

ORACLE®

Larry Ellison's Keynote

Oracle Autonomous **Database** and Highly Automated **Cyber** Security

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Chief Technology Officer

**Robots
Prevent Data Theft**

Automation is Essential to Preventing Data Theft **Automated Cyber Security & Automated Database Work Together**

- New Cyber Security Technology - Tuesday
 - Automated Threat Detection and Immediate Remediation
- New Database Technology - Today
 - Automated Database Can Instantly Patch Itself while Running
 - No Delay Waiting for Human Process or Downtime Window
 - Lots of Other Benefits from Database Automation

Based on a Technology
As Revolutionary
As the Internet
Machine Learning

Machine Learning (ML)

The Applications are Revolutionary

- Autonomy: "Self-Driving" cars
- Computer Vision: Facial Recognition
- New ML Applications: Autonomous Database & Automated Cyber Security

Huge Amounts of Computer Systems Data in Event Logs Enable New Database and Security Applications for Machine Learning

- Lots of Event Logs
 - Infrastructure logs: Network, Server, Storage, VM, OS
 - Platform logs: Database, Java, Analytics, etc.
 - Applications logs: ERP, CX, HCM, Custom, etc.
- Event Log Training Data Enables New Machine Learning Applications
 - **Security:** Detect and connect anomalous events: Login from Ukraine and unique SQL
 - **Database:** Classify normal query patterns and automatically tune database

Database Autonomy & Highly Automated Cyber Security

Database Autonomy: Fully automated 100% "self-driving" database
Automated Cyber Defense: Detect & remediate attacks in real-time
They Work Together:

- **Discover attack:** Real time ML log processing detects security anomaly in data
- **Remediate:** Database automatically patches itself while running

Lots of Other Benefits Come with Total Database Automation

Oracle 18c Autonomous Database Total Automation Based on Machine Learning

- **No Human Labor:** Eliminate 100% of the human labor to manage the database
- Database automatically provisions, upgrades, patches, tunes itself while running
 - Automated real-time security patching with no downtime window required
- **No Human Error:** SLA Guarantees 99.995% reliability and availability
 - Minimize costly planned plus unplanned downtime to less than 30 minutes a year
- **No Human Performance Tuning:** Consumes less compute and storage than at Amazon
 - We guarantee your Amazon bill is cut in half. Lower labor costs is an even bigger savings.

Oracle 18c Autonomous Database No Human Labor – No Human Error

- Fully Automated Database Provisioning and Management
 - Even for mission critical scale-out clusters with datacenter disaster protection
 - User defines policies then system automatically manages itself
 - Automatic provisioning, backup, upgrades, patching, tuning, etc., while running
 - No human administration means **no administrator errors or malicious behavior**

Oracle 18c Autonomous Database

Continuous Adaptive Performance Tuning

- Fully Automated Performance Tuning
 - Automatic optimization: indexing, caching, statistics, parallelism, etc.
 - Continuous tuning to adapt to data volume increases and data distribution changes
 - Consumes less computer resources than human tuned system

Oracle 18c Autonomous Database

Dynamic Elastic Hardware Allocation

- Fully Automated Hardware Resource Elasticity
 - Instantly expand/shrink compute and storage without downtime
 - Minimizes cost by delaying resource allocation until time needed
 - No overpaying for partially used fixed configurations

Oracle 18c Autonomous Database

Non-Stop Availability: Fault Tolerant plus On-line Recovery and Upgrades

- System Failure or Scaling
- Regional Outage or DB Corruption
- Patches (Updates)
- Major Release Upgrades
- Table/Index/Schema Changes
- User Error
- Exadata, RAC, ASM
- Active Data Guard
- RAC Rolling Upgrade
- Transient Logical Standby
- Online and Edition Based Redefinition
- Flashback transaction, table, or database

Oracle 18c Autonomous Database

Guaranteed 99.995% Reliability and Availability

- SLA Guarantees 99.995% Reliability and Availability
 - Less than 30 minutes of downtime per year
 - Includes both planned and unplanned downtime
 - No exceptions in fine print: **100x more reliable than Amazon**

Autonomous Database for Data Warehouses

Available: **December 2017**

• Automated

- Automatically provision, upgrade, patch, tune while running
- Eliminates human labor and human error

• Efficient

- Minimize Hardware Resource Consumption
- **Guaranteed half the cost of Amazon**

• Reliable

- Guaranteed 99.995% availability
- **Guaranteed 100x better availability than Amazon**



Oracle Autonomous Database

Exadata Cloud@Customer and Public Cloud

On-Premises



Customer Data Center
Purchased
Customer Managed

Cloud@Customer



Customer Data Center
Subscription
Oracle Managed

Public Cloud Service



Oracle Cloud
Subscription
Oracle Managed

Introducing Database BYOL to PaaS Pricing

Includes Full Database Autonomy plus all Features Customer has Licensed

Pay as you go BYOL Database PaaS Pricing

Oracle Public Cloud, Cloud@Customer	BYOL PaaS Price Storage	BYOL PaaS Price Compute
Oracle Database Enterprise Edition Standard Infrastructure	\$50/OCPU	\$168/OCPU
Oracle Database Enterprise Edition Exadata Infrastructure	\$148/Terabyte	\$280/OCPU

Minimum Configuration 1 OCPU plus 1 Terabyte: **\$300 per Month**

PaaS Discount of 30% with Monthly Dollar Volume Commitment

BYOL EE Database Plus RAC, Multitenant, Active DataGuard for 99.995% Availability

Database Professionals: Evolution of Skill Set

Problem: More data management tasks than humans to do the work

Less time on Administration

- Less time on infrastructure
- Less time on patching, upgrades
- Less time on ensuring availability
- Less time on tuning

More time on Innovation

- More time on database design
- More time on data analytics
- More time on data policies
- **More time on securing data**



SIX SHORT DEMOS

Oracle Autonomous Cloud Database
versus
Oracle Database on Amazon Cloud
and
Redshift Database on Amazon Cloud

Demonstration Workloads:
Real Data Warehouses from Four Different Customers

- Financial analytics
- Market research analytics
- Insurance analytics
- Retail analytics

DEMOS 1, 2, 3

Oracle Database on Oracle Cloud
versus
Oracle Database on Amazon Cloud

Autonomous Database for Data Warehouses
Available: December 2017

- Efficient
 - Oracle on Amazon 5 to 8 Times Higher Cost than Oracle Autonomous DW
 - Guaranteed to cut your Oracle Data Warehouse on Amazon Bill in Half
 - Save Even More on Reduced Labor Costs

