

ORACLE
CloudWorld Tour
São Paulo

Por que você deveria modernizar o seu BD?

Rodrigo Jorge
Senior Principal Product Manager
Database Upgrade, Migration and Patching

Safe harbor statement

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RODRIGO JORGE

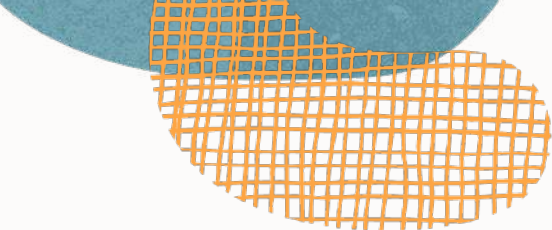
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Database Upgrade, Migrations & Patching

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 @rodrigojorgedba

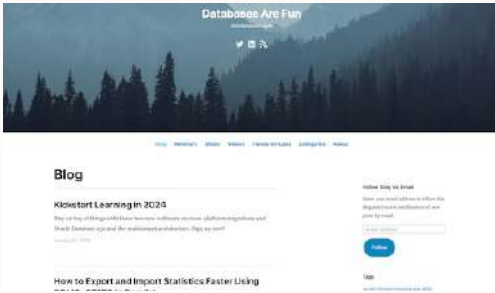
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Episode 1

Release and Patching Strategy

105 minutes – Feb 4, 2021



Episode 2

AutoUpgrade to Oracle Database 19c

115 minutes – Feb 20, 2021



Episode 3

Performance Stability, Tips and Tricks and Underscores

120 minutes – Mar 4, 2021



Episode 4

Migration to Oracle Multitenant

120 minutes – Mar 16, 2021



Episode 5

Migration Strategies – Insights, Tips and Secrets

120 minutes – Mar 25, 2021



Episode 6

Move to the Cloud – Not only for techies

115 minutes – Apr 8, 2021



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<https://MikeDietrichDE.com/videos>

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on-demand, anytime, anywhere

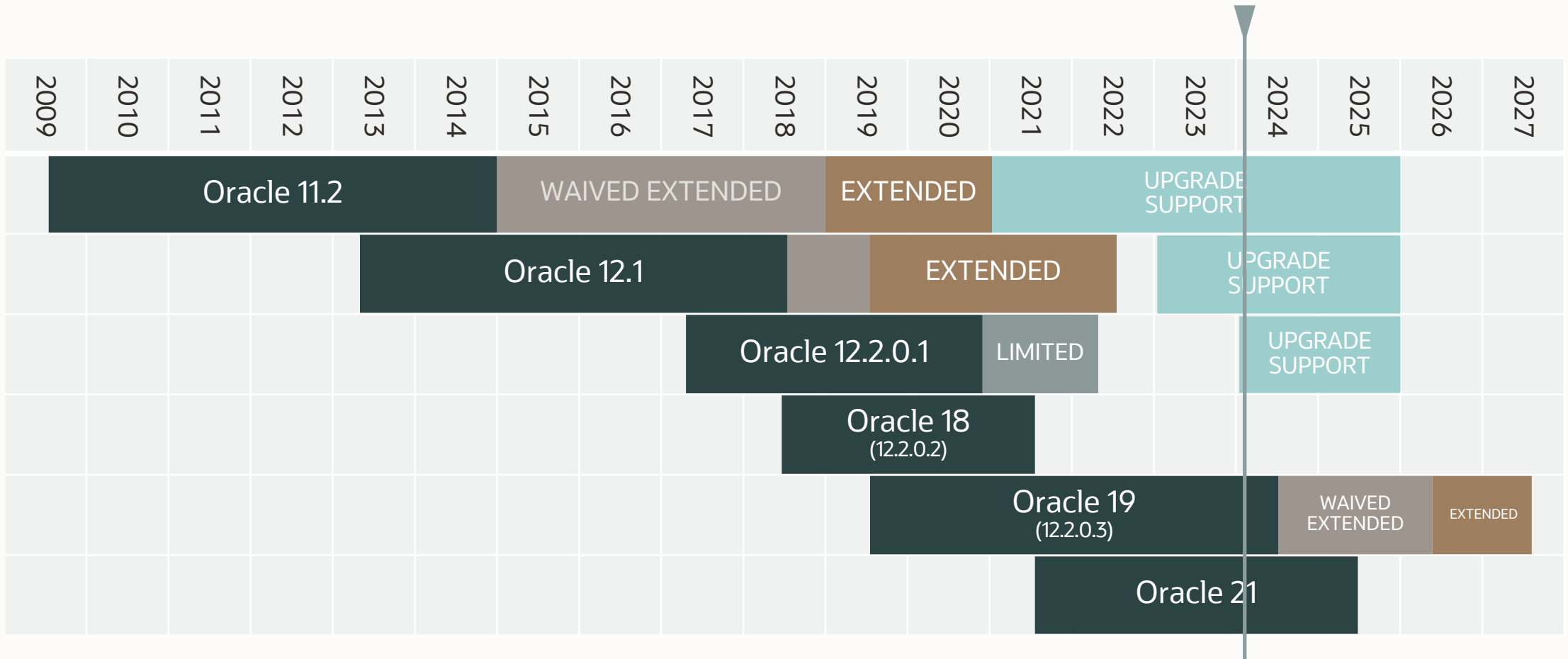


Release Strategy

Which versions of Oracle Database are you using?

- 21c
- 19c
- 18c
- 12.2.0.1
- 12.1.0.2
- 11.2.0.4
- Older?

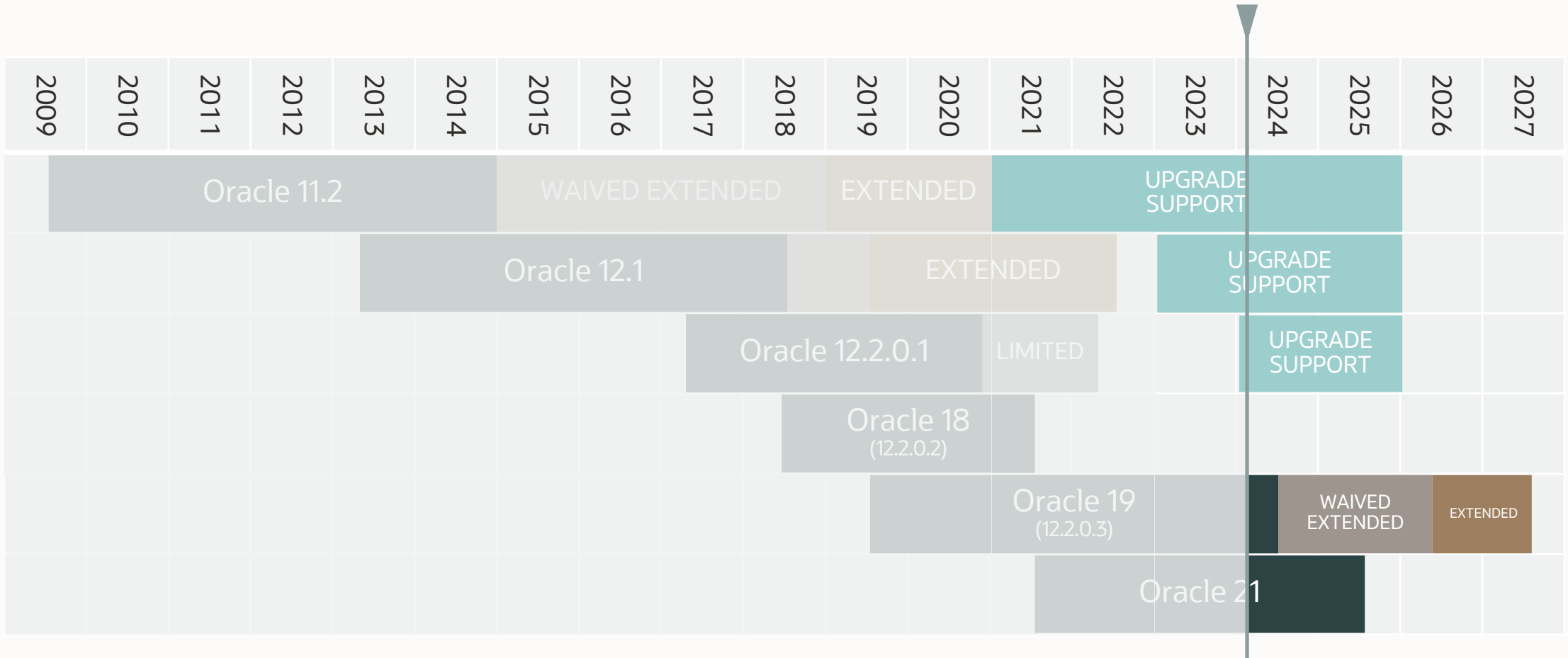
Lifetime Support Policy



Premier Support
 Waived Extended Support
 Paid Extended Support
 Restricted Upgrade Support
 Limited Error Correction



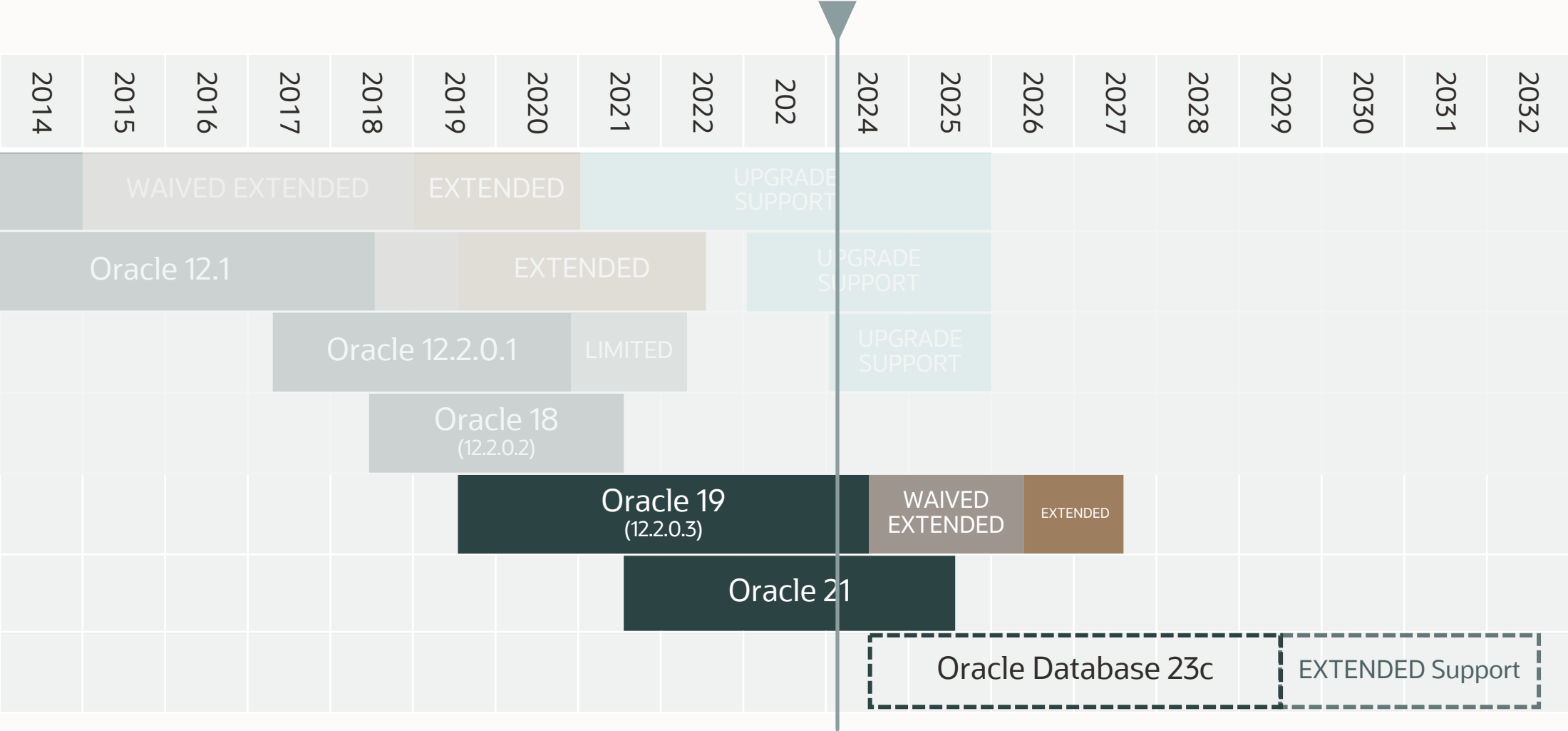
Lifetime Support Policy



Premier Support
 Waived Extended Support
 Paid Extended Support
 Restricted Upgrade Support
 Limited Error Correction



Lifetime Support Policy





Move production databases from one
Long Term Support release to the next

Why 23c in 2024 ?



Oracle News >

Press Release

Oracle Introduces Integrated Vector Database to Augment Generative AI and Dramatically Increase Developer Productivity

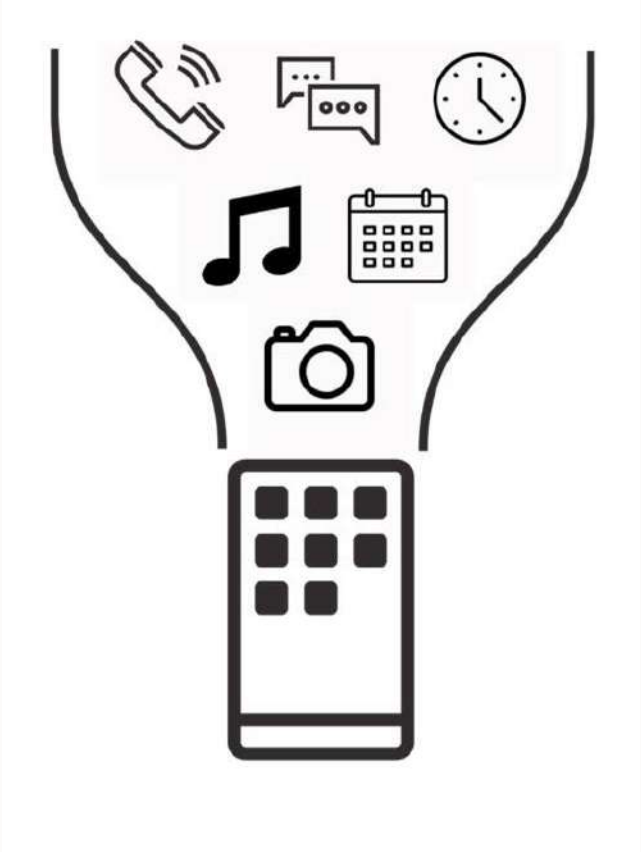
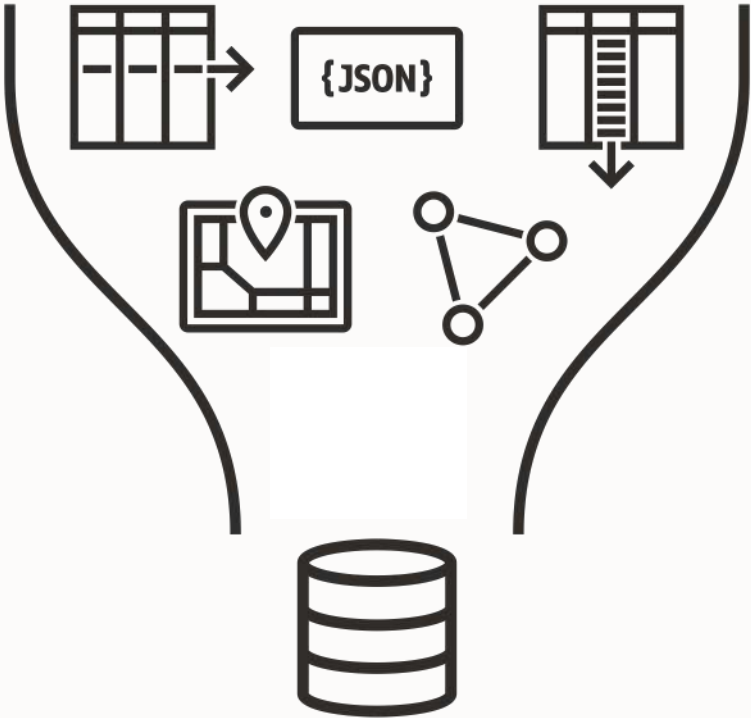
New AI vector similarity search in Oracle Database 23c allows the combination of search on semantic and business data resulting in highly accurate answers quickly and securely

Oracle CloudWorld, Las Vegas—September 19, 2023

Oracle today announced its plans to add semantic search capabilities using AI vectors to [Oracle Database 23c](#). The collection of features, called AI Vector Search, includes a new vector data type, vector indexes, and vector search SQL operators that enable the Oracle Database to store the semantic content of documents, images, and other unstructured data as vectors, and use these to run fast similarity queries. These new capabilities also support [Retrieval Augmented Generation \(RAG\)](#), a breakthrough generative AI technique that combines large



Converged Database



Oracle Database 23c



What's New



Examine Oracle Database changes using ORAdiff

- Oracle Release Analyzer Diff Utility
- <https://oradiff.oracle.com>



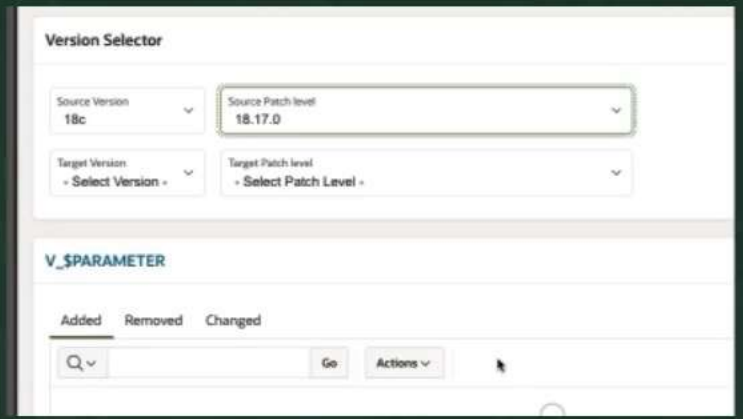
ORAdiff

ORAdiff - Find the differences between two Oracle Database releases

ORAdiff allows you to compare two database releases to each other - with or without patch bundles on top.

Get Started

1. Click the menu icon on the upper left corner of the page
2. Select an object type from the left-hand navigation menu
3. Choose the Source and Target versions and patch levels
4. View the report. You may optionally choose a filter



ORAdiff will display the differences such as "new tables", "added parameters", "changed columns", "removed privileges" and much more. ORAdiff search can tell you when a parameter was added and which files changed in your Oracle Home.

ORAdiff data is refreshed when new patch bundles are released to the public.

Questions? Ideas? Enhancement requests? Contact us on: #oradiff-int

```
SQL> select version_full from v$instance;
```

```
VERSION_FULL
```

```
-----
```

```
23.3.0.23.9
```



Welcome to Oracle Cloud World!!

Movies Demo

Explore your favorite movies with Oracle AI Vector Search



OCW Sessions Demo

Explore sessions at Oracle CloudWorld 2023 with our OCW Chatbot powered by Oracle AI Vector Search



ORACLE
CloudWorld

Filter



Year ▼

Genre ▼

Nominations

Awards

Question

Message

Motivational movies about athletics

35




Search Type

Text Search Vector Search

Search

Results

1 - 10 of 10

	Title	Awards	Year	Nominations	Genre
	Goodbye Columbus	NONE	1969	Academy Award for Best Writing, Adapted Screenplay	Romance, Comedy, Family
	The Formula	NONE	2002	NONE	Unknown
	Batman Returns	NONE	1992	Academy Award for Best Makeup and Hairstyling, Academy Award for Best Visual Effects, MTV Movie Award for Best Villain	Film-Noir, Action, Family, Fantasy

Why *Batman Returns*?

“Motivational Movies about Athletics”

NJQ15253, *Batman Returns*, 1992, https://upload.wikimedia.org/wikipedia/en/8/83/Batman_returns_poster2.jpg, 'Film-Noir, Action, Family, Fantasy', 'Academy Award for Best Makeup and Hairstyling, Academy Award for Best Visual Effects, MTV Movie Award for Best Villain', , *Batman Returns* is a 1992 American superhero film directed by Tim Burton and produced by Denise Di Novi and Burton, based on the DC Comics character Batman. The sequel to the 1989 film *Batman* , it is the second installment of Warner Bros. initial *Batman* film series, and stars Michael Keaton as Bruce Wayne / Batman, alongside Danny DeVito, Michelle Pfeiffer, Christopher Walken, Michael Gough, Pat Hingle and Michael Murphy. In *Batman Returns* , Batman faces the Penguin, who plots to kill all of Gotham City's firstborn sons, while dealing with Catwoman, who seeks vengeance against Max Shreck, a corrupt tycoon who allies with the Penguin to bring Gotham City under his control. Burton originally did not want to direct another *Batman* film. Warner Bros. developed a script with Sam Hamm which had the Penguin and Catwoman going after hidden treasure. Burton agreed to return after they granted him more creative control and replaced Hamm with Daniel Waters. Wesley Strick was later chosen to do an uncredited rewrite shortly before filming. This included normalizing dialogue, fleshing out the Penguin's **motivations** and master plan, and removing scenes due to budget concerns. Strick continued working as the on-set writer through filming. Annette Bening was originally cast as Catwoman, but became pregnant and was replaced with Pfeiffer. *Batman Returns* was released on June 19, 1992. It grossed \$266.8 million worldwide on a total budget of \$80 million and received positive reviews. Critics praised its action sequences, performances, Danny Elfman's score, effects and villains, although its dark tone and high level of violence for a PG-13 film, was criticized. The film was nominated for two Academy Awards: Best Visual Effects and Best Makeup, as well as two BAFTA awards. A stand- alone sequel, *Batman Forever* , was released in 1995, with Val Kilmer replacing Keaton as Batman. An alternate comic book continuation, which ignores the events of the subsequent films, will be published by DC Comics starting in July 2021. Keaton is also set to reprise the role of Batman in the DC Extended Universe beginning with *The Flash* (2022).

Filter



Year ▼

Genre ▼

Nominations

Awards

Question

Message
Motivational movies about athletics

35

Search Type



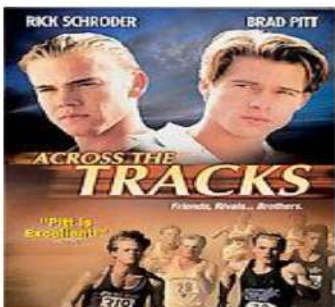

- Text Search
- Vector Search**



Search

Results

1 - 10 of 10

	Title	Awards	Year	Nominations	Genre
 The poster for 'The Do-Deca-Pentathlon' features two muscular men in a laurel wreath, holding various sports equipment like a tennis racket, a golf club, and a tennis ball. The text at the top reads 'THE DO-DECA-PENTATHLON' and '25 EVENTS, 2 FRIENDS, 1 CHAMPION'.	The Do-Deca-Pentathlon	NONE	2012	NONE	Comedy
 The poster for 'Champions' shows a group of five young men sitting on a gymnasium floor. The title 'CHAMPIONS' is written in large, bold, orange letters. Above the title, it says 'Woody Harrelson' and 'Taking them down with kindness'. Below the title, it says 'with Eddie Fenech' and 'Directed by Mark Fleish'. At the bottom, it says 'Only in Theaters March 10'.	Champions	NONE	2023	NONE	Comedy,Sport
 The poster for 'Across the Tracks' features two young men, Rick Schroder and Brad Pitt, looking intensely at the camera. The title 'ACROSS THE TRACKS' is written in large, bold, yellow letters. Above the title, it says 'RICK SCHRODER' and 'BRAD PITT'. Below the title, it says 'Friends, Rivals... Brothers.' and 'Pitt's excellent!'.	Across the Tracks	NONE	1991	NONE	Drama,Action
 The poster for 'Hustle' shows a man in a red hoodie sitting on a bench in a gymnasium, holding a basketball. The title 'HUSTLE' is written in large, bold, white letters. Above the title, it says 'A COMEDY BY JOHN DAHL' and 'A FILM BY JOHN DAHL'. Below the title, it says 'IN SELECT THEATERS, HOME AND ON'.	Hustle	NONE	2022	NONE	Sport

Filter



Year: 2023 | Genre: Sport | Nominations | Awards

Question

Message

Motivational movies about athletics

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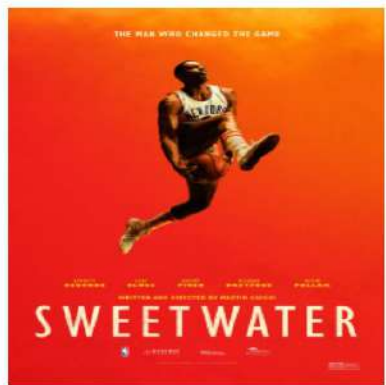

Search Type

Text Search Vector Search

Search

Results

1 - 3 of 3

	Title	Awards	Year	Nominations	Genre
	Champions	NONE	2023	NONE	Comedy,Sport
	Sweetwater	NONE	2023	NONE	Biography,Sport
	80 for Brady	NONE	2023	NONE	Sport,Comedy

1 - 3 of 3

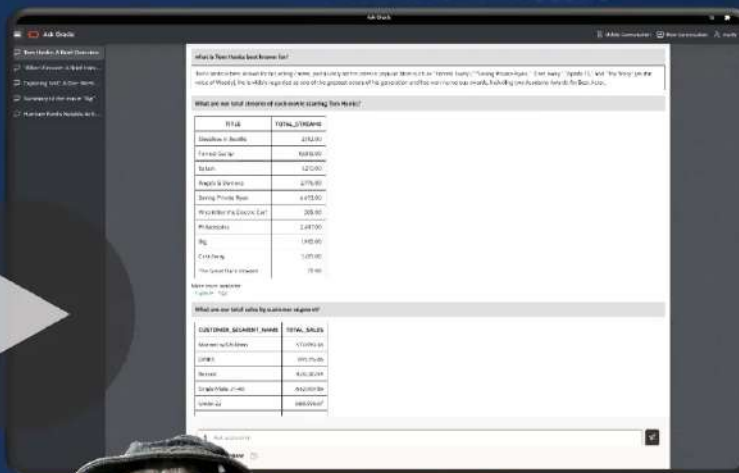
AI Vector Search can capture semantics
better than Text Theme search.

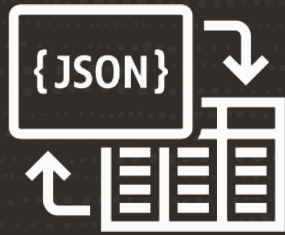
And can easily be combined with relational
predicates to get exactly what you want



Oracle Autonomous Database
speaks *human*

Autonomous Database Speaks “Human”





Get the best of both worlds
with JSON Duality Views

STUDENT			
STUID	SNAME	MAJOR	YEAR
S3245	Jill	Math	First
...
...
...

COURSE				
CID	CLASS	ROOM	TIME	TCHID
C123	MATH 201	A102	14:00	T543
C345	SCIENCE 102	B405	16:00	T789
...
...

STUDENT COURSES	
STUID	CID
S3245	C123
...	...
S3245	C345
...	...

TEACHER		
TCHID	TEACHER	TINFO
...
T543	Adam	...
T789	Anita	...
...



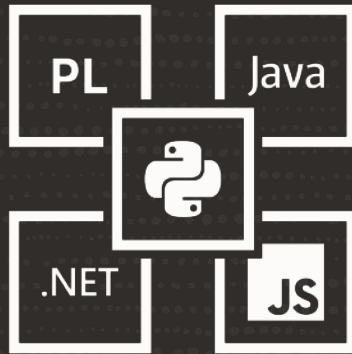
SCHEDULE FOR: JILL

```

"student" : "S3245",
"name" : "Jill",
"major" : "Math",
"schedule" :
[ {
  "time" : "14:00",
  "course" : "Math 201",
  "room" : "A102",
  "teacher" : "Adam"
},
{
  "time" : "16:00",
  "course" : "Science 102",
  "room" : "B405",
  "teacher" : "Anita"
}
]
  
```

A single database can now support both relational and document data providing the **benefits of both**





Easily convert your existing application with Oracle Database API for MongoDB

- Using [Oracle Database API for MongoDB](#)



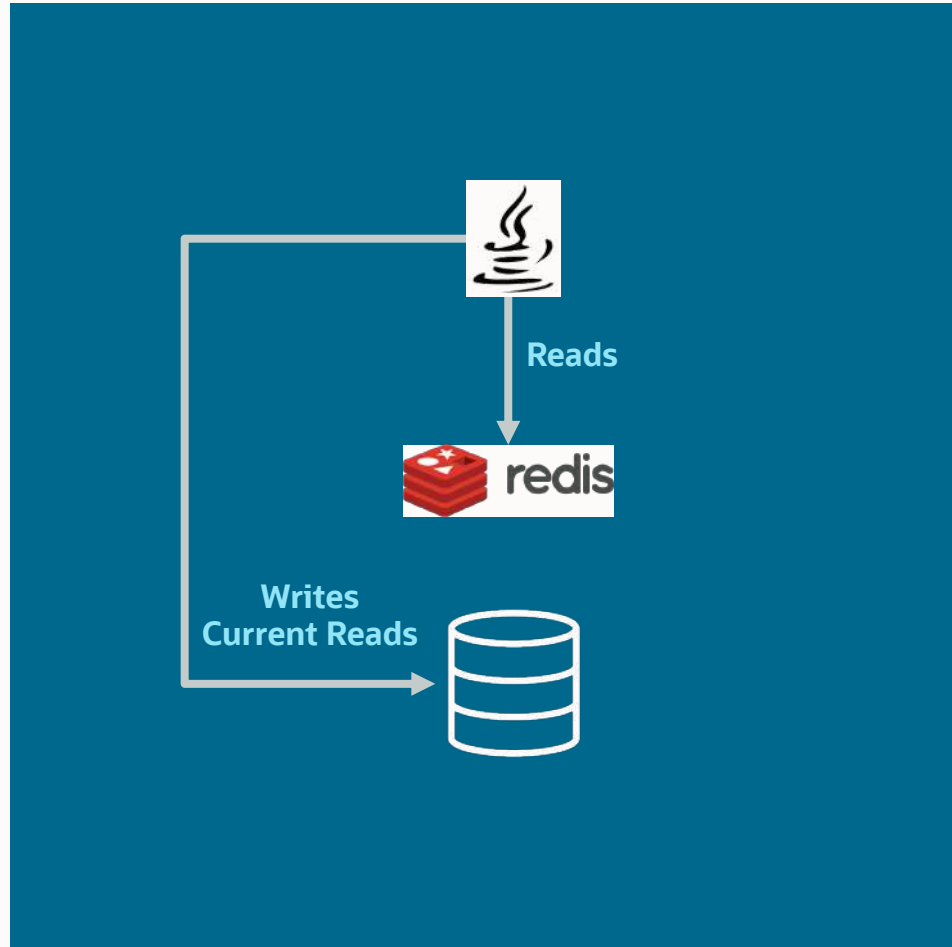


Accelerate your applications 10x
with True Cache



We have a performance problem;
we need a cache!

True Cache



True Cache

Who takes care of the cache:

- Populating?
- Consistency?
- Monitoring?
- High availability?
- Security?
- Auditing?
- ...

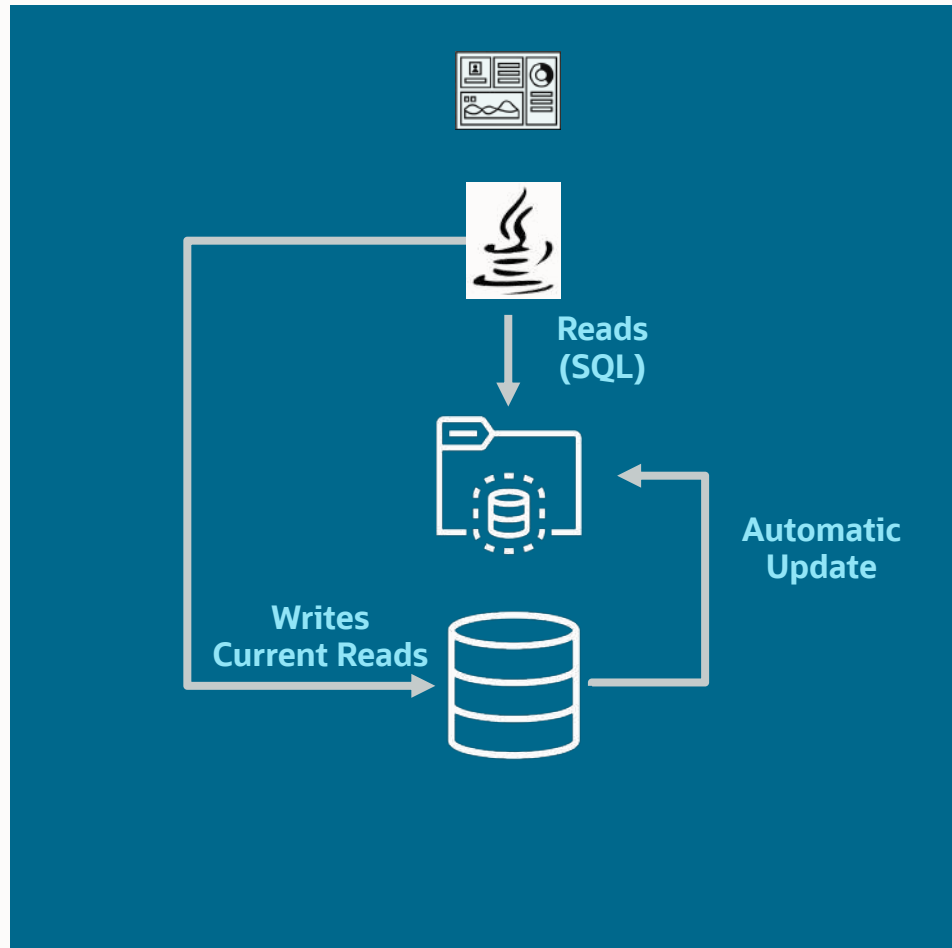


... now we're having a cache problem!



True Cache is conceptually
a diskless Active Data Guard

True Cache





Quickly resolve poor performance caused by change in execution plan

- Simplified use of SQL Plan Management

```
--Loads all known plans from cursor cache, AWR,  
--and automatic SQL tuning sets into a SQL plan baseline.  
--Use Evolve Advisor to find the best plan and mark that as accepted.
```

```
select dbms_spm.add_verified_sql_plan_baseline('<sql_id>');
```


Backported to 19.22.0



Allow the database to fix
regressing plans automatically

- Automatic SQL Plan Management
- Real-time SQL Plan Management



Even wider tables

- Up to 4096 columns

```
SQL> alter system set max_columns=extended scope=spfile;
```




Ensure your database clients are updated

- Older clients **do not** support more than 1000 columns

Oracle Database 23c

—
Even More Secure



No more insecure case insensitive password

- 10G password verifies are no longer accepted



Even stronger passwords

- Up to 1024 bytes



Get started **quickly** and **securely**
using new developer role

- `DB_DEVELOPER_ROLE`

Contents



DB_DEVELO

DB_DEVELO

DBA_TAB_PRIVS

Contents



Go

Actions ▾



GRANTEE = 'DB_DEVELOPER_ROLE'



GRANTEE	OWNER	TABLE_NAME	GRANTOR	PRIVILEGE
DB_DEVELOPER_ROLE	SYS	JAVASCRIPT	SYS	EXECUTE
DB_DEVELOPER_ROLE	SYS	V_\$STATNAME	SYS	READ
DB_DEVELOPER_ROLE	SYS	DBMS_RLS	SYS	EXECUTE
DB_DEVELOPER_ROLE	SYS	DBMS_TSDP_MANAGE	SYS	EXECUTE
DB_DEVELOPER_ROLE	SYS	DBMS_TSDP_PROTECT	SYS	EXECUTE
DB_DEVELOPER_ROLE	SYS	DBA_PENDING_TRANSACTIONS	SYS	SELECT
DB_DEVELOPER_ROLE	SYS	DBMS_REDACT	SYS	EXECUTE
DB_DEVELOPER_ROLE	SYS	V_\$PARAMETER	SYS	READ



Grant privileges to an entire **schema** in one command

- `grant ... on schema ... to ...`
- Inherited when objects get added to the schema



By default even **stronger** encryption algorithms are used

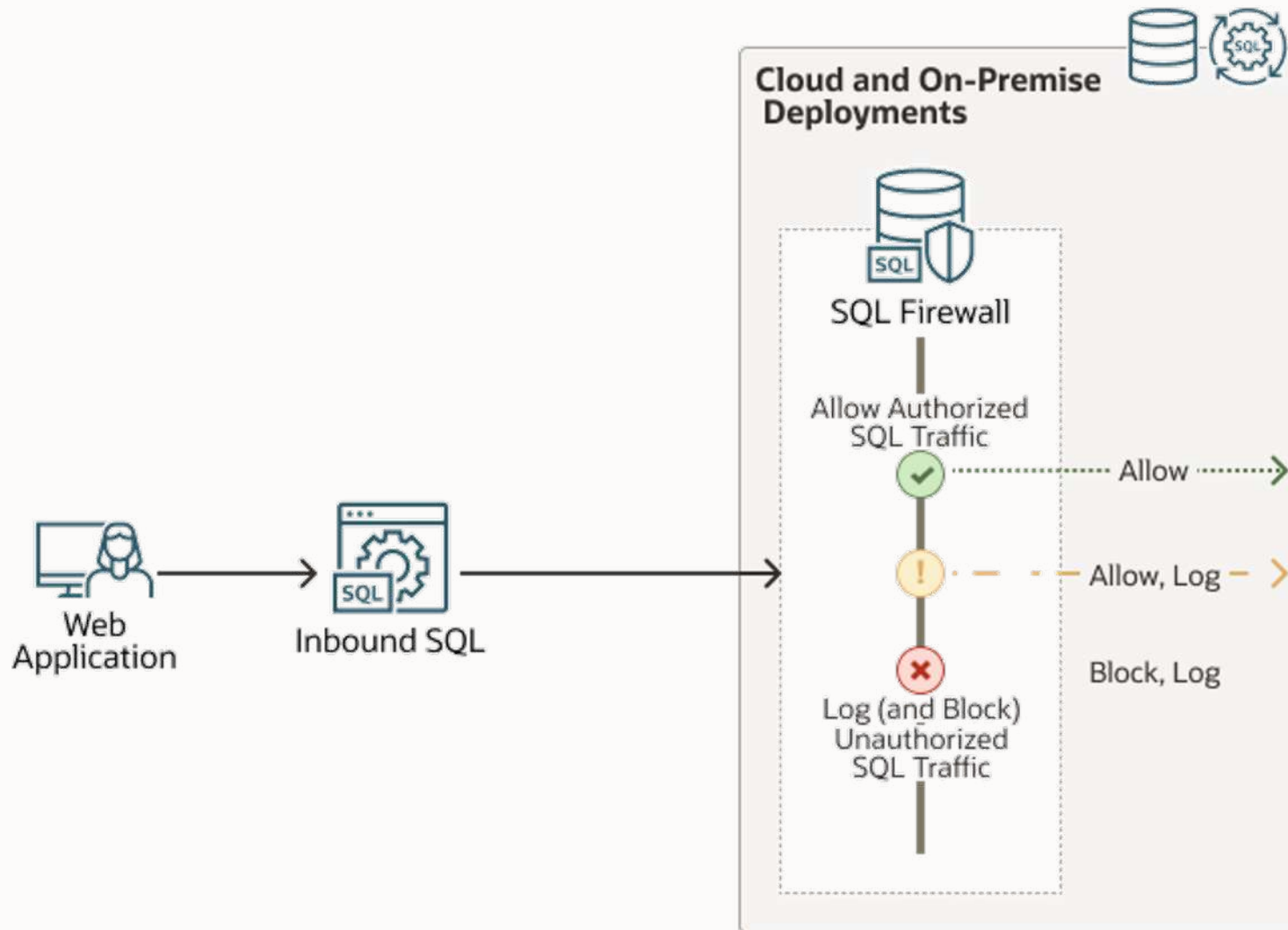
- RMAN backups
- TDE Tablespace Encryption



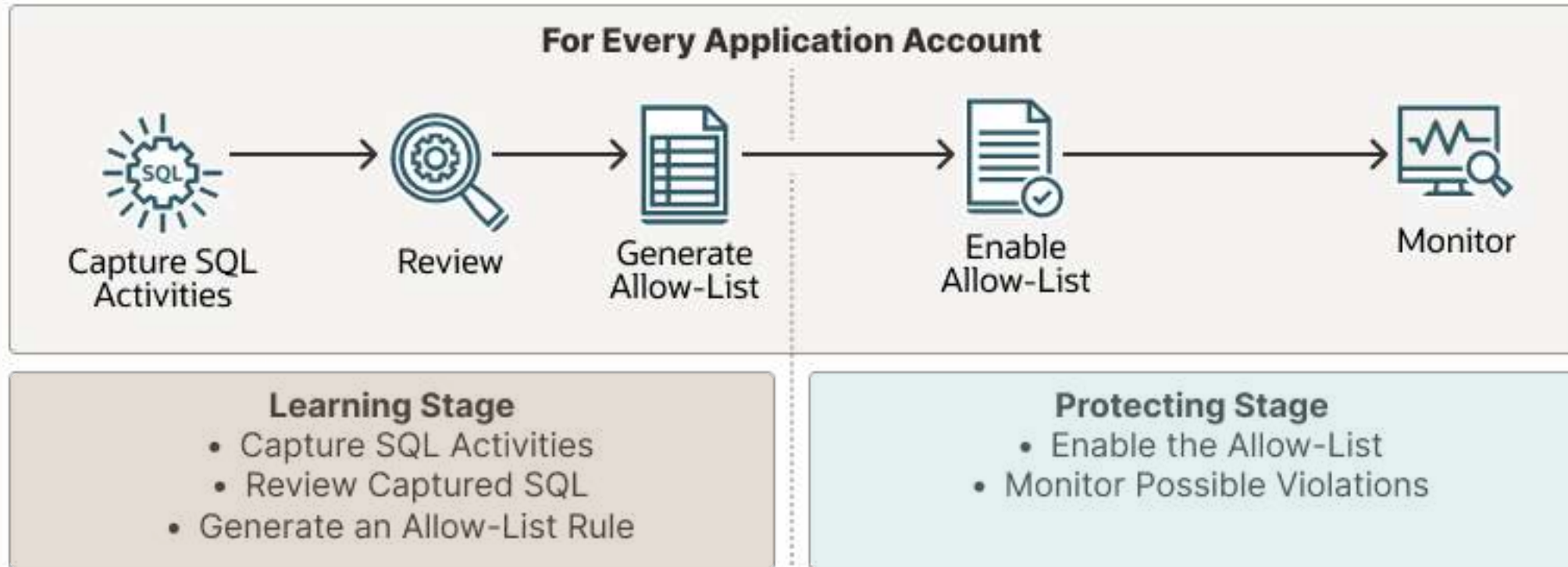
Tighten security with SQL Firewall

- Prevent SQL injection attacks and unauthorized queries

SQL Firewall



SQL Firewall



Oracle Database 23c



Small, but useful


```
--Regardless of whether the object exists or not,  
--the DROP command don't produce an error
```

```
SQL> drop table t1;
```

```
ERROR at line 1:  
ORA-00942: table or view does not exist
```

```
SQL> drop table if exists t1 ... ;
```

```
Table dropped
```



```
--Regardless of whether the object exists or not,  
--the CREATE command don't produce an error
```

```
SQL> create table t1 ( ... );
```

```
ERROR at line 1:
```

```
ORA-00955: name is already used by an existing object
```

```
SQL> create table if not exists t1 (c1 number);
```

```
Table created
```



```
--Group by expression must be written in full  
--Works for HAVING clause as well
```

```
select  owner, to_char(created, 'YYYYMM'), count(*)  
from    dba_objects  
group by owner, to_char(created, 'YYYYMM');
```



```
--Group by expression must be written in full  
--Works for HAVING clause as well
```

```
alter session set group_by_position_enabled=true;
```

```
select  owner, to_char(created, 'YYYYMM'), count(*)  
from    dba_objects  
group by 1, 2;
```



```
sqlplus appuser@alias_does_not_exist
```

```
ERROR:
```

```
ORA-12154: Cannot connect to database. Could not find alias  
alias_does_not_exist in  
/opt/oracle/product/23c/dbhome_1/network/admin/tnsnames.ora.  
Help: https://docs.oracle.com/error-help/db/ora-12154/
```



```
sqlplus appuser@alias_does_not_exist
```

```
ERROR:
```

```
ORA-12154: Cannot connect to database. Could not find alias  
alias_does_not_exist in  
/opt/oracle/product/23c/dbhome_1/network/admin/tnsnames.ora.
```

```
Help: https://docs.oracle.com/error-help/db/ora-12154/
```



```
SQL> oerr ORA-12154
```

```
Message: "Cannot connect to database. Could not find alias %s in %s."
```

```
Help: https://docs.oracle.com/error-help/db/ora-12154/
```

```
Cause: A connection to a database or other service was requested using a  
connection alias but the alias specified could not be resolved into  
a connect descriptor using one of the configured naming methods.
```

```
Action: Do the following:
```

- Check for mistakes in the connection string that you used.
- If you have a sqlnet.ora file containing a NAMES.DIRECTORY_PATH parameter, then ensure that the parameter contains valid values.
- If you are using an alias from a tnsnames.ora file:
 - * Verify that the tnsnames.ora file exists, is in the proper directory, and is accessible.
 - * Ensure that the alias exists in one of the tnsnames.ora files.
 - * Ensure that there are no syntax errors anywhere in the tnsnames.ora file or files. Look for unmatched parentheses or stray characters. Ensure that magic quotes are not used.

```
...
```



```
--Examines a bigfile tablespace to find objects that can be moved  
--to the start of the data files. In the end, shrink the data file  
--to release the space.  
--Tablespace MUST be ASSM managed. Does not work in SYSTEM and SYSAUX.
```

```
exec dbms_space.tablespace_shrink('USERS');
```


--No longer need to select from dual

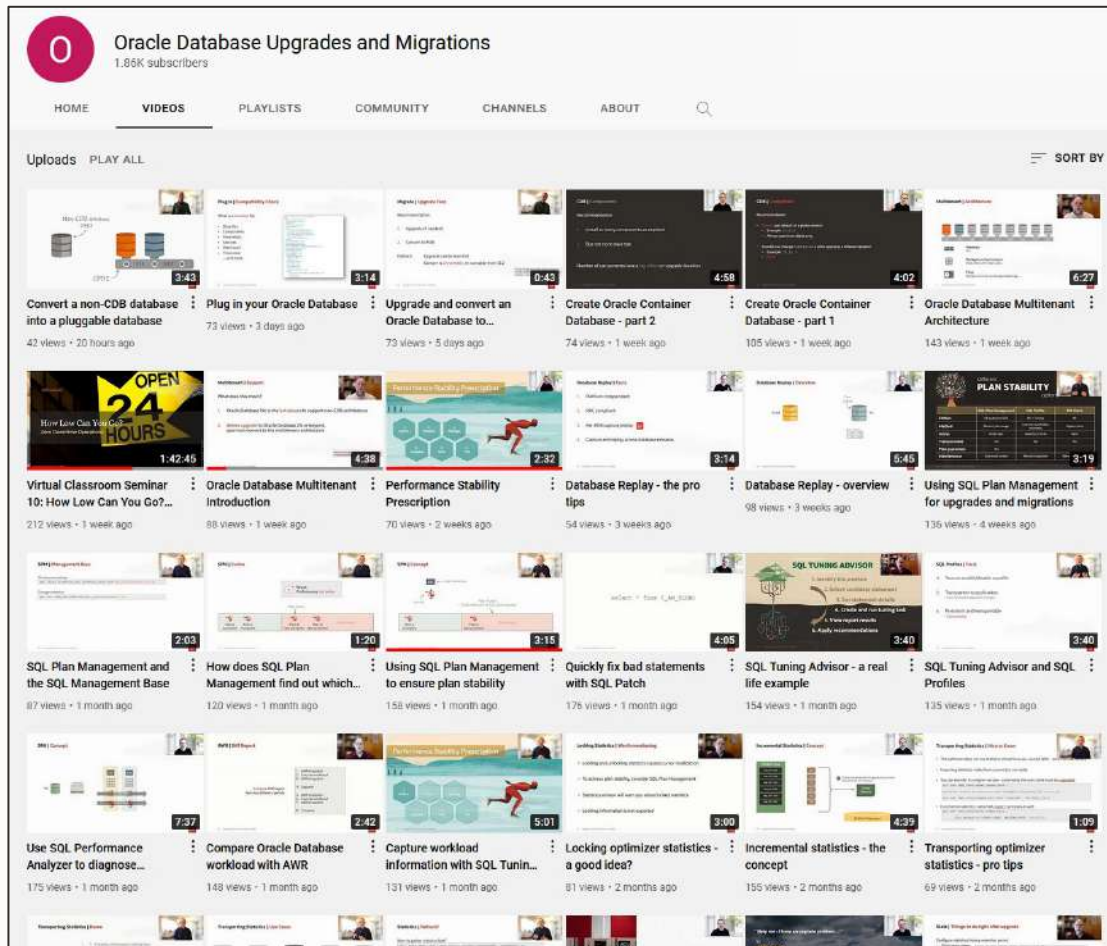
~~select sysdate from dual;~~

select sysdate;

Enjoy lots of awesome great new features

—
Oracle Database 23c

YouTube | Oracle Database Upgrades and Migrations



- 300+ videos
- New videos every week
- No marketing
- No buzzword
- All tech



The background features a dark blue gradient with abstract shapes: a large green circle on the left, a red circle at the bottom, and a grey circle with a white cross pattern on the left. Small white leaf-like shapes are scattered in the upper left.

ORACLE
CloudWorld Tour

Thank you

Rodrigo Jorge, Senior Principal Product Manager
dbaRJ.com.br