ISSN 2348-1196 (print)
International Journal of Computer Science and Information Technology Research ISSN 2348-120X (online)
Vol. 11, Issue 3, pp: (106-108), Month: July - September 2023, Available at: www.researchpublish.com

Maximizing Offline Address Book Efficiency for Large-Scale Organizations: A Comparative Study

Bader S. Alrumaikhani[1]

Saudi Arabian Oil Company, Dhahran, Kingdom of Saudi Arabia

DOI: https://doi.org/10.5281/zenodo.8223326

Published Date: 08-August-2023

Abstract: **This comparative study aims to identify the most efficient and effective strategies for implementing and maintaining Offline Address Books (OABs) in large-scale organizations using Microsoft Exchange Server. OABs are used by Microsoft Outlook to enable users to access contact information even when offline, but implementation can present challenges as illustrated in this research paper. This study will examine different approaches to OAB implementation. The results of this study will provide insights into how large organizations can effectively implement OABs to enhance the access to corporate users' contact information and to ensure consistent updates, prevent delays or other adjustments which may help optimize performance.**

Keyword: **Offline Address Books, Microsoft Exchange Server, Resiliency, Optimization, User Experience.**

I. INTRODUCTION

Offline Address Books (OABs) are a critical component of enterprise email systems, allowing users to access contact information even when offline. In large-scale organizations, OABs can present significant challenges related to network bandwidth, storage capacity, and user experience. It is essential to implement and maintain OABs efficiently and effectively to enhance user productivity and minimize the impact on computing resources.

This comparative study aims to identify the most efficient and effective strategies for implementing and maintaining OABs in large-scale organizations using Microsoft Exchange Server. The study will examine different approaches to OAB implementation and maintenance, including process and options to generate OABs effectively.

To ensure the study reflects industry best practices, we will consider recommendations from Microsoft, such as optimizing OAB generation and shadow distribution.

The results of this study will provide valuable insights into how large organizations can effectively implement and maintain OABs to enhance user access to contact information. These insights can help organizations optimize their email systems and improve user experience.

II. CASE STUDY

An organization uses Exchange Server for its email infrastructure. Managing the offline address books (OABs) that are downloaded by Outlook clients is an important task. The default Offline Address Book OAB is used initially, but the organization may choose to create a single or multiple OABs. Exchange servers arbitrate OAB download requests and proxy clients to the appropriate organization mailbox that generates the OAB. Configuring virtual directories, Autodiscover, and shadow distribution helps control OAB availability [1].

Issues such as large size of OAB, high download volumes and frequent changes to recipients are important considerations when planning and deploying OABs.

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Scenario:

To better illustrate the findings of this study, consider a scenario where a distributed environment with Exchange servers located in a single Active Directory site, but users are located in multiple geographical sites. This is a common scenario for many enterprises. The default system arbitration mailbox generates the single master OAB for the organization, named 'Default Offline Address Book'. Additional arbitration mailboxes hold shadow copies of the OAB to distribute the load of OAB downloads and allow clients such as Outlook to download from a local server closest to their site. Figure I demonstrates the different clients connecting to Exchange environment to download OAB.

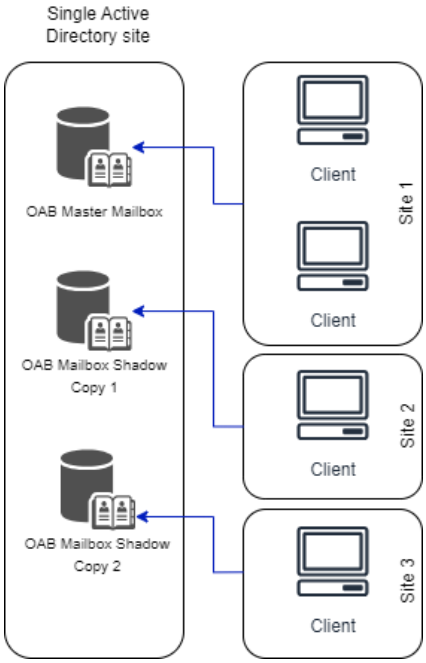

Fig. I

Initially and without additional examinations, when recipients and contact information are updated in Active Directory, eventually all Outlook users are able to see the changes in their updated OABs. However, different users experience varying delays in seeing the latest updates, ranging from just a few hours to 48 hours. Fig II shows the clients in Site 2 and Site 3 not getting the most up-to-date contact information. This may be due to delay in replication of the user's properties in different site and/or the process should be re-evaluated for enhancement.

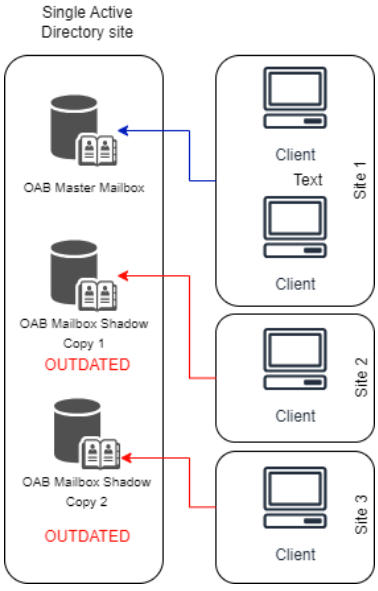

Fig. II

The goal is to ensure consistency in OAB updates across all users while prioritizing speed and performance. Below table highlights pros and cons of each option to improve OAB update times:

Table I

Options	Pros	Cons
Single OAB	• All users get updates as soon as changes are generated • Simplest configuration	• Potential for higher load on single server during peak times e.g. Full OAB downloads
Multiple shadow copies	• Load of OAB downloads distributed across multiple servers	• Extra time to synchronize updated OABs • Initial delays during OAB updates until shadow copies are synchronized completely
Separate OABs per DAG	• Downloads from local DAG for fastest access • True distribution of OAB load across servers	• Requires configuring separate OABs (one per DAG) • Additional administrative overhead to manage multiple OABs • Mailboxes moving between DAGs require full OAB download

however, at times there may be optimization needed as presented in the below three options.

Option 1:

With a single OAB generated by the default system mailbox, all changes will be immediately available to users as soon as the OAB is updated. Since all servers are in one AD site, there will be no latency from downloading from a shadow copy. However, all OAB download traffic will be concentrated on the single OAB generation mailbox, which could become a bottleneck if many users download the OAB at the same time.

Option 2:

The option to have shadow copies in additional OAB mailboxes can distribute the load of OAB downloads across multiple servers, thereby improving scalability and availability of user information. However, shadow copies only synchronize after the first client request, so users connected to shadow copies will experience delays seeing recipient changes. The amount of delay will vary based on throttling settings and network latency during shadow sync. This is when the inconsistent delays are experienced.

Option 3:

Having separate OABs generated by each DAG could map OAB downloads locally, eliminating shadow copy delays. However, this would introduce significant administrative overhead in configuring and maintaining multiple OABs. Furthermore, mailboxes moved between DAGs require a full OAB download. This option may not be worth the effort unless significant OAB scalability is the intended goal.

III. CONCLUSION

This research paper concludes the different approach to evaluate OAB generations for email service. Identifying the root cause of inconsistent updates, delays and making throttling or other adjustments help optimize performance, regardless of the chosen approach. Testing after any changes is recommended to validate that the new configuration meets business requirements. With careful planning and execution, large organizations can successfully implement and maintain OAB solutions to enhance employee productivity while minimizing resource consumption. With the right balance of technical adjustments and operational improvements, organizations can develop a sustainable OAB solution that aligns with their unique goals, objectives and constraints.

REFERENCES

[1] Offline address books in Exchange Server | Microsoft Learn https://learn.microsoft.com/en-us/exchange/email-addresses-and-address-books/offline-address-books/offline-address-books?view=exchserver-2019