

# Autonomous Database újdonosságok

## és a Data Safe adatbázis-biztonsági központi eszköz

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## Safe harbor statement

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The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions.

The development, release, timing, and pricing of any features or functionality described for Oracle's products may change and remains at the sole discretion of Oracle Corporation.

# A következő generációs adatvezérelt alkalmazások

**Agilis**



Multitenant

**Rugalmas**



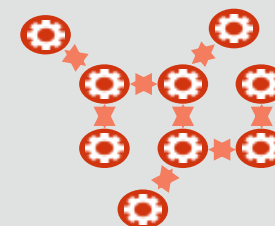
JSON

**Biztonságos**



Blockchain

**Adaptálódó**



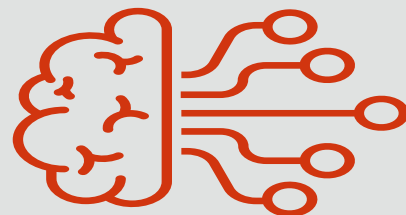
Microservices

**Elemző**



In-Memory

**Prediktív**



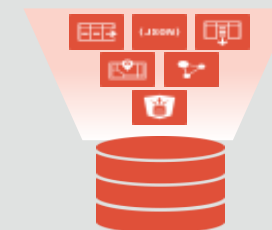
Machine Learning

**Kiterjeszthető**



Data Lake

**Egyszerű**



Converged  
Database

# Adatbázis trend - Önvezető adatbázisok

Az önvezető adatbázisok önmaguk működését menedzselik és optimalizálják az akár komplex és változó terhelések alatt is.

Létrehozás, online műveletek: elasztikus skálázás (auto-skálázás is), tuningolás, biztonság és patch-ek, működésfolytonosság.

# Oracle Autonomous Database



## Önvezető

Automatizálja az összes adatbázis és infrastruktúra management, monitorozás és tuning feladatot



## Önmaga biztonságát kezelő

Megvéd a külső támadásoktól és a belső rosszakaróktól is



## Önjavító

Megvéd a leállításoktól, a nem tervezett és a tervezett leállításoktól is

**Költsön kevesebbet, csökkentse a kockázatokat, végezzen el több innovációt!**

# Autonomous Database optimalizáció

## Autonomous Data Warehouse

## Autonomous Transaction Processing



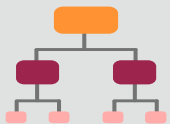
Optimizes Complex SQL

Optimizes Response Time



Columnar Format

Row Format



Creates Data Summaries

Creates Indexes

Exadata + Real Application Clusters + Multitenant

# New | Autonomous szolgáltatások már dedikált környezetben is



## Serverless

Ultra-Simple, low entry cost,  
and Elastic

## Dedicated

Private Database Cloud in  
Public Cloud

# New | Autonomous Database Dedicated

Deploy on **dedicated** Exadata Cloud infrastructure

-With **guaranteed 99.995 %** SLA (< 2.5 minutes downtime per month)

Complete stack is fully **isolated** from other tenants:

-Virtual Cloud Network is hardware enforced

Unique **fully isolated private cloud** in Public Cloud

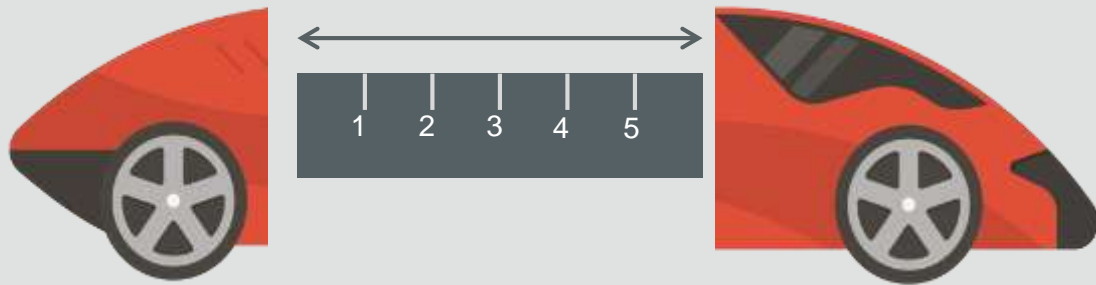
-Enables more customer control over updates

-Ideal for customers consolidating databases on-prem





# Önvezető | Elasztikus skálázás



- instant online skálázás:
  - igény szerinti teljesítmény
  - alacsony költségek eléréséhez
- OCPU és storage függetlenül skálázható
- Minden skálázási művelet online történik, az alkalmazás folyamatosan működik
- Skálázás:
  - Cloud UI
  - REST APIs

# Autonomous Database Machine Learning

## Diagnostics, Recovery and Optimization

### Database Infrastructure



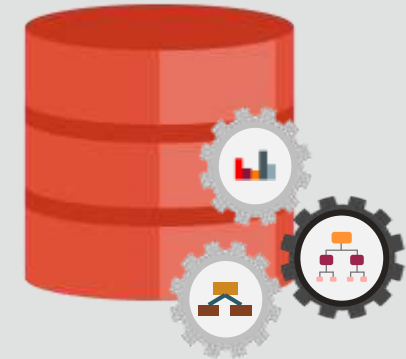
Detection and recovery of failed/sick server, storage or switch/link

### Database Operations



Hang Management  
Anomaly Detection and switchover  
Maintenance Slot Identification  
Error Identification and Prioritization

### Workload Optimizations



Query Optimizer  
Real-time statistics  
Automatic Indexing

# Developer eszközök beépítve

## SQL Developer Web



- Execute SQL and PL/SQL commands
- Build Data Models, create diagrams, generate DDL statements
- Monitor and manage the database

## APEX



- Web-based Function rich, low code development env
- No client software needed
- App definitions are stored in the database as meta data
- Page generation is efficient only 1 request / response

## Oracle REST Data Services



- Ability to REST enable a schema and autogenerate REST endpoints for tables and views
- Provides a create, retrieve, update, and delete API on your REST-enabled objects

# Self-Driving | Automatic Workload Priority

- Applications connect to a pre-defined database service to control: relative priority, SQL parallelism, max concurrently executing users
- E.g. most OLTP applications connect to “TP” service, most Batch to “LOW”

	<b>SERVICE</b>	<b>SHARE OF RESOURCES</b>	<b>CONCURRENCY BEFORE QUEUING</b>	<b>DEFAULT SQL PARALLELISM</b>
OLTP	<b>TPURGENT</b>	12	100 X CPUs	MANUAL
	<b>TP</b>	8	100 X CPUs	1
DW, Batch, Reporting	<b>HIGH</b>	4	3	CPUs
	<b>MEDIUM</b>	2	1.25 X CPUs	4
	<b>LOW</b>	1	100 X CPUs	1

# Autonomous Database | New Features



## Database lifecycle

Auto-scaling automates pay-per-use  
Database Cloning for easy dev/test  
“Preview” mode for new functionality



## Enhanced developer experience

Integrated SQL Developer Web  
Integrated Application Express  
Automatic REST API generation  
Support for Spatial, Text and XML



## Cloud Infrastructure

Database metrics in cloud console  
Access Data in Microsoft Azure  
Object Store



## Security and Compliance

Network Access Control Lists  
Compliance Certifications: SOC 1, SOC 2, HIPAA, ISO 27001, ISO 27017, ISO 27018

Thousands of customers

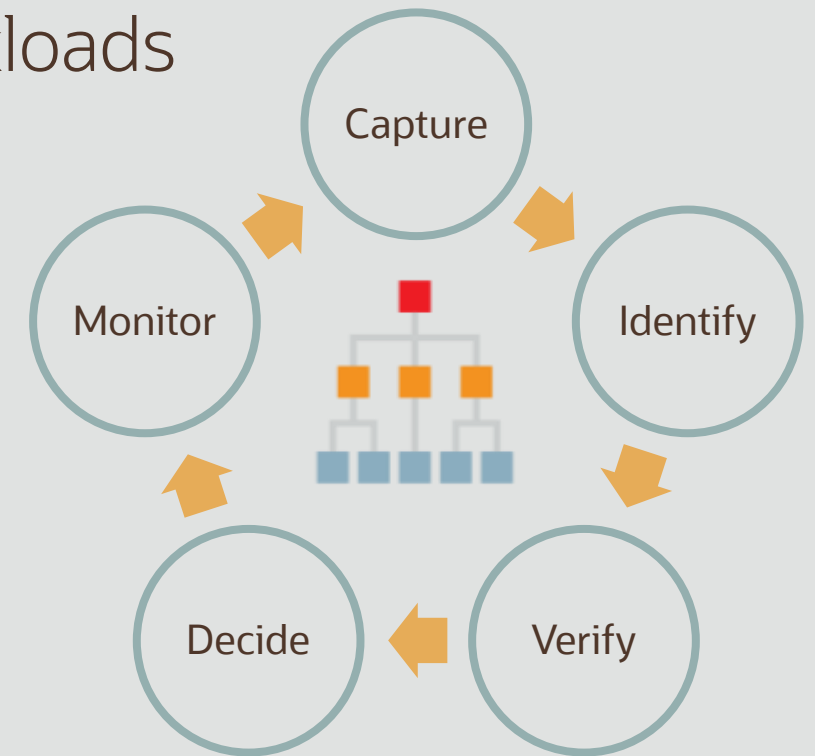
# New | Automatic Indexing

Self-tuning for transactional and mixed workloads

- Or use in advisory mode for existing workloads

Machine Learning continuous monitoring

- Captures all SQL statements
- Identifies **new** SQL plans and indexes
- Changes **tested** outside of production
- Then **validated** on first execution
- All auditable by customer



# March-April 2019

## Network Access Control – Determine which IP addresses can connect to your database

Access Control List [help](#) [cancel](#)

Specify the IP addresses allowed to access this database. You can use a comma-separated list to enter multiple IP addresses. An access control list blocks all IP addresses that are not in the list from accessing the database.

IP NOTATION TYPE

IP Address

CIDR Block

IP Address

IP ADDRESSES

Example: 192.1.1.1,192.1.1.2

+ Additional Entry

Update

Actions ▾

Restore

Create Clone

Access Control List

Admin Password

Update Licence Type

Apply Tag(s)

Terminate

## Update your license type

Update Licence Type

MY ORGANIZATION ALREADY OWNS ORACLE DATABASE SOFTWARE LICENSES.  
Bring my existing database software licenses to the database cloud service ([details](#)).

SUBSCRIBE TO NEW DATABASE SOFTWARE LICENSES AND THE DATABASE CLOUD SERVICE.

Create Autonomous Database Clone [Help](#) [Cl](#)

Choose Clone Type

Full clone  
Creates a new database with source database's data and metadata. ✓

Metadata clone  
Creates a new database that includes all source database schema metadata, but not the source database data.

## April 2019 (continued...)

### AVRO files in object store

Common data format in big data solutions

Upload the file to object store and create an external table

```
format => '{"type": "avro", "schema": "first"}
```

### Modify CPU and IO shares (in May through console)

Navigate to the Service Console

Choose 'Set Resource Management Rules'

Set Resource Management Rules		
Run-away criteria	CPU/IO shares	
Consumer group	CPU/IO shares	
TPURGENT	<input type="text" value="12"/>	<input type="button" value="v"/> <input type="button" value="^"/>
HIGH	<input type="text" value="4"/>	<input type="button" value="v"/> <input type="button" value="^"/>
MEDIUM	<input type="text" value="2"/>	<input type="button" value="v"/> <input type="button" value="^"/>
LOW	<input type="text" value="1"/>	<input type="button" value="v"/> <input type="button" value="^"/>
TP	<input type="text" value="8"/>	<input type="button" value="v"/> <input type="button" value="^"/>



## May 2019 (continued...)

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### Create database links allowed !

Create database links from ADB to the outside world

Need to be created through DBMS\_CLOUD.CREATE\_DATABASE\_LINK procedure

Remote port restricted in range 1521-1525

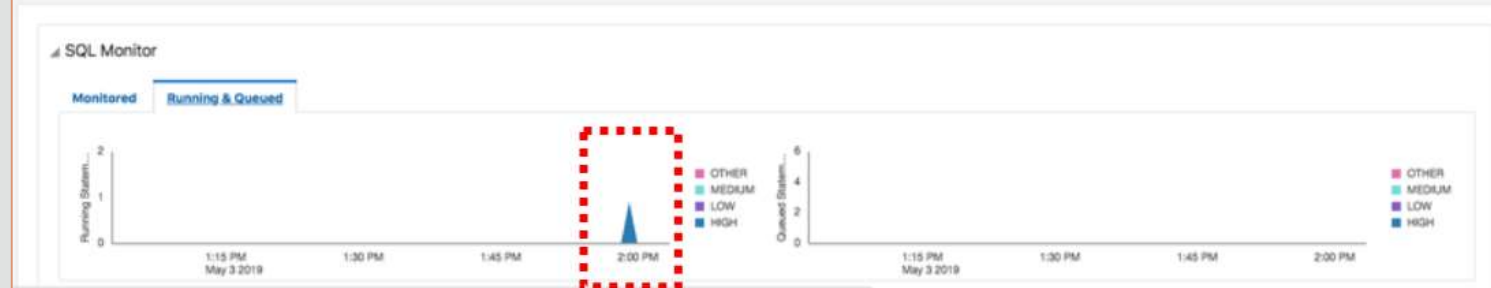
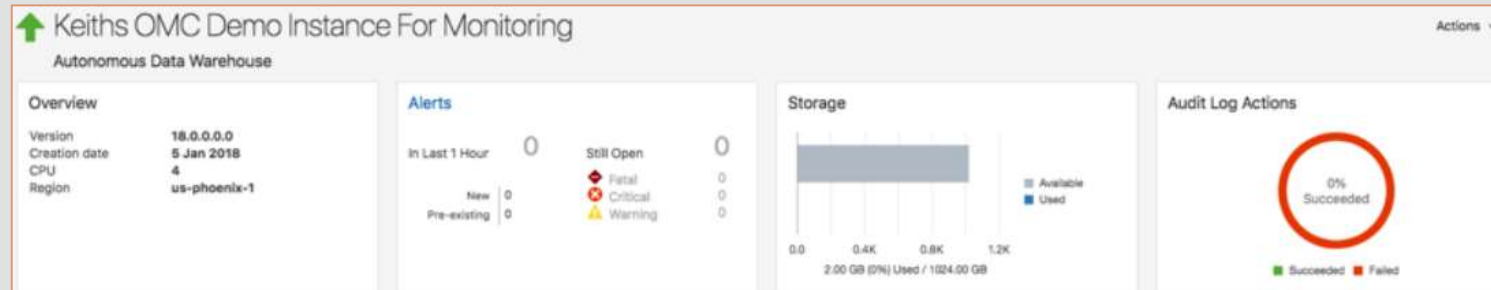
Wallets supported (when uploaded to the DATA\_PUMP\_DIR)

```
BEGIN
  DBMS_CLOUD_ADMIN.CREATE_DATABASE_LINK (
    db_link_name      => 'PRODUCTION',
    hostname          => 'my.remotedatabase.com',
    port              => '1522',
    service_name      => 'prod',
    credential_name   => 'DB_LINK_CRED');
END;
```

# May 2019 (continued...)

Management Cloud support  
Separate service in Oracle Cloud  
Included in ADB license  
Both BYOL and Full  
Setup discovery profile once  
Refresh every 15 minutes

OEM plugin being build



# June 2019

## Auto Scaling

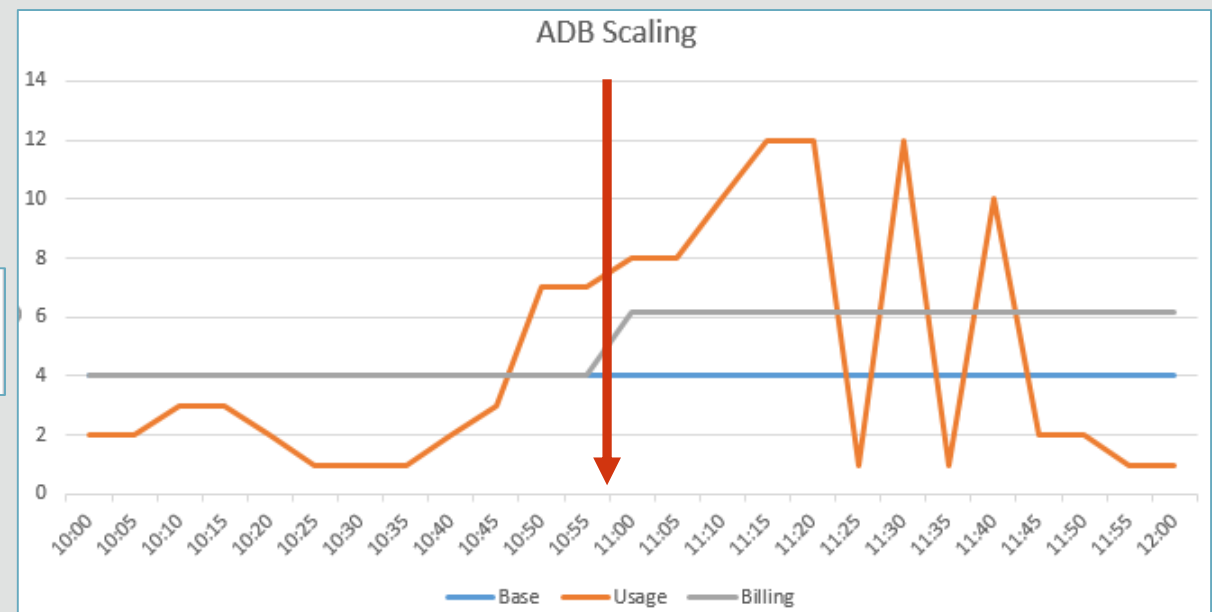
Needs to be enabled (not enabled by default)

When enabled, 3x the amount of CPUs can be active without scaling

Billing based on average per hour

**AUTO SCALING**

Auto scaling allows the system to automatically scale the CPU core count up to three times the base core count to meet load demand.



## June 2019 (continued...)

### ATP Dedicated

Dedicated Exadata system (1/4, 1/2 and full rack)

Billing

Fixed price based on Exadata size + flexible based on CPUs actually used

Bring your own license allowed

No additional storage cost

Fleet admin decides on location, size, VCN and Container Databases

Determines isolation, **software versions**, policies and SLAs

Supports overprovisioning and peak usage policies per CDB

Database admin create ADB instances on the Container Databases

Just like the Autonomous Serverless model

Choose a workload type

<b>Data Warehouse</b> Configures the database for a decision support or data warehouse workload, with a bias towards large data scanning operations.	<b>Transaction Processing</b> Configures the database for a transactional workload, with a bias towards high volumes of random data access. ✓
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Choose a deployment type

<b>Serverless</b> Run Autonomous Database without provisioning infrastructure. ✓	<b>Dedicated Infrastructure</b> Run Autonomous Database on dedicated Exadata infrastructure.
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# Oracle Data Safe Autonomous Database | Now even more Secure

- Unified Database Security Control Center
  - Security Configuration Assessment
  - User Risk Assessment
  - User Activity Auditing
  - Sensitive Data Discovery
  - Data Masking
- Saves time and mitigates security risks
- Defense in Depth for all customers
- No special security expertise needed



**Available with Oracle Cloud Databases at no additional cost**



## September 2019 (continued...)

### Always Free ADB

- ADB now offers the option to create a limited number of Always Free Autonomous Databases that do not consume cloud credits
- Always Free databases can be created in accounts that are in a trial period, paying status, or are always free

#### Configure the database

Always Free ⓘ



Show only Always Free configuration options



Always Free Autonomous Databases can only be created in your account's home region. To proceed, first switch to your home region.

[Learn more](#)

# Always Free – [oracle.com/cloud/free](https://oracle.com/cloud/free)



## Autonomous Database

*2 x Databases  
20 GB each  
1 OCPU each*



## Compute

*2 x VMs  
1 GB Memory each*



## Storage

*100 GB Block  
10 GB Object  
10 GB Archive*



## Networking/ Load Balancing

*10 Mbps LB  
10 TB Outbound  
Data Transfer*



## Monitoring / Notifications

*500M Metrics Ingestion  
1B Metrics Retrieval  
1M Notifications  
1K Emails*

Full ADB functionality, including:

- APEX
- REST Interface (ORDS)
- SQL Developer Web
- Machine Learning Notebooks

# Thank You



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