

Refresh SAP S/4HANA leveraging HANA System Replication

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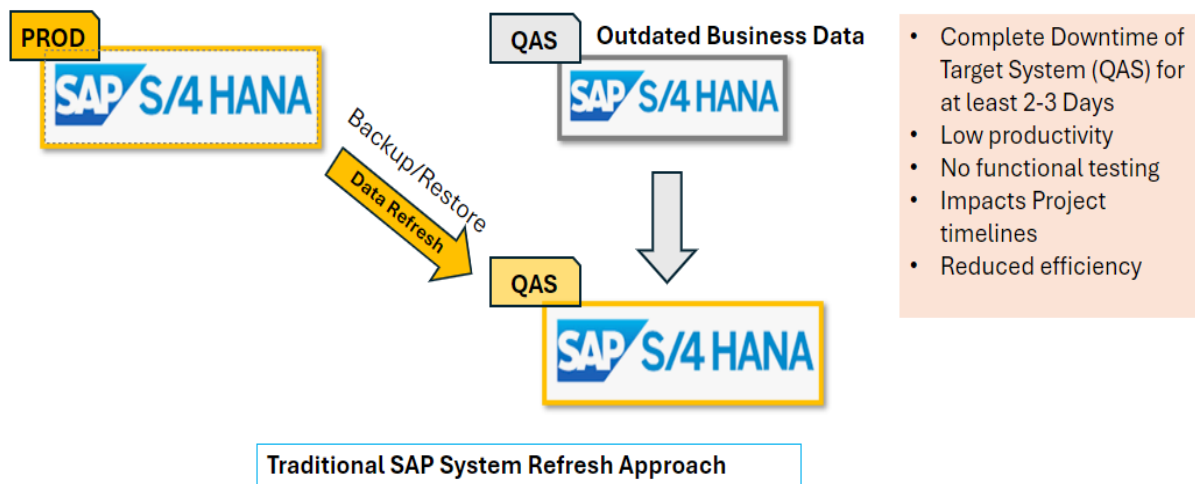
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ABSTRACT: The lengthy SAP system refresh process, lasting an entire week, is creating significant bottlenecks in our Non production SAP systems like SIT or UAT environments. This extended downtime is compromising project timeline resource efficiency, and overall productivity by preventing crucial development and testing work.

KEYWORDS: SAP S/4 HANA, SAP HANA System Copy, Leverage SAP High Availability, Near Zero downtime Refresh Approach

I. INTRODUCTION

SAP system refreshes are a critical yet time-consuming process that often hampers project timelines and overall productivity. Traditional homogenous system copies methods, characterized by lengthy downtimes and potential disruptions, have become a significant bottleneck for many organizations. This article delves into the challenges associated with traditional refreshes and will give an approach on how leveraging HANA System replication secondary site (High Availability Replication) can provide a more efficient and business-friendly solution.



Backup and restore require creating a full database backup followed by restoring it to the target system which requires downtime. This process is time-consuming and necessitates significant system downtime, halting business operations and testing activities. Extensive validation steps, including backup and restore checks, are required before the system can be released for testing or user access.

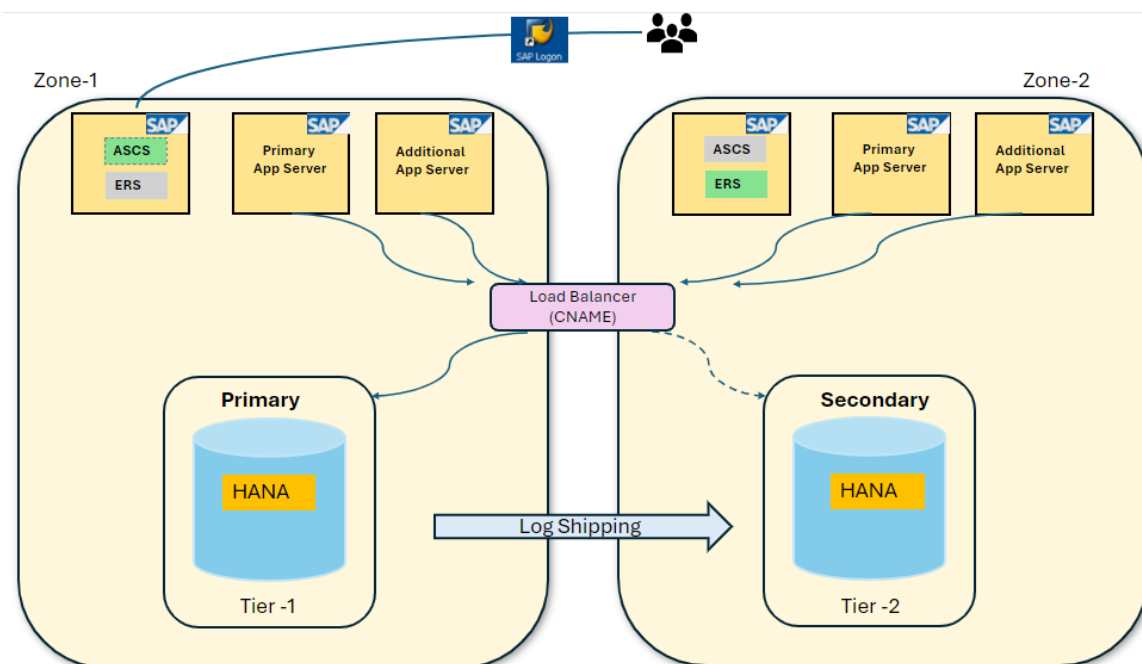
II. OBJECTIVE

To reduce system refresh downtime by utilizing Secondary site built via SAP HANA system replication. SAP is widely adopted across sectors, including medical, health, technology, manufacturing etc. By significantly reducing downtime during system refresh through HANA System Replication, SAP customers can enhance operational efficiency, accelerate innovation, and improve overall business continuity by testing efficiently on similar production data.

III. DEEP DIVE ON APPROACH

Assume Below is the example architecture which we will use to explain traditional Vs New HA (High Availability) based refresh approach

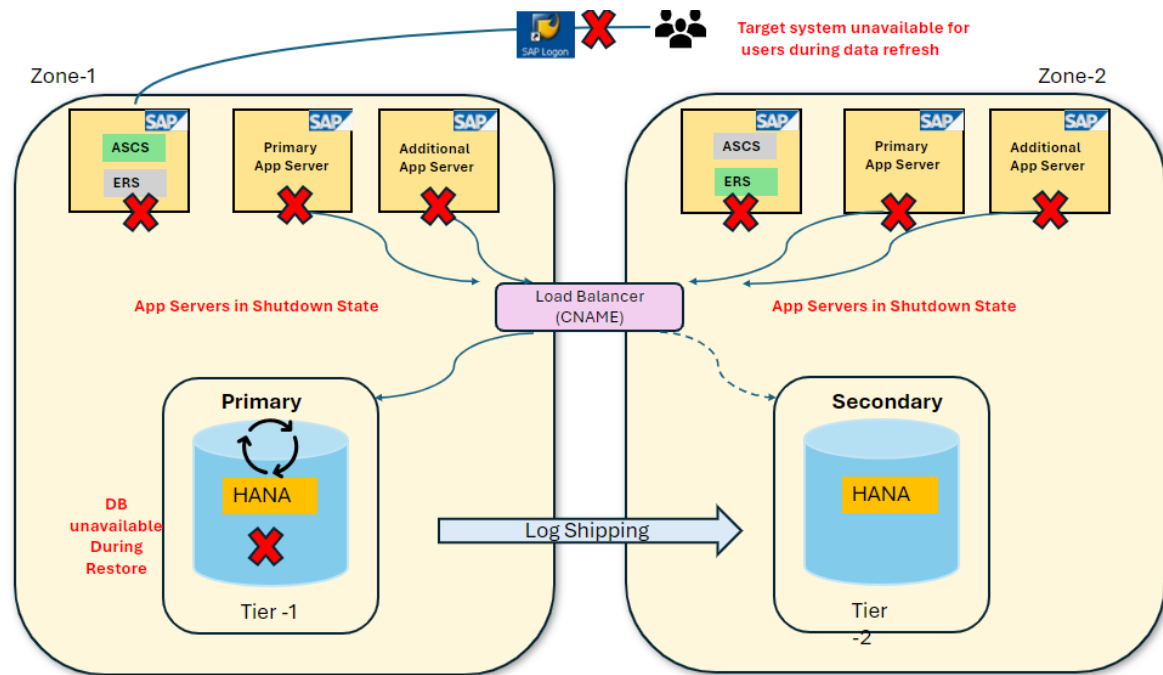
Example Target System Design



A. Traditional Refresh

- This approach necessitates a complete SAP application shutdown to perform a database refresh from a backup. As a result, users cannot access the SAP system during the refresh process.
- In traditional approach, we perform all the steps starting from DB restore to Post Restore during downtime.

Downtime period ~ 3-4 days (depends upon database size and number of ABAP application components)



B. HA (HANA Secondary) Refresh

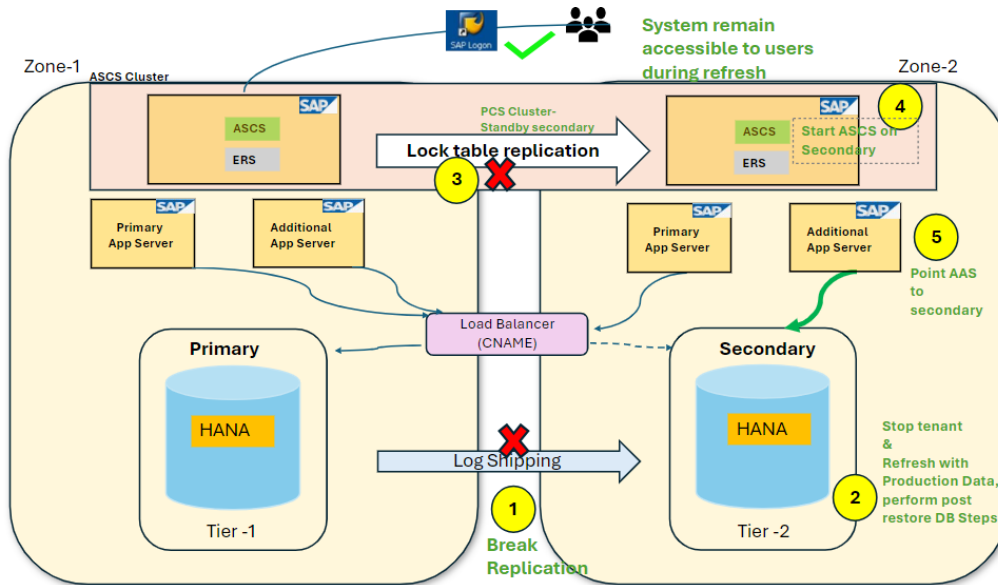
1. Part-1 – Prepare landscape and Refresh Secondary DB

- We will break the replication between primary and secondary (HA) instance, refresh the HA instance from production HANA database backup or snapshot while SAP application remains accessible to end users on primary HANA database, reducing the system downtime by 8-12 hrs depending upon database sizes.

(Downtime reduced by ~ 10 hrs)

- Perform post DB restore steps via hdbsql like large tables logical systems name conversion, export production related tables.
- Isolate 1-2 one of application servers from existing logon groups via SMLG of the target system, and point them to the secondary (HA) instance to execute post refresh steps while end users continue to access SAP Application on primary HANA DB.
- For Isolation
 - Remove app server from logon group (SMLG)
 - Remove it from RFC Server group (RZ12)
 - Remove it from batch server group (SM61)
 - Shutdown SAP Application services on isolated app server
 - Update instance profile to point to “to be isolated” app server to Secondary HANA DB host.

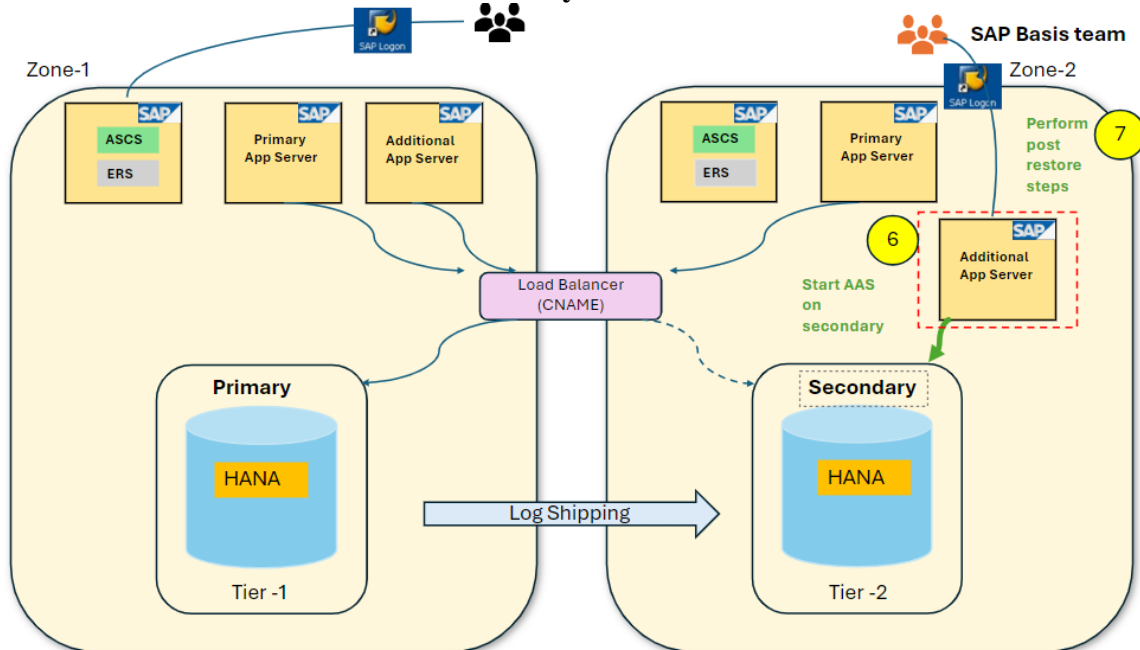
- Update hdbuserstore entry by pointing DEFAULT on Isolated application server to Secondary HANA DB host.



2. Part-2 – Post DB restore refresh steps

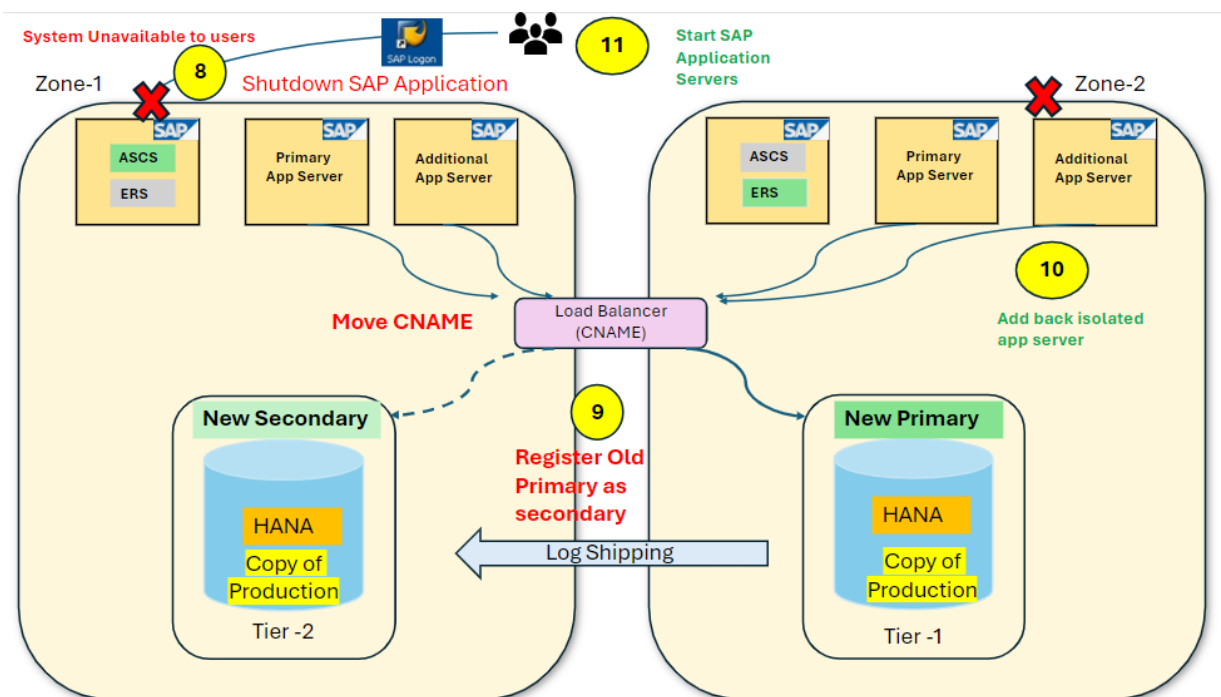
- Start SAP Application on secondary and Basis team can connect to isolated app server using hostname to perform post refresh steps while primary app and database are still accessible to business

Downtime reduction 2-3 Days



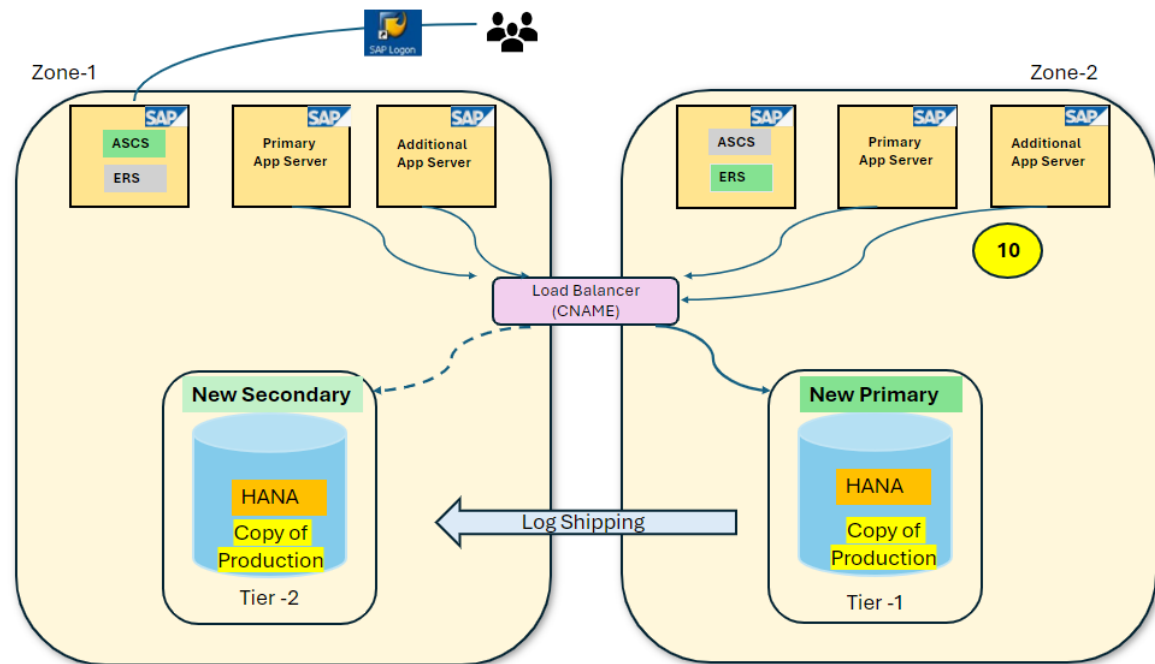
3. Part -3 – Post Refresh

- Once Refresh is completed on secondary, Shutdown SAP Application and repoint CNAME from Primary to Secondary.
- Register Old HANA Primary as NEW Secondary.
- Add isolated app server back to
 - Logon groups (SMLG)
 - RFC Server Group (RZ12)
 - Batch Job Server Groups (SM61)



4. Part -4 – Release Systems to Business

SAP System refresh is completed with minimal downtime of 5-6 hrs instead of 2-3 days.



IV. CONCLUSION

- Reduced redundancy due to HA being used for system refresh but the risk to business is none since this procedure is only applicable to non-prod environments. And, With the traditional approach, the entire target environment is shutdown.
- Both Primary/HA and SAP applications are unavailable to the end users for the entire duration of system refresh.
- With this new approach, companies can significantly increase the uptime of there non prod SAP systems and simulate production scenarios more efficiently.

REFERENCES

All reference items must be in 10 pt font.

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- 3) [SAP HANA High Availability Explained](#) by JPReyes
- 4) [HANA Administration guide](#) by SAP