Practical Approach for Oracle migration to AWS

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AWS Global Infrastructure

- Customers in 190 countries

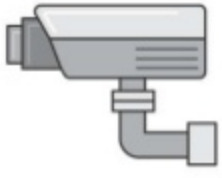
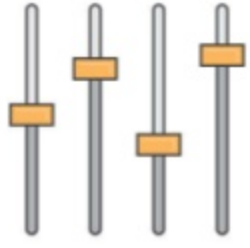
- 18 geographic Regions &
- 1 Local Region

- 55 availability zones

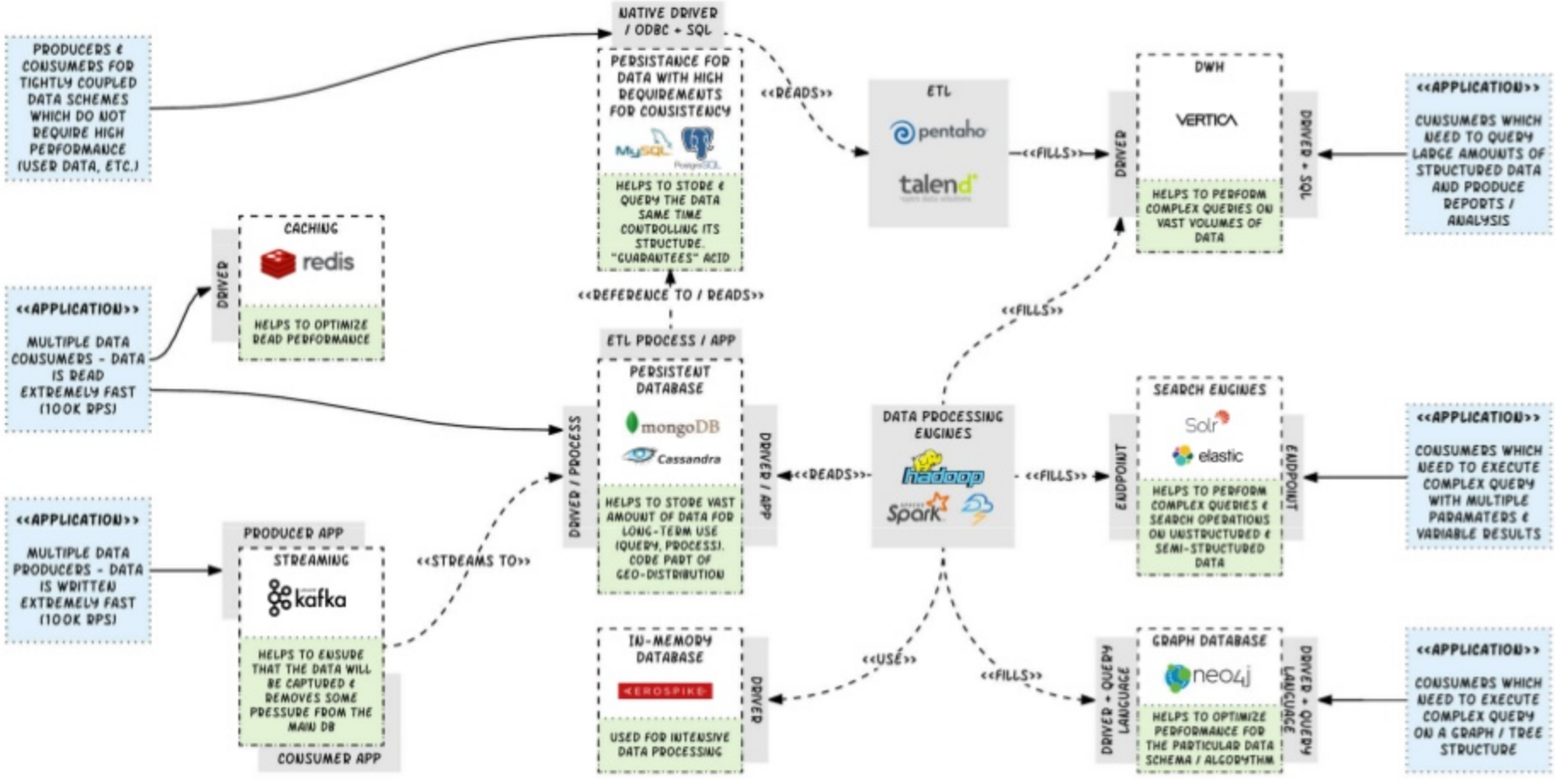
- 103 edge locations

New Region (coming soon) – Bahrain, Hong Kong SAR, Sweden, AWS GovCloud (US-East)

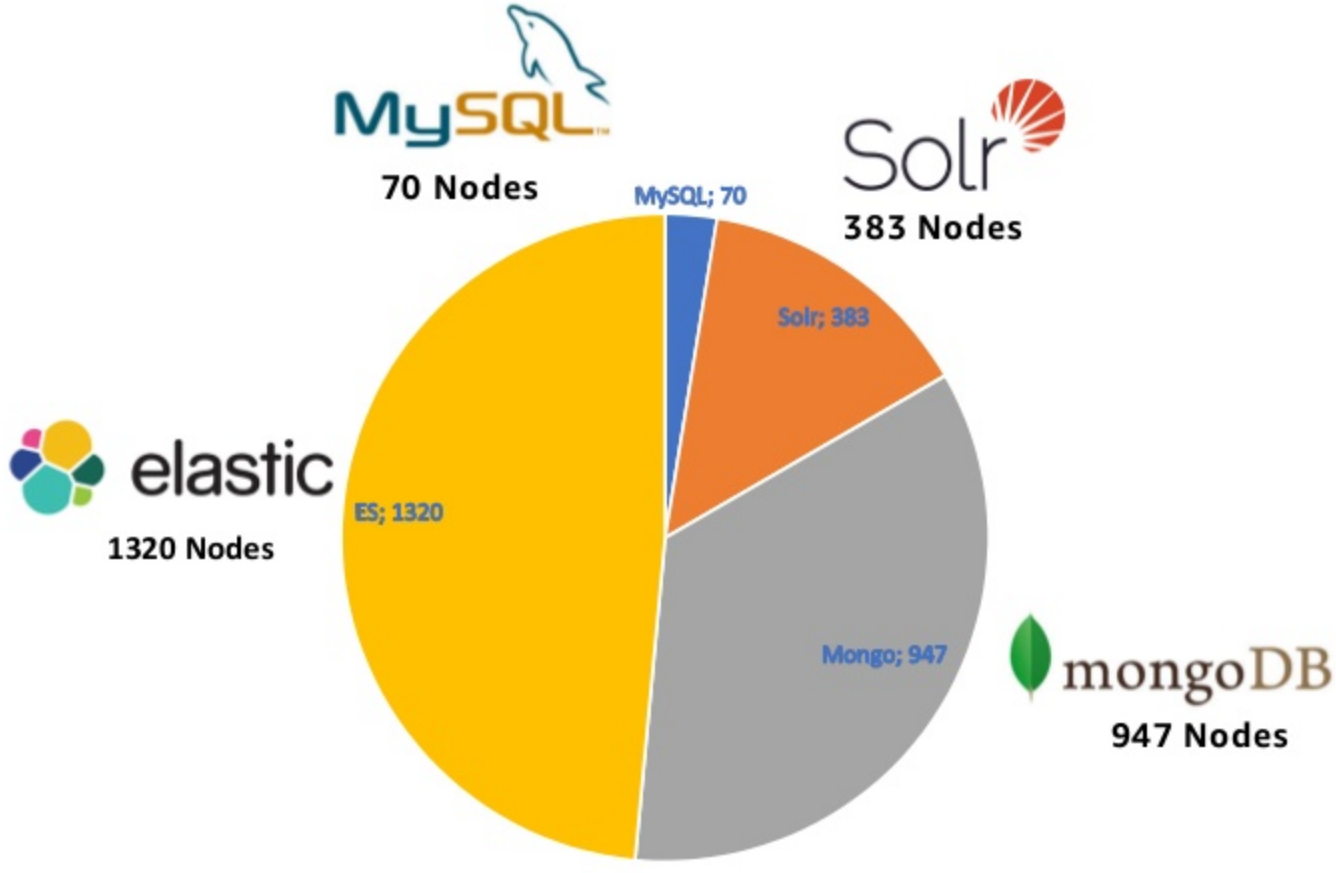
Why Oracle customers migrate to AWS

			
Retire technical debt	Tech refresh	New applications	New architectures
			
Improve security	Automate operations	Improve performance	Simplification of s/w

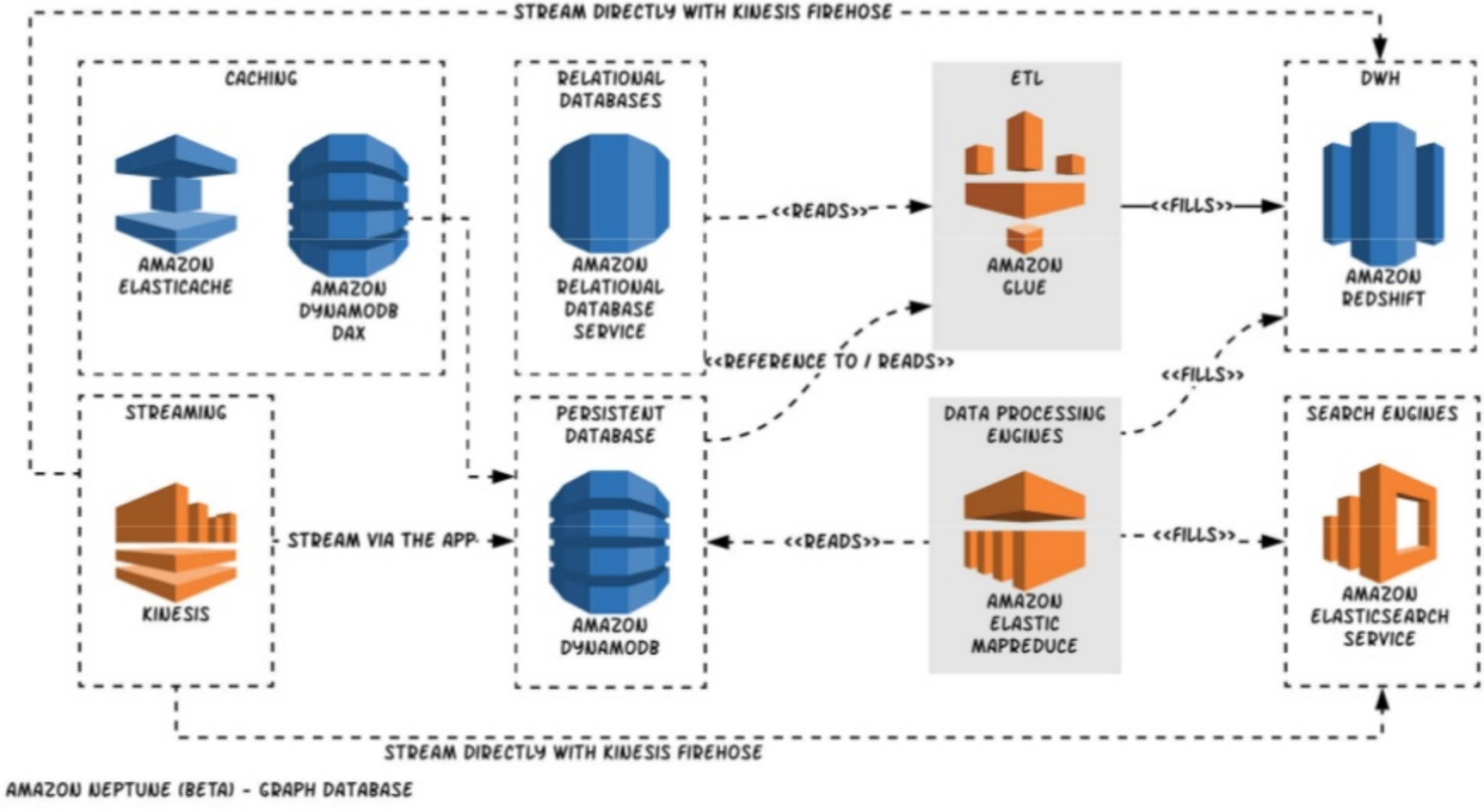
Database per Workload



Databases in IT lanscape



Managed Database Services



AWS options for Oracle customers

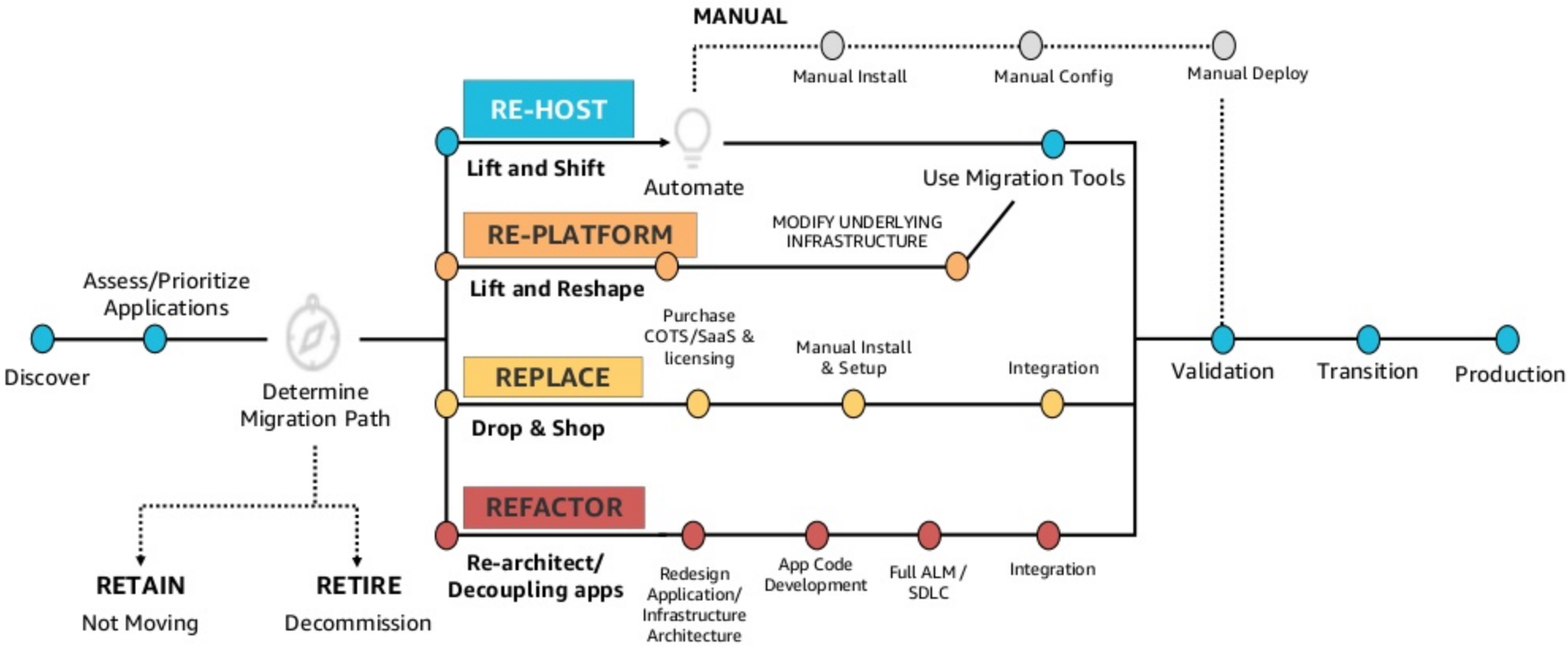
Oracle Databases on AWS

Database migration to AWS

Fusion Middleware on AWS

Oracle Enterprise Applications on AWS

Six Common Application Migration Strategies



AWS migration strategies for Oracle customers

Solution	Oracle Databases			Oracle Fusion Middleware on AWS	Oracle Middleware to AWS	Oracle Enterprise Applications on AWS
	Oracle Databases on AWS EC2	Oracle Databases on AWS RDS	Oracle database migration to AWS			
Migration path	Rehost	Replatform	Refactor	Rehost	Refactor	Rehost
Post migration	Customer runs Oracle Database EE, SE, NoSQL, TimesTen, MySQL, Golden Gate on AWS	Customer shifts Oracle EE, SE to AWS RDS for Oracle	Customer migrates from Oracle EE, SE, NoSQL to AWS RDS OSS, Aurora or Redshift	Customer runs Oracle SOA Suite, WebLogic, OBIEE, BPM and more on AWS	Customer refactors their Java application	Customer runs Oracle E-Business Suite, PeopleSoft, JDE, Hyperion, Siebel and more on AWS
AWS Services	EC2/EBS, VPC	Oracle RDS	RDS OSS, Aurora, Redshift, Schema Conversion Tool, Database Migration Service	EC2/EBS, VPC	Elastic Beanstalk, ELB, Aurora	EC2/EBS, VPC, Oracle RDS

Oracle to AWS license and support - considerations

Solution	Oracle Databases			Oracle Fusion Middleware on AWS	Oracle Middleware to AWS	Oracle Enterprise Applications on AWS
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Migration path	Rehost	Replatform	Refactor	Rehost	Refactor	Rehost
License consideration	BYOL. Review Oracle Cloud Licensing Policy. 2 vCPU= 1 Oracle Proc with Hyper threading enabled	License included or BYOL	MySQL and PostgreSQL open source	BYOL	Consider open source e.g. JBoss	BYOL
Support consideration	Standard Oracle support. Oracle Database >=11.2.0.4 & >= 12.1.0.2. AWS EC2 DB optimized instances.	Supported for Oracle Database >=11.2.0.4 & >= 12.1.0.2. AWS EC2 DB optimized instances.	AWS RDS and Redshift are managed services.	Standard Oracle support. Fully compatible	AWS Elastic Beanstalk provides management features	Standard Oracle support, including E-Business Suite, PeopleSoft, Siebel and more

Introducing Optimize CPUs for Amazon EC2 Instances

a) specify a custom number of vCPUs for new instances, while enjoying the same memory, storage, and bandwidth of a full-sized instance

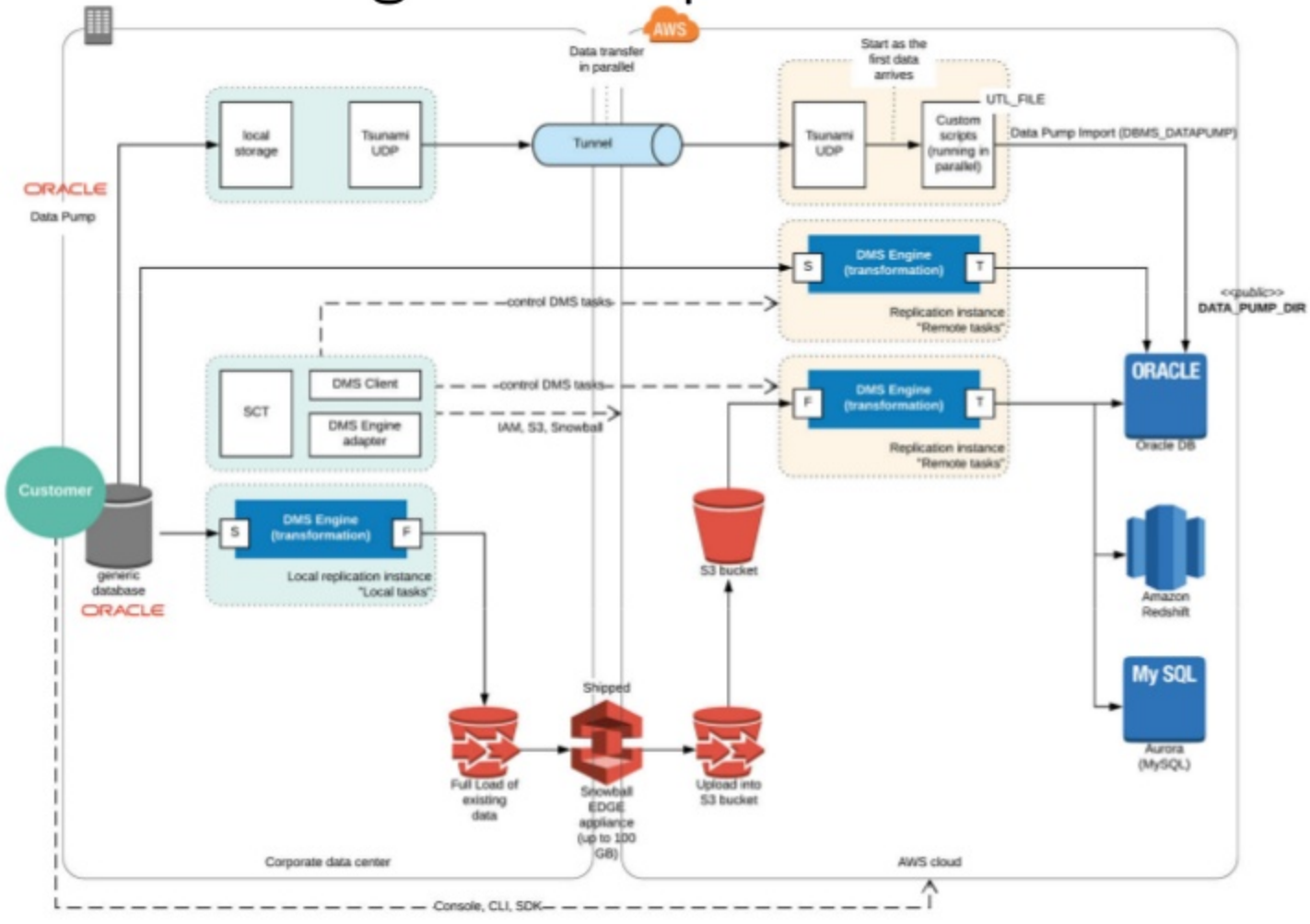
b) disable Intel Hyper-Threading Technology for workloads that perform well with single-threaded CPUs

Enables Bring Your Own license (BYOL) customers to optimize their vCPU-based licensing costs!

Customers migrating Oracle to AWS include

Oracle to Amazon Aurora	Oracle Database on AWS	Fusion Middleware	Enterprise Applications
AstraZeneca Reduced processing time from 26 hours to 40 minutes	News UK Closed 2 of 6 datacenters "Enabling the business, no constraints"	Mc Graw Hill Education Supported 4x peak load, but cheaper than data center	SEAOIL FUELING A BETTER FUTURE 20% TCO reduction 6x faster provision > 99.5% app availability
Trimble ROI <6 months 400% lower infra TCO	esa 1b star projections, 6 years data €500k less than on-prem	FAST RETAILING	sage "We didn't encounter any roadblocks based on cost, functionality, or performance; we moved forward quickly and well within Sage's budget."

Oracle to AWS migration options



Approach for Database Re-platform

Approach for migration

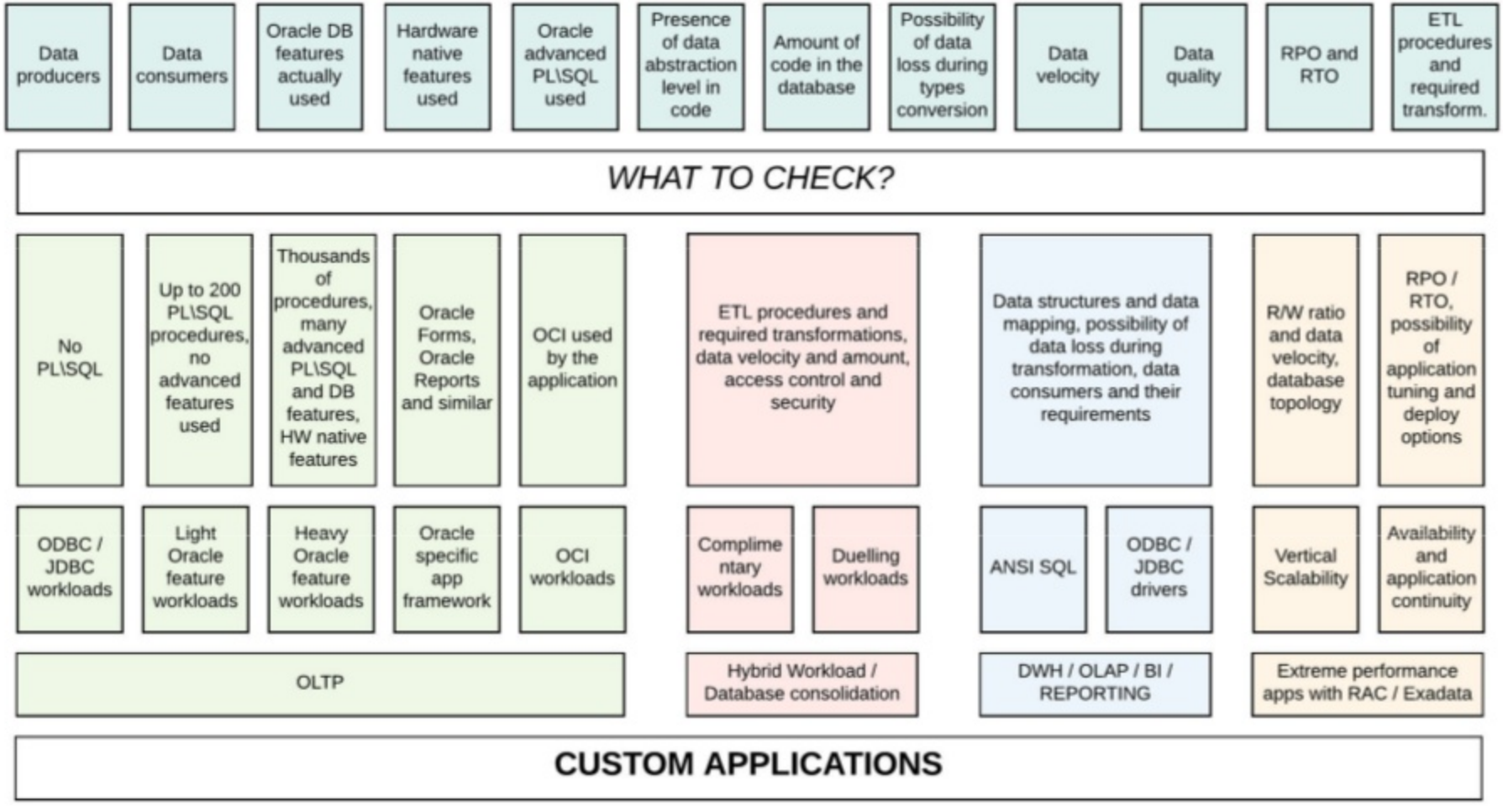
1. Define the Goal and the Source
2. Define the Target
3. Define Transport Method
4. Setup Environment
5. Convert Schema
6. Transfer Data
7. Check Data
8. Switch Applications
9. Decommission Source

algorithm

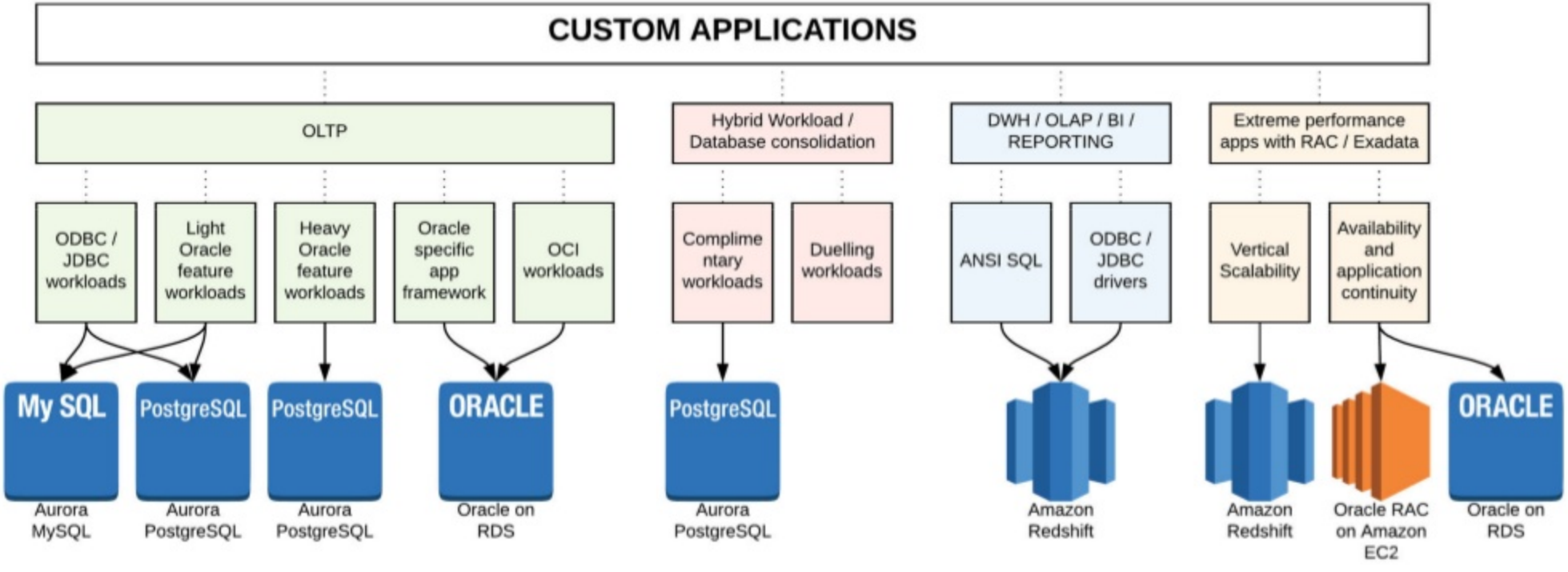
noun

word used by programmers when they do not want to explain what they did

Define the Goal and the Source



Define the Target



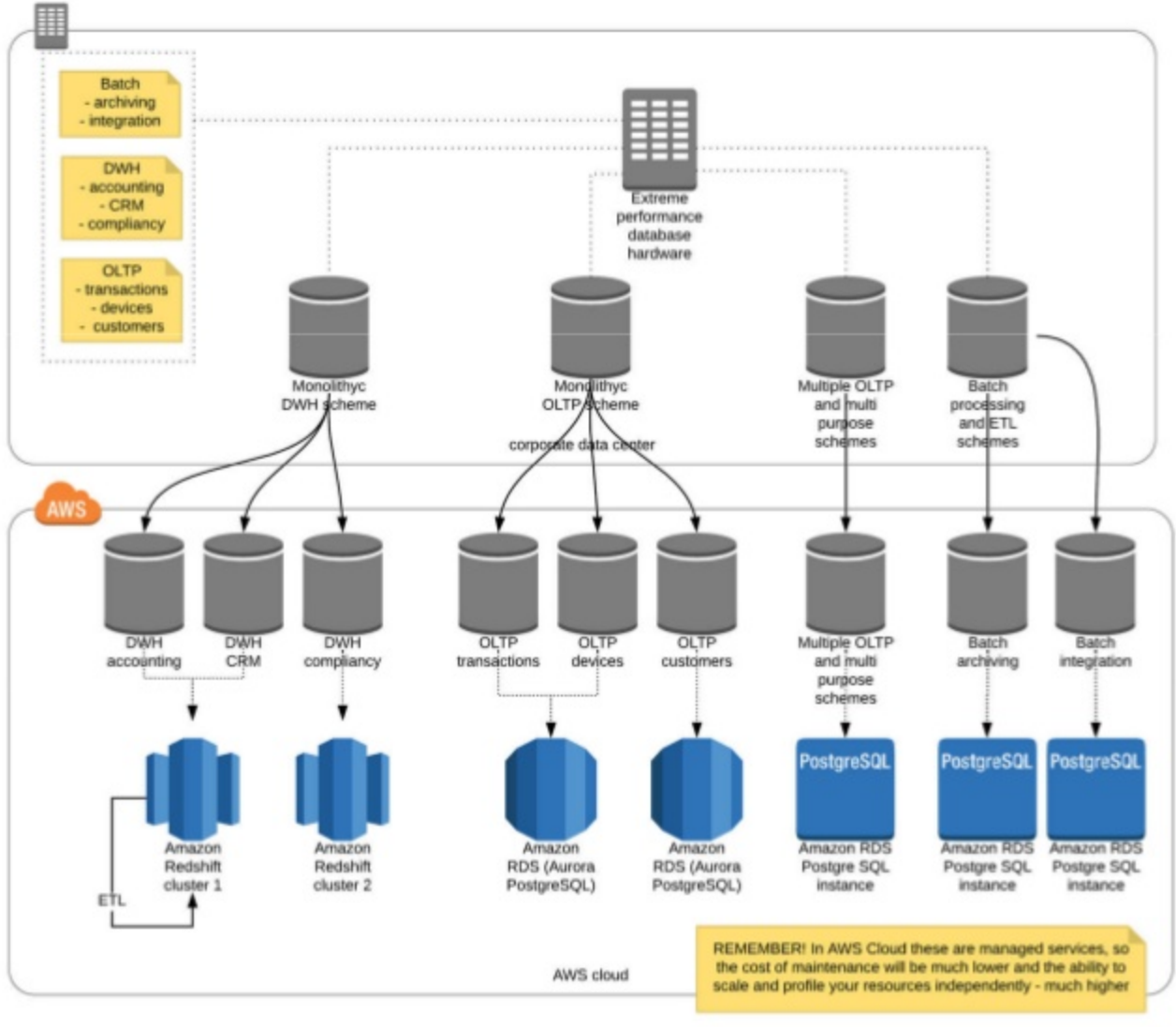
NOTE: *ISV APPLICATIONS REQUIRE APP VENDOR CERTIFICATION*

Proprietary on-premises DB to AWS Managed DB service migration paths

1. One-to-One Migration
2. Migration via a Proxy
3. Migration with Schema Conversion
4. Migration with Constant Replication
5. Migration with Splitting the workloads

Example: Splitting workloads

- Right hammer for a right job
- Ability to scale independently
- Ability to correctly profile your workloads
- Streamline the troubleshooting and optimization process
- Ability to failover independently



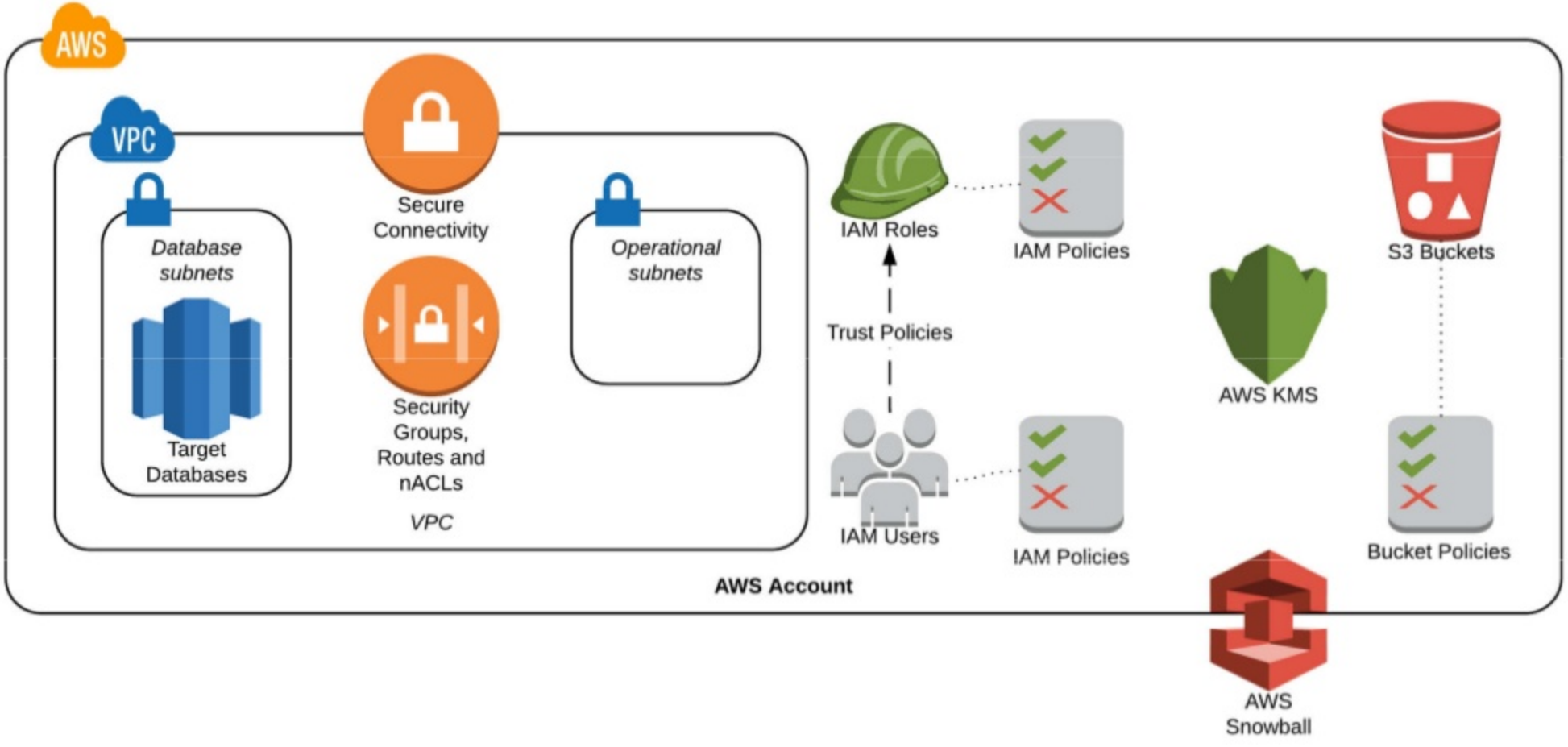
Define Transport Method

Amazon Snowball

Via the Internet using VPN Gateway / Tsunami UDP

Via the Internet using Direct Connect

Setup Environment



Convert Schema

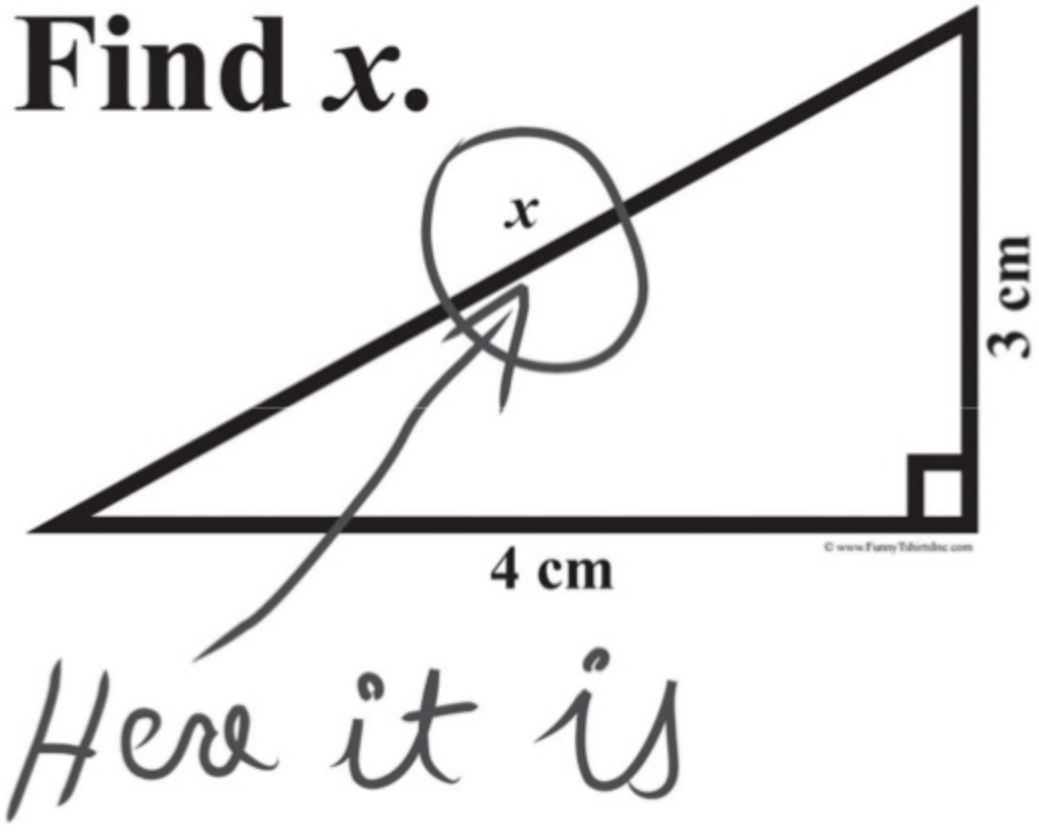
REMEMBER! Both source and target have limitations!

1. Data Types conversion (precision, data types emulation – ROWID, some aspects of working with NULL values, metadata, etc.)
2. Code conversion (partly Dynamic code conversion can be handled by SCT)
3. Constraints conversion
4. Functions conversion
5. Mappings and Transformation rules
6. Change Data Capture
7. Extra connection attributes

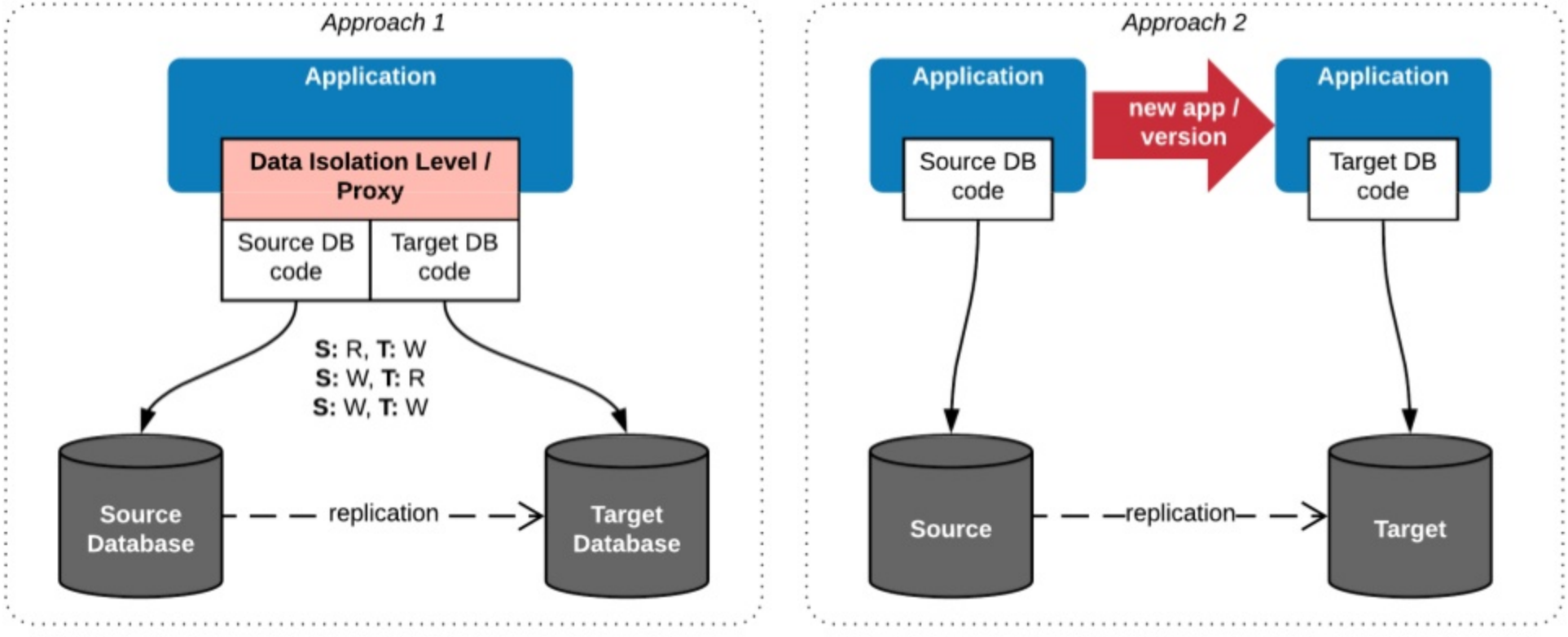
Transfer Data

Check Data & Test

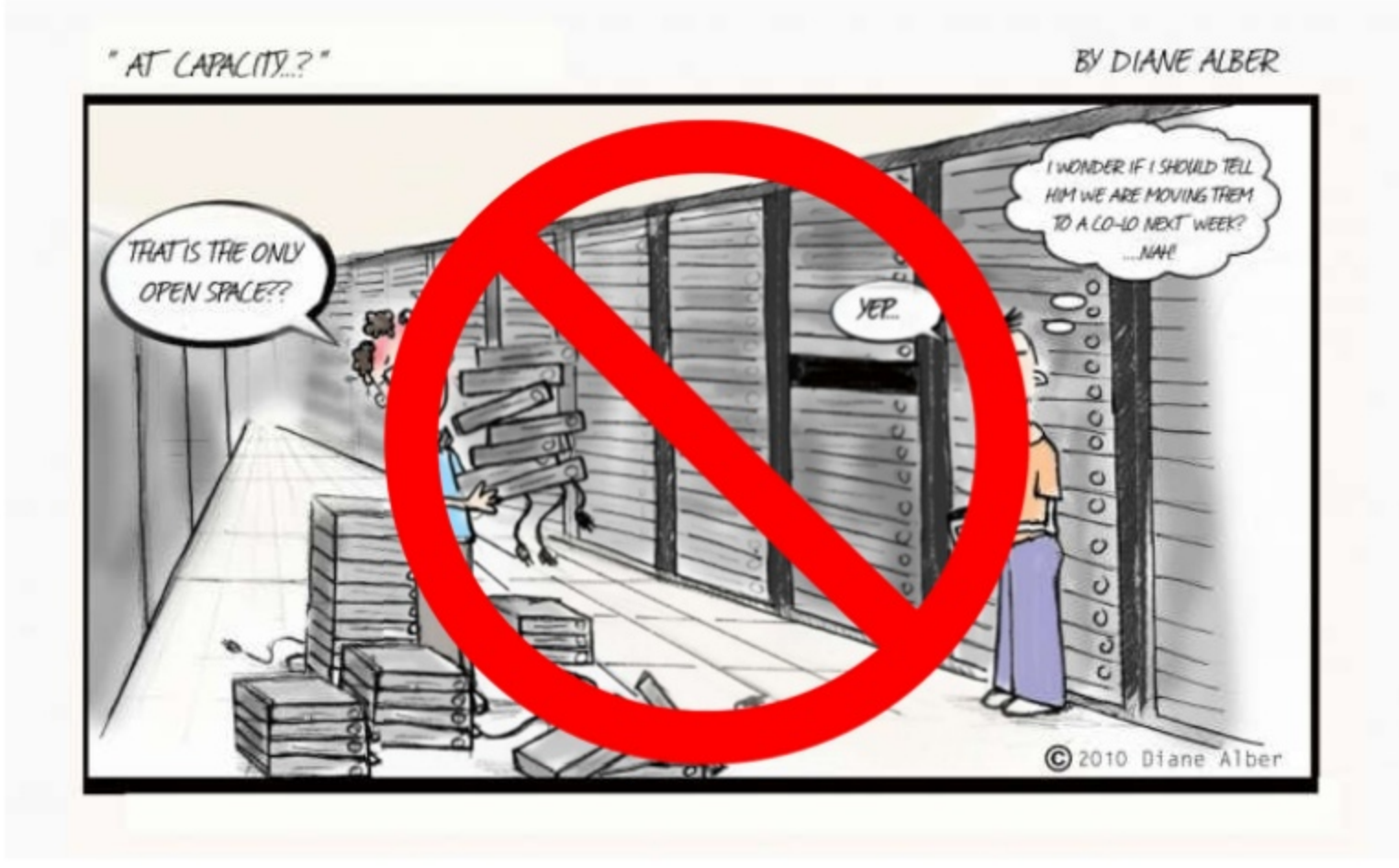
1. Objects
2. Constraints
3. Procedures
4. Amount of data
5. Data behavior
6. Triggers
7. Conditions
8. Indexes



Switch Applications



Decommission Source & Temporary resources



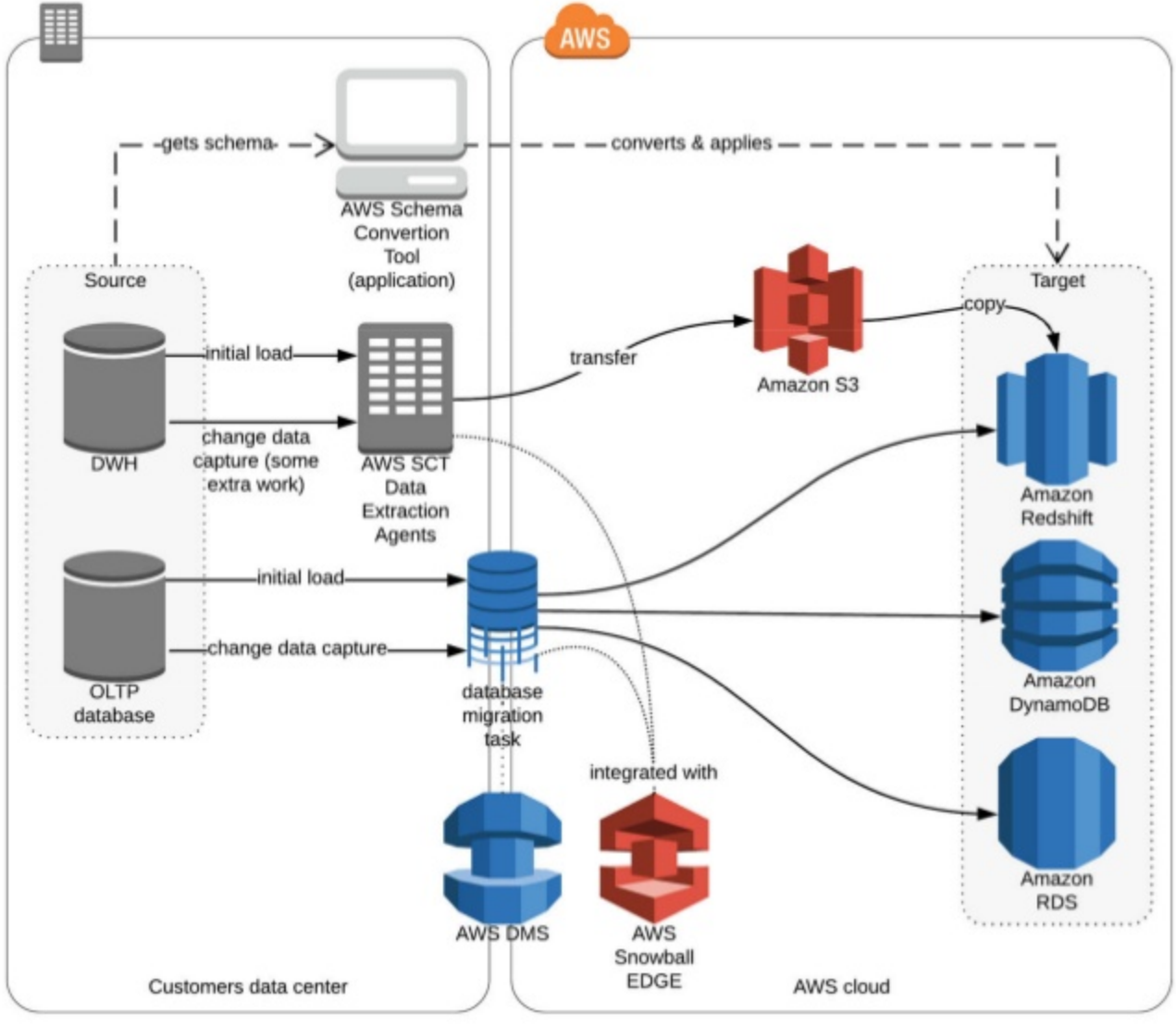
Amazon DMS & SCT

DMS Sources:

- Oracle (10.2 and later)
- MS SQL Server (2005 and later)
- MySQL (5.5, 5.6, 5.7)
- MariaDB
- PostgreSQL (9.4 and later)
- SAP ASE (12.5, 15 and later)
- MongoDB (2.6.x, 3.x and later)

SCT Agents Sources:

- Greenplum (4.3 and later)
- MS SQL Server (2008 and later)
- Netezza (7.0.3 and later)
- Oracle (10 and later)
- Terradata (13 and later)
- Vertica (7.2.2 and later)



Other tools available online

PLEASE NOTE *that Amazon Web Services is not providing any type of warranty for the tools mentioned below.*

- Ora2Pg
  - Schema converter for Oracle to PostgreSQL (14 years of development)
  - Data replication capabilities
- MigVisor
  - Tool for migration assessment and proper target selection
- HPL\SQL
  - Allows to run procedural code against any database without need to re-write the code
- Orafce
  - Great library that allows you emulate Oracle specific functions for PostgreSQL.

Thank you!
It is time for your questions.