Zebra Project

Zebra Technologies | [Company address]

Db solution

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**About Zebra:**

Zebra Technologies Corporation (Zebra), incorporated on July 10, 1991, designs, manufactures and sells a range of automatic identification and data capture (AIDC) products. It provides products and services in over 180 countries.

In their retail business, they have multiple Trading Partner, Repair Centers, carrier facilities, operating in different Time zones.

**Re-Sequencer Module:**

**Requirement**

They need a solution for their Repair Services, to interact between different systems, as and when a Service Request gets created. There would be multiple messages flowing to and from TPs, Repair Centers and Carrier Partners, against a single SR. In a standard transaction on an average 18 messages flows for an SR, in the course of Creation till closure. It may exceed in case of any holds happen during different stage of repair. These messages contain payload, and gets saved in a CLOB column.

**Solution**

We have developed an Integration solution to let this communication happen within different systems. We have developed SOA and OIC Integrations.

In my current module of Re-Sequencer, we have used Oracle Integration Cloud Service as a middle ware and Oracle Cloud Database (Autonomous Transaction Processing), ATP as middle ware database. Oracle ATP database gives us auto scalability and Zero downtime.

The Re-Sequencer solution is to re-process the failed messages of event based (SOAP/REST) integration in the FIFO sequence.

This solution is having 2 parts:

* **1. Storing and maintaining transaction in Middleware database and Processing it in FIFO manner**

This Solution is an OLTP solution, which holds 90 days of data. I have kept my tables in 2NF. I have created 4 tables:

* **Group and Message Table**: These are my Transactional Tables Having SR level information and Direction (Source and Target system Information), Corresponding Messages respectively. I have established Referential Integrity between these two tables through Surrogate Key (Auto generated Sequence Column).
* **TP-Metadata table**: This table hold the Trading Partner Information and their time zone, status etc.
* **Control Table**: This table is used to capture the processing status of transactional tables for OIC Triggering activity.

Additionally, I have created Types for exposing my procedure IN/OUT parameter as table type.

I have Created Package, Procedures, Functions to Load data, data processing as per business requirement, fetch data, Time zone conversion, Timestamp formatting, lookup etc.

I have utilized Tuning concepts like Bulk processing, Collections, Functional Indexes, Analytical functions, NOCOPY Procedure OUT parameter of Collection Type, Partitioned tables for Data purge program and Properly tuned SQLs, for getting performance benefits for this solution.

* **2. View & Reprocess Erred transactions**

We have created a web based Repair Service Monitor for client to View the erred Transaction and Reprocess it. User has flexibility of searching or processing single or multiple SRs and their corresponding lines.

We have VBCS to display erred transaction. VBCS will interact with OIC and OIC will in turn submit/fetch the request/data with Middle Ware Database.

**SOA Base Table (Repair Monitor)**

**Requirement**

We have to create a reporting table on top of 4 SOA base transactional table. Optimize the performance.

**Solution**

We have created a replica of SOA infra tables to customize. Created Index on required key predicate columns, and designed a Batch Incremental data load program to sync these tables with Base tables.

Created a Control table to record the status and level of data load.

Created a reporting table which will get populated by these custom tables.