces

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Third-Party MAPI Products

- Third-party MAPI products will need to use RPC/HTTP to connect to CAS2013
- Exchange 2013 will be the last release that supports a MAPI/CDO download
  - Third-parties must move to EWS in the future
- The MAPI/CDO download will be updated to include support for RPC/HTTP connectivity
  - Will require third-party application configuration; either by programmatically editing a dynamic MAPI profile or setting registry keys
  - Legacy environments can continue to use RPC/TCP

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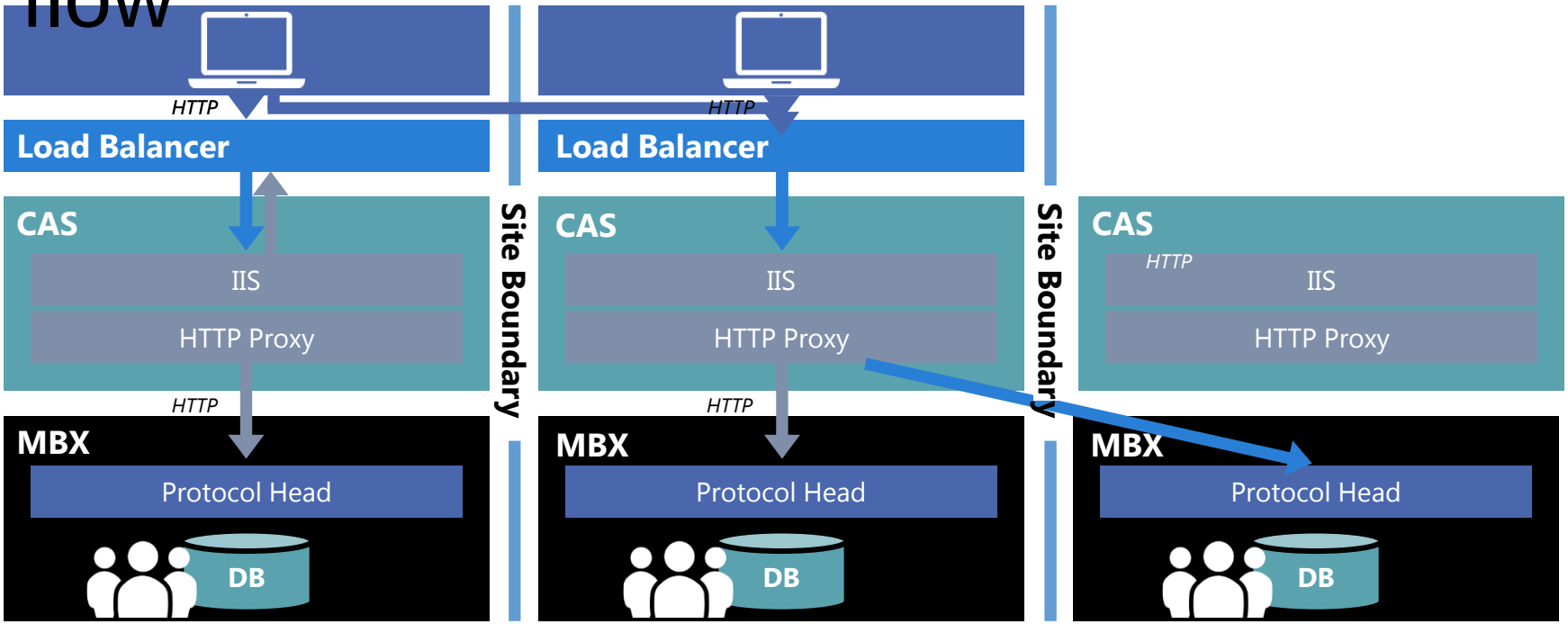
CAS2013 client protocol connectivity flow



Local Proxy Request

OWA Cross-Site Redirect Request

Cross-Site Proxy Request

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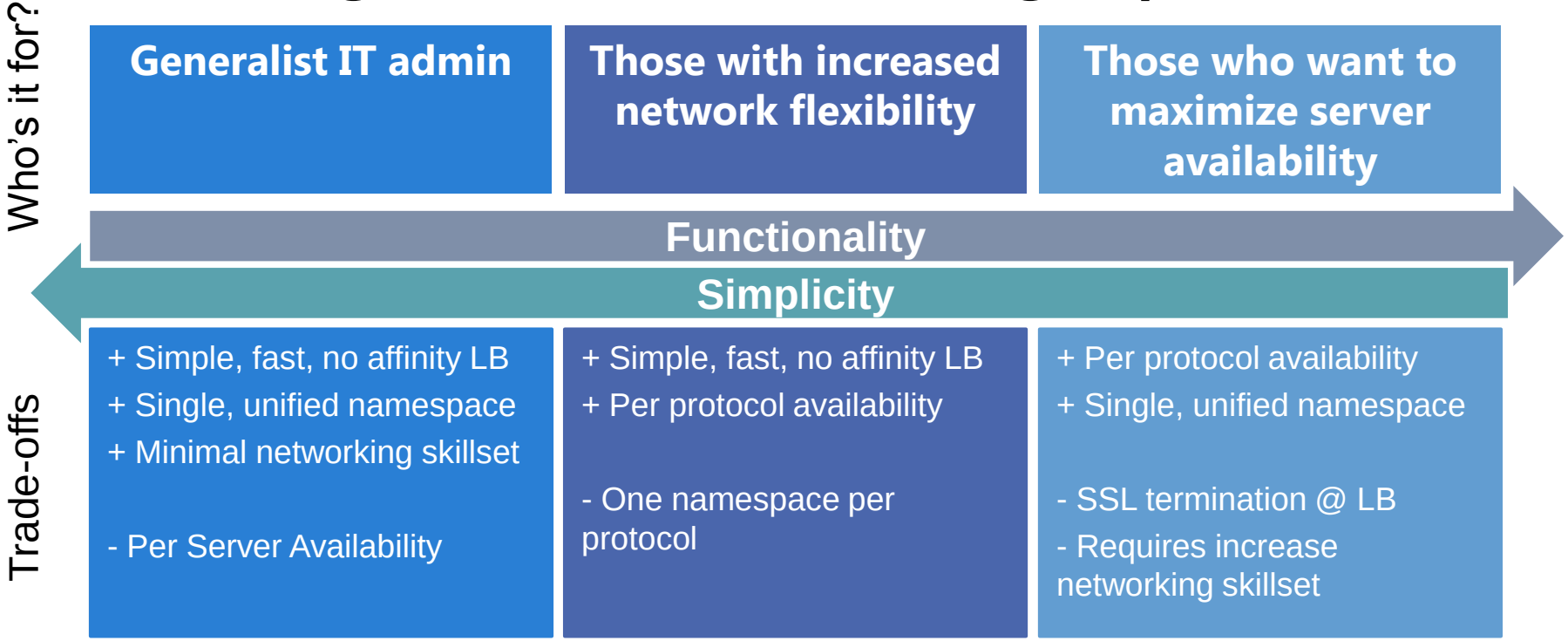
Exchange load balancing options



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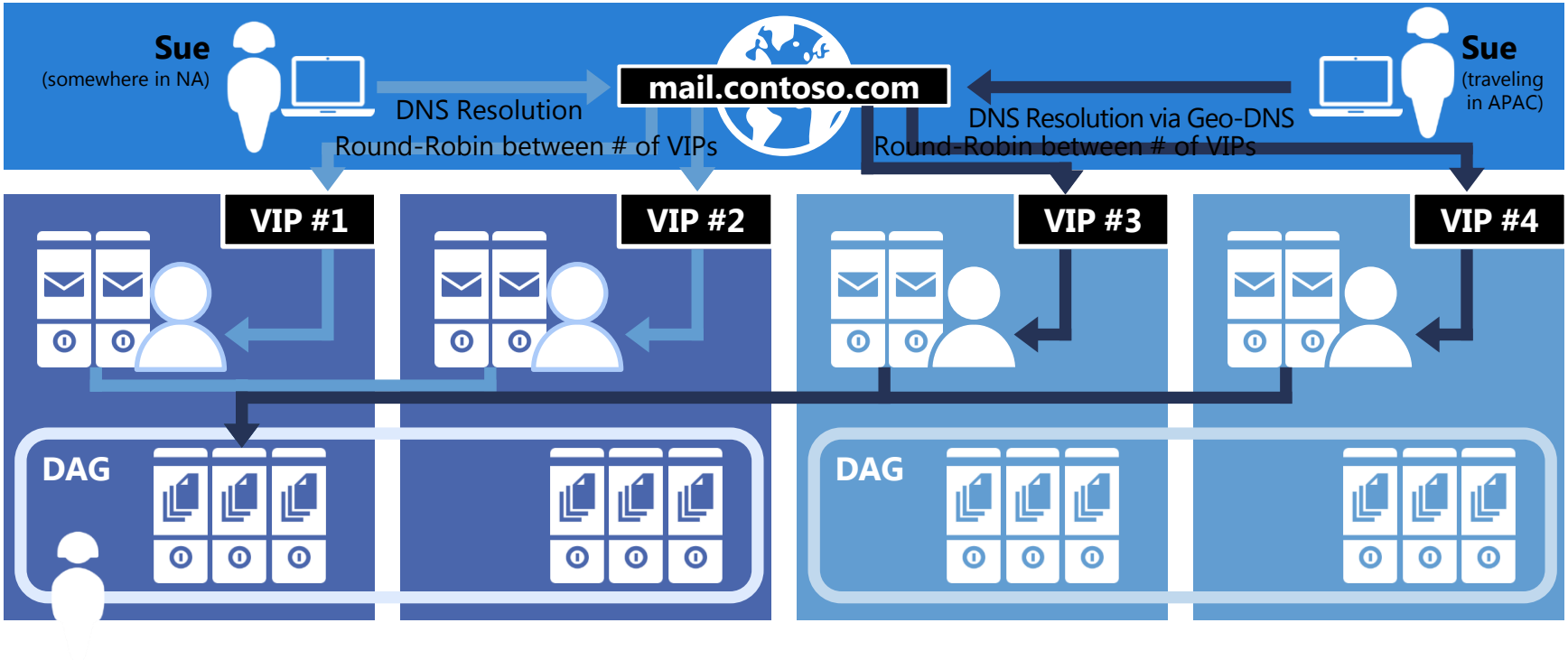
A single common namespace example

Geographical DNS solution



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Summary: CAS2013 Client Protocol Benefits

- Simplifies the network layer
  - No longer requires session affinity at the load balancer
  - Just get the traffic to CAS2013 and let it handle the affinity
  - CAS2013 can be “farther away” from MBX2013 and still offer good client performance (because it is a 1:1 proxy)
  - Removes the need for RPC Client Access arrays
- Deployment flexibility
  - CAS2013 provides more deployment flexibility; for example, consolidate to fewer sites
  - Can deploy a single world-wide namespace
- Simplifies upgrade and inter-op
  - Designed to proxy to multiple Mailbox server versions, up and down level
  - DAGs can be replaced with E2013 at any desired pace

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Coming up in part 2

- Mailbox server role
- Transport architecture
- Service availability improvements

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Questions?

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