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Deep Dive on Amazon Aurora

Jeremy Bendat

Mike Gallagher

amazon web services | Partner Network

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Agenda

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- Why AWS
- Why CorpInfo
- The Roadmap to Aurora
- Aurora Case Study

Intro to AWS

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What sets AWS apart?

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Experience	Building and managing cloud since 2006
Service Breadth & Depth	40+ services to support any cloud workload
Pace of Innovation	History of rapid, customer-driven releases
Global Footprint	12 regions, 30 availability zones, 53 edge locations
Pricing Philosophy	51 proactive price reductions to date
Ecosystem	8,000+ SIs and ISVs; 2,000+ Marketplace products

Experience with Operational Reliability

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We are driven to remove any causes of failure.

Our goal is to make our operational performance indistinguishable from perfect.

- ✓ We have spent over a decade building the world's most reliable, secure, scalable, and cost-effective infrastructure.
- ✓ Service SLAs between 99.9% and 100% availability. Amazon S3 maintains a durability of 99.999999999%.
- ✓ Availability Zones exist on isolated fault lines, flood plains, and electrical grids to substantially reduce the chance of simultaneous failure.
- ✓ The AWS Service Health Dashboard provides 24/7 visibility in the real-time operational status of all services around the globe.

Experience with Cloud Security

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AWS provides the same, familiar approaches to security that companies have been using for decades with increased visibility, control, and auditability.

Visibility

View your entire infrastructure with a click

Deep insight with AWS CloudTrail

Control

You have sole authority on where data is stored

Shared responsibility model

Auditability

3rd party validation

SOC 1 / SOC 2 / SOC 3
SSAE 16 / ISAE 3402
PCI DSS Level 1
DIACAP & FISMA
ISO 27001 / 9001 / 13485
ISO/TS 16949
FedRAMP (SM)

FISMA
HIPAA
ITAR
MPAA
CSA
FIPS 140-2

“Based on our experience, I believe that we can be even more secure in the AWS cloud than in our own data centers.”

– Tom Soderstrom, CTO, NASA JPL

Service Breadth & Depth

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Enterprise Applications

- Virtual Desktops
- Collaboration and Sharing

Platform Services

Analytics

- Hadoop
- Real-time Streaming Data
- Data Warehouse
- Data Pipelines

App Services

- Queuing & Notifications
- Workflow
- App streaming
- Transcoding
- Email
- Search

Deployment & Management

- One-click web app deployment
- Dev/ops resource management
- Resource Templates

Mobile Services

- Identity
- Sync
- Mobile Analytics
- Push Notifications

Administration & Security

- Identity Management
- Access Control
- Usage Auditing
- Key Storage
- Monitoring and Logs

Core Services

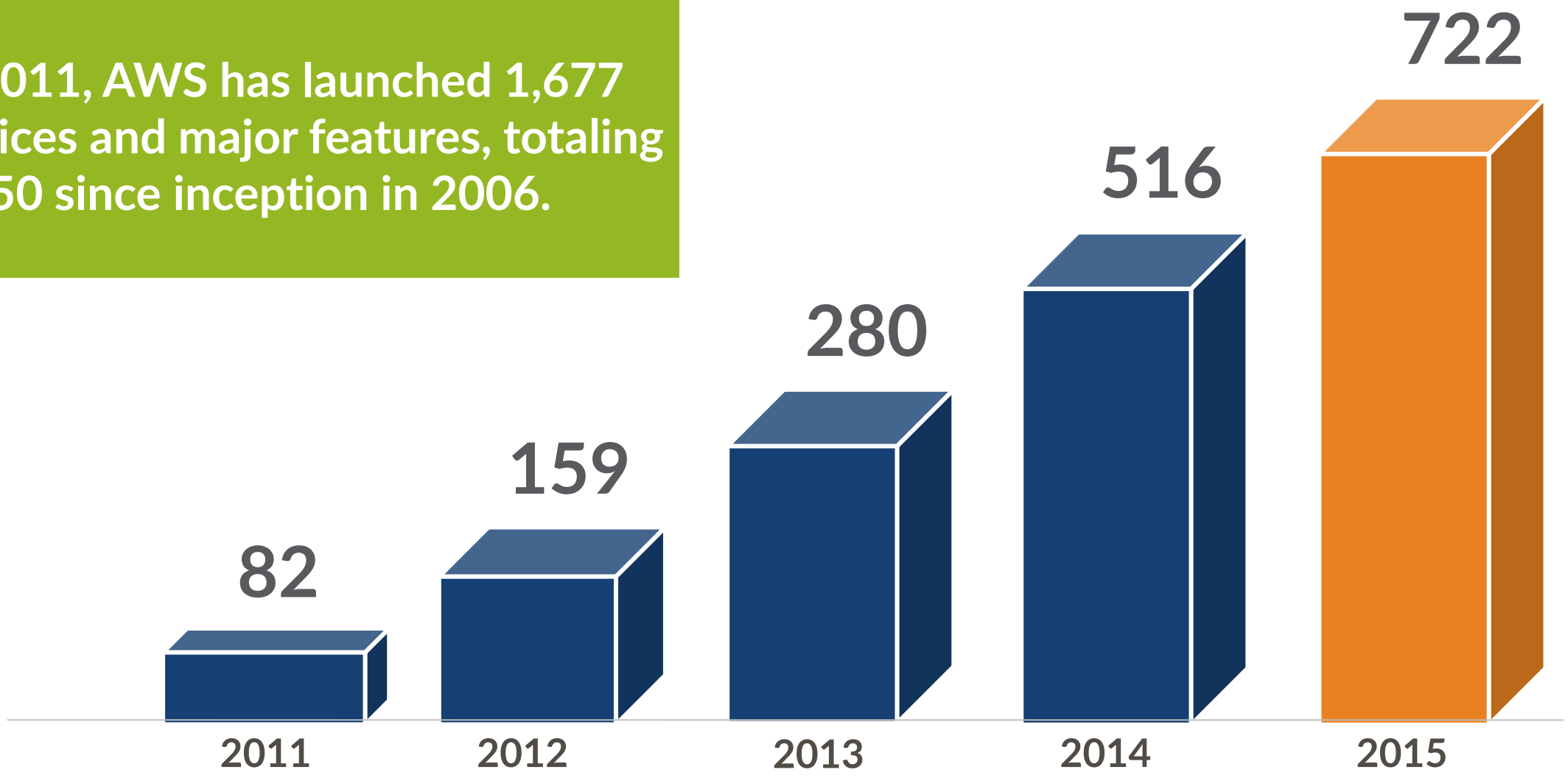
- Compute (VMs, Auto-scaling and Load Balancing)
- Storage (Object, Block and Archival)
- CDN
- Databases (Relational, NoSQL, Caching)
- Networking (VPC, DX, DNS)

Infrastructure

- Regions
- Availability Zones
- Points of Presence

Rapid Pace of Innovation

Since 2011, AWS has launched 1,677 new services and major features, totaling 1,850 since inception in 2006.



AWS Price Reductions

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AWS has announced price reductions **51x** times since our inception in 2006. Recent price drops included...

34%

Amazon ElastiCache reduces prices for cache nodes by an average of 34%

March 26, 2014

51%

Amazon S3 reduces prices for Standard and Reduced Redundancy Storage, by an average of 51%

March 26, 2014

20%

Amazon Route 53 lowers prices for both standard queries and latency-based routing queries by 20%

July 31, 2014

* As of January 2016

AWS Global Infrastructure

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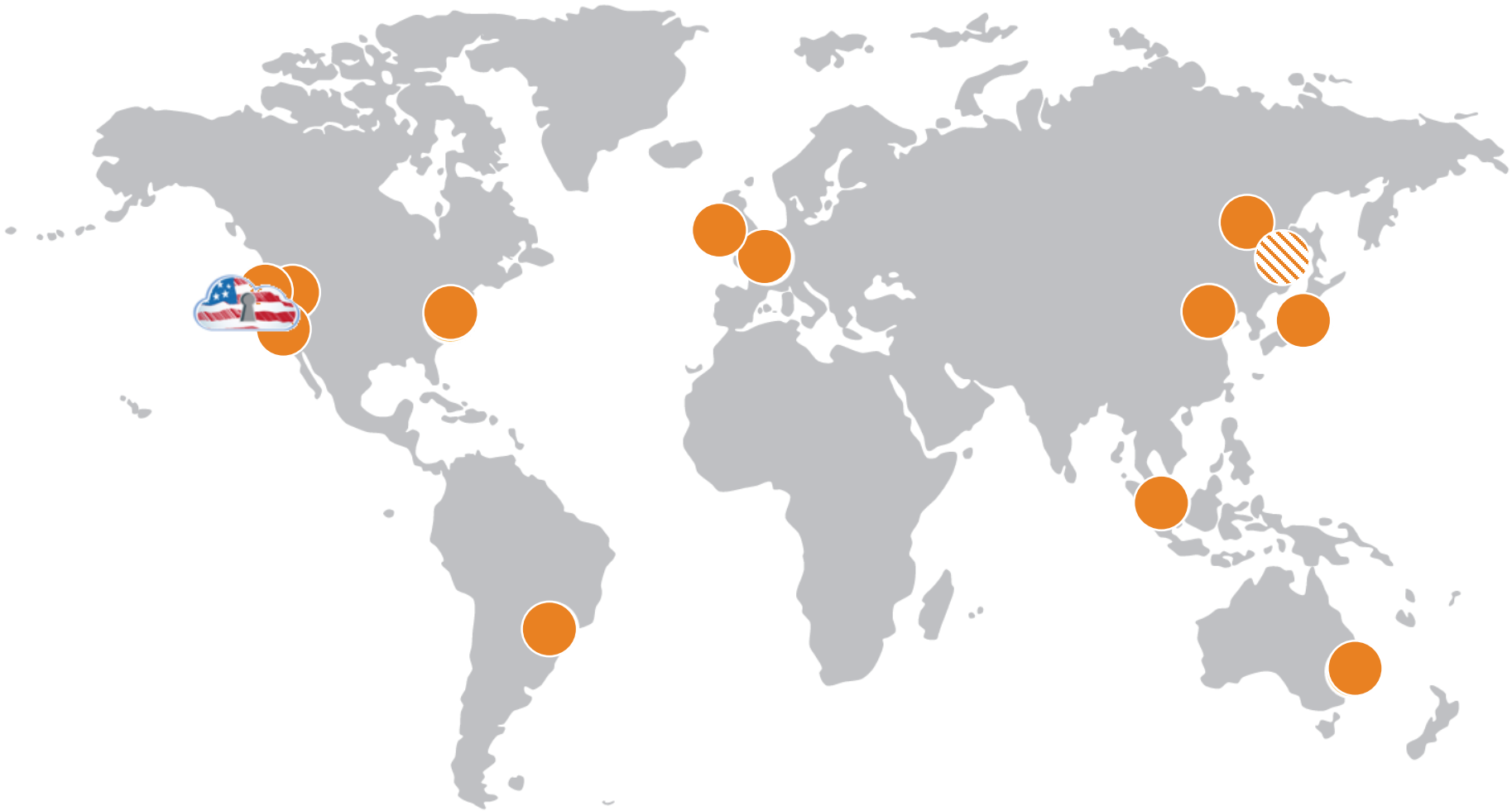
12
Regions

30
Availability Zones

53
Edge Locations



Pricing Philosophy

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High volume / low margin businesses are in our core DNA

Our economies of scale provide us with lower costs	Pricing model choice to support variable and stable workloads	Save more money as you grow bigger
51 price reductions since 2006	On-demand Reserved Spot	Tiered pricing Volume discounts Custom pricing

AWS is Leader & Visionary

Gartner Magic Quadrant for Cloud Infrastructure as a Service, Worldwide

Source: Gartner (May 2015)

Gartner “Magic Quadrant for Cloud Infrastructure as a Service, Worldwide,” Lydia Leong, Douglas Toombs, Bob Gill, May 18, 2015. This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research note and should be evaluated in the context of the entire report. The Gartner report is available at: . Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

Figure 1. Magic Quadrant for Cloud Infrastructure as a Service, Worldwide

Source: Gartner (May 2015)


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30+ Years of Customer Success

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33 MMT ACCELERATORS DELIVERED

$2M+ MONTHLY DIRECT & INFLUENCED SPEND

REBORN IN THE CLOUD THROUGH PARTNERSHIP WITH AWS

45+ CERTIFICATIONS

110 NET NEW CUSTOMERS

24/7 **AWS AUDITED** MANAGED SERVICES

CORPINFO IS A GREAT EXAMPLE OF HOW AN ESTABLISHED TECHNOLOGY PROVIDER IS REINVENTING THEIR SERVICES BUSINESS WITH AWS

— TERRY WISE, AWS VP WW ALLIANCES

FOUNDED IN 1983

& STILL UNDER FOUNDING **OWNERSHIP**

110+ YEARS COMBINED AWS EXPERIENCE

100+ TEAM LOCATED ACROSS THE US WITH SOCAL AND US WEST FOCUS

AWS Premier Consulting Partner

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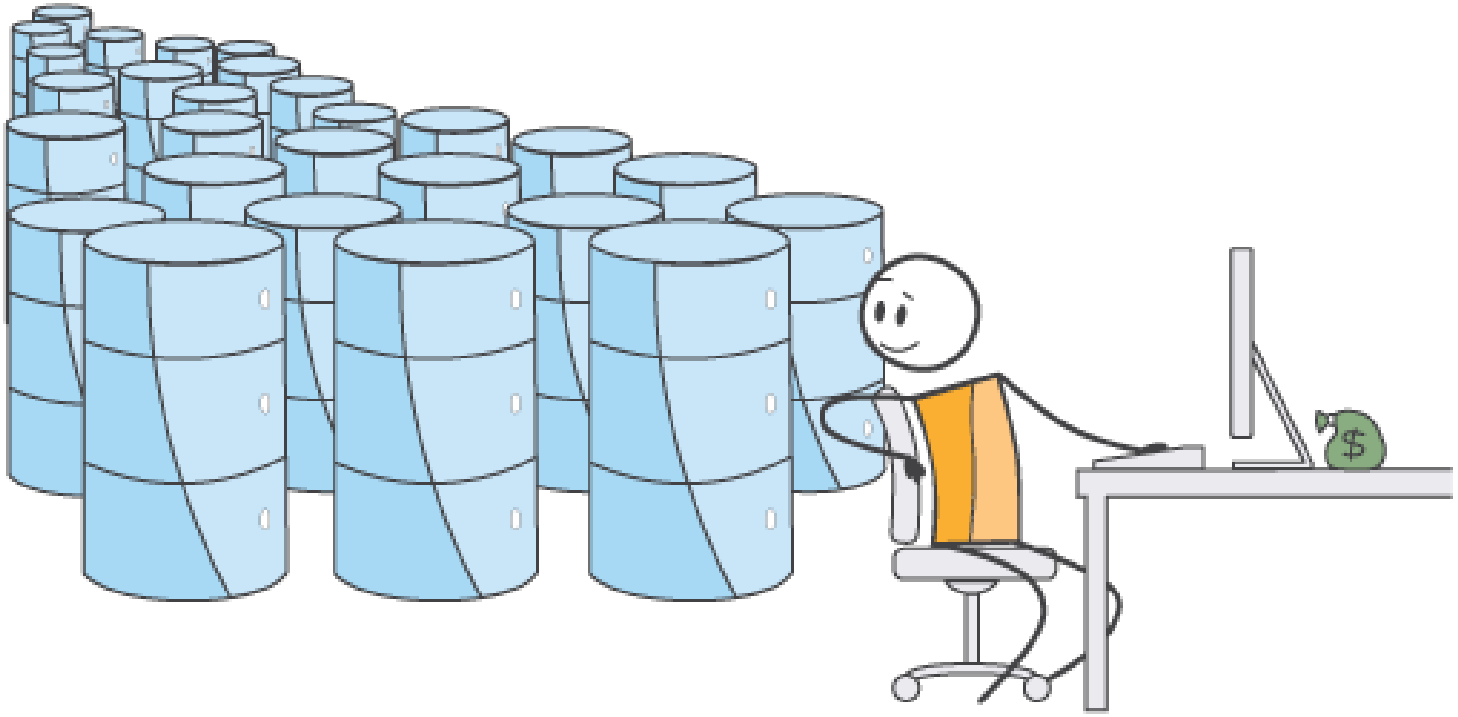
CorpInfo is one of the top APN Consulting partners globally, with extensive experience deploying customer solutions on AWS and a strong bench of trained and certified technical consultants.

The Roadmap to Aurora



Amazon
Aurora

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CorpInfo will review your entire AWS environment:

- Current Region
- Networking (VPC) & VPC Design
- VPN Gateways or Direct Connects
- Authentication & Authorization (IAM)
- Existing AWS infrastructure pain points
- Business application(s) connecting to the database

The Roadmap to Aurora

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- Database monitoring performance metrics
- Internal support tickets
- Databases on the MySQL server
- Read replicas
- Master/slave replication relationships
- Issues converting MyISAM to Innodb
- Functionality for the MySQL database engine to confirm Aurora compatibility

The Roadmap to Aurora

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Migration Roadmap

Target Platform

My SQL Pain Points

Scale

Stability

Performance

Security

Management

High Availability

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GoGuardian Case Study

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Customer Case Study: GoGuardian

A smarter way to manage classroom technology. GoGuardian provides Chromebook management solutions that keep students safe online and make teaching easier

Customer Case Study: GoGuardian

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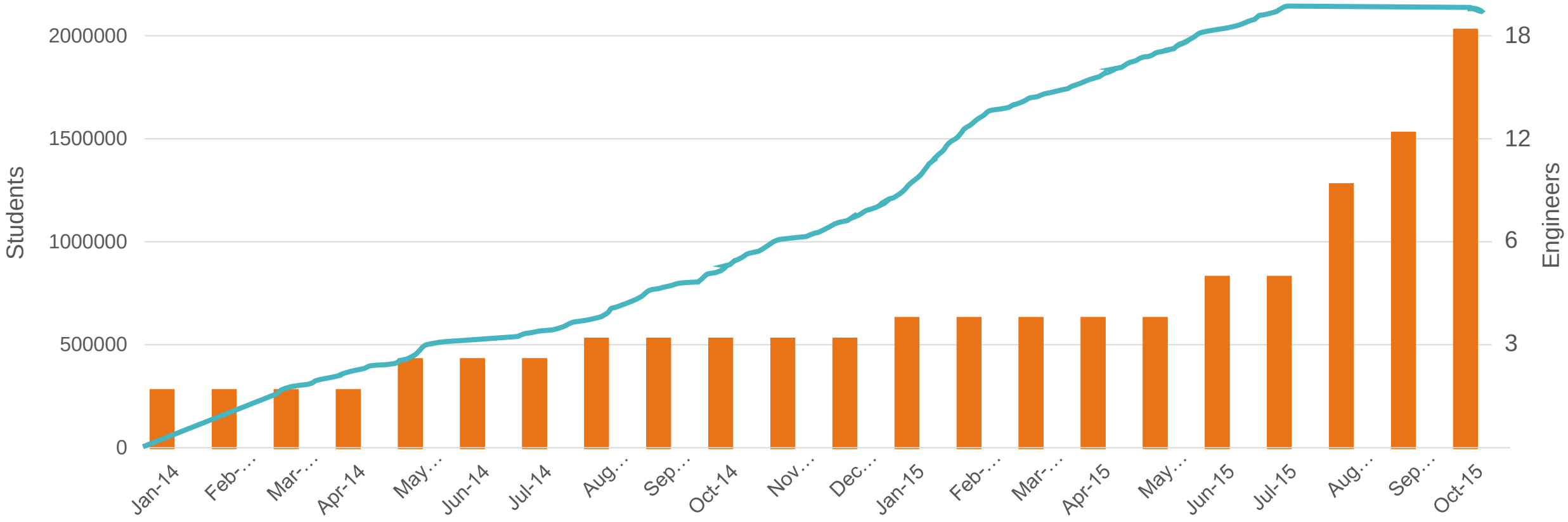
Scalability Problems



Crazy product growth, not so crazy team growth

Customer Case Study: GoGuardian

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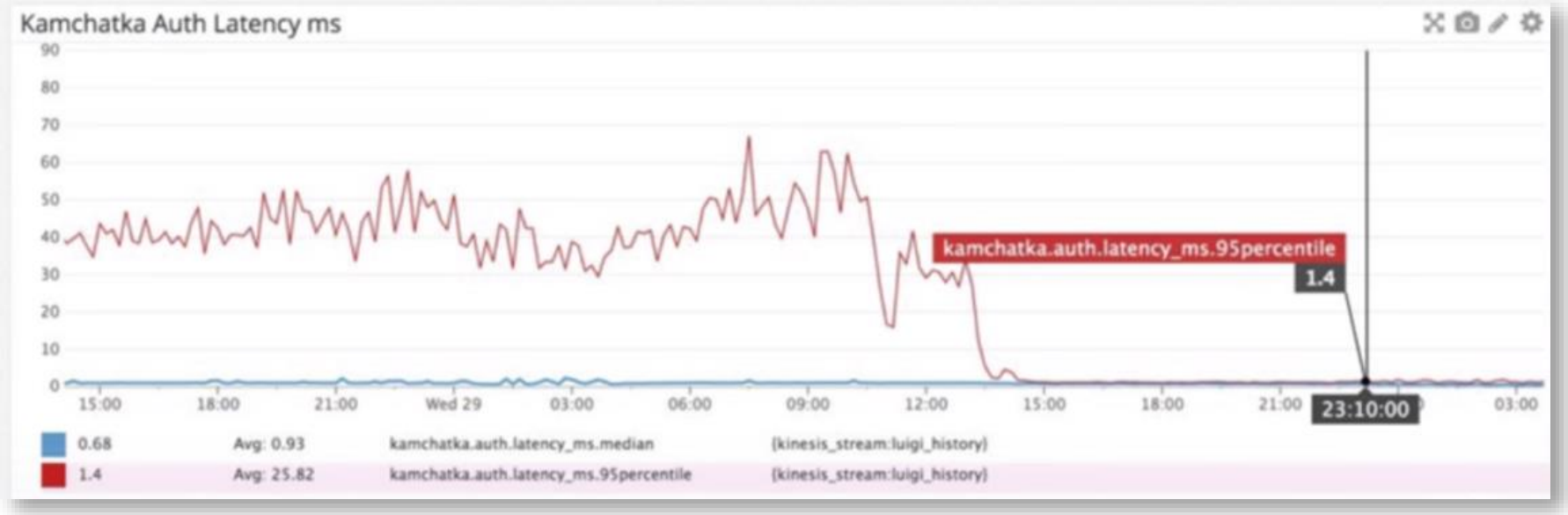
The Aurora Performance Boost is Real:

- Kinesis combined with Aurora provides incredible throughput
- Easily add more sinks, pipe to more datastores & stream analytics
- Add more sources, e.g. demo data



Customer Case Study: GoGuardian

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100X

scale without worrying about expanding server capacity

“

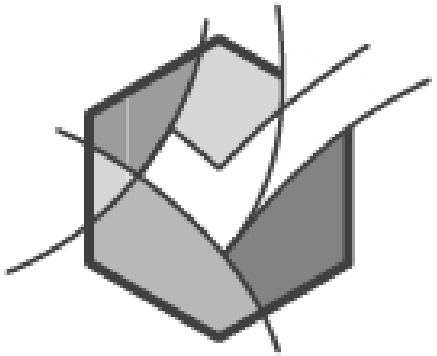
CorpInfo & AWS gives us the toolset for collecting, manipulating, and analyzing data to make it useful for our company and customers.

Read the full case study at: corpinfo.com/cloud-services/aws-case-study-GoGuardian

Additional AWS Resources

Security

aws.amazon.com / security



Compliance

aws.amazon.com / compliance

White Papers

aws.amazon.com/ whitepapers

Architecture

aws.amazon.com / architecture

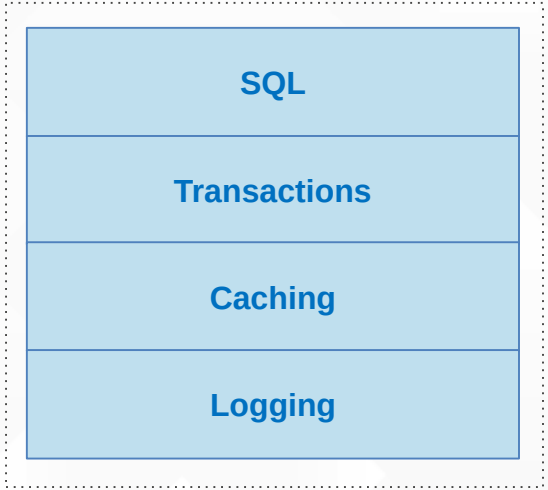
Founded in 1983, CorpInfo is a leading technology firm providing Cloud Consulting Services, Infrastructure Solutions, and Managed Services. We use our experience to ensure that clients have the best technical solutions to solve their business challenges and deliver value for their organization. With a team of AWS certified solutions architects we support customers on the journey to the cloud and in unlocking the benefits AWS has to offer. We optimize the value of IT investments by thinking creatively to solve specific challenges while laying the groundwork for future growth and flexibility.

LOS ANGELES | DALLAS | IRVINE | HOUSTON | PHOENIX

Amazon Aurora

Puneet Agarwal, Solutions Architect
Amazon Web Services

Relational databases were not designed for the cloud

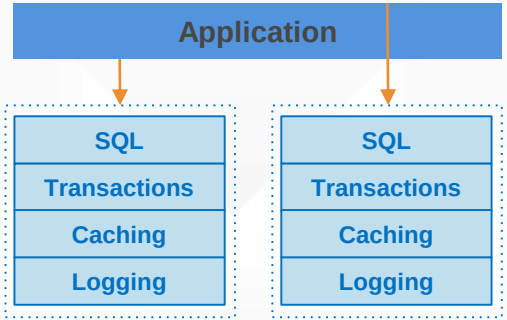


Multiple layers of functionality all in a monolithic stack

Not much has changed in last 20 years

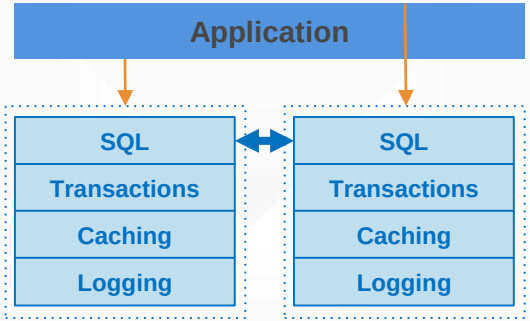
Sharding

Coupled at the application layer



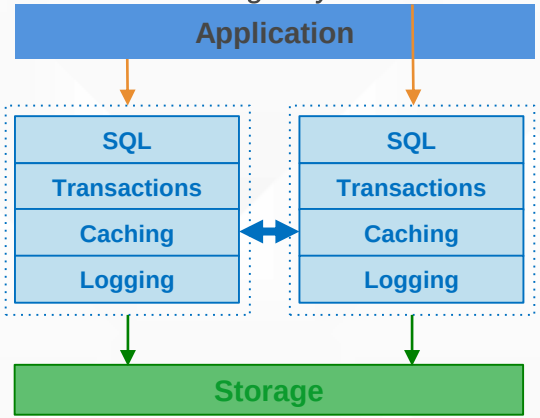
Shared Nothing

Coupled at the SQL layer



Shared Disk

Coupled at the caching and storage layer



Even when you scale it out, you're still replicating the same stack

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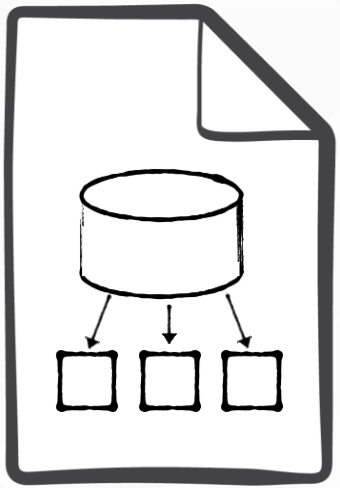
This is a problem.

For cost. For flexibility. And for availability.

Reimagining the relational database



What if you were inventing the database today?

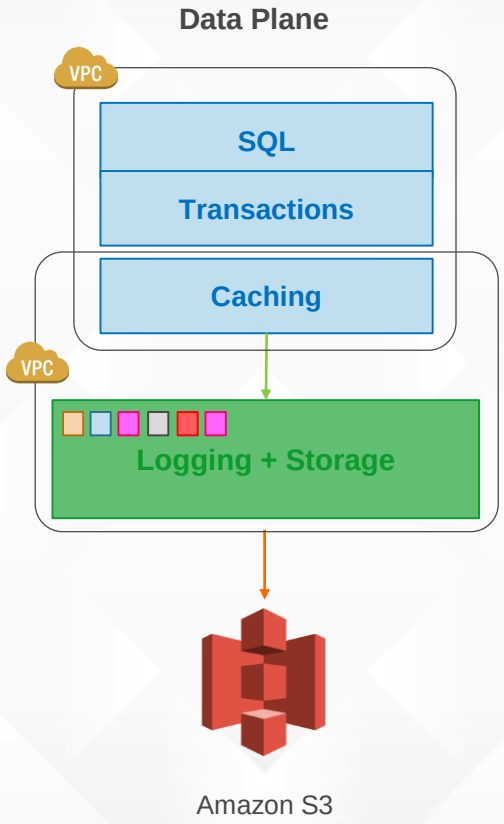
- You wouldn't design it the way we did in 1970.
- You'd build something
  - ✓ that can scale out ….
  - ✓ that is self-healing ….
  - ✓ that leverages existing AWS services …

A service-oriented architecture applied to the database

1. Moved the logging and storage layer into a multi-tenant, scale-out database-optimized storage service

2. Integrated with other AWS services like Amazon EC2, Amazon VPC, Amazon DynamoDB, Amazon SWF, and Amazon Route 53 for control plane operations

3. Integrated with Amazon S3 for continuous backup with 99.999999999% durability



Meet Amazon Aurora ……

Databases reimagined for the cloud

- ☑ **Speed** and **availability** of high-end commercial databases
- ☑ **Simplicity** and **cost-effectiveness** of open source databases
- ☑ Drop-in **compatibility** with MySQL
- ☑ Simple **pay as you go** pricing

Delivered as a **managed** service

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Customers are using Amazon Aurora

Common customer use cases

Fastest growing service in AWS history

Web and mobile

Content management

E-commerce, retail

Internet of Things

Search, advertising

BI and analytics

Games, media

Expedia: On-line travel marketplace

World's leading online travel company, with a portfolio that includes 150+ travel sites in 70 countries.

- Real-time business intelligence and analytics on a growing corpus of on-line travel market place data.
- Current SQL server based architecture is too expensive. Performance degrades as data volume grows.
- Cassandra with Solr index requires large memory footprint and hundreds of nodes, adding cost.

Aurora benefits:

- Aurora meets scale and performance requirements with much lower cost.
- 25,000 inserts/sec with peak up to 70,000. 30ms average response time for write and 17ms for read, with 1 month of data.

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PG&E: Large public utility

One of the largest combination natural gas and electric utilities in the United States with approximately 16 million customers in 70,000-square-mile service area in northern and central California.

- Servicing high traffic surge during power events had always been a problem.
- Availability is critical when databases are down, it adversely affects service to gas and electrical customers.

Aurora benefits:

- Being able to create multiple database replicas with millisecond latency allows them handle large surges in traffic and still give customers timely, up-to-date information during a power event .
- Amazon Aurora, with 6-way replication, self healing storage and automatic instance repair, provides the availability and reliability needed for mission critical applications.

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ISCS: Insurance claims processing

Provides policy management, claim, billing solutions for casualty and property and insurance organizations

- Have been using Oracle and SQL server for operational and warehouse data
- Cost and maintenance of traditional commercial database has become the biggest expenditure and maintenance headache.

Aurora benefits:

- The cost of a “more capable” deployment on Aurora has proven to be about 70% less than ISCS’s SQL Server deployments.
- Eliminated backup window with Aurora’s continuous backup; exploiting linear scaling with number of connections; continuous upload to Redshift using Aurora read replicas.

Alfresco: Enterprise content management

Leading the convergence of Enterprise Content Management and Business Process Management. More than 1,800 organizations in 195 countries rely on Alfresco, including leaders in financial services, healthcare, and the public sector.

- Scaling Alfresco document repositories to billions of documents
- Support user applications that require sub-second response times

Aurora benefits:

- Scaled to 1 billion documents with a throughput of 3 million per hour, which is 10 times faster than their current environment.
- Moving from large data centers to cost-effective management with AWS and Aurora.

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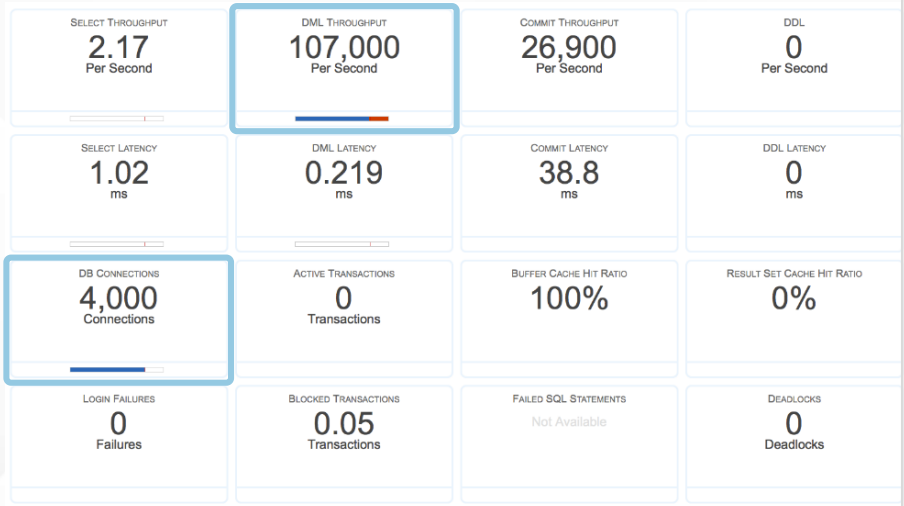
Amazon Aurora is fast

“When we ran Alfresco’s workload on Aurora, **we were blown away to find that Aurora was 10X faster than our MySQL environment**” said John Newton, Founder and CTO of Alfresco. “Speed matters in our business and Aurora has been faster, cheaper, and considerably easier to use than MySQL”

SQL benchmark results

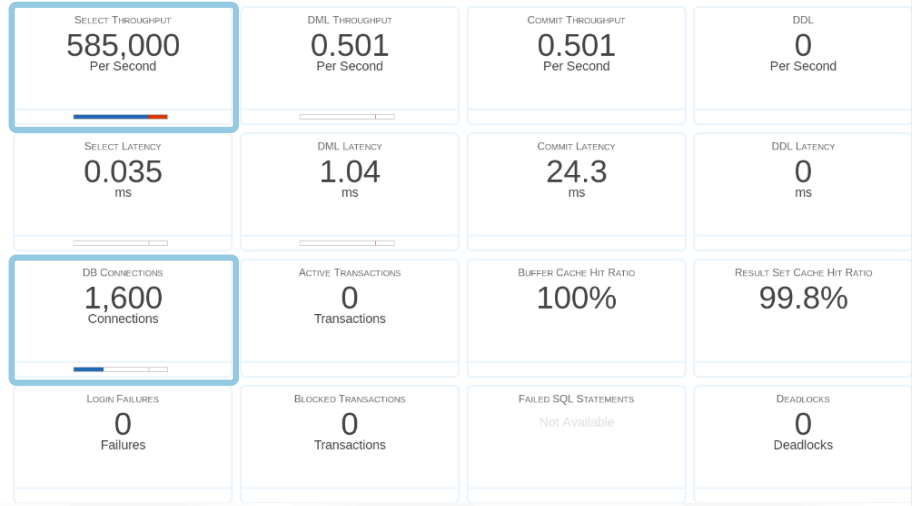
- MySQL Sysbench
- R3.8XL with 32 cores and 244 GB RAM

WRITE PERFORMANCE



- 4 client machines with 1,000 threads each

READ PERFORMANCE



- Single client with 1,000 threads

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Writes scale with table count

Tables	Amazon Aurora	MySQL I2.8XL local SSD	MySQL I2.8XL RAM disk	RDS MySQL 30K IOPS (single AZ)
10	60,000	18,000	22,000	25,000
100	66,000	19,000	24,000	23,000
1,000	64,000	7,000	18,000	8,000
10,000	54,000	4,000	8,000	5,000

- Write-only workload
- 1,000 connections
- Query cache (default on for Amazon Aurora, off for MySQL)

UP TO

11x

FASTER

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Writes scale with connection count

Connections	Amazon Aurora	RDS MySQL 30K IOPS (single AZ)
50	40,000	10,000
500	71,000	21,000
5,000	110,000	13,000

- OLTP Workload
- Variable connection count
- 250 tables
- Query cache (default on for Amazon Aurora, off for MySQL)

UP TO

8x

FASTER

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How Do we achieve these results?

DO LESS WORK

Do fewer IOs

Minimize network packets

Cache prior results

Offload the database engine

BE MORE EFFICIENT

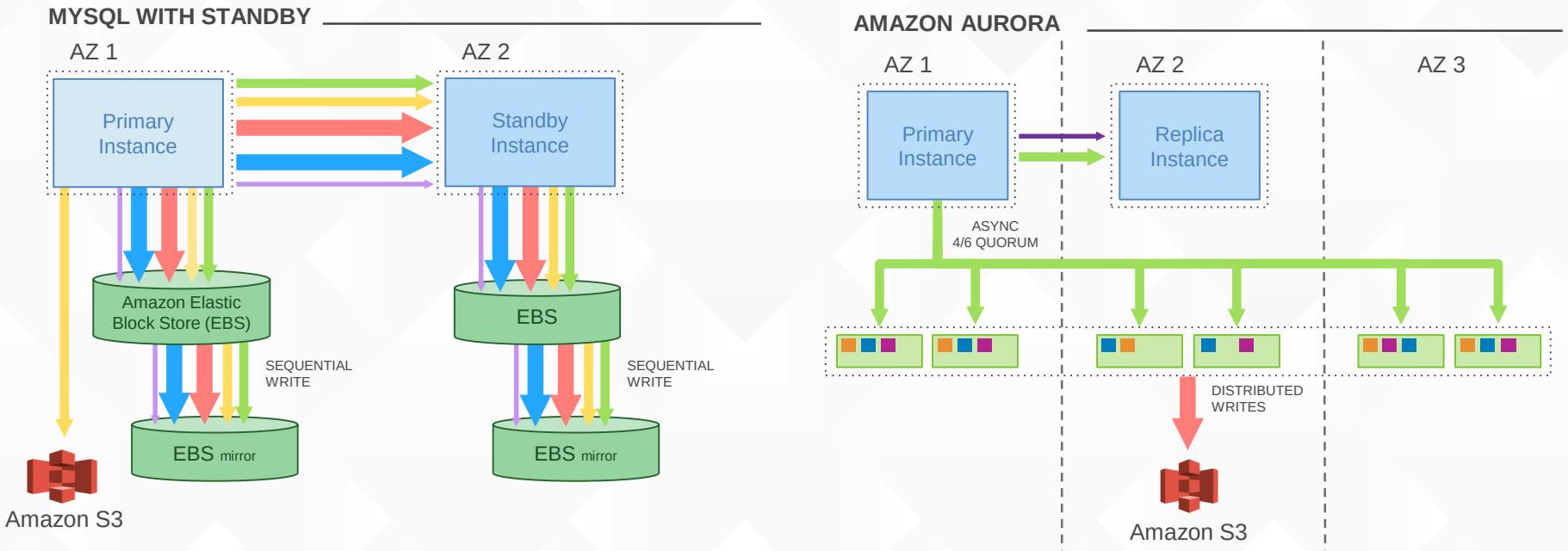
Process asynchronously

Reduce latency path

Use lock-free data structures

Batch operations together

IO traffic patterns: MySQL vs. Aurora



IO volume: MySQL vs. Aurora

100GB Database / 1M Sysbench transactions

Workload	MySQL w/ 30K PIOS	Aurora	
Read Only	24,814	0	0.00%
Write Only	7,387,798	158,323	2.21%
OLTP	7,722,684	201,292	2.61%
R/W: 50/50	23,753,366	364,032	1.55%

UP TO

50x

LOWER IO VOLUME

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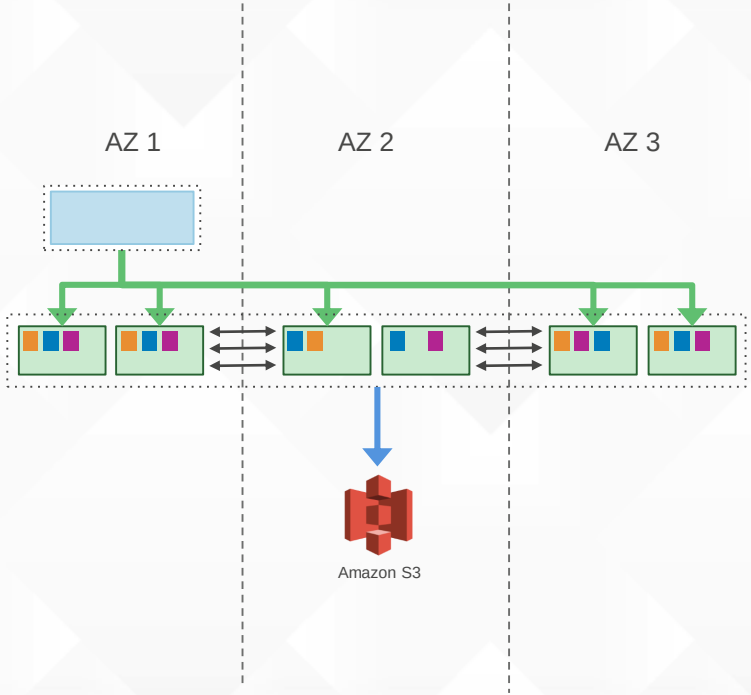
Amazon Aurora is highly available

“**Using Amazon Aurora, we can run many replicas with millisecond latency.** This means during a power event we can handle large surges in traffic and still give our customers timely, up-to-date information. In addition, spreading these replicas across multiple AWS Availability Zones with automatic failover gives us confidence that our databases will be there when we need them.” - **Edward Wong, Solutions Architect at PG&E**

Highly available storage

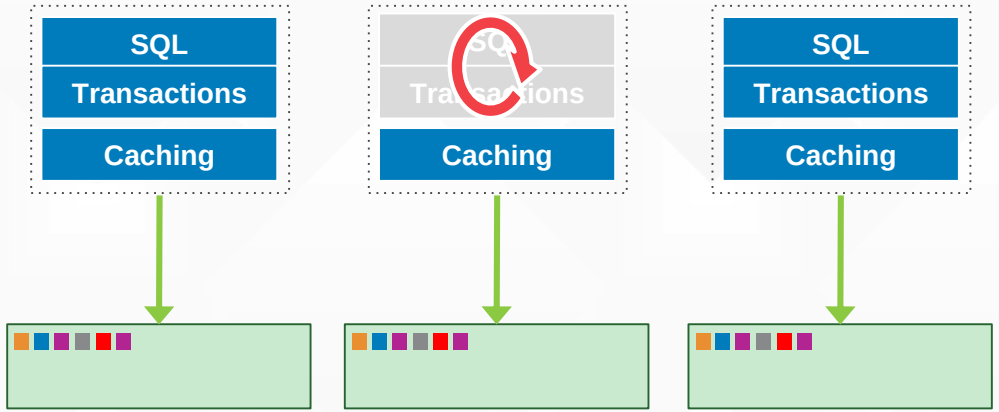
- Six copies of data; quorum system for read/write; latency tolerant
- Background scrubbing; CRC on the wire & on disk
- Peer to peer gossip replication for catchup and recovery
- Continuous back to S3 as a quorum set member
- 10GB segments as unit of repair or hotspot rebalance



Survivable caches

- We moved the cache out of the database process
- Cache remains warm in the event of a database restart
- Lets you resume fully loaded operations much faster
- Instant crash recovery **+** survivable cache **=** quick and easy recovery from DB failures

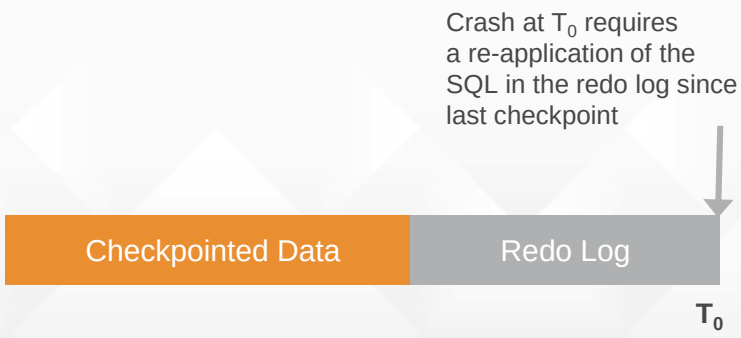
Caching process is outside the DB process and remains warm across a database restart



Instant crash recovery

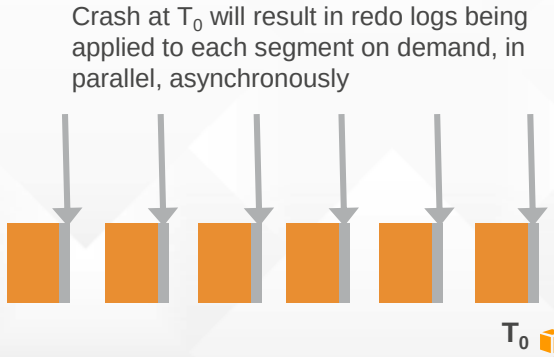
Traditional databases

- Have to replay logs since the last checkpoint
- Single-threaded in MySQL; requires a large number of disk accesses

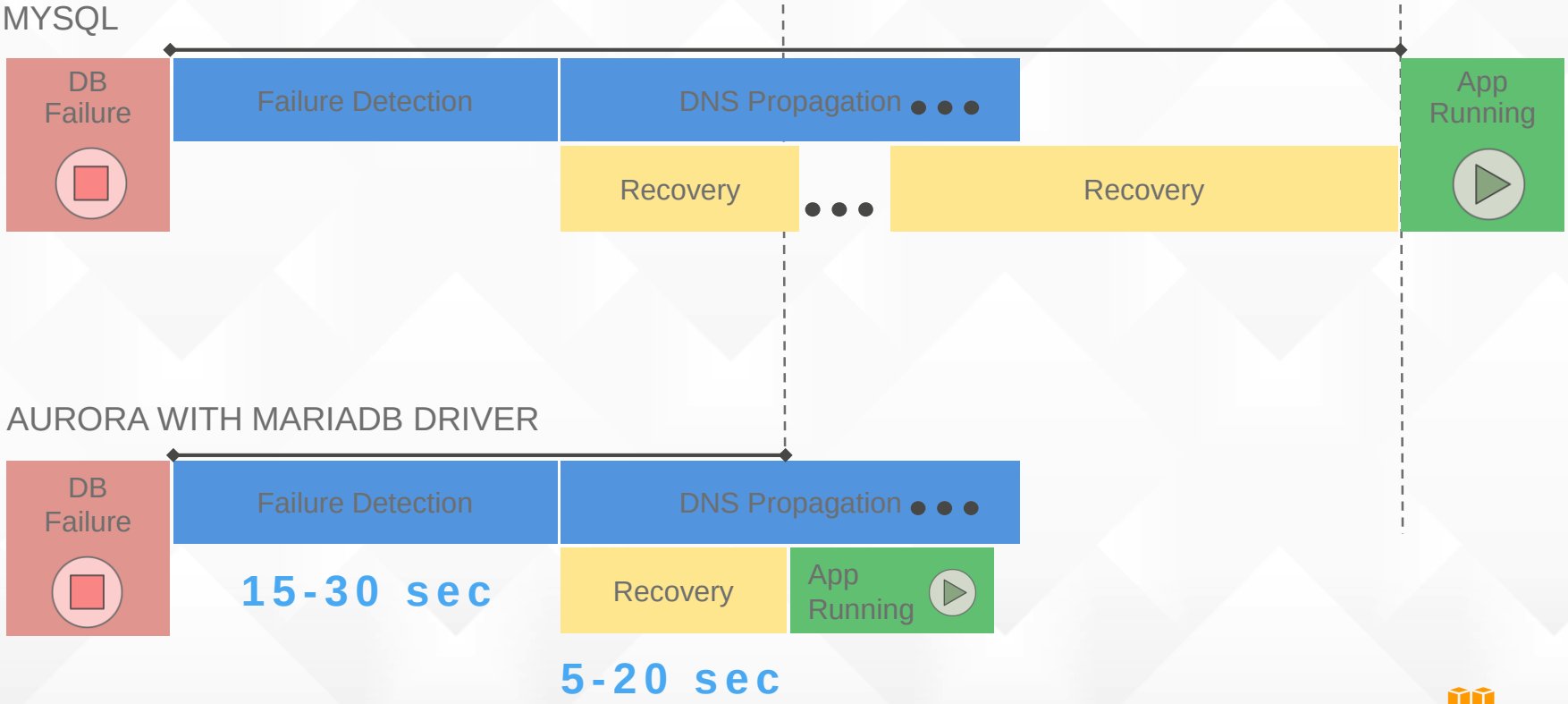


Amazon Aurora

- Underlying storage replays redo records on demand as part of a disk read
- Parallel, distributed, asynchronous



Faster, more predictable failover



Simulate failures using SQL

- To cause the failure of a component at the database node:

```
ALTER SYSTEM CRASH [{INSTANCE | DISPATCHER | NODE}]
```

- To simulate the failure of disks:

```
ALTER SYSTEM SIMULATE percent_failure DISK failure_type IN
[DISK index | NODE index] FOR INTERVAL interval
```

- To simulate the failure of networking:

```
ALTER SYSTEM SIMULATE percent_failure NETWORK failure_type
[TO {ALL | read_replica | availability_zone}] FOR INTERVAL interval
```

Amazon Aurora is easy to use

“Amazon Aurora’s new user-friendly monitoring interface made it easy to diagnose and address issues. Its performance, reliability and monitoring really shows Amazon Aurora is an enterprise-grade AWS database.” – **Mohamad Reza, Information Systems Officer at United Nations**

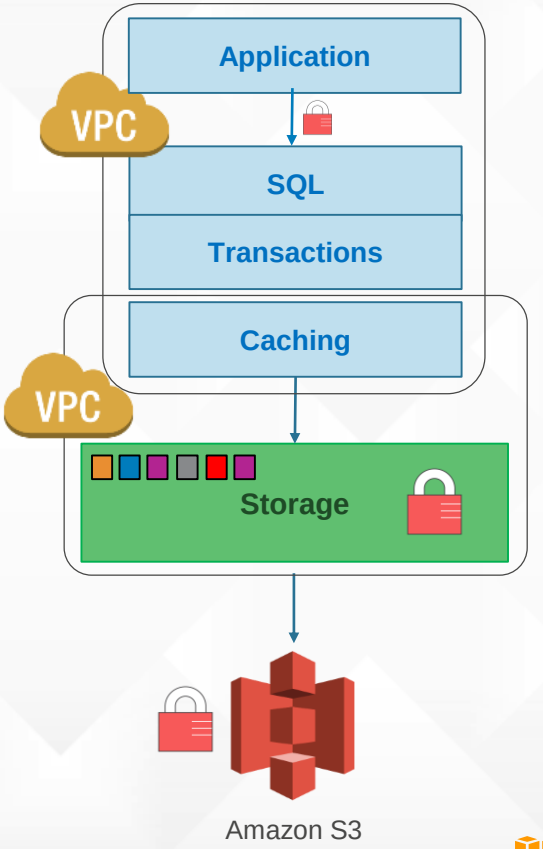
Simplify storage management

Up to 64TB of storage – auto-incremented in 10GB units

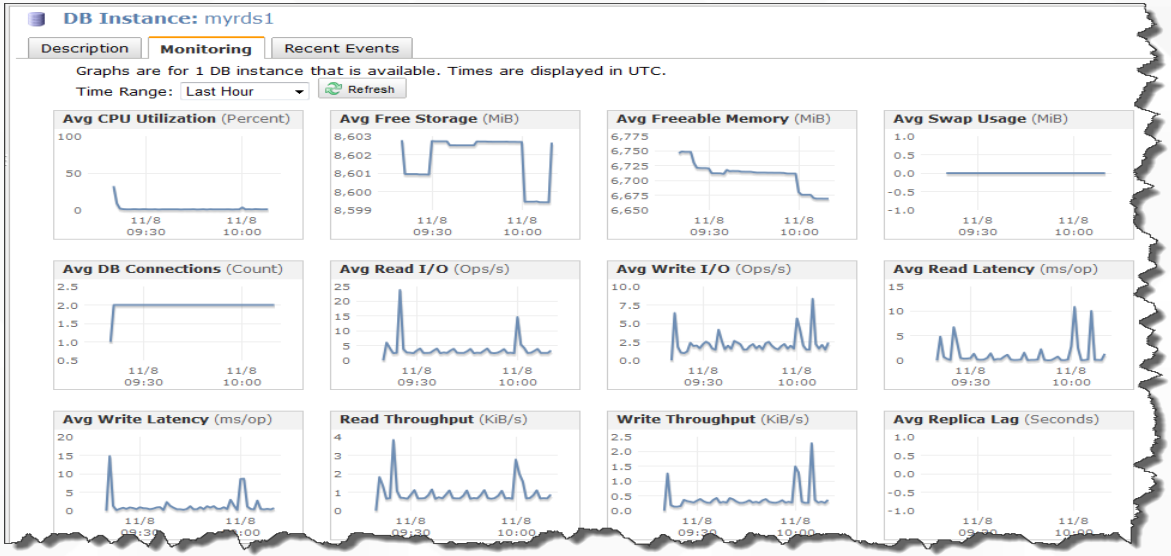
- Continuous, incremental backups to Amazon S3
- Instantly create user snapshots—no performance impact
- Automatic storage scaling up to 64 TB—no performance impact
- Automatic restriping, mirror repair, hot spot management, encryption

Simplify data security

- ☑ Encryption to secure data at rest
  - AES-256; hardware accelerated
  - All blocks on disk and in Amazon S3 are encrypted
  - Key management via AWS KMS
- ☑ SSL to secure data in transit
- ☑ Network isolation via Amazon VPC by default
- ☑ No direct access to nodes
- ☑ Supports industry standard security and data protection certifications



Simplify monitoring with AWS console



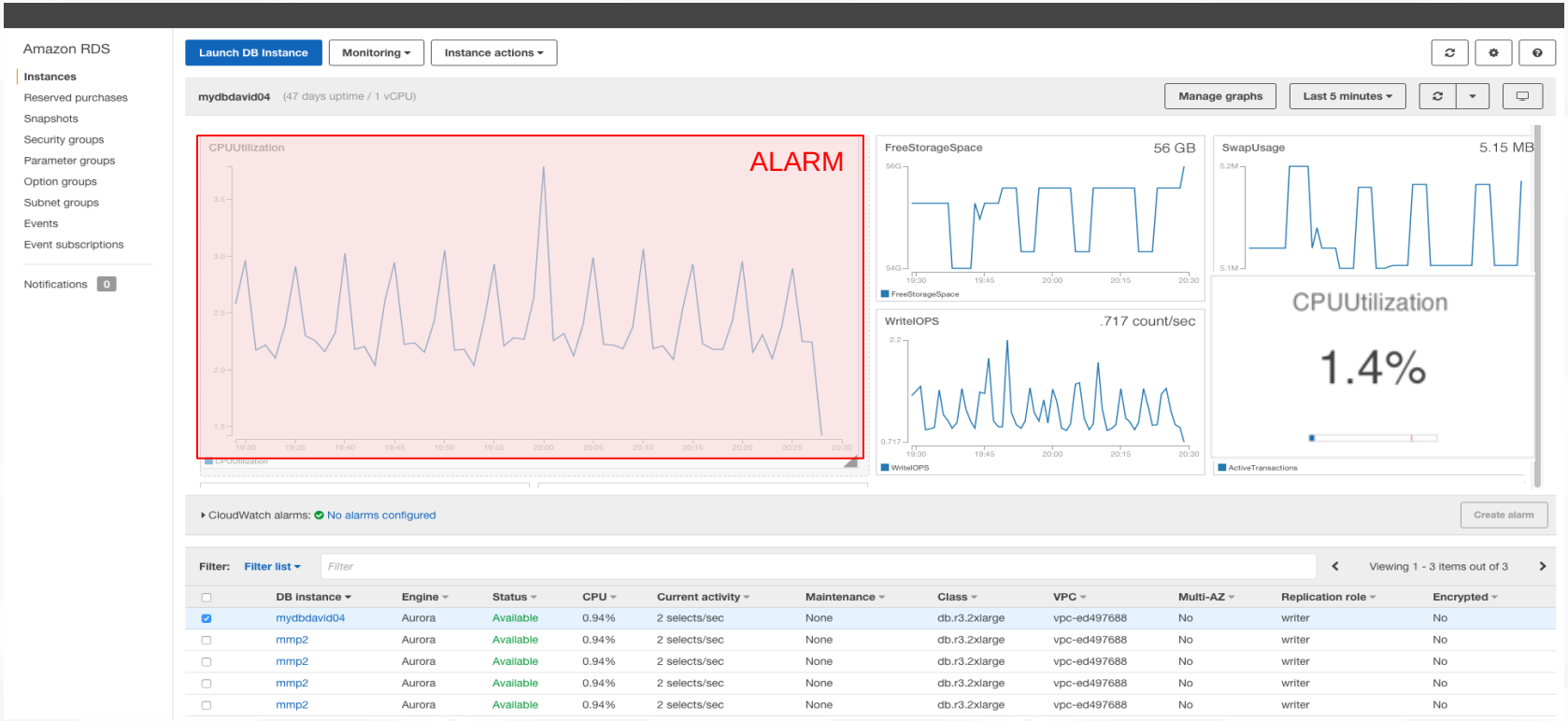
CloudWatch RDS Metrics

- CPU utilization
- Storage
- Memory
- Swap usage
- DB connections
- I/O (read and write)
- Latency (read and write)
- Throughput (read and write)
- Replica lag
- Many more

CloudWatch Alarms

- Similar to on-premises custom monitoring tools

Advanced monitoring



50+ system/OS metrics | sorted process list view | 1-60 sec granularity

alarms on specific metrics | egress to CloudWatch Logs | integration with 3rd-party tools

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Delivered as a managed service

If you host your databases on-premises

- App optimization
- Scaling
- High availability
- Database backups
- DB s/w patches
- DB s/w installs
- OS patches
- OS installation
- Server maintenance
- Rack and stack
- Power, HVAC, net

If you host your databases on-premises

App optimization
Scaling
High availability
Database backups
DB s/w patches
DB s/w installs
OS patches
OS installation
Server maintenance
Rack and stack
Power, HVAC, net

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If you host your databases in Amazon EC2

- App optimization
- Scaling
- High availability
- Database backups
- DB s/w patches
- DB s/w installs
- OS patches

- OS installation
- Server maintenance
- Rack and stack
- Power, HVAC, net

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If you host your databases in Amazon EC2

App optimization

Scaling

High availability

Database backups

DB s/w patches

DB s/w installs

OS patches

OS installation

Server maintenance

Rack and stack

Power, HVAC, net

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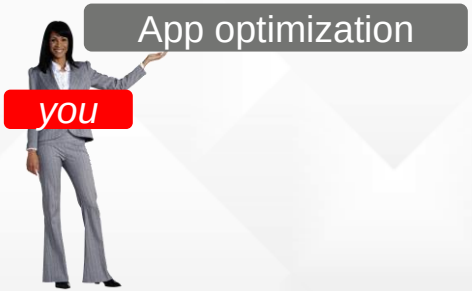
If you choose a managed DB service

- Scaling
- High availability
- Database backups
- DB s/w patches
- DB s/w installs
- OS patches
- OS installation
- Server maintenance
- Rack and stack
- Power, HVAC, net



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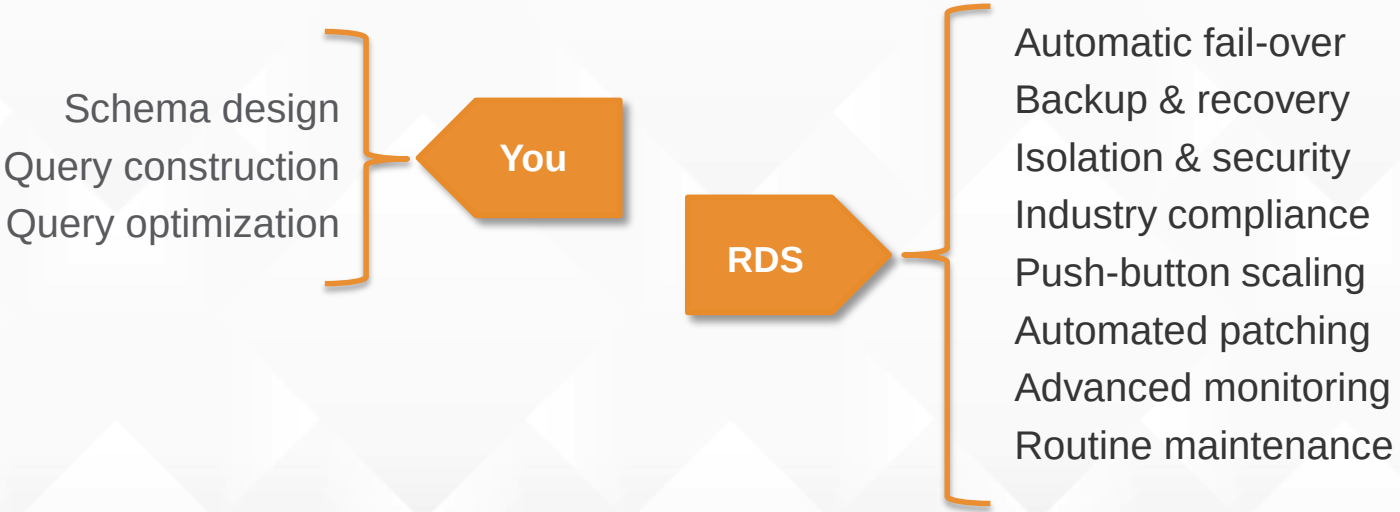
Simplify database management

Amazon RDS takes care of your time-consuming database management tasks, freeing you to focus on your applications and business



Amazon Aurora saves you money

Enterprise grade, open source pricing

	vCPU	Mem	Hourly Price
db.r3.large	2	15.25	$0.29
db.r3.xlarge	4	30.5	$0.58
db.r3.2xlarge	8	61	$1.16
db.r3.4xlarge	16	122	$2.32
db.r3.8xlarge	32	244	$4.64

- Storage consumed, up to 64 TB, is $0.10/GB-month
- IOs consumed are billed at $0.20 per million I/O
- Prices are for Virginia

Simple pricing

- No licenses
- No lock-in
- Pay only for what you use

Discounts

- 44% with a 1-year RI
- 63% with a 3-year RI

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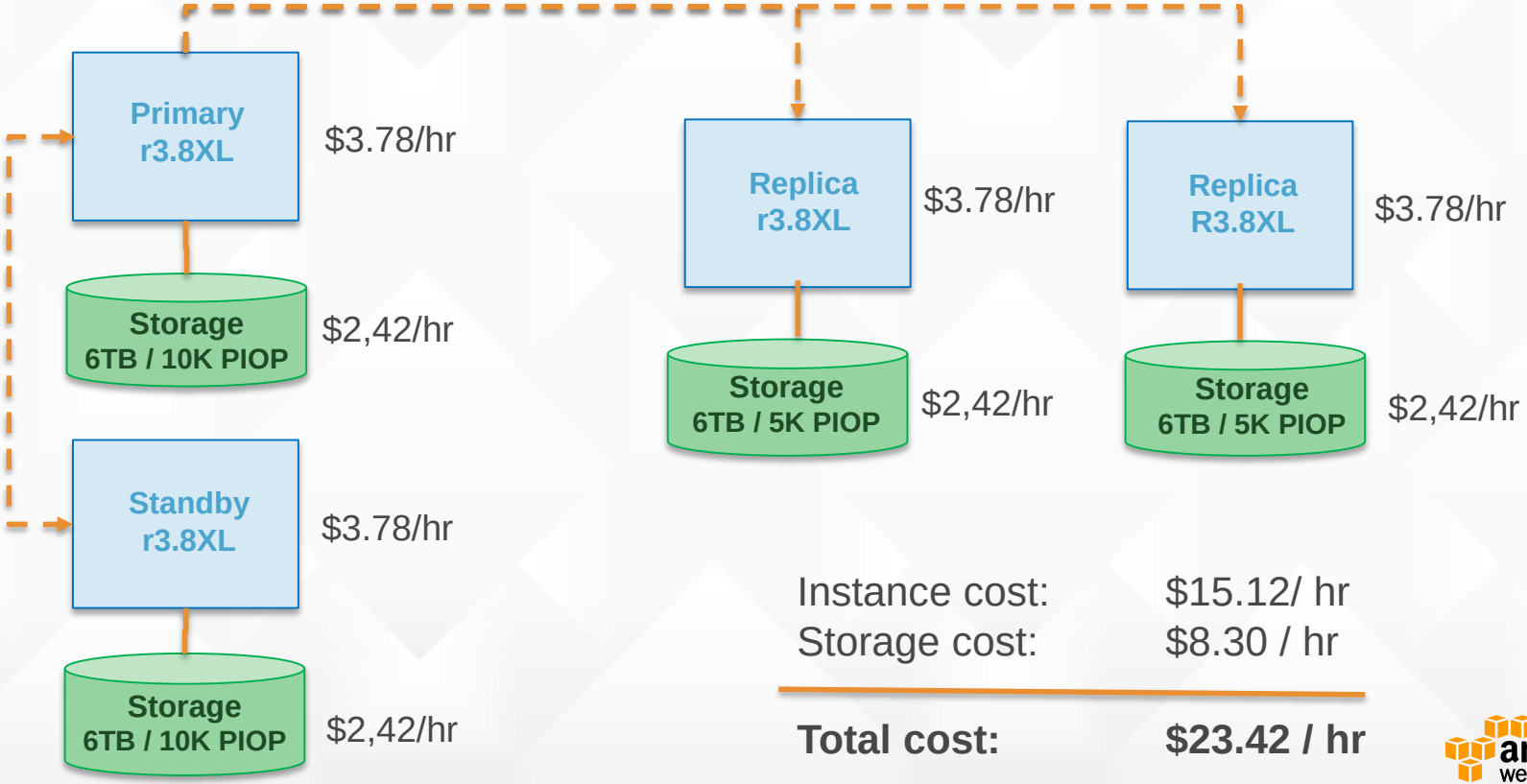
Cost of ownership: Aurora vs. MySQL

MySQL configuration hourly cost



Instance cost:	$15.12/ hr
Storage cost:	$8.30 / hr
Total cost:	**$23.42 / hr**

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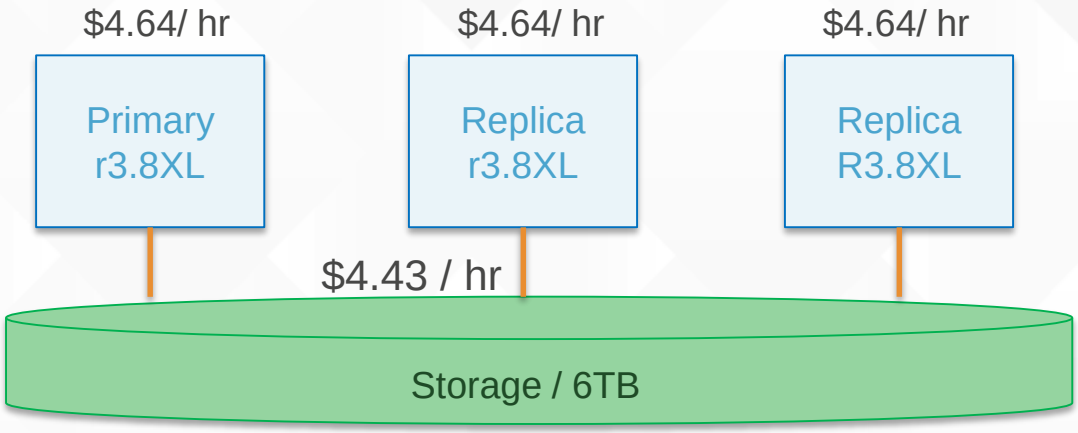
Cost of ownership: Aurora vs. MySQL

Aurora configuration hourly cost

- No idle standby instance
- Single shared storage volume
- No POIPs – pay for use IO
- Reduction in overall IOP



Instance cost:	$13.92/ hr
Storage cost:	$4.43 / hr
Total cost:	**$18.35 / hr**

21.6% Savings

*At a macro level Aurora saves over 50% in storage cost compared to RDS MySQL.

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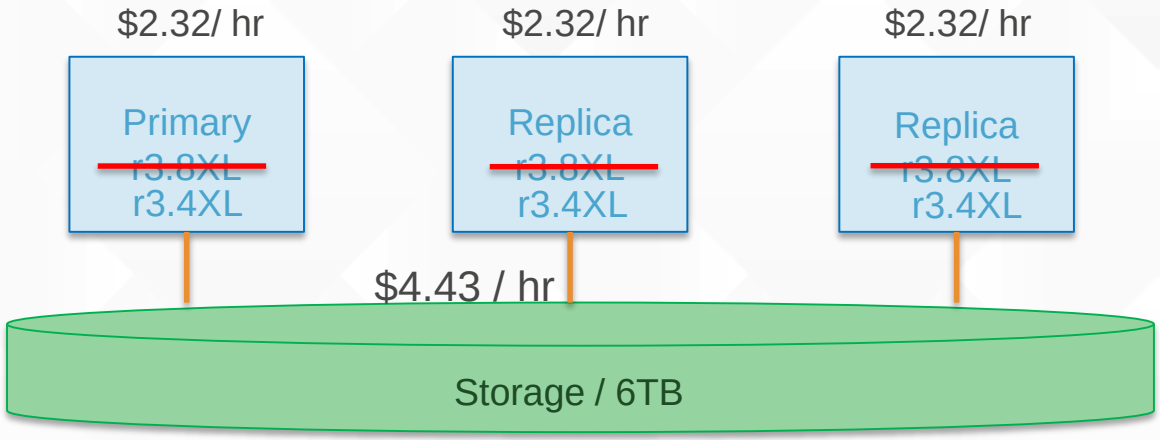
Cost of ownership: Aurora vs. MySQL

Further opportunity for saving

- Use smaller instance size
- Pay-as-you-go storage



Instance cost:	$6.96/ hr
Storage cost:	$4.43 / hr
Total cost:	**$11.39 / hr**

51.3% Savings

Storage IOPs assumptions:

1. Average IOPs is 50% of Max IOPs
2. 50% savings from shipping logs vs. full pages

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Migration to Aurora is easy

AWS Database Migration Service

PostgreSQL ORACLE Amazon Aurora

AMAZON REDSHIFT MySQL MariaDB Microsoft SQL Server

Start your first migration in 10 minutes or less

Keep your apps running during the migration

Replicate within, to or from Amazon EC2 or RDS

Move data to the same or different database engine

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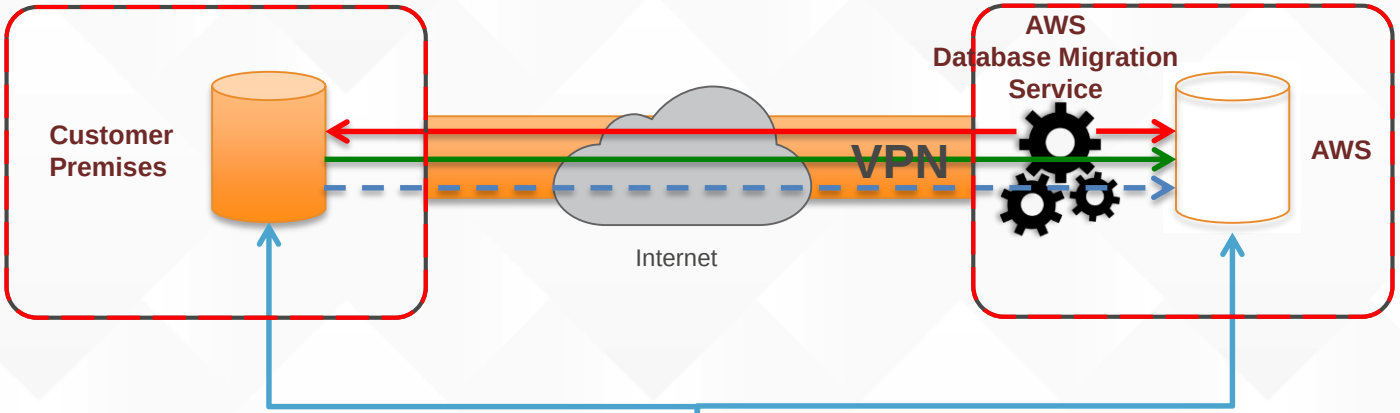
Keep your apps running during the migration

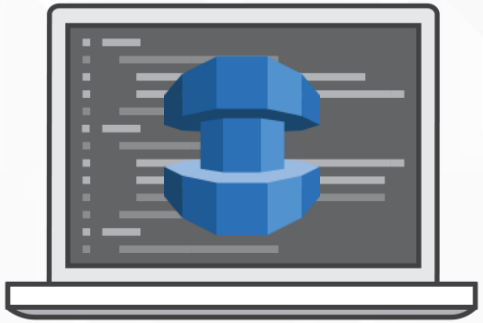


- Start a replication instance
- Connect to source and target databases
- Select tables, schemas, or databases

Application Users

Let AWS Database Migration Service create tables, load data, and keep them in sync

Switch applications over to the target at your convenience



AWS Schema Conversion Tool

Migrate off Oracle and SQL Server

Move your tables, views, stored procedures and DML to MySQL, MariaDB, and Amazon Aurora

Know exactly where manual edits are needed

Download at aws.amazon.com/dms

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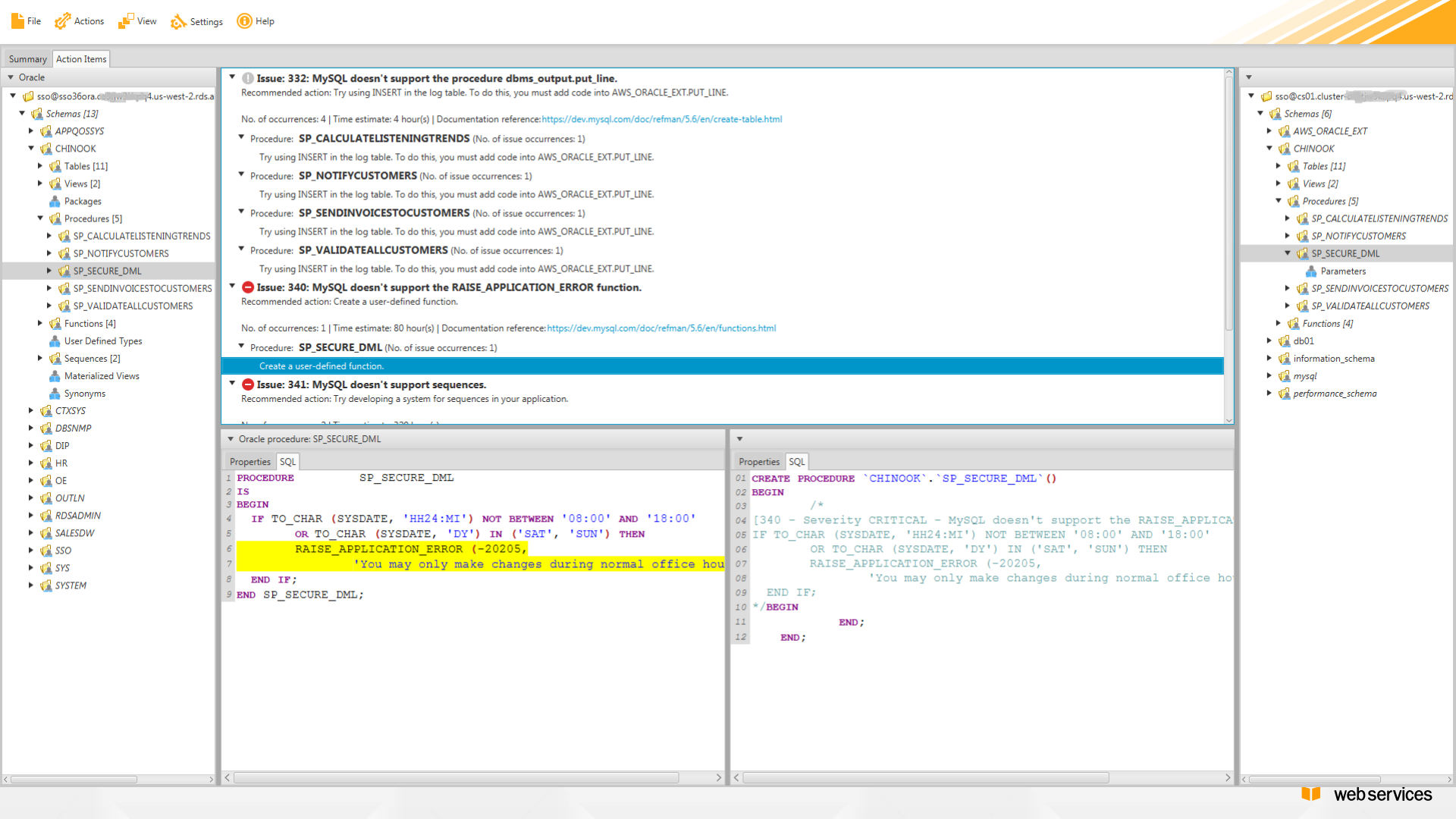
File
Actions
View
Settings
Help
Summary
Action Items
Oracle
sso@sso36ora.c
4.us-west-2.rds.a
Schemas [13]
APPQOSSYS
CHINOOK
Tables [11]
Views [2]
Packages
Procedures [5]
SP_CALCULATELISTENINGTRENDS
SP_NOTIFYCUSTOMERS
SP_SECURE_DML
SP_SENDINVOICESTOCUSTOMERS
SP_VALIDATEALLCUSTOMERS
Functions [4]
User Defined Types
Sequences [2]
Materialized Views
Synonyms
CTXSYS
DBSNMP
DIP
HR
OE
OUTLN
RDSADMIN
SALESDW
SSO
SYS
SYSTEM
Issue: 332: MySQL doesn't support the procedure dbms_output.put_line.
Recommended action: Try using INSERT in the log table. To do this, you must add code into AWS_ORACLE_EXT.PUT_LINE.
No. of occurrences: 4 | Time estimate: 4 hour(s) | Documentation reference:https://dev.mysql.com/doc/refman/5.6/en/create-table.html
Procedure: SP_CALCULATELISTENINGTRENDS (No. of issue occurrences: 1)
Try using INSERT in the log table. To do this, you must add code into AWS_ORACLE_EXT.PUT_LINE.
Procedure: SP_NOTIFYCUSTOMERS (No. of issue occurrences: 1)
Try using INSERT in the log table. To do this, you must add code into AWS_ORACLE_EXT.PUT_LINE.
Procedure: SP_SENDINVOICESTOCUSTOMERS (No. of issue occurrences: 1)
Try using INSERT in the log table. To do this, you must add code into AWS_ORACLE_EXT.PUT_LINE.
Procedure: SP_VALIDATEALLCUSTOMERS (No. of issue occurrences: 1)
Try using INSERT in the log table. To do this, you must add code into AWS_ORACLE_EXT.PUT_LINE.
Issue: 340: MySQL doesn't support the RAISE_APPLICATION_ERROR function.
Recommended action: Create a user-defined function.
No. of occurrences: 1 | Time estimate: 80 hour(s) | Documentation reference:https://dev.mysql.com/doc/refman/5.6/en/functions.html
Procedure: SP_SECURE_DML (No. of issue occurrences: 1)
Create a user-defined function.
Issue: 341: MySQL doesn't support sequences.
Recommended action: Try developing a system for sequences in your application.
Oracle procedure: SP_SECURE_DML
Properties
SQL
1 PROCEDURE SP_SECURE_DML
2 IS
3 BEGIN
4 IF TO_CHAR (SYSDATE, 'HH24:MI') NOT BETWEEN '08:00' AND '18:00'
5 OR TO_CHAR (SYSDATE, 'DY') IN ('SAT', 'SUN') THEN
6 RAISE_APPLICATION_ERROR (-20205,
7 'You may only make changes during normal office hou
8 END IF;
9 END SP_SECURE_DML;
Properties
SQL
01 CREATE PROCEDURE `CHINOOK`.`SP_SECURE_DML`()
02 BEGIN
03 /*
04 [340 - Severity CRITICAL - MySQL doesn't support the RAISE_APPLICA
05 IF TO_CHAR (SYSDATE, 'HH24:MI') NOT BETWEEN '08:00' AND '18:00'
06 OR TO_CHAR (SYSDATE, 'DY') IN ('SAT', 'SUN') THEN
07 RAISE_APPLICATION_ERROR (-20205,
08 'You may only make changes during normal office ho
09 END IF;
10 */BEGIN
11 END;
12 END;
sso@cs01.cluster
.us-west-2.rd
Schemas [6]
AWS_ORACLE_EXT
CHINOOK
Tables [11]
Views [2]
Procedures [5]
SP_CALCULATELISTENINGTRENDS
SP_NOTIFYCUSTOMERS
SP_SECURE_DML
Parameters
SP_SENDINVOICESTOCUSTOMERS
SP_VALIDATEALLCUSTOMERS
Functions [4]
db01
information_schema
mysql
performance_schema
webservices

Well established eco-system

"We ran our compatibility test suites against Amazon Aurora and everything just worked." - Dan Jewett, Vice President of Product Management at Tableau

Business Intelligence	Data Integration	Query and Monitoring	SI and Consulting
+ a b | e a u	talend	Webyog	8K Miles
ZOOMDATA	ATTUNITY		2ND WATCH
looker	informatica	Navicat Premium for Aurora	NORDCLOUD
			slalom
			Pythian love your data
			CORPINFO

Source: Amazon

Q&A

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