



**BINARY TREE™**  
Powering Enterprise Transformations®

WHITEPAPER

# How to Migrate 10,000 Users a Week



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## Introduction



Laying the proper foundation to migrate 10,000 email users on a weekly basis is much like building a house or in this case a factory. The most successful builders know that planning, staging and choosing the right tools and materials are more important to achieving success than the construction itself. There is no difference when it comes to data migrations. The more practiced, developed and evolved a process is, the better the results will be.

This white paper will walk through a typical work week in the Binary Tree “Migration Factory”. The walk through will entail a tour of the major components of the Migration Factory which facilitate the assembly line approach, shown to be ideal for large enterprise migrations.

By the conclusion of this paper, the benefits of Binary Tree’s “assembly line” methodology towards enterprise-level migration projects will be evident. In addition, by utilizing Notes Migrator | CMT and Binary Tree, one can expect to achieve the best data fidelity available. All while maintaining the highest level of service end-users have come to expect from email and scheduling, demonstrating the value of Notes Migrator | CMT and Binary Tree along with the advantages of the Microsoft partnership.

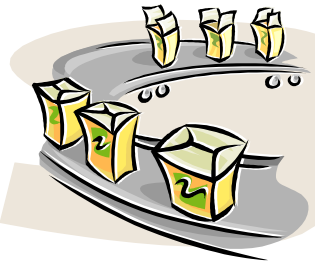
## Planning and Scheduling

Before the Binary Tree “Migration Factory” tour begins, it is important that the planning and scheduling portions of the factory’s operations be reviewed. This overview will cover topics on the planning and scheduling portions of the project, such as the Enterprise Migration Manager (EMM) capability within Notes Migrator | CMT, strategies for data replication to the staging infrastructure, and Notes Migrator | CMT’s exclusive features such as Automated Workload Distribution (AWD) and data filtering by message age, type and size. By the conclusion of this section it will be unmistakable that choosing Notes Migrator | CMT along with the expertise of Binary Tree and Microsoft Services is the only solution for this type of substantial and aggressive platform migration.

The goal of the Migration Factory is to reach a weekly output capacity of 10,000 users over geographically diverse locations while converting Terabytes of data. With that in mind, a strategy was developed to systematically and compartmentally deal with the vast complexities involved with each channel along the assembly line.

The next section will provide a high-level overview of the relationship between these major elements that ensure the on-schedule operation of the factory, which will then be followed up by an example timeline and workflow table.

## The Plan



Any migration project, regardless of size and duration, should consist of two major phases, the *Migration Pilot* and the *Production Migration*. During the migration pilot phase the process is designed, tested, refined, and documented. At the completion of this phase, resource and time requirements for the production migration can be identified. After which capacity planning and hardware can be assessed to determine the best allocation of these resources by regional limitations or restrictions. These phases are fairly universal

to project management and do not need to be covered in-depth here but they are worth mentioning for a frame of reference during the subsequent sections.

For the duration of this paper, an example project will be referenced to demonstrate the validity of the approach. The example project is comprised of a large multi-national financial services corporation with operations in 60 countries. The migration scope consists of 200,000 users and over 290 Terabytes of total data. As stated earlier, the goal is to ramp up to 10,000 users a week with an ultimate production migration timeframe of only 9 months.

Generally there consist 7 components by which the assembly line operates (these are covered in detail later in the paper); within those segments there consists specific interconnected parts that are vital to understand in order to appreciate the flexibility and versatility that Notes Migrator | CMT and EMM provide to this type of colossal project. Making Notes Migrator | CMT the only product capable of meeting these aggressive project goals.

Some of the more important interworking pieces to the “Migration Factory” are detailed below:

### Binary Tree Notes Migrator | CMT

Notes Migrator | CMT is Binary Tree's award-winning Exchange migration solution favored by Microsoft for migrating IBM Lotus Notes and Domino platforms to Microsoft Exchange and Microsoft Exchange Online, which is part of Microsoft’s Business Productivity Online Suite (BPOS Standard & BPOS Dedicated). Notes Migrator | CMT migrates Lotus Notes email messages, calendar entries, contacts, to-do’s, journal entries and more to Microsoft Outlook and Exchange while retaining the original text formatting, images, attachments, and links. Notes Migrator | CMT also ensures that even custom recurring meetings are properly migrated so that any subsequent changes, reschedules, or cancellations can be entered once for all instances of the meeting. The data fidelity of Notes Migrator | CMT significantly reduces the risk that users will experience business process disruptions, or worse – data loss or corruption.

### Binary Tree Enterprise Migration Manager (EMM)

Notes Migrator | CMT’s unique Enterprise Migration Manager (EMM) allows you to manage the entire migration project. Notes Migrator | CMT’s EMM enables you to schedule users for migration, automatically or manually provision the users in Exchange, monitor the status of their migration, and to configure pre- and post-processing actions like decrypting encrypted

email items, collecting rules and access control lists, and more. EMM also enables you to control which data, and how much data, is migrated by enabling you to filter by data type and to set quotas on the amount of data migrated per mailbox. Acting as a centralized migration management system, Notes Migrator | CMT's EMM reduces the risk of forgotten tasks and provides an 'audit trail' of tasks both completed and pending.

**⚙️ Notes Migrator | CMT Automated Workload Distribution (AWD)**

Notes Migrator | CMT can scale to meet the migration requirements of any organization. One Notes Migrator | CMT migration workstation when properly configured can migrate more than 8 GB of data per hour. For larger migrations, multiple Notes Migrator | CMT workstations, whether on virtual machines or individual workstations, will coordinate the work effortlessly. Adding additional workstations is a simple and painless process. These additional workstations use a technology called Automated Workload Distribution (AWD) to ensure that each workstation is kept busy continuously. Other products suffer from non-productive 'idle-time' because each worker waits for the last worker to complete its job before they are all handed a new batch of mail files to migrate.

**⚙️ Notes Migrator | CMT Data Filters**

To reach the hard line requirements for such a migration, 4 primary data filters were deployed in Notes Migrator | CMT. These date filters, along with the more familiar filters such as “by message type” or “date range” gave project managers the required flexibility to accomplish their goals of segmenting data. For instance, the difference between live mail (7 days of mail only & 30 days of calendar) migrations and archive storage (PST for ingestion into archive solution) could have never been considered without Notes Migrator | CMT and EMM. The parameters that were used are listed below and are described in more detail following:

|   |   |
|---|---|
| <b>⚙️</b> <i>CMT Mail Age Limit</i>           | Filters mail only based on X number of days   |
| <b>⚙️</b> <i>CMT Single Meeting Age Limit</i> | Filters non-recurring meetings based on X number of days.   |
| <b>⚙️</b> <i>CMT Single To-Do Age Limit</i>   | Filters non-recurring to-do/tasks based on the X number of days.  |
| <b>⚙️</b> <i>CMT Filter Repeating</i>         | Filters recurring meetings based on the X number of days listed under <i>CMT Single Meeting Age Limit</i> . |

When an item is skipped because it occurs X days before the migration, then a user log warning is created listing why it is being skipped along with the item subject.

With both *CMT Filter Repeating* and *CMT Single Meeting Age Limit* variables enabled, the migration engine will skip any single meeting outside of the range or any repeating meeting where the last occurrence of the recurring meeting is outside of the range. Any recurring meeting that has one or more entries inside the *CMT Single Meeting Age Limit* will be migrated, as well as any single meetings occurring inside that range.

Without these complex filtering options available in Notes Migrator | CMT it would not have been possible to fine tune the assembly line enough to realize the factory's migration output target.

### ⚙️ Data Strategy

With respect to mail data the strategy was to segment different types of data to speed up through-put and accommodate company policies with regards to data retention. The first portion of the strategy consisted of several user offerings during migrations. Those offerings, while described in more detail in subsequent sections are simply as follows:

#### ⚙️ Live Mail Migration:

- ⚙️ *Standard User Mail* – The newest 7 days of mail, as well as the mailbox folder structure will be migrated.
- ⚙️ *Power User Mail* – Up to 4GB of total data (including calendar and contacts), as well as the mailbox folder structure will be migrated.
- ⚙️ All Contacts will be migrated for all user types.
- ⚙️ Meetings - 30 days of historical meetings, all current, and all future meetings will be migrated, including 12 months of reoccurring active meetings for all users.

#### ⚙️ Archive Mail Migration:

- ⚙️ All Remaining mail starting after the live migration is then migrated to a PST file.
- ⚙️ The PST is then ingested into an archive solution after which links are applied to end-user's profile for access to historical data.

The second portion of the strategy consists of staging data from the production mail server to a regional Domino staging server. Utilizing EMM as the command center, operators have the ability to assign replicas to available staging servers based on user type and location. For example, a standard user's mail database would replicate to a staging server using a selected replication formula to reduce the data footprint. This leads to increased migration efficiency and less migration interruptions due to data corruption. The staging portion of the assembly line is covered in more detail in the section entitled, "Factory Components\Staging".

In summary, while the list above does not include all the internal apparatus that make-up a successful migration plan, it does contain the necessary pieces to fulfill this type of uncompromising schedule. Most notably of which are Notes Migrator | CMT and EMM, the first two blocks in the foundation of the Binary Tree "Migration Factory".

## Schedule/Timeline

Scheduling this type of large scale migration project can be a daunting task, even for the most experienced project managers. That is why Binary Tree developed the “Migration Factory” methodology.

The daily schedule is the most critical piece of planning that comes from the pilot phase. During the production phase it must be adhered too with diligence and precision. Without a fully vetted timeline it will be virtually impossible to reach the factory’s optimal output. The following schedule is a brief overview of a typical work week at the Binary Tree “Migration Factory”:


|  | Monday                  | Tuesday | Wednesday   | Thursday                     | Friday  | Saturday                     | Sunday                                   |
|--|-------------------------|---------|---|------------------------------|---|------------------------------|--|
| <b>Pre-Processing</b><br>☛ Users Classified and User Types Assigned (Standard, Power, No Purge, etc.)<br>☛ Mail Files Verified<br>☛ Contact Synchronization<br>☛ Email Decryption                          | Change Freeze Commences |         |   | Pre-Processing Concludes     |   |                              |  |
| <b>Staging</b><br>☛ Disk Space Capacity Planning<br>☛ Replication Formulas Generated depending on User Type<br>☛ Replica Stubs Created on Staging Servers<br>☛ Data Replication<br>☛ Disk Space Monitoring | Staging Begins          |         |   | Staging Concludes            |   |                              |  |
| <b>Provisioning</b>  |                         |         |   |                              |  |                              |  |
| <b>Migrations</b><br>☛ APAC: Begins at 10 AM EDT<br>☛ EMEA: Begins at 5 PM<br>☛ NA/LA: Begins at 10 PM   |                         |         | PST Migrations Begin for Power Users, Status Reporting Begins | Status Reports every 2 Hours | Live Migrations Begin for All User Types  | Status Reports every 2 Hours | Migrations Conclude, Final Status Report |
| <b>Archiving</b>   |                         |         |   |                              |   | Data Ingestion Begins        |  |
| <b>Remediation</b>   |                         |         |   |                              |   |                              | Post Migration Support Begins →          |

Table 1: Example of the Weekly Migration Factory Timeline & Workflow

## The Migration Factory



Binary Tree’s “Migration Factory” tour will begin shortly. Before doing so, an overview of the factory components will be helpful to understand how each area functions within a single assembly line.

Each factory component consists of a team of dedicated specialists with the proper skill sets and tools to carry out the daily jobs consistently and predictably. Each component works independently but in chorus with the group to build the assembly line needed for large enterprise migrations.

The major working components of the Binary Tree “Migration Factory” typically are:

- ⚙ Pre-Processing
- ⚙ Staging
- ⚙ Provisioning
- ⚙ Migrations
- ⚙ Archiving
- ⚙ Remediation
- ⚙ Support

Welcome to Binary Tree’s Migration Factory where data is transformed and dreams of Microsoft Exchange come true. The tour will begin now.

### Pre-Processing

The first stop on the tour is the Pre-Processing Solutions Center, where the EMM Master Administrator manages the daily operations for weekly migration preparation.

Pre-Processing in this example consists of the following events:

- ⚙ Contacts Synchronization
- ⚙ Decryption of Email and Calendar
- ⚙ Database Access and Size Verification
- ⚙ Managing Enterprise Migration Manager
- ⚙ Managing Migration Schedule
- ⚙ Generating Replica Stubs

The advantages of pre-processing are enormous, here are but a few:

- ⚙ Time Savings
- ⚙ Reduction of Database Errors
- ⚙ Reduction in Post Remediation



- ⚙️ Centralizing these operations into a single application and team enhances the assembly line's efficiency

## Staging

The next stop on the assembly line tour is the Data Staging Strategy Center where the Replication Manager Role organizes and leads the weekly replication jobs.

This center is charged with the following duties:

- ⚙️ Planning the Weekly Replication Strategy
- ⚙️ Monitoring and Managing Regional Server Replication
- ⚙️ Monitoring Disk Usage and Server Capacity
- ⚙️ Post Data Verification, Validation and Reporting

The data staging strategy has six main advantages:

- ⚙️ Selective Replication for Data Reduction
- ⚙️ Reduction in Database Corruption
- ⚙️ Reduction in Errors during Migrations
- ⚙️ Reduction in Migration Remediation Volume
- ⚙️ Regional Staging Servers for best Network Through-put
- ⚙️ Use of Dedicated Server Hardware rather than Production Hardware, Increases Productivity

## Provisioning

The *Account Provisioning Module* in this example is the third major component within the factory's assembly line. This module is an automated piece of the factory, requiring little to no human intervention except upon initial installation. The following sub-components allow this system to operate.

- ⚙️ Binary Tree's Enterprise Migration Manager (EMM)
- ⚙️ Microsoft's Identity Lifecycle Manager (ILM) or equivalent functionality
- ⚙️ Axceler Notrix or equivalent functionality

Through a series of automated actions, data is pushed from the SQL database to EMM using Notrix as the data synchronization medium. Based on changes made in EMM from various roles along the assembly line, specific flags and groups in EMM are set. These flags and groupings set items such as the migration date or Power User type. This in turn instructs ILM when to generate the appropriate objects. The final step is based on a scheduled job in Notrix that synchronizes these new flags into the same SQL database. At that time ILM will pick up those flags then generate new credentials and Exchange Mailboxes for the week's scheduled migrations.

## Migrations

The *User Migration Strategy and Solutions Center* is the heart and soul of the factory and consists of the core engine, Notes Migrator | CMT with which all data is formatted then moved to the destination platform. The solutions center also consists of the primary migration team responsible for the weekly management of data migrations, using the environment prepared during earlier stages along the assembly line. This team has many roles to play within their operations. Two of the more important roles are the *Migration Supervisor* and the *Migration Factory Worker*. To achieve the factory output goal of 10,000 users a week the factory and its staff must be operational 24 hours a day. The supervisor is the site director for factory's shift operations and ensures that each shift of factory workers performs their assigned tasks. It is also an important task of the supervisor to send out regular status reports to keep all interested parties informed of the progress. The factory worker is responsible for a region's migrations during a migration cycle.

As part of the migration strategy the goal is to increase migration efficiency, therefore data has been broken up into 3 primary user types and 2 sub-types:

- ⚙ Standard User
- ⚙ Power User
- ⚙ No Purge User
- ⚙ Provision Only
- ⚙ Blackberry User

### Standard User Offering

Users using less than 500mb of storage will...

- ⚙ Receive a 100mb mailbox

What will be migrated?

- ⚙ Mail – The newest 7 days of mail, as well as the folder structure will be migrated.
- ⚙ All Contacts will be migrated.
- ⚙ Meetings - 30 days of historical meetings, all current, and all future meetings will be migrated, including all reoccurring active meetings.
- ⚙ Tasks and Notes will not be migrated.
- ⚙ User will retain full access to their Lotus Notes e-mail for 48 hours. They will be able to send and forward out of Lotus Notes.
- ⚙ After the full-access period, users will continue to have reader access to their mail file for 70 days. Their Notes mailbox will remain on the same retention period.
- ⚙ No new mail will be delivered into the Notes mailbox. New mail and all replies to sent mail will be delivered to the user's Exchange mailbox.

### Power User Offering

Users using more than 500mb of storage will...

- ⚙️ Receive a 100mb mailbox

What will be migrated?

- ⚙️ Mail – Up to 4GB of total data (including calendar and contacts), as well as the mailbox folder structure will be migrated.
- ⚙️ All Contacts will be migrated.
- ⚙️ Meetings - 30 days of historical meetings, all current, and all future meetings will be migrated, including all reoccurring active meetings.
- ⚙️ Tasks and Notes will not be migrated.
- ⚙️ User will retain full access to their Lotus Notes e-mail for 48 hours. They will be able to send and forward out of Lotus Notes.
- ⚙️ After the full-access period, users will continue to have reader access to their mail file for 70 days. Their Notes mailbox will remain on the same retention period.
- ⚙️ No new mail will be delivered into the Notes mailbox. New mail and all replies to sent mail will be delivered to the user’s Exchange mailbox.

### No Purge User Offering

Users under regulatory restrictions will...

- ⚙️ Receive an unlimited mailbox

What will be migrated?

- ⚙️ Mail – Unlimited data (including calendar and contacts), as well as the mailbox folder structure will be migrated.
- ⚙️ All Contacts will be migrated.
- ⚙️ Meetings - All historical meetings, all current, and all future meetings will be migrated, including all reoccurring active meetings.
- ⚙️ Tasks and Notes will not be migrated.
- ⚙️ User will retain full access to their Lotus Notes e-mail for 48 hours. They will be able to send and forward out of Lotus Notes.
- ⚙️ After the full-access period, users will continue to have reader access to their mail file for 70 days. Their Notes mailbox will remain on the same retention period.

### Provision Only User Offering

“Provision Only” users are a subcategory of user types within our example project – those users that will not have any data migrated. For provision only users, a new Exchange Mailbox is created and the Notes Address Book (NAB) is modified to reflect their new routing domain.

This process is conducted by the Migration Supervisor during the weekly migration window. The supervisor will run and monitor a few simple jobs within ILM, but first some status settings in EMM need to be set in order for Notrix to push the changes to the SQL database from which ILM reads. Once this sequence is complete the supervisor sets the final status to complete in EMM and updates the status reports for those users.

### Blackberry User Offering

“Blackberry” users are the second subcategory of user types. However, this type differs from the provision only users, in that a blackberry migration can affect any other user type. For example, a “No Purge” user type may likely have a Blackberry device and therefore will need the device migrated during the same window as their mail and calendaring data is moved.

IT professionals know better than most that mobile devices are an essential extension of a user’s mail and calendaring experience and therefore must be handled with all appropriate care and diligence. Each organization’s procedures surrounding the handling of mobile devices will be based on factors such as cost of upgrades, software versions and the make and model of said devices. That is why it is critical to define those variables before this portion of the factory can be constructed and integrated into the assembly line.

### Archiving

The Data Archiving Strategy Center is an important fork along the conveyor sites in the Binary Tree “Migration Factory”. Not only does the Archiving Center operate as an essential point in the migration process but it also will function after the migration project has ended to ensure data retention policies are in compliance for the long term.

During a production migration some user types are actually migrated twice, once to PST for ingestion into the archiving system and second during a live migration which has a limited data set, referred to in the user type descriptions earlier in this paper.

For the purposes of migration the archiving strategy offers some attractive benefits that cannot be overlooked, for instance:

- ⚙ Reduction of Exchange Data Stores
- ⚙ Decreases Migration Turnaround Time for User
- ⚙ Increases Live Migration Throughput by Reducing Data

### Remediation

Nearing the end of the tour, the next site is called the Migration Remediation Processing Center, where a dedicated team of Migration Specialists are trained to conduct systematic remediation operations on all failed live or PST migrations. The system works as such; when a migration event fails during a production transition the Migration Factory Workers will then flag the user with an appropriate status in EMM in order to notify the processing center there are new events queued for their immediate attention. Once the Remediation Center completes a

job they update the user status in EMM and on regular intervals send status reports to a standardized distribution list.

The advantages of off-loading failed migrations to another assembly line site that specializes in remediation work are numerous.

- ⚙ Increases Efficiency
- ⚙ Reduces Risk of Backlog
- ⚙ Reduces Stress for Migration Factory Workers
- ⚙ Frees Time & Increases Productivity for Workers

## IT Support

The final site on the factory tour is the *Post Support Strategy Center* which encompasses the company's normal Help Desk operations and combines consultant or production specialist personnel together to form a standardized process for handling normal post migrations questions, feedback and problems.

Also by creating appropriate groups in the help desk tracking software the factory is able to route post migration related items to the proper experts for the quickest resolution possible. This should reduce end-user frustration and dissatisfaction, a key indicator for success in any project.

A further reduction in post migration support volume can be achieved when a project plan includes end-user training, which should be conducted before deployment. This will lead to a decrease in help desk incident tickets. Of course, proper internal documentation, easily available to the end-user will also lessen incident calls. However, no matter how strong those two disciplines are there will be questions and challenges to overcome. That is why it is so important to build this factory component with the proper people and attitudes.

Finally by temporarily staging teams of on-site technicians along with call center representatives, coupled with easy access to reference material and client training the end-user experience during this transition will be nothing less than a success.

Considering the vast use of email on a daily basis the end-user experience is always "JOB 1" in these types of projects; any impact could be costly in both financial and social capital to any organization.

The factory approach offers a proven and sound method to preparing and transitioning the end-user from one email client to another. On day 1, any organization using this methodology can be guaranteed to be able to open their new MS Outlook client and retrieve their historical mail, review future calendar events, open contacts, and operate their mobile devices as normal. Just as if they were using yesterday's tools. There is much to gain with this process; here are a few of the rewards to consider:

- ⚙ Gives Users a Clear Path for Help
- ⚙ Reduces User Frustration
- ⚙ Increased Productivity
- ⚙ Creates Historical Record for Future Support Needs
- ⚙ Increases Resolution Turnover Time
- ⚙ Trains Help Desk on New Software Packages
- ⚙ End-User's Transition Easily
- ⚙ Day 1 Access to Mail, Calendar, Contacts and Tasks from MS Outlook
- ⚙ High End-User Satisfaction Rate

## The Gift Shop

What tour would be complete without a final stop at the visitor's information center and gift shop? Feel free to [browse](#) until the final talk begins.

Before the closing presentation, take a moment to consider all that has been covered in the tour today and just as important all the vital details that were not able to fit into this short walk through. However, with Binary Tree and Microsoft Services no need to worry, as the tour hopefully demonstrated today.

The factory tour attempted to cover some of the basic items of importance during a large enterprise migration project, such as planning, piloting and a well-vetted timeline. Not to forget the significance of expert experience and the choice of superior tools to achieve overall success and most importantly, a greater understanding of the Binary Tree "Migration Factory" Methodology along with its core components.

In conclusion, remember that Notes Migrator | CMT is the go-to package for migration solutions on the market today and EMM will increase productivity, reduce common migration headaches and give the team the confidence and knowledge to face the coming challenges.

Want to sample a product..., try it out..., and take it home? This is where it happens; [visit the Binary Tree website](#) for more information about trails and downloads of Notes Migrator | CMT and more.

## About Binary Tree

Binary Tree is a Microsoft Gold Partner for messaging, cloud productivity and application development and is dedicated to and focused on enterprise transformations to Microsoft platforms. Since 1993, Binary Tree has transformed more than 8,000 global clients and 42 million users, including 7.5 million users to Office 365. The company is a globally preferred vendor for Office 365. Its headquarters is located outside of New York City with global offices in France, Germany, Singapore, Sweden and the U.K. Its award-winning software and services help companies modernize email, directories and applications by moving and integrating them to the Microsoft cloud. The company's business-first approach helps plan, move and manage the transformation process from end to end so that clients can stay focused on their core businesses. Binary Tree's experts deliver low-risk, successful IT transformations. Visit [www.binarytree.com](http://www.binarytree.com) for more information.

### Binary Tree Social Media Resources



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