



Enhancing DAOS with ReduceMail Pro Archive *Added Value from ReduceMail Pro Archive*

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Introduction

Attachment management has been a major issue in email storage for years. A significant amount of the email storage is attachments and the continuous exponential growth of the email data store comes from the attachments themselves getting larger. Of course, every attachment gets many hearings as end users send it around, copy it to everybody and send it again when responding to old emails, regardless of whether the reply is pertinent to the attachment. With this type of mail usage activity, it is easy to see how these attachments can have an impact on your mail environment.

IBM Lotus Domino version 8.5 has a built-in feature to help cope with the attachment problem and we will discuss it below. However, this feature has significant limitations. As a best practice, one needs to combine attachment management with the ReduceMail Pro Archive system which will allow you to truly optimize attachment management.

The purpose of this white paper is to introduce the DAOS plus ReduceMail Pro Archive solution and demonstrate the value it can bring to your enterprise.

ReduceMail Pro Archive - Added Value to IBM's DAOS

Fairly recently, IBM added a feature to native Lotus Domino known as Domino Attachment Object Store or DAOS. This system performs attachment consolidation by annexing a link reference to an attachment to an email instead of annexing the attachment itself. This reference is programmed in at a low level in the underlying c code so that all Notes functions assume the full attachment is there even though it is only a reference. This generally limits the storage of attachments to one of each kind per server.

Enabling DAOS can result in significant storage space savings as well as quicker mail delivery. The storage space savings come from having less data to store. The more rapid mail delivery occurs because the router does not have to deliver the attachment multiple times.

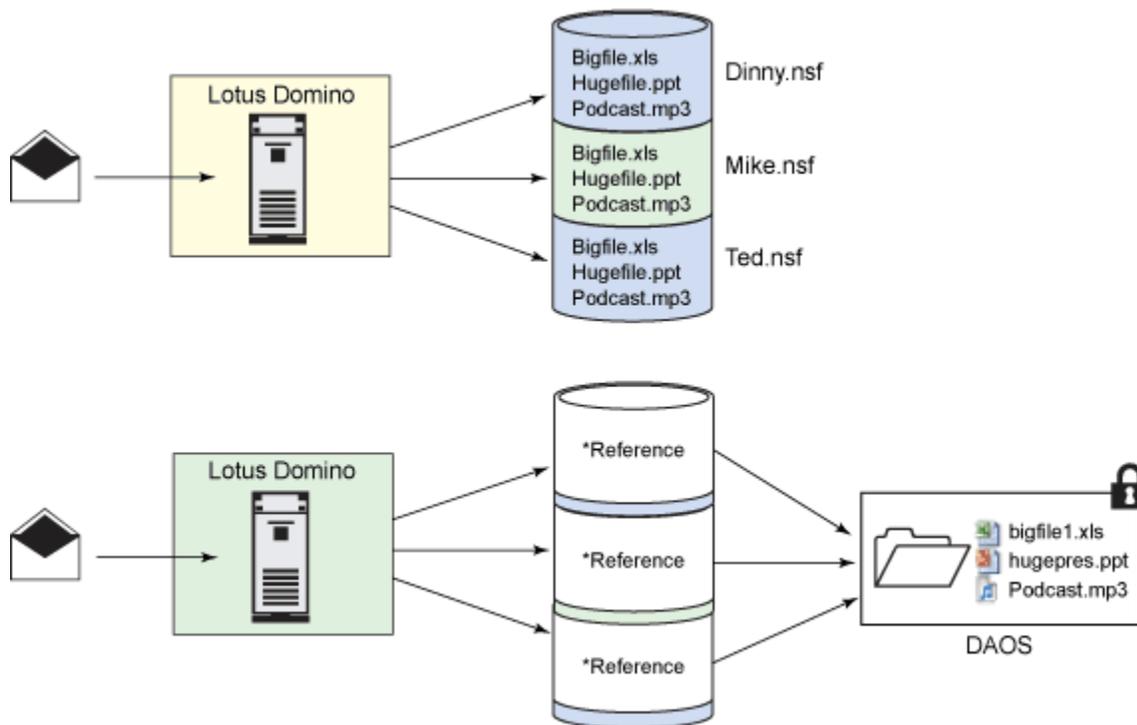


Figure: Previous mail architecture (top panel) and architecture with DAOS (lower panel). Instead of an attachment being stored inside multiple Notes databases, a single attachment is stored as an encrypted file directly in the operating system file structure.

Archiving Improves DAOS Performance

Although DAOS has an impressive record in reducing disk space usage and improving system performance, it does have two important limitations. First, if more than one end user is receiving the attachment and their mail resides on different servers, then the full attachment will be stored on each server. Second, if the attachments are compressed using different algorithms (e.g. Huffman, LZ-1, Zip etc.) the server will store one copy of the attachment for each compression type.

Using ReduceMail Pro Archive can radically improve on these results. ReduceMail Pro Archive enhances DAOS by placing attachments from multiple servers onto a single archive server. This allows DAOS to further consolidate attachments that came from different servers resulting in even more space savings and server efficiency.

To illustrate, let's use the example of Acme Corp. Acme has ten mail servers spread across the US. Joe and Carl are on different mail servers and they send emails with attachments back and forth to each other. All the attachments that land on Joe's mail server will be consolidated with DAOS but also have an additional consolidated attachment counterpart on Carl's mail server. ReduceMail Pro Archive consolidates all the old mail onto an archive server in Chicago. It removes the two attachment groups from the mail servers. DAOS is enabled on the archive server and now the two attachment groups from Joe and Carl can be consolidated into one.

By way of another example, Acme Corp. also has an active Human Resources department. Human Resources sends out messages to all the ten different servers so sometimes a consolidated attachment exists in ten copies, one on each server. ReduceMail Pro archives all the old mail onto the Chicago archive server and moves the ten attachment groups there. DAOS can consolidate them all into just one group.

If you have requirements to allow end users to be able to search their own attachments, you should consider using the ReduceMail Pro Attach attachment consolidation system as well. The savings you will experience from DAOS will be gone once you index the attachments because the indices will reduplicate the attachment content! ReduceMail Pro Attach consolidates attachments in such a way that when you index the attachments they are never reduplicated in the indices.

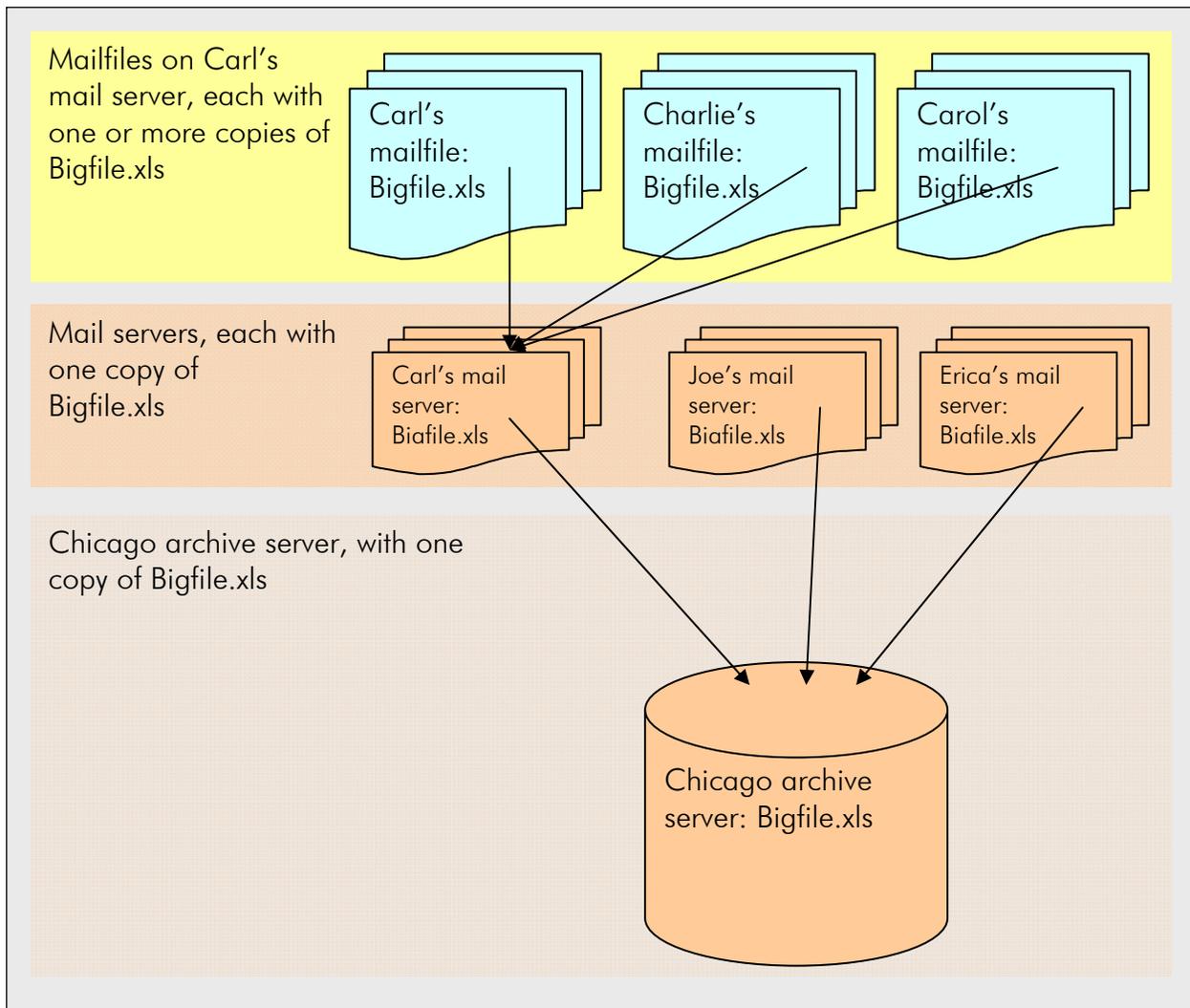


Figure: ReduceMail Pro Archive allows DAOS to consolidate single attachments across servers.

ReduceMail Pro Archive Offers Many Advantages beyond DAOS

Archiving mail with ReduceMail Pro Archive can help your organization in the following ways:

- optimize its server performance
- reduce storage costs
- maximize profitability of its workforce
- maintain retrievable business records for litigation and regulatory needs.

Optimizing server performance

Archiving mail helps further improve your mail server environment by reducing the size of the

mailfiles and maintaining the mailfiles at a reduced size. This will dramatically increase mail server performance throughout the enterprise and improve back-up and restoration time. Because the volume of mail is substantially reduced, archiving allows you to get another ten years out of your primary mail server storage. It also gives you freedom from lengthy mail server backup and restore times. If you archive once every 30 days you need to perform one large backup only once a month. Since the mail files are small, a server restore is much faster than it would otherwise be.

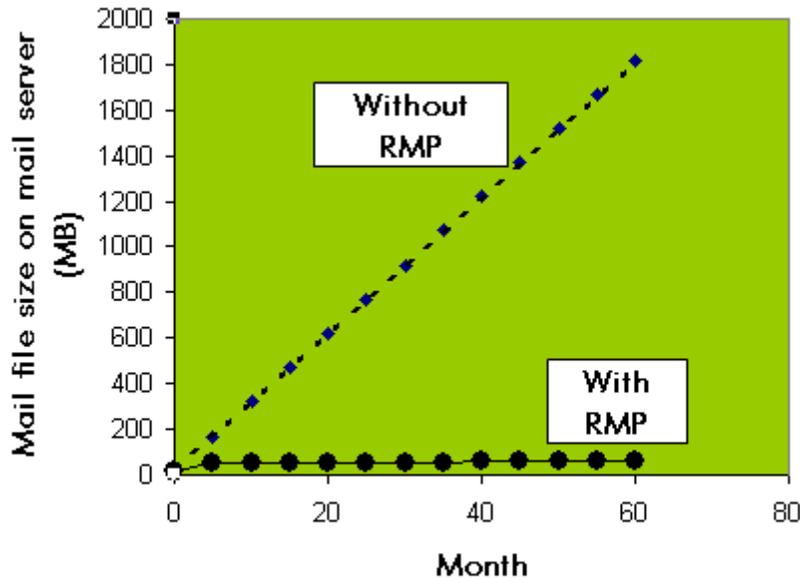


Figure: The effect of using ReduceMail Pro on the average mail server mailfile size.

Reducing storage costs through hierarchical storage management

Many administrators are becoming concerned about e-mail storage as part of the larger strategies of both e-mail management and storage management within the enterprise. E-mail management must take into account that certain data will be maintained on the primary mail server for user access, but that other old, large data stores are going to be moved off the mail servers onto appropriate storage media and potentially moved off-site. If moved off-site, e-mail must be secure from unauthorized access.

ReduceMail Pro Archive provides a system for creating a date-based and content based hierarchy of mail storage to assist in implementing an appropriate storage solution. Mail can be divided into three tiers based on the age of the mail. Current mail and important business records, which are subject to a daily back-up, reside on the servers and are easily accessible by users.

Somewhat older mail and documents with large attachments can be moved off the primary servers onto a mid-term storage medium. It still allows user access but allows storage growth capability as well. This primary archive, which is filled monthly, needs only one backup every month. This procedure removes a substantial load from the primary mail servers, reduces e-mail storage costs, and reduces back-up times of the complete mail store and reduces restore times of the mail servers. Finally, very old mail can be moved off the server into long-term storage. This mail is not accessible to users. It can be encrypted to prevent unauthorized access while in off-site storage. Date based encryption keys also allow ageing of WORM content if the encryption keys are disposed of when the data has passed its design life, assisting in enforcing document retention rules and regulations.

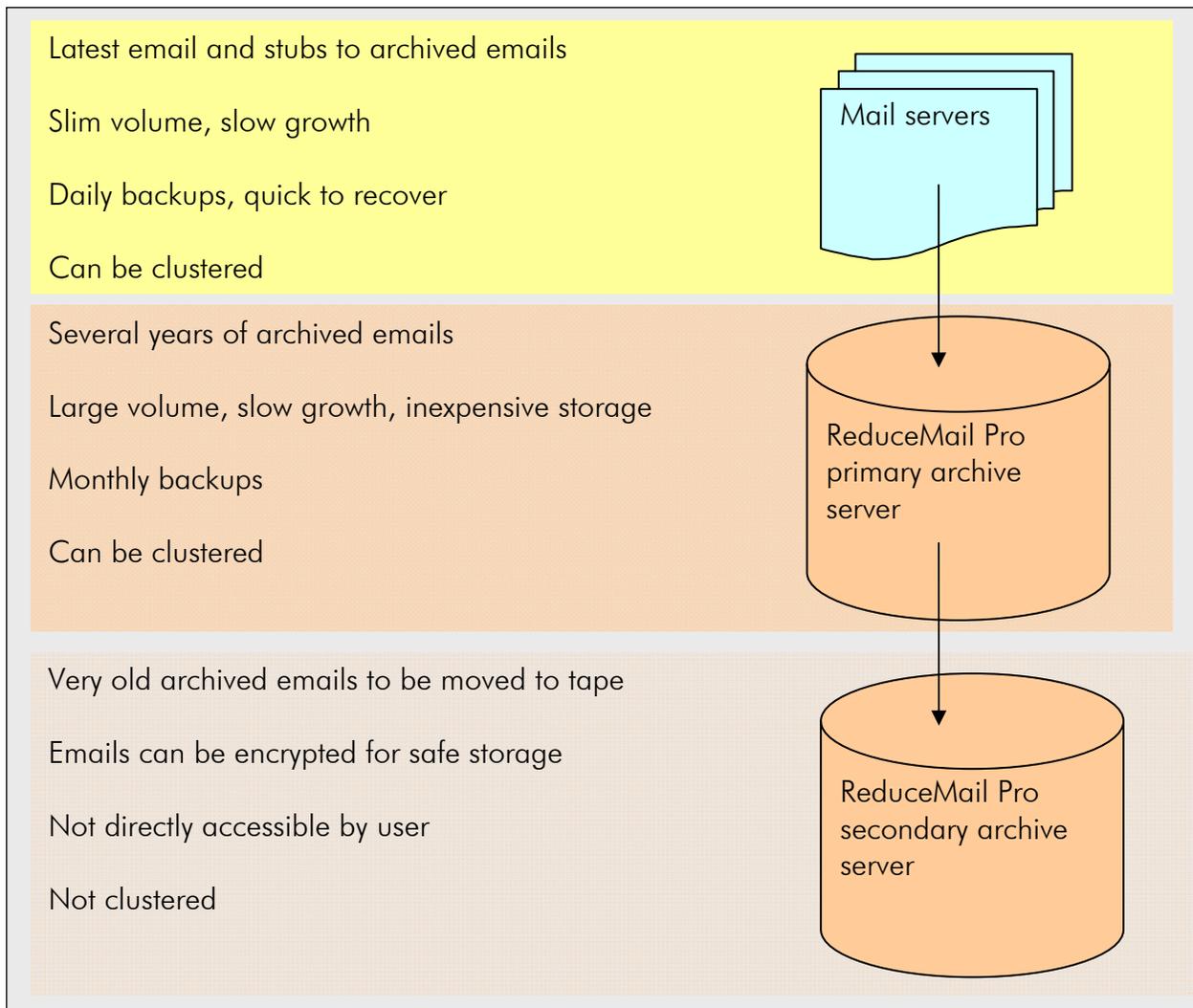


Figure: ReduceMail Pro HSM configuration

Maximize Workforce Profitability

In analysis of the cost of an archiving system versus the saving to the enterprise, the costs of workforce productivity must be added to the calculation. The amount of IT staff time used to respond to end user email issues, IT staff time used for mail server management and, most important, end user time used managing mail must be considered. For example, if you impose quotas to manage mailfile size the costs increase rather than decrease. Quotas force end users to manage their own mail, which takes up their time from their primary tasks. At worst, many of these workers simply create their own archives, sometimes diverting mail to offsite locations via remote mailboxes or thumb drives, reducing the amount of control an enterprise has over its own data. In the case of highly compensated end users, one has to question whether it makes financial sense to utilize them in mail management tasks.

Allow Easy Retrieval of Necessary Business Records

Email contains a treasure trove of vital information for your organization and is likely the most voluminous information store you have. As a result, email is often the most sought-after business record in both litigation and for regulatory purposes. Both instances require your organization to maintain the relevant email for a period of time. Both also require email to be accessible on a content-driven basis. Thus organizations that are using only back-up tape to store old email risk a difficult if not impossible task if and when those emails must be retrieved. Back-up media is notoriously unreliable and is often corrupted or unavailable when needed. In addition, finding relevant content can be very difficult.

ReduceMail Pro Archive prevents these difficulties by providing a stable archiving architecture designed for easy email retrieval. ReduceMail Pro Archive technology allows users to perform a simultaneous full text search of the mailfile and primary archive from the mailfile without the need to go to the archive database. The full text index returns archived and non-archived memos in reverse chronological order, which is the most convenient for mailfile searches. It automatically creates full text indices on local mailfiles and archives; indices on server-based files have to be created manually. All attachments can be indexed.

Conclusion

ReduceMail Pro Archive provides many advantages to your organization in mail management. In addition to its enhancement of the attachment management system DAOS, ReduceMail Pro Archive provides flexible, scalable, and retrievable archiving solutions for Lotus Notes mail.

For more information about ReduceMail Pro Archive and other ReduceMail Pro products, please contact:

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