AWS

SUMMIT

Singapore

Best Practices for Re-architecting & Optimizing Large-Scaled Data Systems on AWS: Oracle Migration and Big Data Streaming Solution

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amazon web services

Best Practices for Re-architecting & Optimizing Large-Scaled Data Systems on AWS

From Oracle Migration to Big Data Streaming Solution

Agenda

1. About FPT
2. Application Migration
3. Leverage the Cloud
4. Optimization on Cloud
5. Lesson Learnt

About FPT

FPT- The Market Leader

We are where our clients are: 23 global offices

#1 in IT Services/ITO & Systems Integration in Vietnam

#1 Entertainment Portal in Southeast Asia

#1 Private University in Vietnam **17,000** Students

Asia 300 | IAOP 2015 THE GLOBAL OUTSOURCING | Gartner Cool Vendor 2016

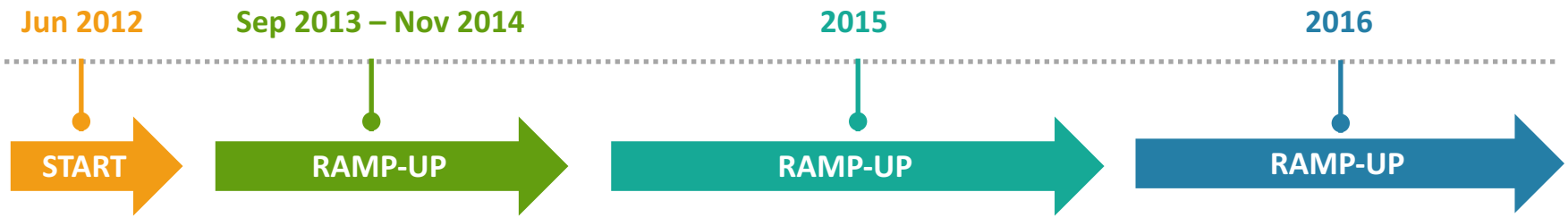
Highest International Standards

SEI CMMI Level 5 | ISO 27001:2013 (BS 7799 -2:2002) | ISO/ TS 16949 | ISO 9001:2008 | ISO 20000-1:2011

amazon web services Partner Network — ADVANCED CONSULTING PARTNER — MANAGED SERVICE PARTNER

amazon web services Partner Network — ADVANCED CONSULTING PARTNER — MIGRATION COMPETENCY

AWS – FPT Partnership History



Won 1st AWS Project

- AWS Advanced Consulting Partner
- 1st Product on AWS Marketplace
- 20 AWS Certified Solution Architects

- 35 completed and on-going AWS projects (including many IoT projects) | 24 customers
- 4 solutions on AWS
- 60 AWS Associates | 9 Professionals
- Audited AWS Managed Service Partner
- 2015 “Learn & Be Curious” Certified Partner

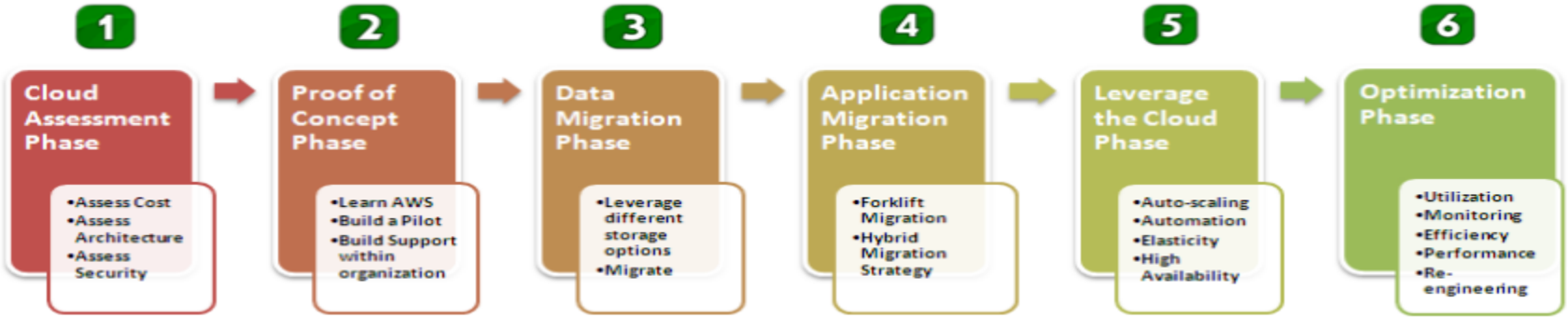
- **Certified AWS Migration Competency** Partner
- 60 completed and on-going AWS projects (including many IoT projects) | 50 customers
- **190+ AWS Associates | 42 Professionals**
- Audited AWS Managed Service Partner
- Authorized AWS Value-Added Reseller

What do we do?

1. Database and SAP Migration
2. Big Data System Design
3. Digital Transformation: AI, IoT, Fintech, etc.

How to migrate to AWS Cloud

A Phased Strategy for Migration: Step By Step Guide

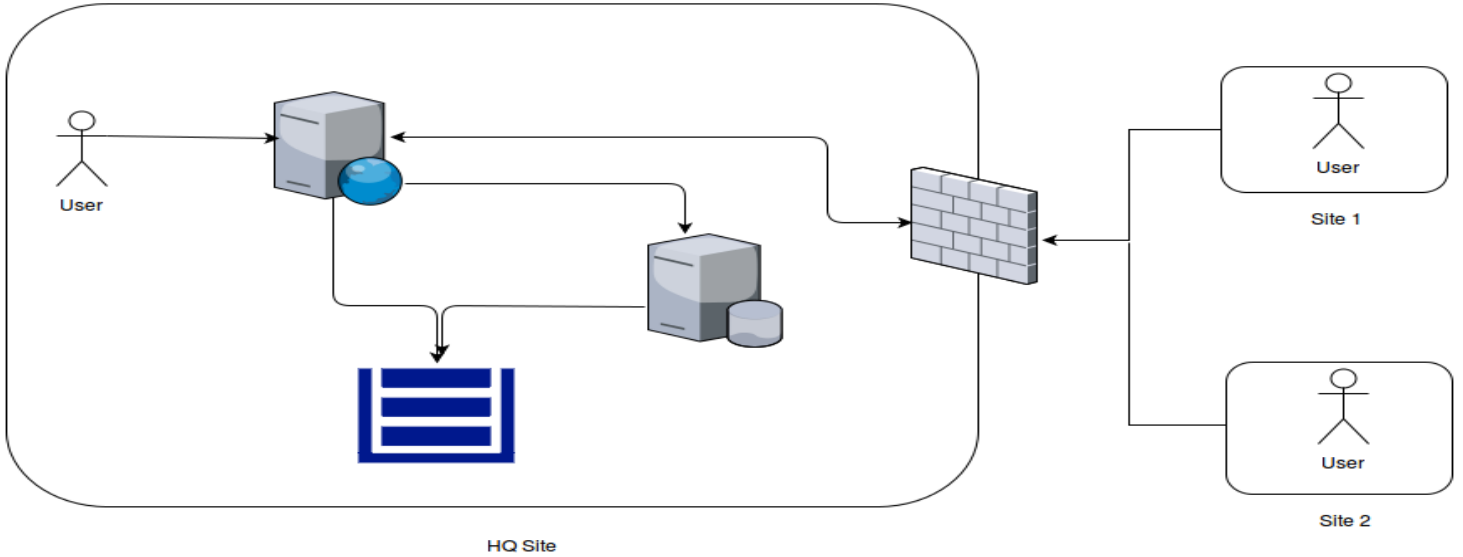


Application Migration Phase: Lift and Shift

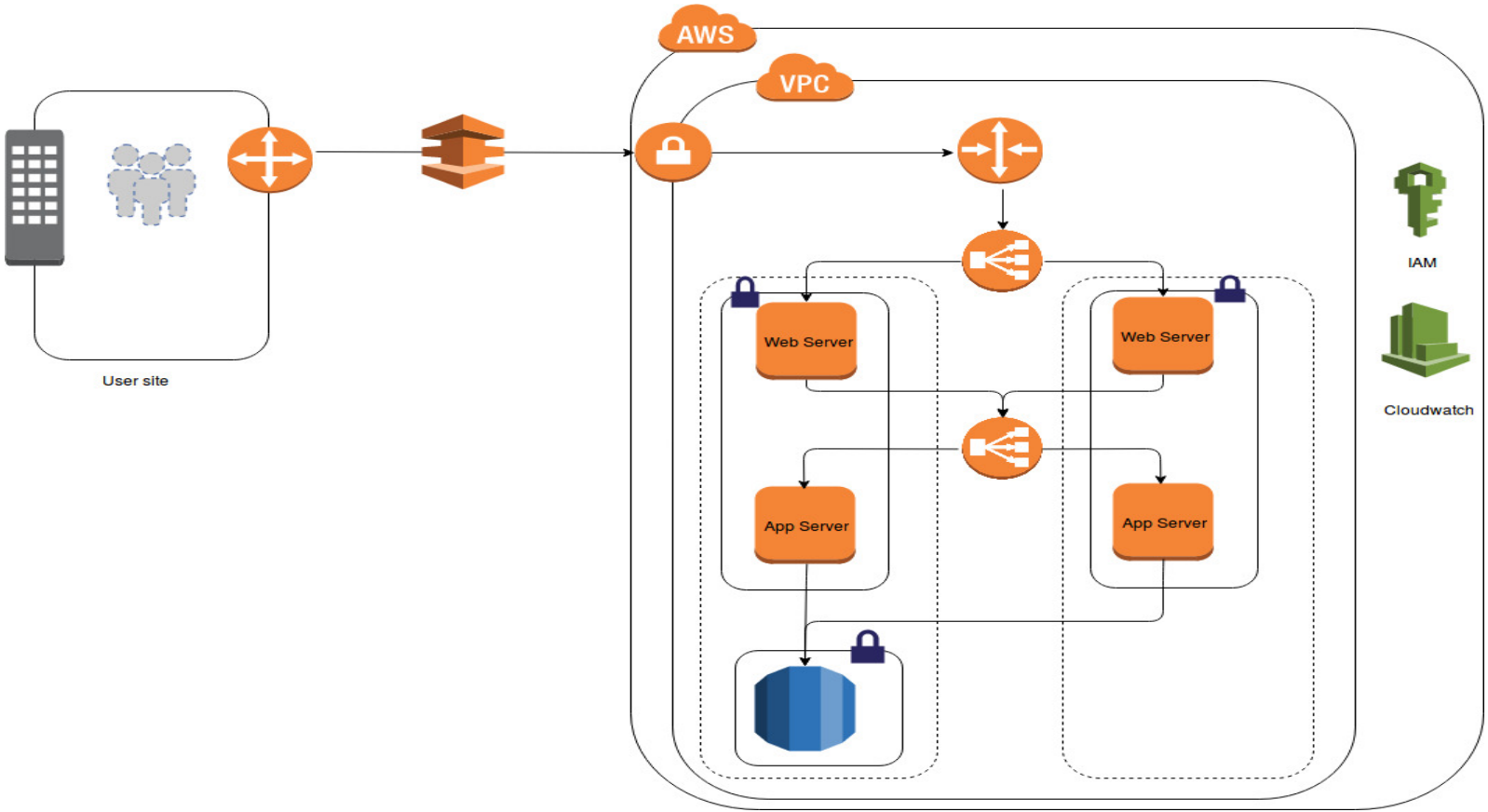
First case

1. **Migrate the whole data center to AWS,**
2. Have some Oracle Applications like Oracle EBS, Siebel,
3. Have about **30K+ tables** to migrate.

Existing System



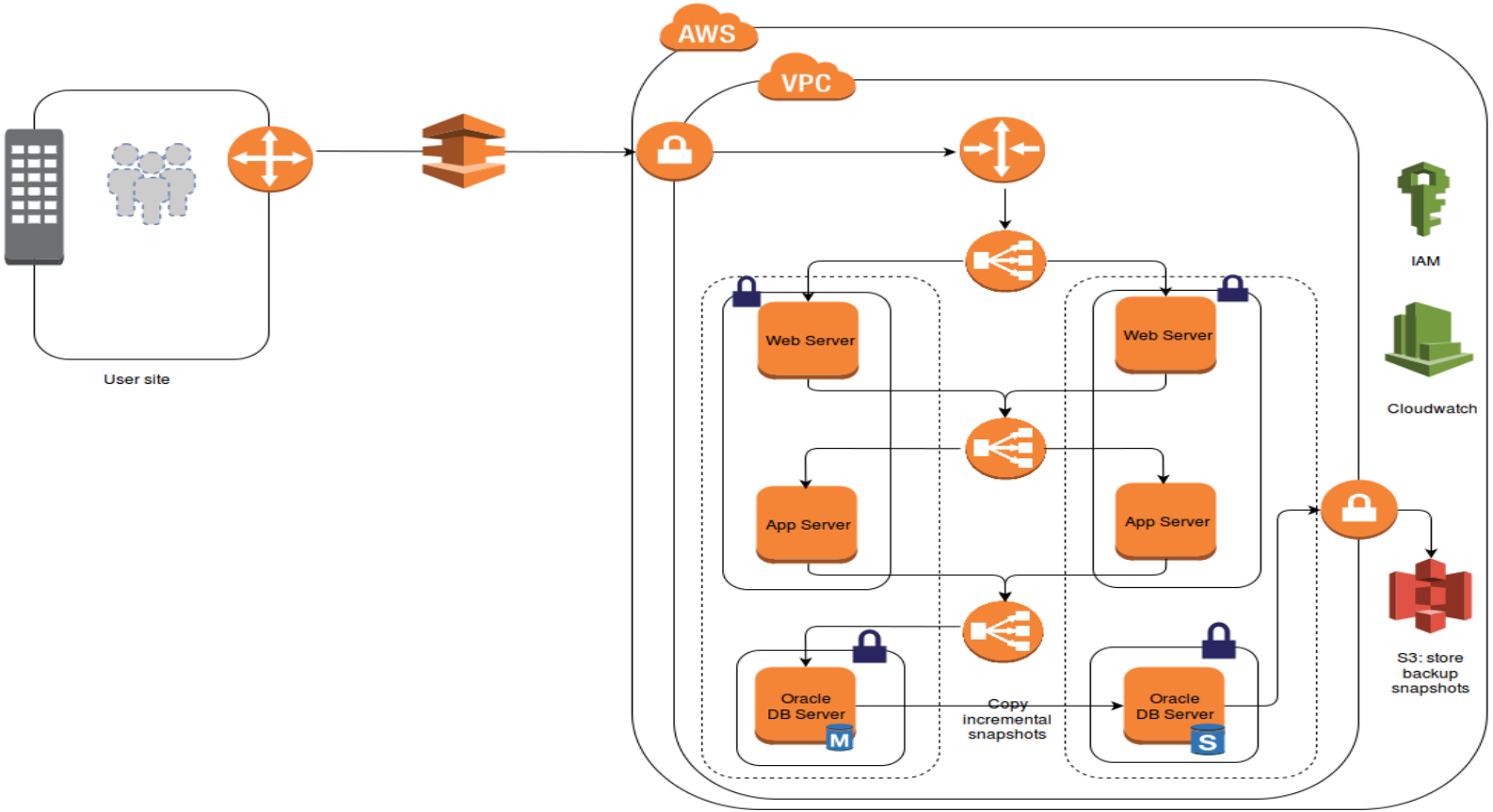
Reference Architecture



Real scenario

1. **Cannot use RDS** due to special requirements from Customer Applications → Must use EC2 instances.
2. RTO of 2 hours, RPO of 15 mins.
3. **No disk array** on AWS → Have to deal with bit rot, disk failures.

More realistic architecture

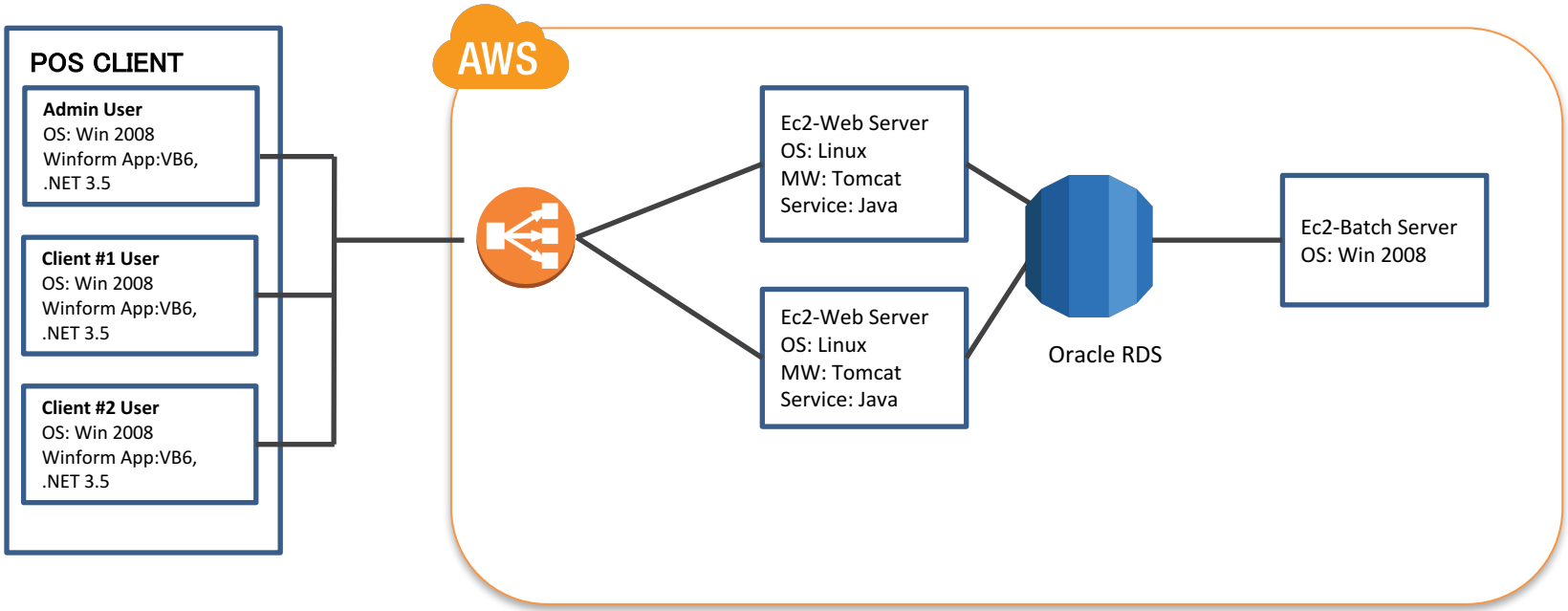


Benefits

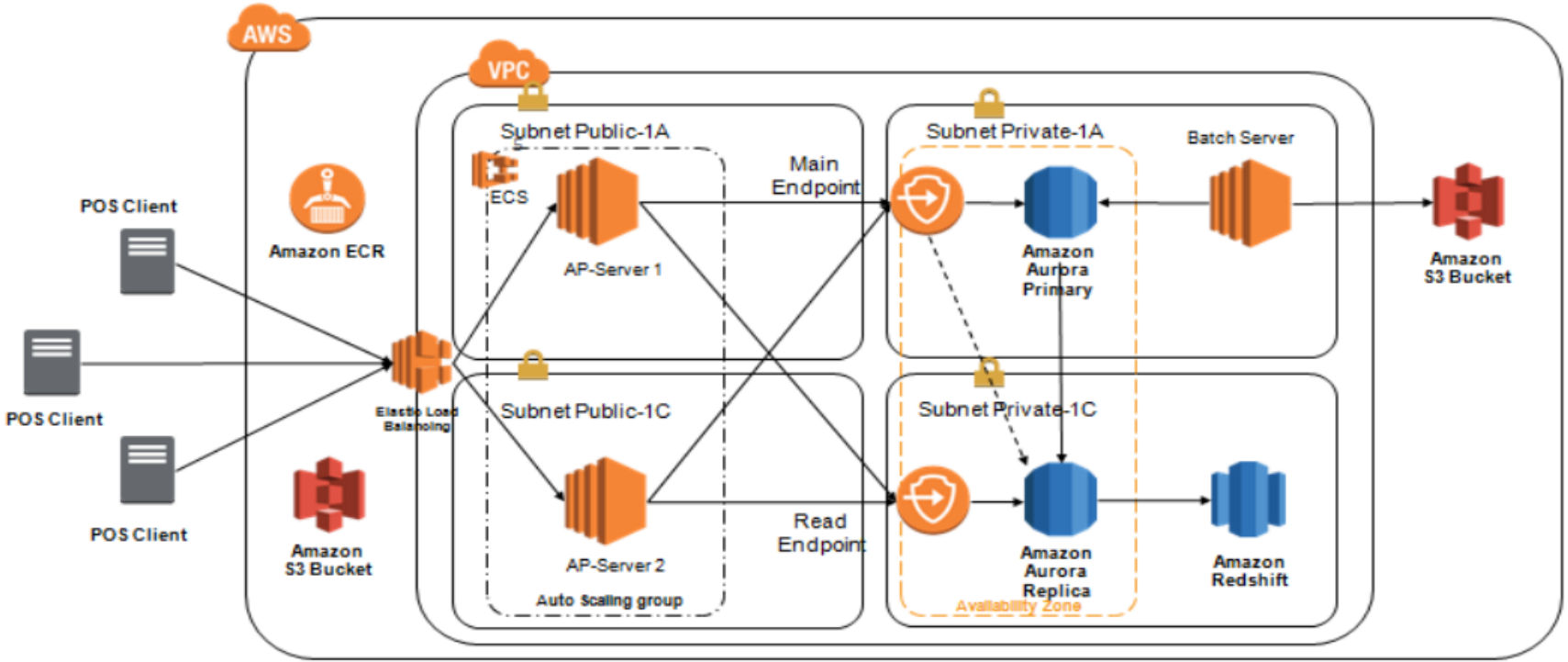
1. 30% of cost reduction
2. Lower RTO and RPO
3. Enjoy AWS Data warehouse solution like Redshift and EMR

Leverage the Cloud: Database Migration to Aurora

Existing Architecture for a Retailer



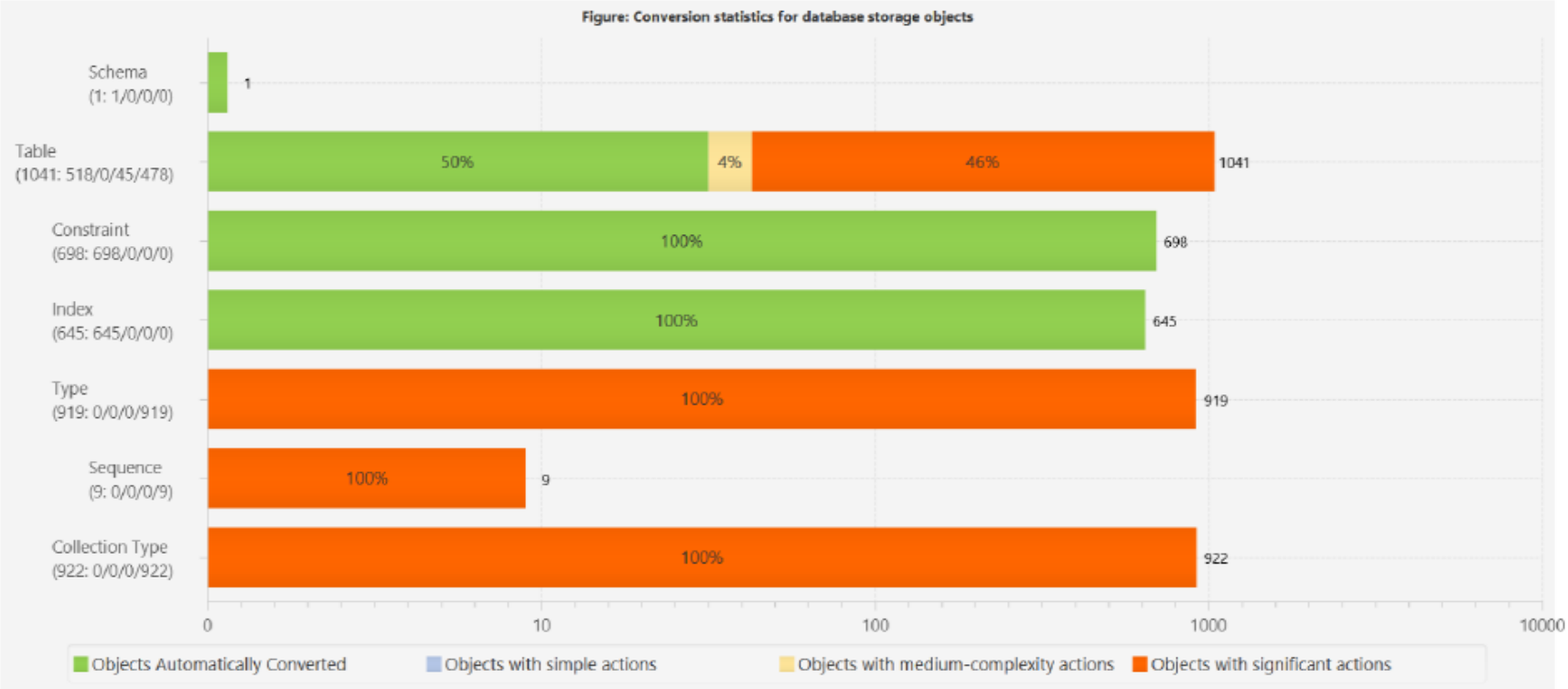
A reference architecture on Aurora



Challenges: Oracle to Aurora

1. Rewrite PL/SQL stored procedures
2. Re-factor the application code
3. Enterprise grade support

A report from Schema Conversion Tool (SCT)



Solutions

1. **SCT** is the key to migrate PL/SQL SP
2. Only have to update DAO
3. **AWS support** with 15 minute response time.

Benefits

1. Performance gain of **20%**
2. Reducing **50%** of the cost
3. With built-in High Availability and DR

Optimization: A Case for Deep Re-engineering

A Root Cause Analysis System

1. A data set of petabytes (PB) scale
2. Use machine learning to find the Root Cause
3. Data growth rate of multiple TB+ per day

Batch Processing Approach

Some Problems with Batch Approach

1

It takes several **hours** if not days to complete

2

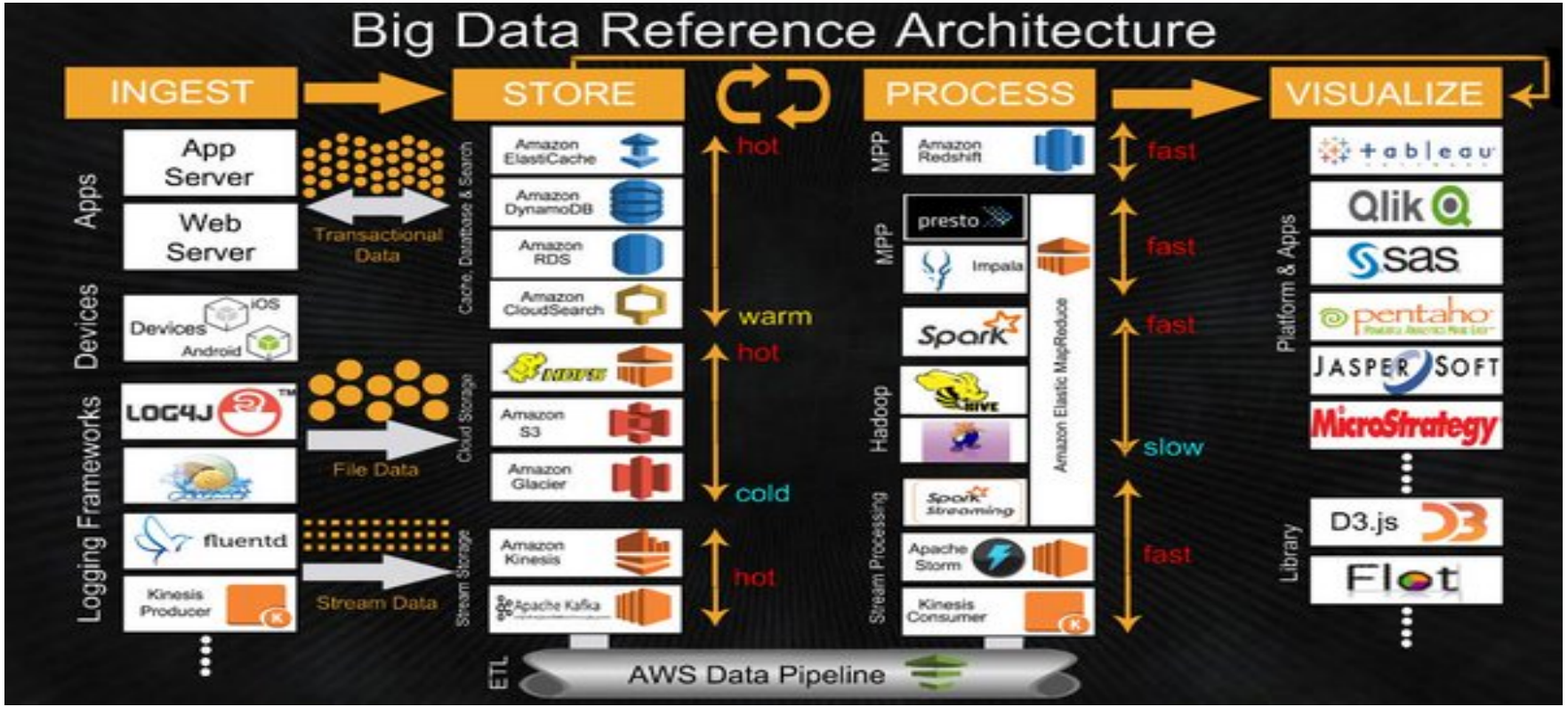
What if it costs **millions dollars** for each **hour** of RCA delay

Can we do it better?

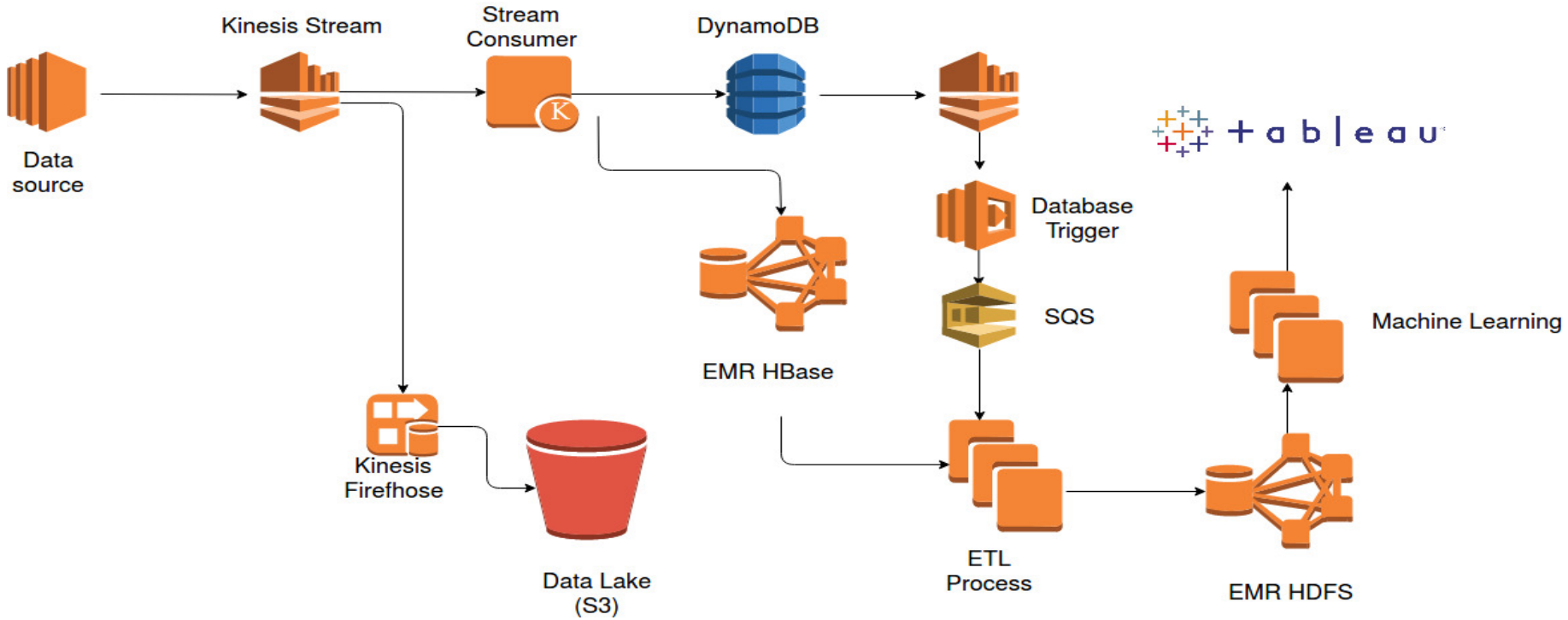
Business Challenges

1. Reducing the RCA processing time from **hours** to **minutes (100x performance)**
2. Reduce the cost of the system
3. Retain as much data as possible

Reference Architecture for Big Data on AWS



Streaming Approach



Results

1. **100 times faster** for RCA
2. Reducing the cost of ownership
3. **Much shorter time** to implement their PoC and new algorithm experiments

Lessons Learnt

Lessons Learnt

- Be Bold
- Go Deep
- Have Fun

Thank You