Sybase to Oracle migrations

Overview

Witold Świerzy
Oracle EMEA Data Domain Expert

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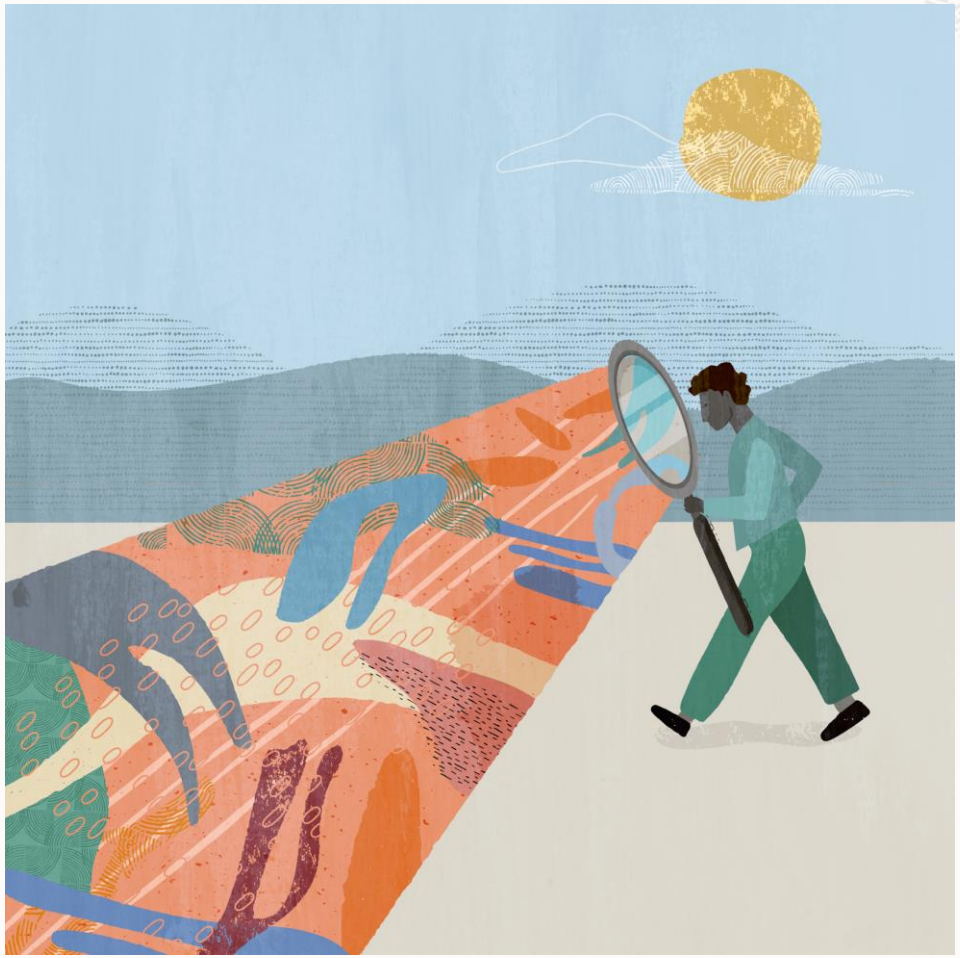
Agenda

1. Introduction
2. Migration methods
3. Use Cases
4. How Oracle can help



Sybase to Oracle migration Overview

Application to consider
- Murex
- Compatible with Oracle 19c (19.14.00, 19.11.0.0, 19.8.0.0+patches, 19.5.0.0+patches)

Databases
- Sybase ASE 16.0 SP02 PL09
- Two production database instances 400GB each
- 18 QA database instances 800GB each

Additional Considerations
- Many customizations, including stored programs
- Due to above fact it is not possible just to copy the data and start to use Murex for Oracle database

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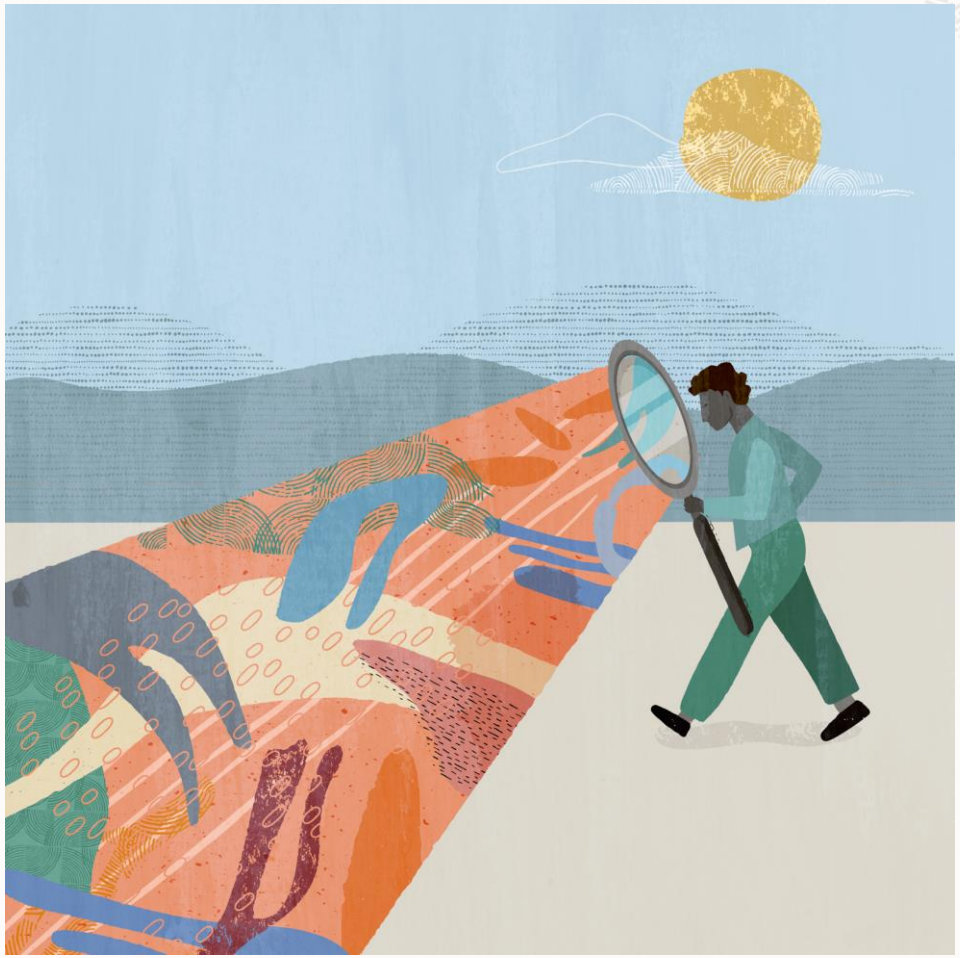

Sybase to Oracle migration Overview

Main areas

- **Migration of data structures**
  - Tables
  - Indexes
  - Partitioning

  ...
- **Migration of stored programs**
  - TSQL vs PL/SQL

- **Migration of data**
  - Volume of the data decides about tool and migration method

- **Migration Tools**
  - SQL Developer
  - Golden Gate/ODI
  - Oracle OpenGateway
  - Third party solutions

Sybase to Oracle migration
Migration of data structures

Sybase IQ data type	Oracle data type
BIGINT	NUMBER(20,0)
BINARY(n)	if (n > 255) LONG RAW else RAW(n)
BIT	NUMBER(1,0)
CHAR(n)	If (n > 255) LONG else VARCHAR(n)
CHARACTER VARYING(n)	VARCHAR2(n)
CHARACTER(n)	VARCHAR2(n)
DATE	DATE
DATETIME	DATE
DECIMAL(prec, scale)	NUMBER(prec, scale)
DOUBLE	FLOAT
FLOAT	FLOAT
INT	NUMBER(11,0)
LONG BINARY	LONG RAW
LONG VARCHAR	LONG or CLOB
MONEY	NUMBER(19,4)
NUMERIC(prec, scale)	NUMBER(prec, scale)
REAL	FLOAT
SMALLDATETIME	DATE
SMALLINT	NUMBER(5,0)
SMALLMONEY	NUMBER(10,4)
TIME	DATE
TIMESTAMP	DATE
TINYINT	NUMBER(3,0)
UNIQUEIDENTIFIERSTR	CHAR(36)
UNSIGNED BIGINT	NUMBER(20,0)
UNSIGNED INT	NUMBER(11,0)
UNSIGNED INTEGER	NUMBER(11,0)
VARBINARY(n)	if (n > 255) LONG RAW else RAW(n)
VARCHAR(n)	VARCHAR2(n)

Source: https://infocenter.sybase.com/help/index.jsp?topic=/com.sybase.infocenter.dc00800.1530/doc/html/san1276751187169.html

Sybase to Oracle migration
Migration of data structures

Partitioning

- Round-robin partitioning is not supported in Oracle DBMS
- In some cases it is possible to use hash-partitioning instead

Indexes

- Oracle DBMS does not support clustered indexes
- In some cases it is possible to use IOTs or clusters instead of clustered indexes

Source: https://infocenter.sybase.com/help/index.jsp?topic=/com.sybase.infocenter.dc00800.1530/doc/html/san1276751187169.html

Sybase to Oracle migration
Migration methods and tools

For large databases

- GoldenGate/ODI or SQL Developer offline migration
- GoldenGate is not able to rewrite stored programs from TSQL to PL/SQL
- Limitations of GoldenGate: here
- SQL Developer can be used to automatize rewriting the TSQL code

For smaller databases

- SQL Developer online migration
- SQL Developer can be used to automatize rewriting the TSQL code

Source: https://infocenter.sybase.com/help/index.jsp?topic=/com.sybase.infocenter.dc00800.1530/doc/html/san1276751187169.html

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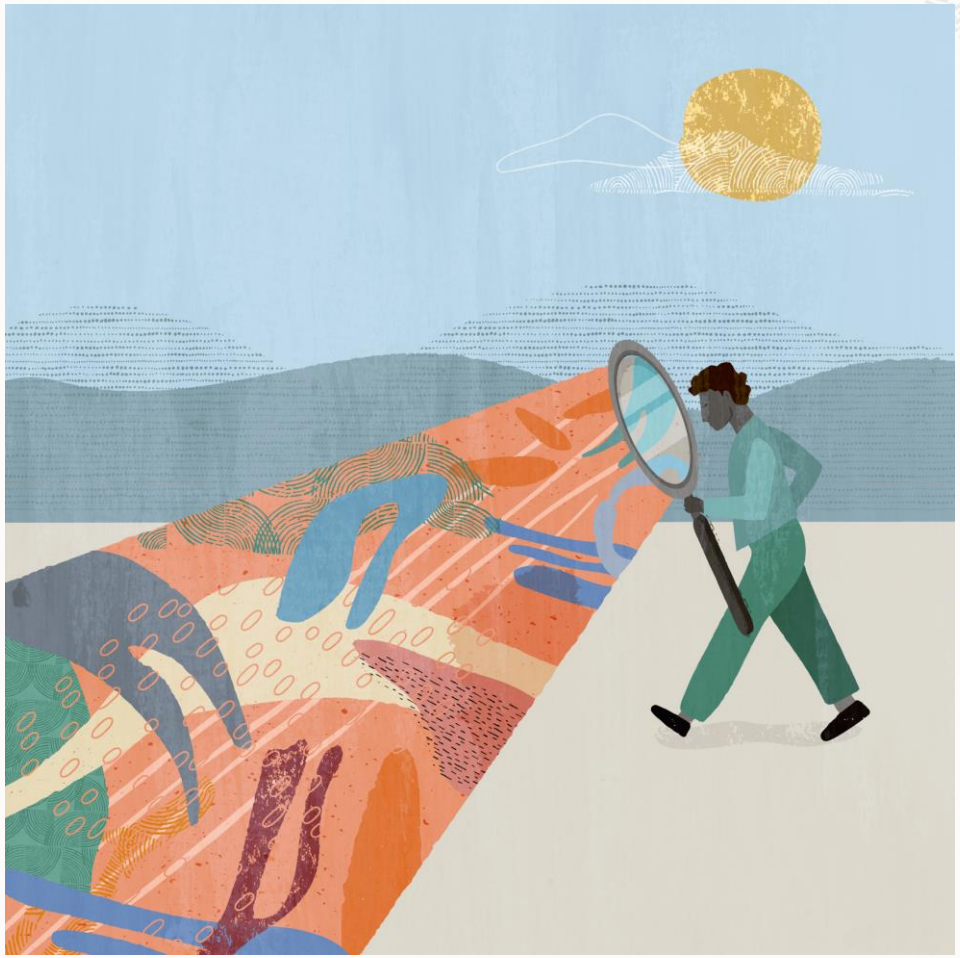


Large commercial bank in Hong Kong

Overview

- Stringent requirements on high availability, data accuracy, fallback, data comparison.
- Applications in C++, Java
- 37GB DB, 599 Stored Procs, 486 Tables
- Migration – complex and large.
- Project Duration 15 Months.

Business Drivers

- Sybase market share shrinking.
- Dissatisfied with production support.

“The result is rewarding and thanks again for your great support.”
Head of IT

Status : LIVE – March 2021

Technology

- Sybase to Oracle RAC
- Oracle Golden Gate
- Oracle Gateway
- Oracle Veridata

Results

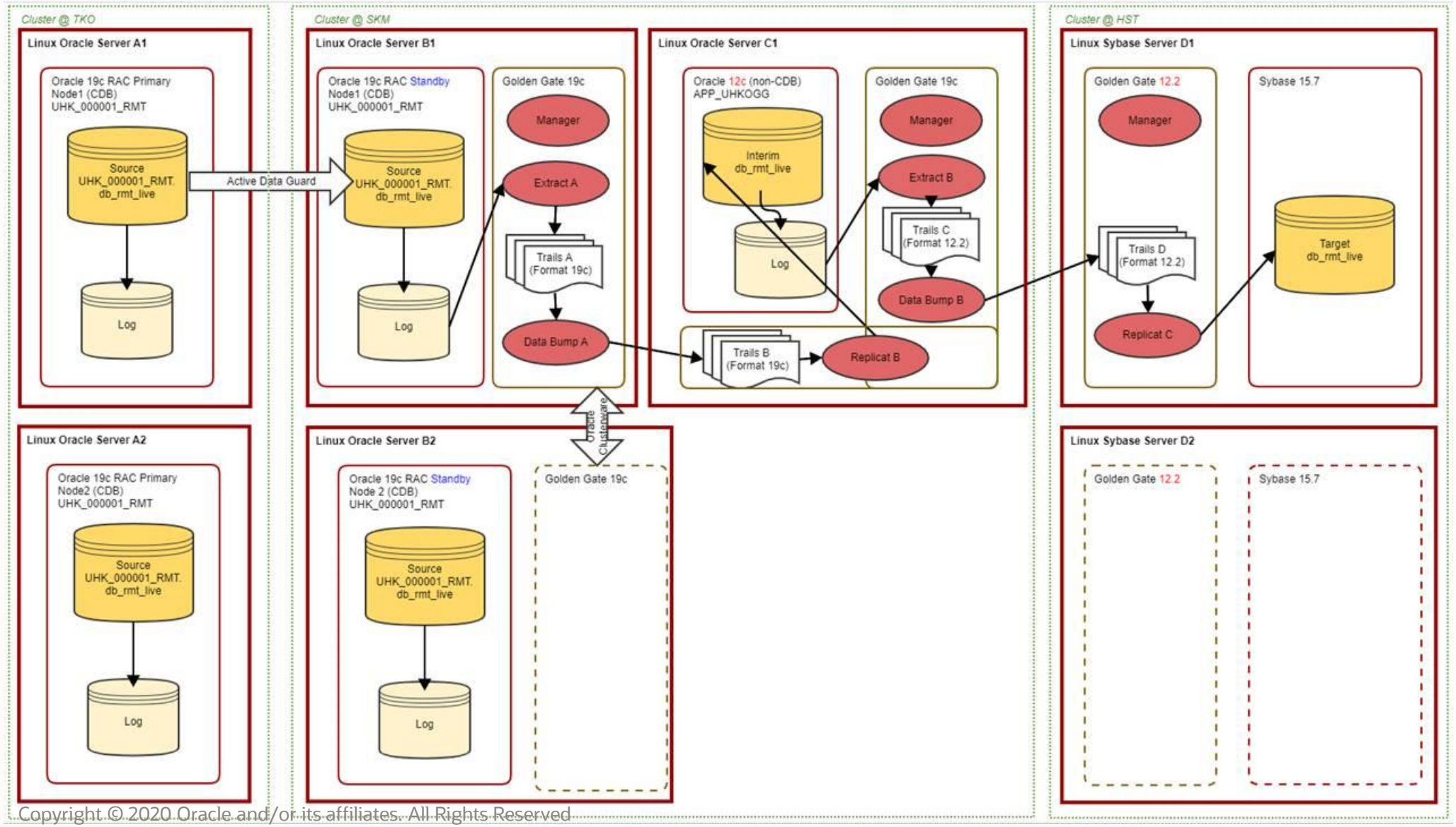
- All business logic retained
- Staff able to maintain expertise
- No production downtime during switchover with 0 downtime fallback options.
- Sybase system decommissioned.

PMG Engagement

- Advisory Role
- Discovery, migration methodology, process, best practices & Performance Tuning.

Large commercial bank in Hong Kong

Go Live - Failover Approach – 19C



Large company providing financial services bank in Japan

Overview

- Platform as a Service - PaaS
- Cloud Infrastructure as a Service - IaaS
- Database Enterprise Edition
- Multitenant
- Real Application Clusters
- GoldenGate for Oracle Database
- Diagnostics Pack
- Tuning Pack

Business Challenges

- Regulatory requirements increasing and necessitating changes across the business and IT
- Compliance reporting automation improvements were needed
- Lean resources and being asked to do more with less
- Current database footprint was extremely complex

Why Oracle

- to standardize our current database platform and Oracle was the optimal solution to do it.
- Ability to be more agile when deploying new databases
- Consolidate database services to enable improved utilization

PMG Engagement

- Advisory Role
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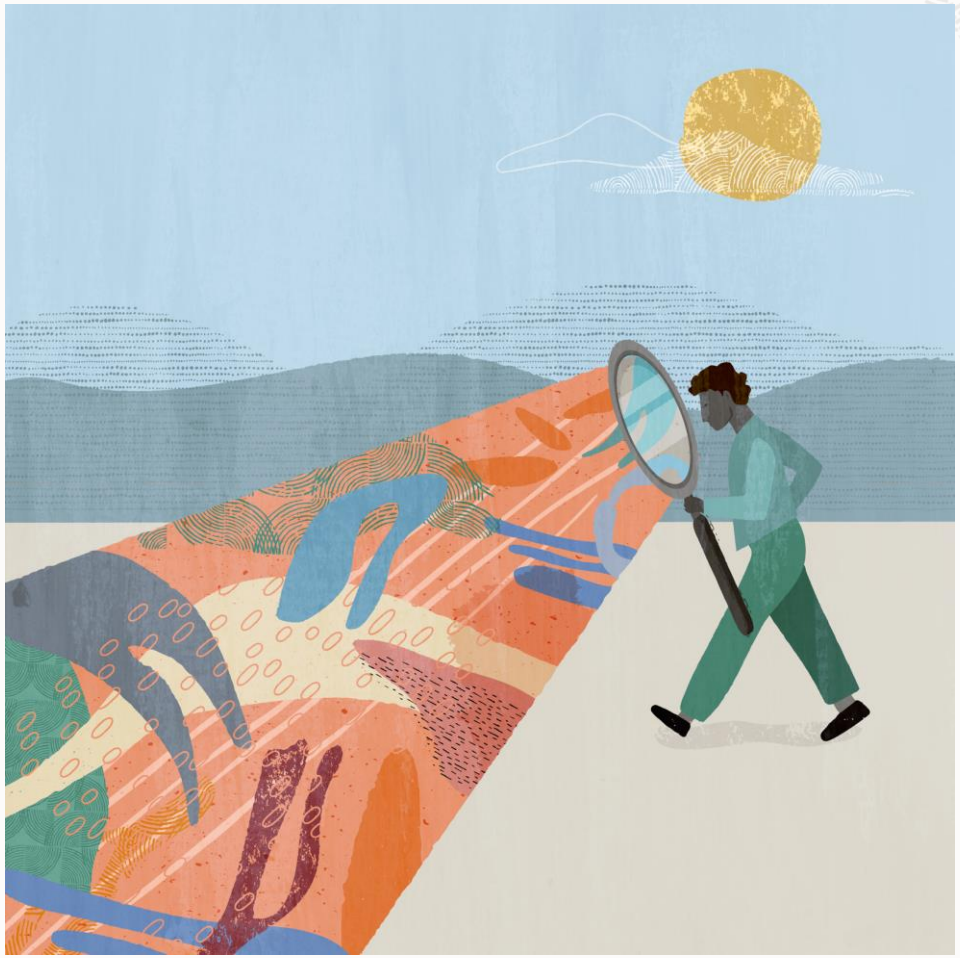
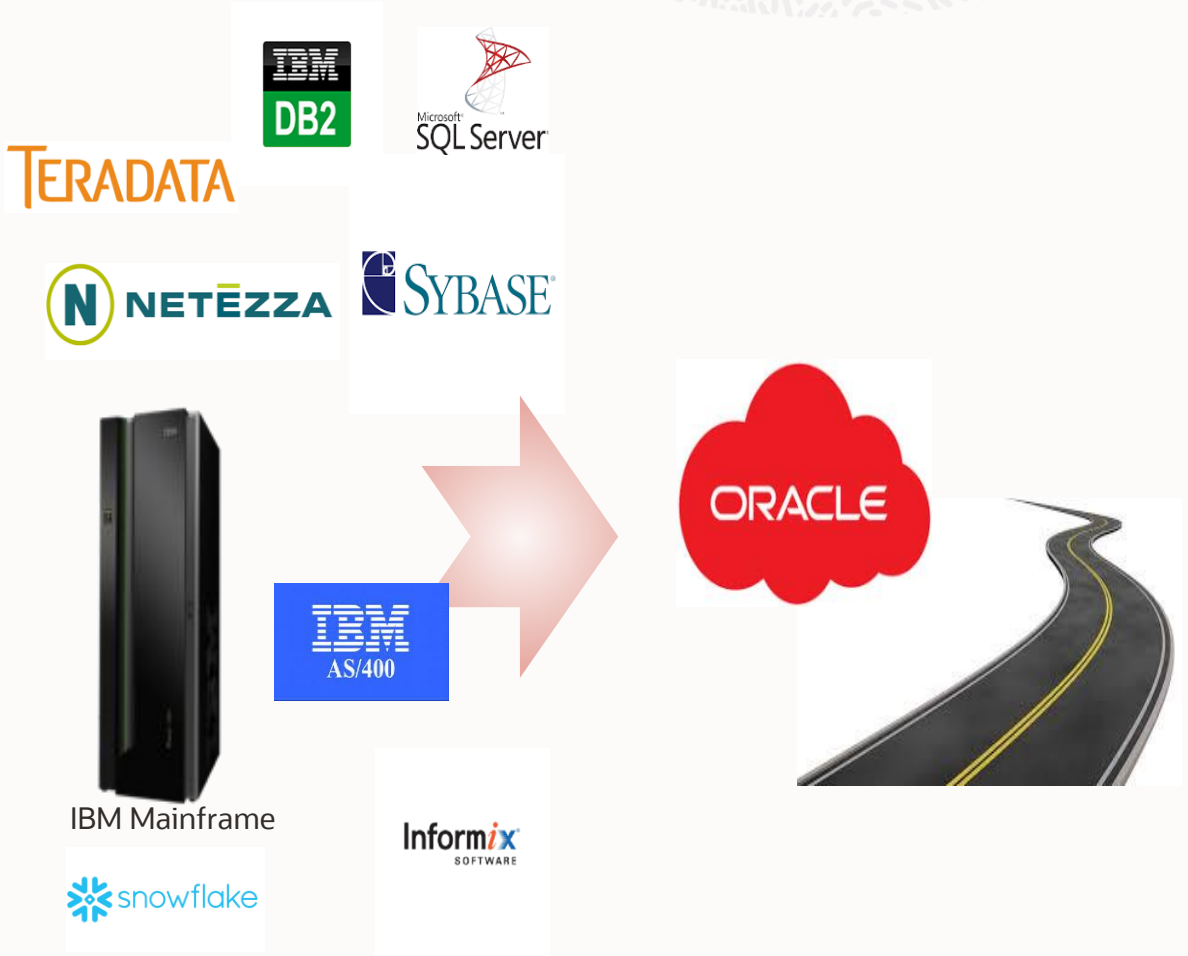


How Oracle can help

- Migration SMEs in non-Oracle to Oracle modernization – based in R&D team
- Worked with hundreds of clients
- Build innovative migration roadmaps for users
- Leverage automation and expertise to accelerate transformations



How Oracle can help

Source

- Snowflake
- AWS
- GCP
- Azure
- SQLServer
- MongoDB
- Mainframe
- PostgreSQL
- Sybase
- DB2 Distributed
- Teradata
- Netezza
- Hbase
- Informix

Destination

- Autonomous Database
- Exadata Cloud Service
- Exadata Cloud@Customer
- Exadata On-Prem
- DBCS
- Database Appliance

How Oracle can help

- Discovery and round table discussions via zoom calls
- Craft an initial road map.
- Build innovative migration roadmaps for users
  - Recommended approach
  - Recommended target Architecture
  - A bill of materials that represents what we think is going to cost
  - How we would approach this
- Detailed analysis
  - Code analysis
  - Schema analysis, and detailed conversations on the transformation process
  - What the benefits are
- We involve the right partner when needed
- We are not implementers, supporting implementers(Lift, OCS/ACS) and giving guidance

How Oracle can help – Short timeframe to initial analysis

Detailed Analysis 4-6 weeks

Initial Roadmap ***2-3 weeks***

Stakeholder call

- Legacy Modernization Strategies
- Case Study Review
- Candidate system identified – best ROI for business and technical needs
- Timelines

Application Metrics

- Questionnaire filled out
- Client technical objectives
- Client business objectives
- Internal discovery review of initial findings

Initial Recommendation

- Review of data collected
- Determination of approach
  - Benefits
  - Challenges
- Bill of materials
- Transformation cost ROM
- Initial ROI
- **SOW for Phase 2**

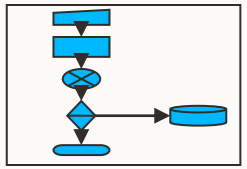
Code Analysis

- Detailed discovery
  - 2 sessions
- Refined cost estimate
- HA / DR target architectures
- Zero downtime architecture
- Complexity analysis
- Exact code metric reporting
- Transformation plan and SOW

Refinement

- Migration Services SOW
- Completed BOM
- Refined Pricing
- Target architecture sizing
- Detailed schedules
- Training plan
- Testing plan

Automation

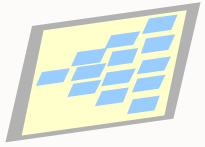


Batch

Green Screens

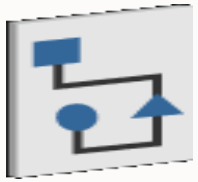
3GL

4GLs



Data

Recover



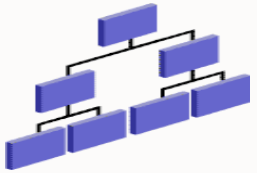
Artifacts

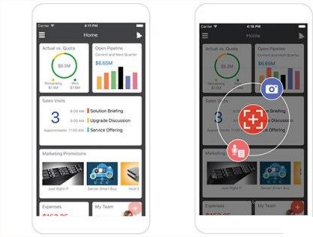
Architect

Data Migration

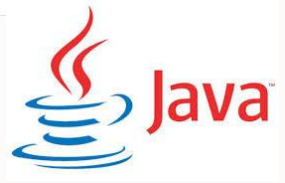
Model Based

Functional Equivalent





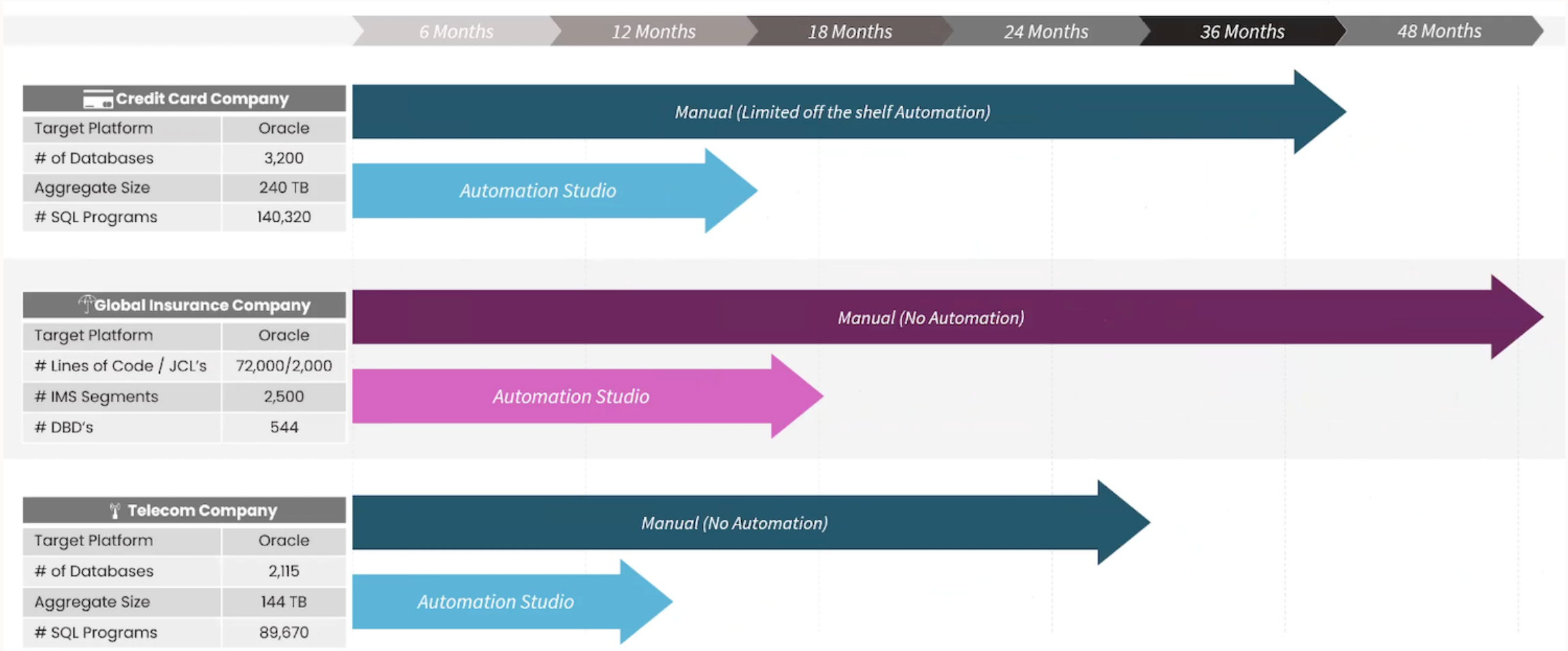
UX



Java

Automated Migration Results

Through Automated Modernization Suites, Migrations are complete in 1/3 the time @1/2 the Cost



Thank you.