

Fully Automated Disaster Recovery Solution on Cloud – Oracle EPM



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1. Background

1.1 Purpose

This document details about a cost effective, fully automated disaster recovery solution on cloud for Oracle EPM applications.

1.2 Background

Oracle Fusion Cloud Enterprise Performance Management (EPM) applications are SaaS solutions from Oracle, that helps and organization to model and plan across finance, HR, supply chain, and sales, streamline the financial close process, and drive better decisions.

These applications collect voluminous data from ERP and other enterprise applications, and as a result, the application data and artefact management becomes a very important aspect in the design of these systems.

1.3 Challenges in Oracle EPM application backup storage

- Oracle recommends to control the overall application size within 150 GB, otherwise it can have a significant impact on the application performance.
- For huge applications, with growing data, it is always a challenge to maintain sufficient application backups in EPM cloud instance. Increasing the application size limit is an option given by Oracle, but it is very costly and not recommended.
- Oracle recommends to download the application backups to any local servers in case of a catastrophic failure.
- Maintaining the Oracle Cloud instance backup in a local on-premise server requires investment on huge storage disks, along with an admin resource to manage the application backup activity on a daily basis.

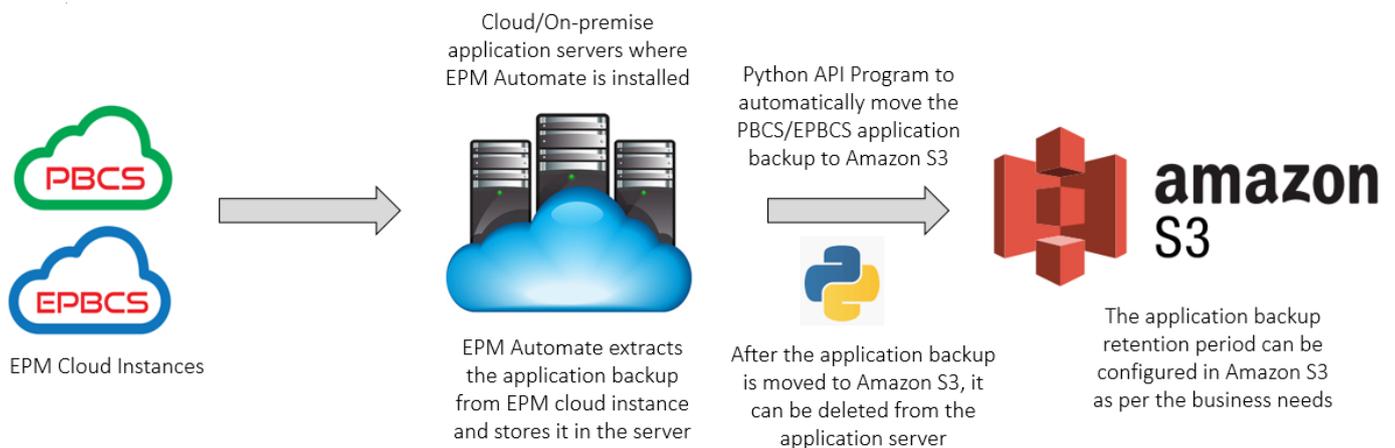
2. DR Solution – The Cloud Way

2.1 Disaster Recovery Solution

- For storing Oracle PBCS application backups, we require either an on-premise server with storage or any cloud storage solution.
- For instance, one of our leading FMCG customer used Amazon EC2 Windows servers for storing all the application scripts which would help download the application backups from Oracle EPM instances and then upload to a cloud storage solution. The backup was then deleted from the windows application server for effective usage of disk space.

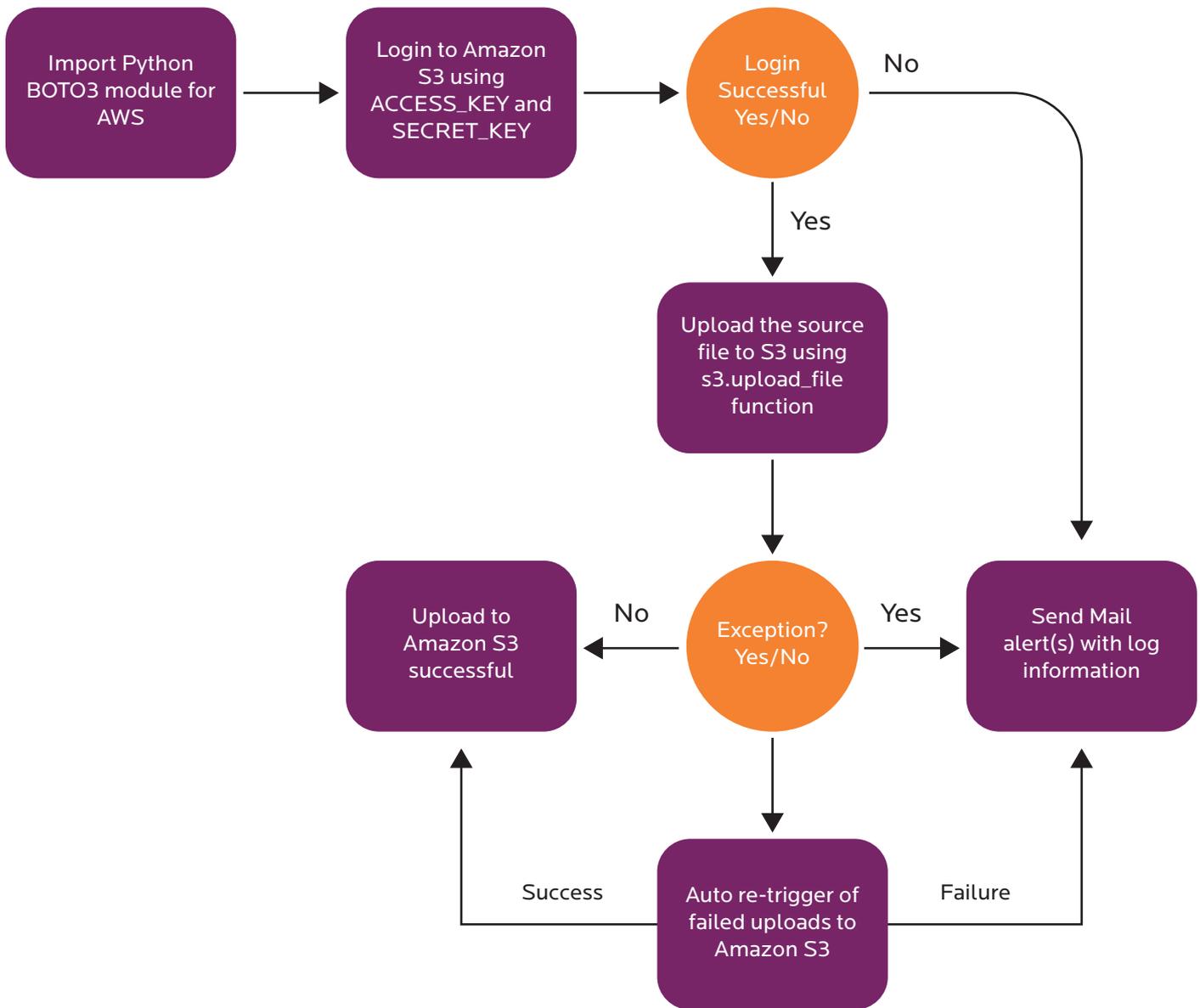
- **Amazon S3** or Simple Storage Service provides secure object storage at lower cost (**you pay for what you use**) and can be used to store all the Oracle EPM application backups. Amazon provides a competitive price and better features compared to other cloud service providers like Oracle, Microsoft etc.
- The application backup file transfer process can be **automated** by integrating **python and Oracle's EPM Automate**, for fully automated data backup storage to cloud, with no manual intervention.
- All uploads to Amazon S3 are recorded in python based **SQLite** database with "**failed**" or "**success**" status.
- All the failed uploads are picked up from the above SQLite database and are **re-triggered** to Amazon S3, until it is successful.
- The **retention** period or lifecycle of the application backup can be configured in Amazon S3 bucket as per business need.
- We can even store all **EPM Automate scripts** also in Amazon S3 as part of DR.

2.2 Solution Diagram



2.3 Python Algorithm for uploading file to Amazon S3 bucket

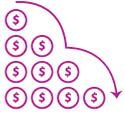
Python needs Boto3 library for configuring the upload of files to Amazon S3.



Note: The python script can be called from EPM Automate scripts which is used to download the application backup for Oracle EPM apps, and the “local file” and “s3 file name” can be passed as an argument to this python script to remove any manual intervention.

3. Benefits

3.1 Benefits of using Amazon S3 as a cloud storage solution



Low Cost

With Amazon S3 you only pay for what you use. While hosting on your own server is expensive and its price is fixed. Whether you use it or not you have to pay for it.



Availability

- Storing objects on Amazon S3 gives you 99.999999999% availability that will protect your data. Your data will be protected against network and power problems as well as against hardware failure.
- One of our leading FMCG customer is using this solution from past 1 year with 100% availability track for S3 storage.



Security

Data stored in Amazon is secure by default because only owner and bucket have access to Amazon S3 resources. It provides encryption for both secure storage and secure transit



Simple Data Transfer

Amazon S3 gives you many options for Cloud Data Migration. It is cost effective and so simple to transfer a large amount of data to Amazon S3 or out of Amazon S3.



Easy to Manage

Amazon S3 provides you a data-driven approach to data security, management efficiency, and storage optimization

3.2 Amazon S3 Pricing

Storage Pricing

S3 Standard - General purpose storage for any type of data, typically used for frequently accessed data	
First 50 TB / Month	\$0.023 per GB
Next 450 TB / Month	\$0.022 per GB
Over 500 TB / Month	\$0.021 per GB

(*** The above pricing is for **US East region** as on **20th Jul 2020**)

There are more cost effective pricing options available and can be chosen as per the requirement to save overall storage cost.

3.3 Simple Cost Calculator

Consider a customer has 60 EPM applications with an average daily application backup size of 10 GB.

Total application backup size for 60 apps = **600 GB**

Total storage required to store 30 days of backup = 18,000 GB or **18 TB**

Total cost per month to store 9TB in Amazon S3 = **\$ 414**

Total annual cost to store the above information = **\$ 4968**

Since it is a fully automated backup solution, one need not have a dedicated resource to monitor the daily application backup activity. Also, storing the application backups in AWS S3 bucket shall optimize the disk space/usage on the application server and its overall performance.

Restoring the application backups from Amazon S3 to Oracle Cloud EPM instance can also be automated using python API and REST API calls.

4. References

- Python Boto3 documentation (<https://boto3.amazonaws.com/v1/documentation/api/latest/reference/services/s3.html>)
- Amazon AWS solution webpage (<https://aws.amazon.com/s3/>)



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