Proof of Confidence Success Criteria

Using Priasoft Migration Suite for Exchange

Proof of Confidence?

From time to time, there is a need for a proof of confidence of a migration strategy before a commitment can be made. Such a proof however is best served when the success criteria is defined and understood. In some cases this criteria is well defined and in many other cases the criteria is initially vague and unwritten. This document will help serve as a starting place for developing the success criteria for a Proof of Confidence. The detail covered in this document will show both the items that are specifically handled by Priasoft's tools and those things that may be important, but would be out-of-scope for any tool to handle.

Object Types and Attributes

There are many different objects and attributes that are important to an Exchange migration project. The following will list out many of the known objects and attributes, with some classification, and finally with indications of where Priasoft has direct support.

Core Object Types

Core Object Types represent, as the title implies, the "core" objects that are seen and used by Microsoft Exchange and end-users. The expectation should be that each of these core objects are migrated or handled in some way. The level of fidelity of the object can be discussed in detail, but should be centered on supportability (by Microsoft) and user experience.

- Contacts
  - Contacts are simply objects that (typically) forward mail outside the organization.
  - They can be a member of Distribution lists
  - They can be used as a rich object for inbound mail where the sender's SMTP address is matched up to the contact. This provides a rich user experience in that a user can see details of the sender (phone number, physical address, etc.) based on the contact object in the Global Address List.
- Mail-Enabled Users (aka mail-users)
  - User accounts that forward mail (typically) outside of the organization
  - Often used for 3rd party contractors that need logon privilege, but don't need a mailbox
  - Important, but typically very few exist
- Mailbox-Enabled User (aka mailbox-users)
  - User accounts that receive mail.
  - Shared, Room/Calendar, and Equipment mailboxes are included in this category
  - Linked Mailboxes: "Ownership" of the mailbox is by a remote user account.

- Mail-Enabled Groups (aka Distribution Lists)
    - Can be Distribution Only (Distribution Group in Active Directory)
    - Can be a Security Group. Such will handle both distribution of mail as well as securing access to an object
- Public Folders
    - Can be mail-enabled, meaning it has an email address and mail can be sent directly to the folder.
    - Can have specific permissions to control access. Each folder has its own access control list.
    - Can have rules that provide simple workflow: reply-to, forward-to, etc.
- Outlook Profiles
    - This is the core of the end user experience.
    - Contains connection details for the primary mailbox
    - May contain connection details for additional mailboxes, typically shared mailboxes.
    - May contain connection details to PST files or other "services"

Constituent Objects and Attributes

The following will list most of the detail that can exist as part of the Core Objects above. Many of the details are important as they reflect the quality of the end-user experience post-migration. Some objects and features, however, may not be supportable and have been identified so that proper inclusion in either corporate communication or scripting or a combination can be made.

- Folders
    - Mailbox and Public Folders contain these
    - Forms a hierarchy tree for easy organization of data
- Items
    - The contents of a Folder
    - An "item" in a folder is the same for all types. Different item types are distinguished by a text value; for example a regular message and a contact shared many of the same attribute internally, and are seen different only by text like "IPM.Note" (regular message) or "IPM.Contact". This means that all items can effectively be treated the same way in a migration effort.
- Rules
    - A mailbox can have one or more rules that are triggered by receipt of new mail, or sending/replying of mail.
    - A public folder can have one or more rules that are triggered by receipt of new mail.
- Permissions/Delegates
    - A mailbox can have specific permission to allow other users access. Common mailbox permissions are Full-Access and Send-As.
    - Folders in a mailbox can have separate, individual permissions known as Delegates.
    - Public Folders can also have separated, individual permissions.
- Email Addresses
    - Any object that exists within the scope of Microsoft Exchange will have at least one X500 address, known as the "legacyExchangeDN"
    - Mailboxes, Mail-Users, Contacts, Public Folders, and Distribution Lists will have an X500 address and will also have one or more SMTP or other address types. They may also have additional X500 addresses from previous migrations.

- Restrictions
    - Many objects in Microsoft Exchange can have restrictions placed upon them to control or manage the use of the system.
    - Mailboxes and Databases can have limits on size of items sent or received or limits on the total size of the mailbox.
    - Mailboxes and Distribution Lists can have limits on who can send to the object.
    - Mailboxes can have feature restrictions for things like the ability to accept POP3 or IMAP connections, or if a user can access the mailbox from the Outlook Web Access portal.
- Display Attributes
    - Mailboxes by technical definition is really a specific set of properties on an Active Directory User account.
    - A mailbox-user can have many Display Attributes and such are typically what is seen in the Global Address List: First Name, Last Name, phone number, physical address, etc.
    - Distribution Lists, Mail-Enabled Public Folders, and Contacts also have display attributes that appear in the Global Address List.
- Non-Display Attributes
    - Since a mailbox-user is actually an Active Directory user account, there can be many non-display attributes attached to the user account. Some may be important during a migration; a common set of attributes are known as “Custom Attributes” or “Extension Attributes”
- Nickname Cache
    - This is a cache of address entries to which an end user has either sent messages, or possibly received from (Outlook version dependent)
    - The entries in this list are binary in form and are specific to the Global Address List from which they were used.
    - Outlook 2007 and earlier store this data on disk. Outlook 2010 and later store such in a hidden folder in a mailbox. Neither case has support from Microsoft for editing or management.
- Custom Views
    - Outlook has an ability to allow a user to change the view to include extra columns of data or the position of visible elements.
    - Much like the nickname cache, this is an Outlook specific feature and one that is undocumented and unsupportable
- Saved Searches
    - Outlook has an ability to save a search, including the criteria, so that as new items are generate they can be automatically included in the result set.
    - Much like the 2 previous Outlook specific features, the feature is undocumented and unsupportable.
- Other Outlook Specific Features
    - There are other very Outlook specific features for which follow the same pattern as above in the sense of being undocumented and unsupportable.

System Objects and Attributes

There are also many other objects that should be considered as "system" objects or attributes. Many affect the overall configuration of the system, control its behavior, or provide additional security or restriction. Such items are generally out-of-scope of any migration tools as they are often unique and specific to the architecture of the environment and are not congruently mapped between an old architecture and a new one.

- Connectors/Gateways
  - There are Inbound and Outbound connectors
  - They control message flow between users and between the organization and the internet.
  - They may have custom rules and there may be many layers of gateway between one user and another
- Policies
  - Exchange Databases can have policies for many things, most commonly for mailbox size limits
  - Servers and Database can have policies for automatic management and cleanup of data like deletes
  - Email Address policies exist to determine the pattern of an email address for an object, whether it be a mailbox, Distribution List, or other object. Such a policy is ALWAYS activated when a new object is created, but can be excluded from future updates and enforcement after creation.
- Organizational Forms
  - Org Forms are specialize "forms", sometimes with script or code, that are used to render a unique item to an end user.
  - Archiving products that generate "shortcuts" or "stubs" often use such a form to pull data from the archive for presentation to an end-user.
  - Routing slips and other 3rd party tools for workflow may use this feature.
  - Support varies between different versions of Exchange an so migration of such a feature is never supported.
- Availability Service
  - This is a Microsoft core service with a primary role of providing detail about Free/Busy status.
  - It can also be used for cross-forest work
- Auto Discover
  - This is a Microsoft core service with a primary role of providing connection details for many different "services" provide by Exchange like: Offline Address Book, Public Folder connections, and delegate activities.
- Servers, Databases, Database Availability Groups
  - These core objects are the backbone of Exchange.
  - These various attributes and settings on these are usually setup and implement by architects
- Exchange Web Services (EWS)
  - Outlook is a big consumer of EWS for many end-user experience features.
  - Failure of a client having access to EWS will cause many experience issues for end users.
- Offline Address Book
  - This is a feature provided by Exchange for users in "cached mode"
  - As its name implies, it provide an "offline" address book from which lookups and details about Exchange objects can be seen, even when a user is not connected to a network.
  - There are settings and feature that can control how often the OAB is updated, when it's downloaded, and several other things.
- Outlook Web Access
  - This Microsoft Exchange features provides a web-page based view of a user's mailbox

  - As the core of this feature is IIS (Internet Information Services) and is, in fact, a web site, there are many features and control points that can be managed. All are out-of-scope for any migration tool.
- Certificates
  - Data security being very important, a common foundation for such is Certificates.
  - OWA, EWS, and Outlook Anywhere all work to secure their connections using Certificates.
  - Certificates are machine specific and prevent "spoofing". It ensures a client computer is actually talking to the host with the name provided.
- Load Balancers
  - Such is either a network device or may be a software solution
  - Its purpose for Exchange is to provide resiliency and aggregation of client connections to a pool of Exchange servers with some level of intelligence.
- DNS (Domain Naming System)
  - This is a core networking service of which Exchange and email heavily depend upon
  - Improper configured DNS can create many end user experience issue and even migration issues.

Priasoft Migration Suite Components

The following detail will show which Priasoft components are available and what they support in relation to the previous 2 sections. The success criteria of any Proof of Confidence/Concept should at least start with what the solution is capable of executing and then compared to any specific differences of business/technical need. Gaps between supported tasks and project dependencies can then be discussed to determine where Priasoft tools can handle such, or if scripts or user communication (about change) is necessary.

Outlook Profiles

This is the core of the end user experience. Without a properly configured Outlook Profile, a user will not be able to access the contents of a mailbox. Even a properly configured profile can have issues if other system components are not configured correctly, like DNS.

Outlook profiles can be updated after a mailbox is migrated by Priasoft's ProfileManager application. The ProfileManager will has the ability to update the following key attributes:

- Primary Mailbox
- Secondary Mailboxes (e.g. shared mailboxes)
- Cached Mode settings
- Outlook Anywhere settings

Mailboxes

The Priasoft Mailbox Migration Manager is responsible for migrating mailboxes and, as a topic, is the broadest as far as feature and option.

The following key features and topics are managed by the mailbox migrator:

- Mailbox Folders
- Folder hierarchy
- Folder Content: all visible items and unique work for otherwise problematic items like Calendar items (resetting the organizer)
- Folder Delegates
- Mailbox Permissions: Full-Access, Send-As, and Send-on-behalf-of
- Email Addresses
- Mailbox Features: POP3, IMAP, OWA, etc.
- Rules, including Out-of-Office settings

Address Book

The Exchange Address Book is a very important component of Exchange. This feature/service is used by nearly all operations of Exchange to one degree or another. Transport servers use it to validate that an address exists, where to deliver mail, and if any

restrictions exists. Permissions are validated against the Global Address List. Calendar invitees and free/busy lookups start with discovery against the address book.

The Exchange Global Address Book (also known as the GAL), is ultimately an Exchange specific view of data contained in Active Directory's Global Catalog. Any Exchange server or client that needs information on an Exchange object is ultimately, albeit indirectly, making a query to the Global Catalog. If the server or client is unable to find an object in a particular Global Catalog, it doesn't exist. AD replication has much to do with visibility of objects in an enterprise since a client may query a different Global Catalog than a transport server.

The Priasoft Collaboration Suite (PCS) is used to pre-stage, or synchronize a source Address Book to a target. Given that the address book is really data in Active Directory, the PCS is actually a form of a directory sync solution, specific to Exchange-enabled objects.

PCS has support for pre-staging/synchronization of the following object types:

- Contacts
    - Source contacts are generally synchronized as Contact objects in the target.
- Mail-enabled Users
    - Source mail-users are typically synchronized as Contacts objects in the target since it is only the email related attributes that are migrating. Creating a mail-user in the target, in most cases, is of little value since the use of the account is to access resource in the source environment.
- Mailbox-enabled Users
    - Source mailboxes are typically pre-staged in the target as mail-enabled users, with the forwarding address pointing to the source mailbox.
    - The mailbox migrator (discussed above) can convert a mail-user to a mailbox-user in one operation.
    - There is support for PCS to create mailboxes in the target, but is generally discouraged.
- Mail-enabled Groups
    - Source mail-groups are created as mail-groups in the target.
    - Established "links" between group members – done by execution of the items above just before execution of groups – provides the intelligence to assign members of target groups based on that pre-existing relationship.

Order of Operations

One of the first discussions that is often had once features and capabilities have been identified is "what should happen first?" Priasoft's tenure in the market space of email migration allows us to provide some guidance on this topic. The following has been proven over many years, but does have some flexibility.

1. Pre-requisites
    a. Source and Target Exchange environments should be as close to a representation of the production environment (if in a lab setting), unless the Proof of Confidence/Concept will happen in the production environment.
    b. The Source and Target environments should not have any serious or moderate health issues.
    c. Mail-flow discussions should have already been had and decisions on such should have already been made
    d. Network communication discussions should have already been made with regards to how the environments will be allowed to communicate, over which network paths, and the bandwidth and latency defined and validated.
    e. Storage discussions should have already happened with regards to available space, capacity planning, and storage type (SAN, NAS, local, etc).
    f. Environment access and operational windows of time for various migration activities should have been discussed, defined, and approved.
    g. One or more migration "appliances" should have been discussed, defined, and prepared with regards to physical placement, host specifications (RAM, CPU count, etc), and domain membership. Priasoft's setup guide has guidance on this and is available here: Setup Guide. The term "appliance" is an important distinction as defining such as a "server" often implies many policies and controls that can be limiting or interfering to a migration, both with consistency and performance.
    h. One or more "client hosts" that will represent a typical end user desktop. This may require several if multiple categories of context are important; laptop vs desktop vs VDI/Citrix, etc.
        i. Client hosts should have properly installed versions of Outlook, including necessary Service Packs and Hotfixes needed for connectivity to the target Environment.
        ii. Connectivity to Exchange 2013 has very strict requirements for Outlook versions.
        iii. Failure to properly develop the client host can incorrectly cause the POC to not pass some or all of the criteria but cannot be considered a failure of Priasoft's components.
    i. Objects within scope of a PoC should have been discussed, defined, and approved. Only those objects that are part of the PoC should be scrutinized. Object that are defined as out-of-scope, if used to validate success, can cause very misleading results.
    j. Resource contention identified and schedules adjusted. It is not proper to migrate data during a backup or archive operation. Such must be scheduled around and will require coordination with responsible parties. SAN/NAS operations that can cause resource contention should also be analyzed.
2. Setup
    a. Installation of Priasoft tools and dependencies on the defined migration host "appliances"
    b. Functional analysis of proper setup and simple function testing
3. Directory Sync/Pre-staging
    a. This task should involve the use of the Priasoft Collaboration Suite to pre-stage and possibly setup a scheduled sync of the objects that are "in scope" for the POC.

   b. At least one of each object type should be included: Mailbox, Mail-user, Contact, Mail-Group
4. Profile Update Deployment
   a. One of the most valuable and key features of the Priasoft solution is the ability to automate the update of Outlook profiles.
   b. Prior to any migration, the automation of the update of profiles should have been discussed and approvals made to allow for such automation to occur in the POC.
   c. Profile updates are most commonly automated with a user logon script and often implemented by a Group Policy object. A key point to understand is that this often means updates to a GPO in the SOURCE environment, as users will likely still logon from that environment and their computer accounts will likely still remain as members of that domain/forest.
5. Public folder Sync
   a. Public folders that are "in scope" for the POC should have already been identified and should be representative of what is important and typical for the environment.
   b. Schedules will be developed for sync after initial "seeding" of the target as such will determine runtime durations.
6. Co-existence Mechanics
   a. This topic is a non-Priasoft topic with regards to tools, but can be very important and critical to the perception of success of a POC.
   b. For any migration where high-fidelity coexistence is necessary, several Microsoft components should be setup and tested as working.
   c. For cross-forest free/busy lookups, the Microsoft Availability Service should be configured as appropriate and, depending up on need, may require the setup of the Microsoft Federation Services.
   d. Cross-forest delegation requires both the Availability Service and Federation Services, if needed.
   e. Such services will require an Exchange 2010 server in the source environment, if one does not exist already.
7. Dry-Run Migrations
   a. This task is used to determine: Functional success, performance and max concurrency, issue discovery, durations, and target environment vetting and validation that it can support the new data.
   b. The dry-run tasks run in the order presented above
   c. The results of the dry-run help determine batching and ordering of migrations.
   d. Failures are analyzed, and remediation made if possible, or dropped from scope.
   e. Only mailboxes that complete a dry-run are sent thru a production run.
8. Production Run Migrations
   a. This task provides the validation through to the desktop and Outlook client experience.
   b. The client hosts mentioned in the pre-requisites are used in this step.
   c. Profile updates and the automation routine are validated in this step.

Topics that may be difficult to prove in a PoC

- Mail-flow operations and changes
    - Since a POC is at best a simulation of what could occur, some production level settings cannot change.
    - Mail-flow will usually have to remain as-is and so proof of gateway switchovers or changes to mail routing often cannot be proven unless extra facility, services, or devices are setup in parallel
- “Real” end user involvement.
    - A Proof of Confidence/Concept should NOT be a UAT (User Acceptance Test). It is not expected that real users will participate in a POC.
    - Work must then be done to simulate or “operate as” a real user for any success criteria specific to end-user experience.
- Co-existence Features
    - It may not be acceptable or feasible to implement the advanced co-existence mechanics mentioned above as such requires “real” system changes to implement, unless the POC is in a lab setting.
    - An inability to prove such features should not be considered a failure, merely an untestable component until testing can occur directly in the production environment(s).