

Oracle Database World

所有人員適用的自動化資料管理 及 **Oracle** 資料庫新功能及未來發展

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Safe Harbor Statement

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Oracle 資料庫管理的目標

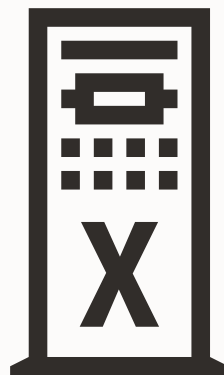
在資料庫的軟體、架構及雲端服務方面的創新保持領先

軟體



最快, 最可擴展, 安全且可靠
Converged SQL資料庫

架構



適用於交易、分析及混合負載的
最佳平台

雲端服務

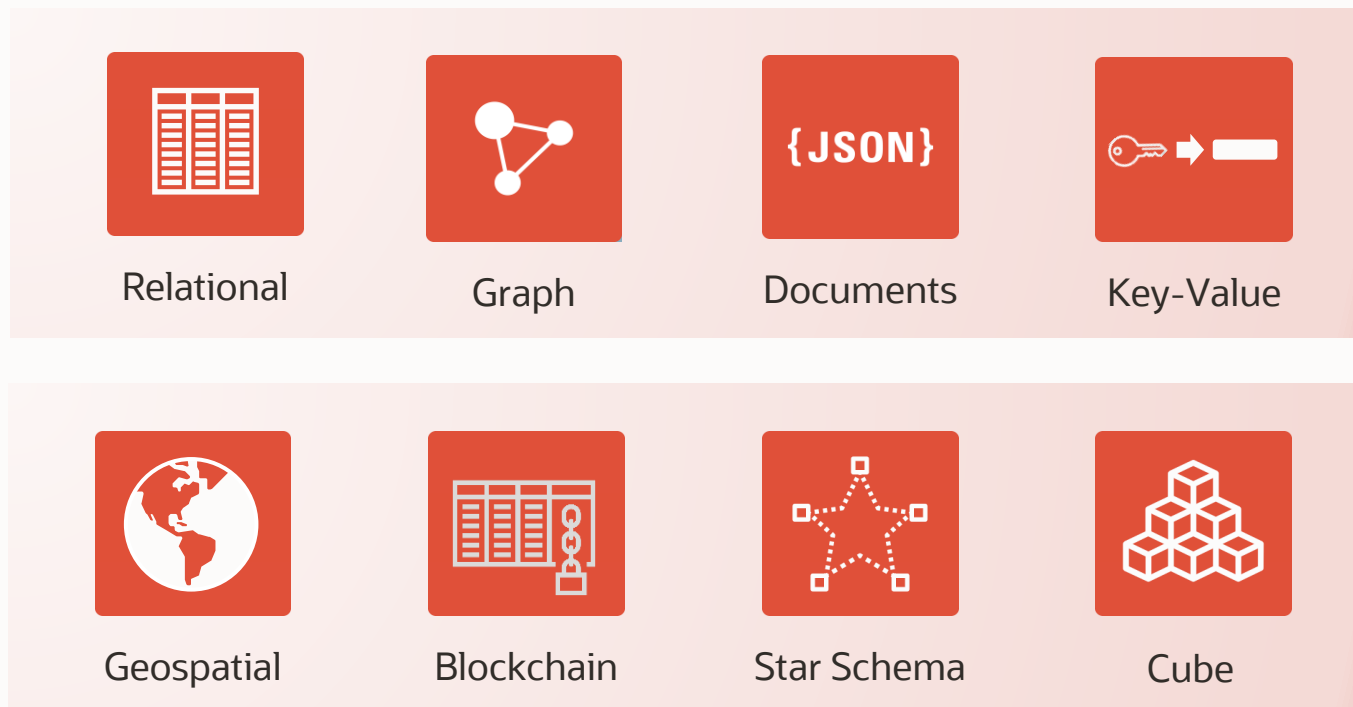
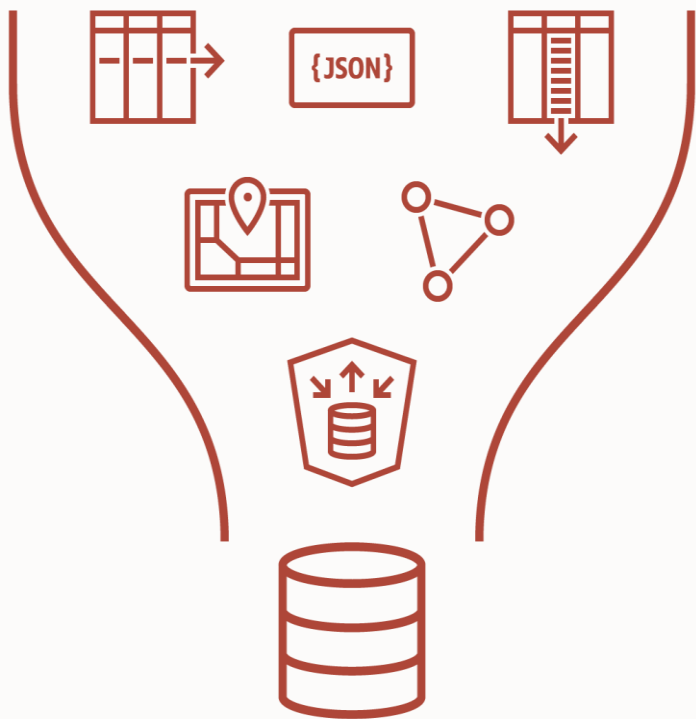


為資料庫管理員, 應用程式開發者, 資料
分析員及資料科學家自動化所有作業

Oracle Database 19c Converged Database

一個匯合的 (Converged) **多種模式 (Multi-Model)**, 多種負載(Multi-Workload)的資料平台

最佳功能的 Relational, JSON, Cube, Graph, Spatial, Text, Event, Blockchain

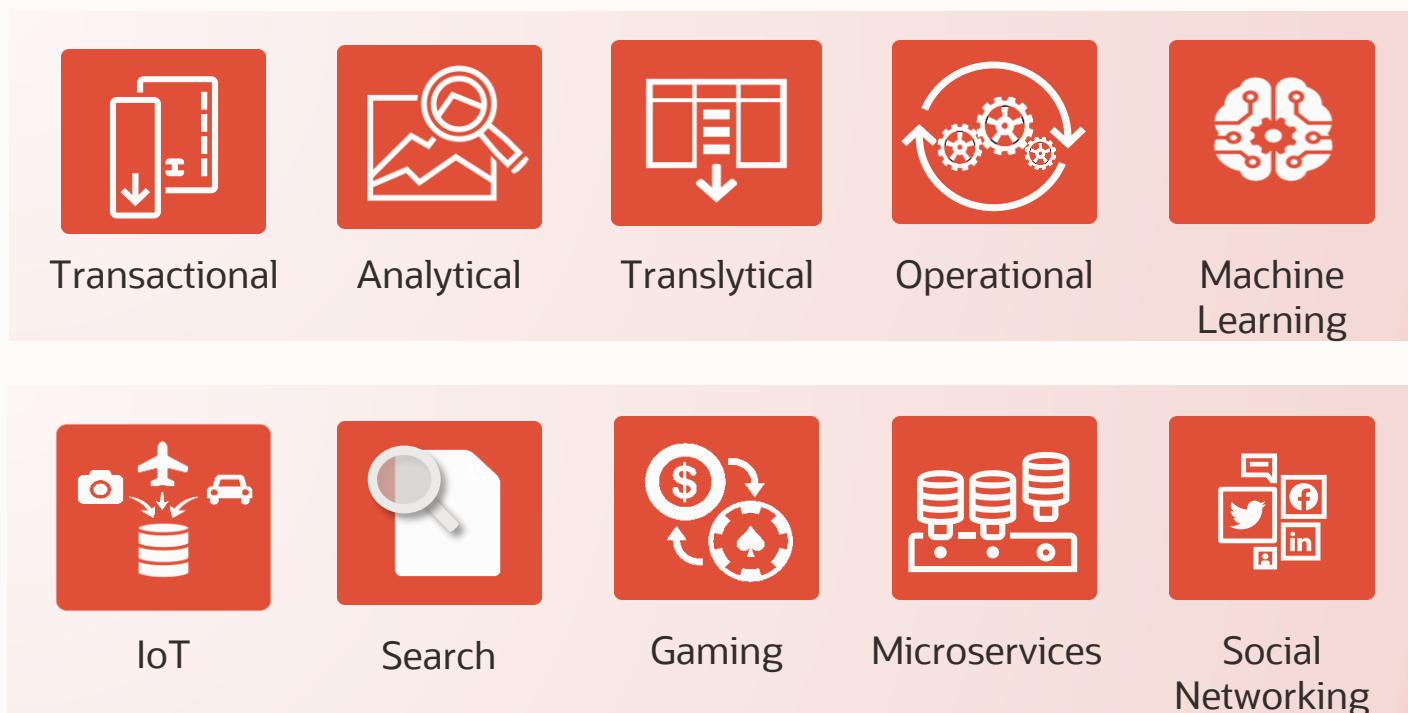
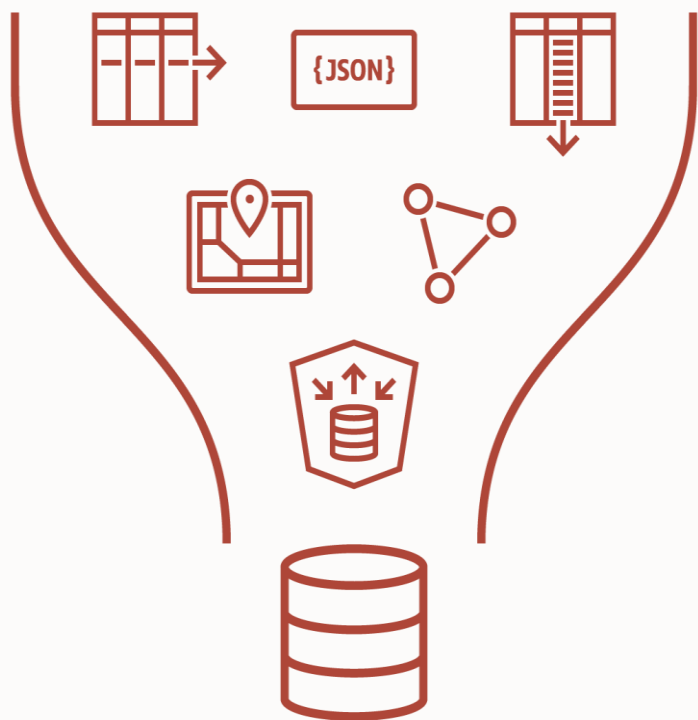


跨模式的(Cross-model) 操作讓您很容易從所有的資料中創造價值

Oracle Database 19c Converged Database

一個匯合的 (Converged) 多種模式 (Multi-Model), **多種負載(Multi-Workload)** 的資料平台

高效能的 Transactions, Analytics, ML, IoT, Data Mesh, Streaming, Multitenant

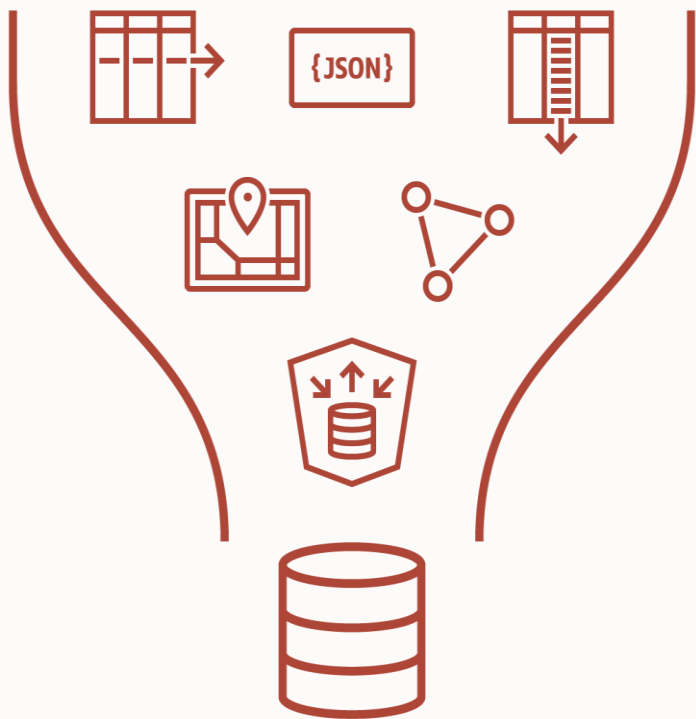


Oracle 的深度最佳化在所有負載上都能提供突出的效能價格比

不同資料庫策略比較

匯合的 (Converged) 資料庫讓您達到資料創新(data innovation)而不只是資料整合(data integration)

執行匯合的, 開放的SQL資料庫



處理多種資料型別及負載

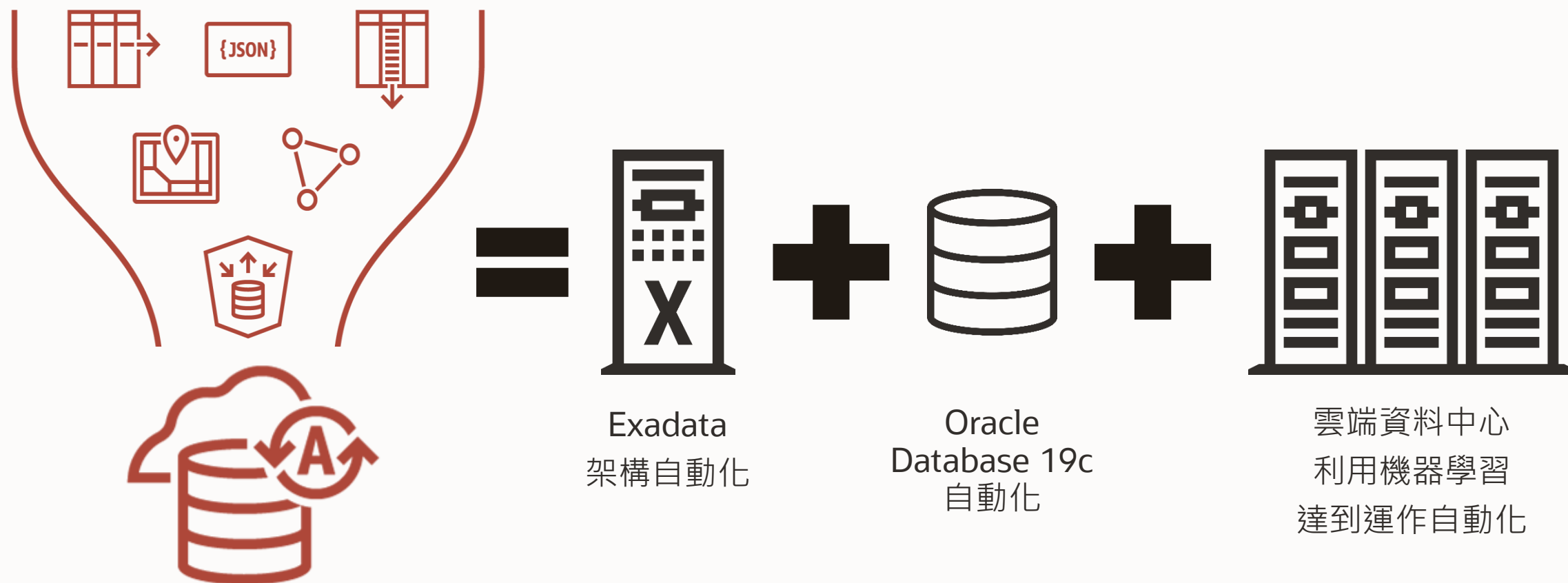
而不是單一目的專屬資料庫



處理單一資料型別及負載

Oracle 自主(Autonomous)資料庫是一個**完全管理 (Fully Managed)** 雲服務

以人工智慧(AI)及機器學習(ML)驅動各個層面的自動化



Oracle 自主(Autonomous)資料庫

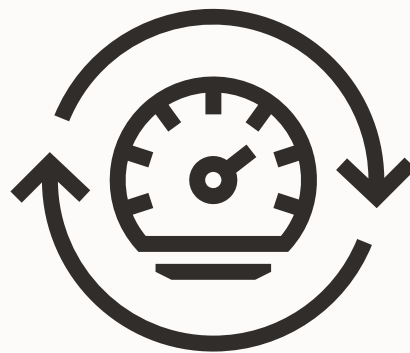
讓資料管理更容易

企業級



安全(security),
可用性(availability),
可擴展性(scalability),
及效能(performance)

自主運行



完全自主運行加上
真正的雲服務彈性
(cloud-elasticity)及低費用

高生產力



提供業務分析, 應用程式開發
等人員容易自行上手的工具

自主(Autonomous)資料庫的各項服務

每一項服務都針對該種負載最佳化



Autonomous
Transaction Processing



Autonomous
Data Warehouse



Autonomous
JSON



Autonomous
APEX AppDev

自主(Autonomous)資料庫的建置平台

在雲端或就地端(on-premises) 都提供相同的自主資料庫服務



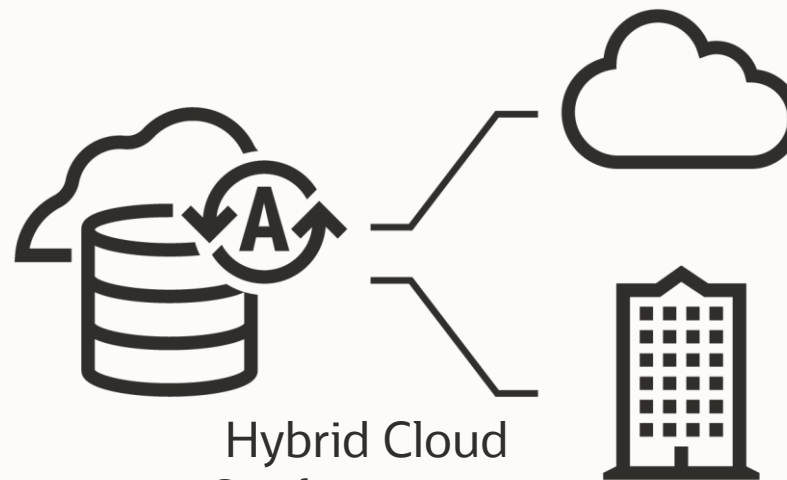
Oracle Cloud
Infrastructure



Exadata
Cloud at Customer



Dedicated Region
Cloud at Customer



Hybrid Cloud
Configurations



Oracle 自主資料庫在4項 **Operational Use Cases** 評鑑中被列為第一名，
同時，在4項 **Analytical Use Cases** 評鑑中被列為第一或第二名

~~ 2020 Gartner Critical Capabilities for Cloud DBMS Reports

Source: Gartner *Critical Capabilities for Cloud DBMS for Operational Use Cases*, Merv Adrian, Donald Feinberg, Rick Greenwald, Adam Ronthal, Henry Cook and Gartner *Critical Capabilities for Cloud DBMS for Analytical Use Cases*, Henry Cook, Donald Feinberg, Merv Adrian, Rick Greenwald, Adam Ronthal, November 2020

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Oracle 自主資料庫

員工花較少時間在維護系統，花較多時間在資料創新(data innovation)

就地端資料庫



客戶自行管理

資料庫
雲服務



Exadata
雲服務



Oracle 管理架構部份
客戶 DBA 管理資料庫

自主資料庫
雲服務

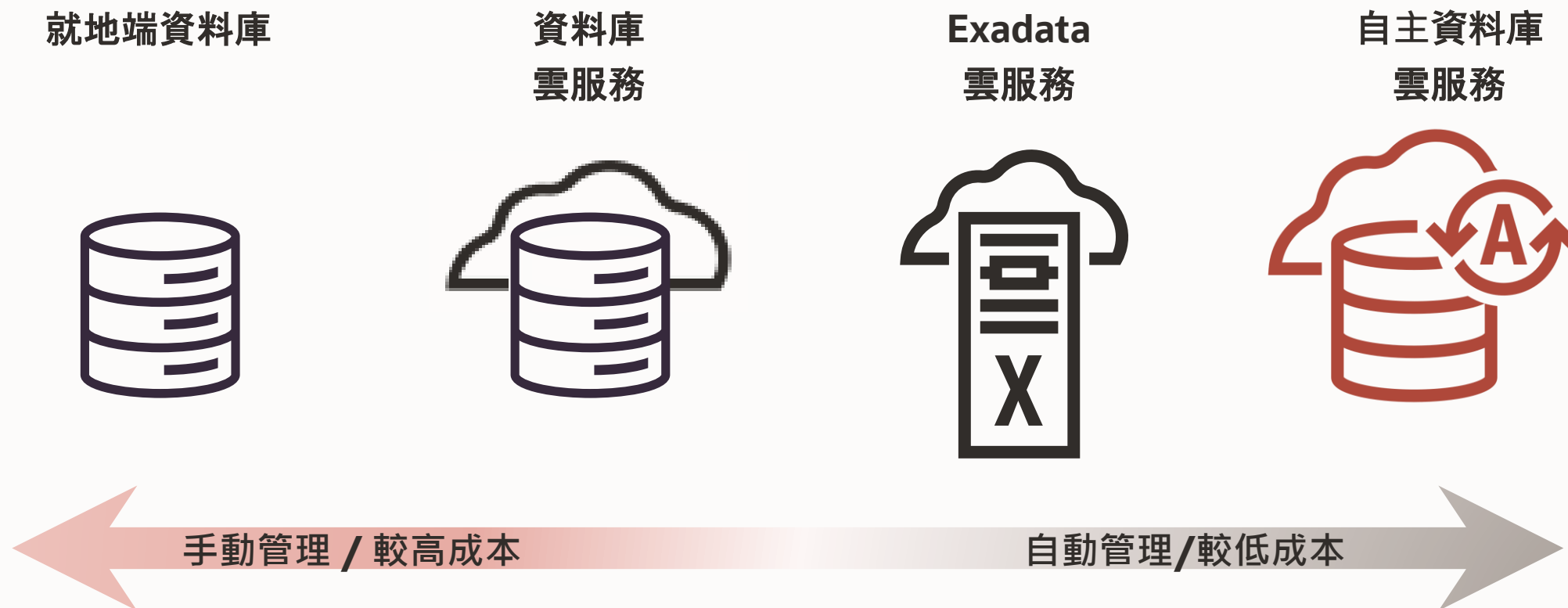


Oracle 全面自動化管理



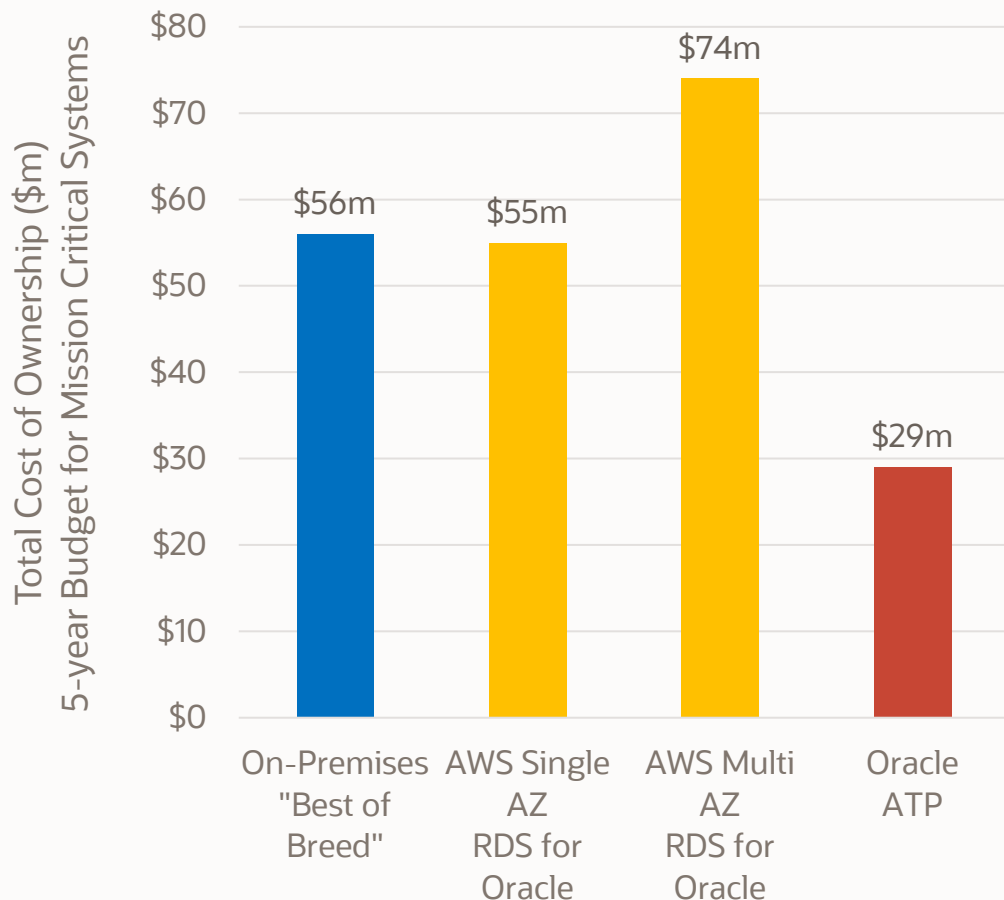
Oracle 自主資料庫

員工花較少時間在維護系統，花較多時間在資料創新(data innovation)



ATP 降低 Total Cost of Ownership (TCO)

Wikibon Research 針對自主交易處理服務(Autonomous Transaction Processing) 所做的獨立TCO分析



Autonomous TCO Highlights vs AWS-RDS

- Oracle ATP 所需要的 vCPUs 比 AWS-RDS 少2.4倍
- Oracle ATP 因為資料庫異常下線所造成的營業損失比 AWS-RDS 少4.3倍
- Oracle ATP 的運作成本比 AWS-RDS 少2.5倍

Source: [Wikibon Research](#)

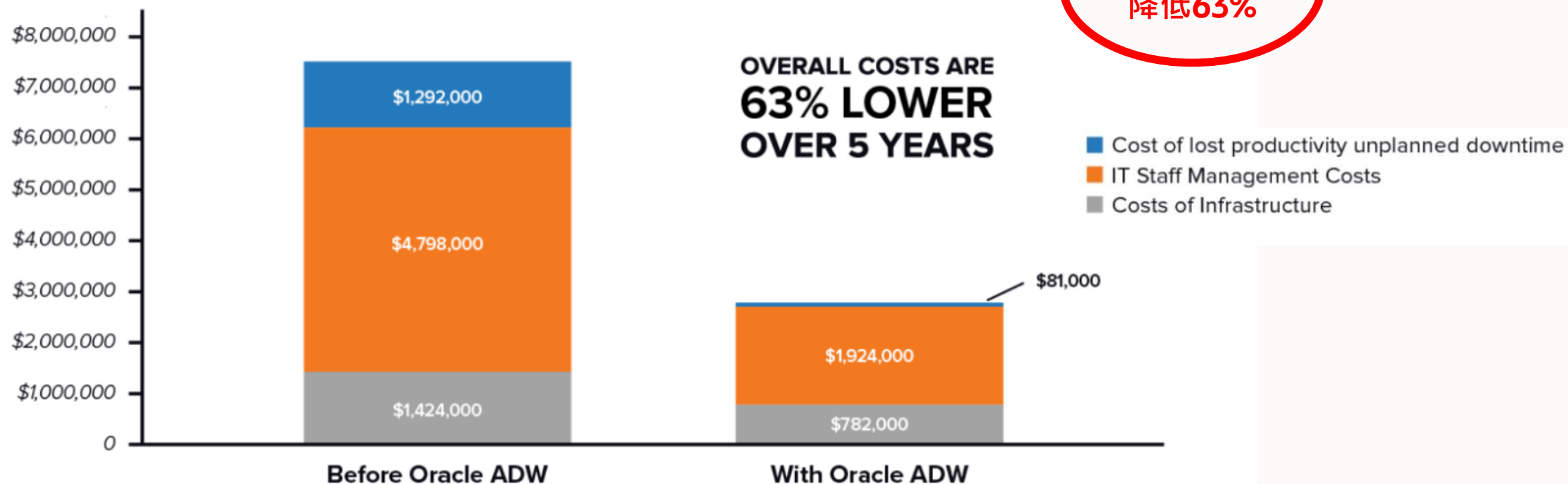


ADW 降低 Total Cost of Ownership (TCO)

IDC 針對自主倉儲服務(Autonomous Data Warehouse) 所做的獨立TCO分析

五年TCO
降低63%

Total Cost of Operations



Source: IDC [The Real-World Business Value of Oracle Autonomous Data Warehouse](#)

以手動方式遷移至 Oracle 自主資料庫

很容易就可將 Oracle Database 19c 從就地端 (on-premises) 遷移到自主資料庫

Step 1

執行 Cloud Pre-migration Advisor Tool (CPAT)

Step 2

以 Data Pump export 就地端資料庫

Step 3

將 export 出來的 dump files 上傳到雲端的 Object Storage

Step 4

以 Data Pump import 到自主資料庫

DBAs 可以保留原有的調校，
以 advisory 模式執行自主調校 (self-tuning)

以自動方式遷移至 Oracle 自主資料庫

很容易就可將 Oracle Database 19c 從就地端 (on-premises) 遷移到自主資料庫

Step 1

在OCI Console上註冊

來源(Source)和目的(Target)資料庫

Step 2

以 OCI Database Migration Service 來實作遷移

DBAs 可以保留原有的調校，
以 advisory 模式執行自主調校 (self-tuning)

在Oracle 自主資料庫驗證過的套裝應用程式

容易將套裝應用程式(packaged applications) 遷移到自主資料庫

Oracle Applications

- JD Edwards
- Peoplesoft
- Siebel
- eBusiness Suite (coming soon)

SaaS Applications

- Mestec / Manufacturing
- Minesense / Digital Mining Solutions
- NEC / Retail Applications
- JASCI / Warehouse Management
- Zebra / Lease Management

3rd Party Packaged Applications and Tools

- Agentis / Fleet Management
- AXI / Financials
- Charles Taylor / Insurance
- E-Connect / HR
- Finastra / Banking
- Hangzhou Daiwei / Pharma Market Analysis
- NeoXam / Banking
- SAS / Analytics
- Thompson Reuters /Tax Intelligence
- Zone Trading / Employee Services
- 3rd Party BI, Integration and Data Science Tools





高爾夫設備製造商將就地端資料倉儲搬到 Oracle ADW 自主資料倉儲平台

“採用了Oracle自主資料倉儲服務, 讓我們現在擁有一個可擴展, 低費用的雲端平台來強化我們的業務, 有助於維持公司成長, 空出員工寶貴時間來專注於更重要的任務”

Tom Collard

Vice President of IT, TaylorMade

- 運用現有業務分析工具來快速調整銷售策略
- 執行報表比原先就地端資料倉儲快40倍
- 自主調校(self-tuning)和自主修補(self-patching)讓IT人員空出時間專注於較高價值的資料分析

Oracle自主資料庫的Low-Code開發工具

APEX 是開發 low code 應用程式最好工具

Oracle APEX 讓開發Low-Code資料庫應用程式變得很容易

- 可自動從一個 spreadsheet 或 table 產生出應用程式

只要幾個小時就可建成應用程式, 至少10倍快於手寫程式 – 最快的 time-to-value

- 內建支援 interactive reports, interactive grids, faceted search
- 容易逐次修改以跟上業務需求

跟Oracle資料庫深度結合以避免下列複雜度:

- Middle-tiers, connection management, state management, mapping DB types to app types

全世界已經有百萬數量的 APEX 應用程式上線, 而且每天大約有3000個新應用正在開發

- 傳統的手寫程式應該是例外而非常態





“APEX and Oracle 自主交易處理資料庫(ATP) 幫助我們降低整體的系統管理和開發成本, 同時提供一個高可用性及高延展性的平台, 且具備 end-to-end 的資安.”

Giovani Cani

Vice President, IT Delivery

Wilson Truck Lines 將運輸管理系統從 AWS 遷移到 ATP 資料庫

- 只花了2天就以APEX重新開發整個應用系統, 相對於在AWS上用開源工具開發了3個月
- 降低50% 日常內部檢查時間, 而且達到全自動以加強管理透明度及責任歸屬
- APEX 的交互式即時報表有助於員工的工作

Oracle 自主資料倉儲 (ADW)

最適用於建置資料倉儲, data lakes 及機器學習模型

Data Sources

Applications

ORACLE Fusion Applications ORACLE Siebel ORACLE PeopleSoft
Oracle EBS Oracle NETSUITE SAP salesforce

Databases



Files



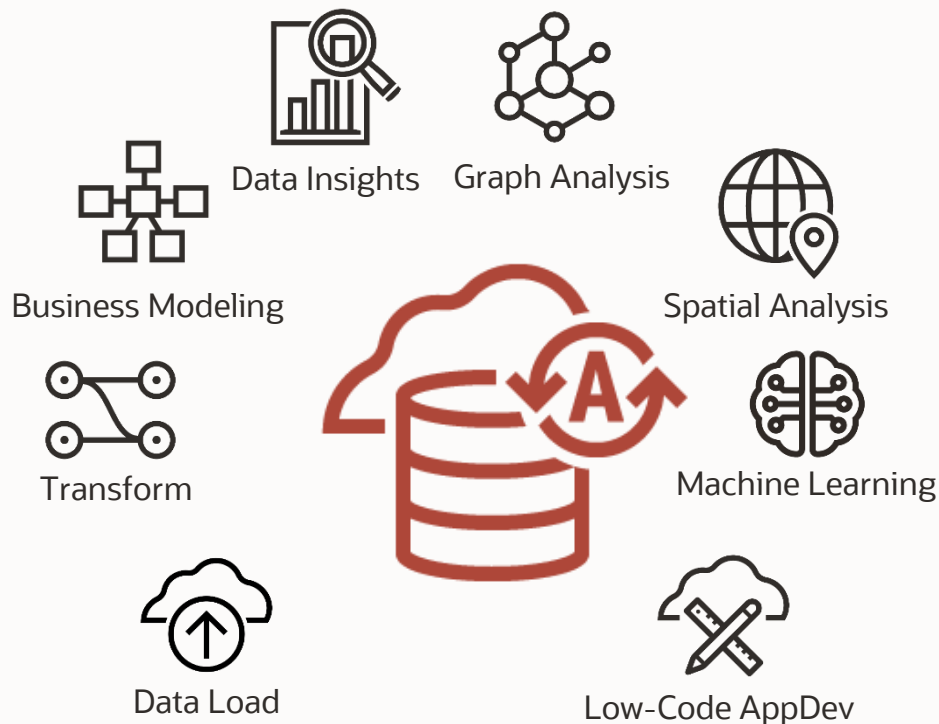
Streaming Services



Data Lake



Self-Service Tools



Analytics Tools





“幾乎所有的運動現在都有很大的、有該運動特徵的資料集, Oracle Cloud Infrastructure 提供安全、穩定的資料分析和資料科學平台, 可以讓我們的團隊專注於我們的專長: 使用我們的資料來贏得更多比賽”

Ravi Ramineni

Vice President of Soccer Analytics and Research, Seattle Sounders FC

Seattle Sounders FC 足球俱樂部遷移所有運動員表現及運動科學資料到 ADW and Analytics Cloud

- 利用 Oracle Cloud Lift Services 來加快遷移到 Oracle Cloud Infrastructure (OCI) 的過程
- 建立了針對影像資料的機器學習模型, 以偵測並分析穿越對方佈陣隊形並讓本隊能夠得分的傳球
- 自動辨識球員的踢球型態(pattern of play) 來研究哪種踢球型態製造進球
- OCI 按使用付費, 可以節省支出

New on Oracle Cloud

Oracle Data Safe 雲服務

支援任何環境的Oracle資料庫

- 統整的資料庫安全控制中心
 - 資安評估 (Security Assessment)
 - 使用者權限評估 (User Assessment)
 - 使用者活動稽核 (User Activity Auditing)
 - 敏感資料發掘 (Sensitive Data Discovery)
 - 敏感資料遮罩 (Sensitive Data Masking)
- 節省時間並降低資安風險
- 使用者無須具備資安專長



Data Safe 雲服務新增支援 Hybrid Cloud 和 Intercloud

幫助客戶資料庫安全

On-Premises



Any Public Cloud



Cloud@Customer



Dedicated Region
Cloud@Customer



資料庫安全雲服務保護客戶企業資料

自主 JSON 資料庫

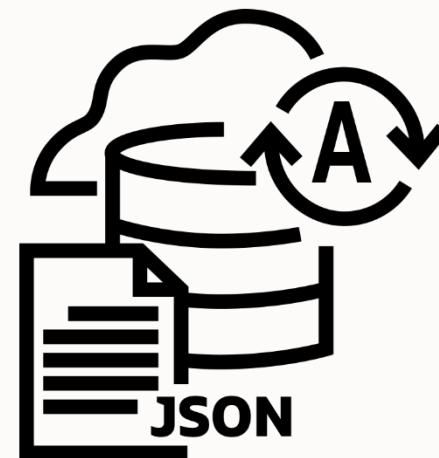
按鍵即可升級到 ATP 雲服務

為處理JSON資料為主的應用程式最佳化的低費用雲服務

- Native JSON storage and JSON APIs
- 比 MongoDB 更多 JSON 特色功能, 且更廉價
- 比 MongoDB and AWS DocumentDB* 快兩倍

具備所有自主資料庫的特色

- Availability, security, transparent scale-out without losing ACID transactions
- Use SQL for cross-collection queries, reporting, and analysis



* Industry-standard Yahoo Cloud Serving Benchmark (**YCSB**)

Autonomous JSON Database with 8 OCPUs compared to: MongoDB Atlas on M60, AWS DocumentDB on R4.4xlarge

Source: <https://www.mongodb.com/atlas-vs-amazon-documentdb/performance> as of 8/12/2020

Technical brief on JSON Benchmark - <https://www.oracle.com/a/ocom/docs/autonomous-json-database-whitepaper.pdf>

針對JSON Data的SQL語法

{JSON}

Standard Operators and related JSON Functions usage

SQL Operators	JSON Functions	Returns
SELECT	JSON_QUERY ()	<i>Fragments</i> of a JSON document
	JSON_VALUE ()	Scalar value
	CASE JSON_EXISTS ()	False if no JSON value is matched
FROM	JSON_TABLE () (row source)	Specific JSON data projected to relational columns and new rows in case of JSON array
WHERE	JSON_EXISTS ()	False if no JSON values are matched
	JSON_QUERY ()	<i>Fragments</i> of a JSON document
	JSON_VALUE ()	Scalar value
	JSON_TEXTCONTAINS ()	Row(s) matching the Full-Text search expr.
GROUP BY	JSON_VALUE ()	<i>Scalar value</i>
ORDER BY	JSON_VALUE ()	<i>Scalar value</i>

支援 Simple Oracle Document Access (SODA)

NoSQL-style APIs



LANGUAGE

SPECIFICATIONS

Java

Minimum supported version is: 1.1.4.
Use SODA for Java in conjunction with
ojdbc8.jar for Oracle Database 19.6.

REST

Access RESTful services and SODA for REST.

C

Oracle Client libraries must be 19.6 and
above.

PL/SQL

Included with Autonomous Database.

Node.js

Introduced in version 3.0. Recommended
version is 4.0.
Oracle Client libraries must be 19.6 and
above.

Python

Introduced in version 7.0.
Minimum recommended version is 7.1.
Oracle Client libraries must be 19.6 and
above.



Create and store collections of documents (JSON) in Oracle Database, retrieve them, and query them, without knowing SQL or how the documents are stored in the database

新的 Binary JSON Data Type (資料型別)

21c

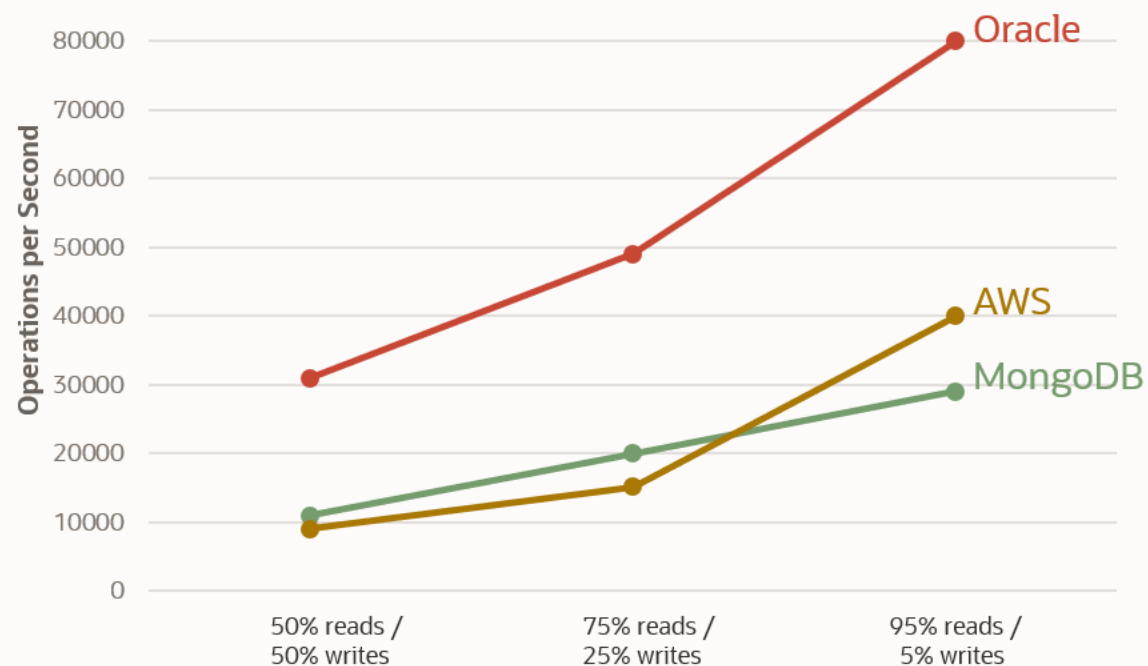
{JSON}

- Freely mix or join JSON and relational data
- Transparent scale-out with full **ACID** transactions
- Index any **JSON element** for fast OLTP
- **Declarative Parallel SQL** analytics across all formats
- Run **complex joins** across multiple JSON documents and collections
- Custom application code not needed to accomplish basic data management tasks

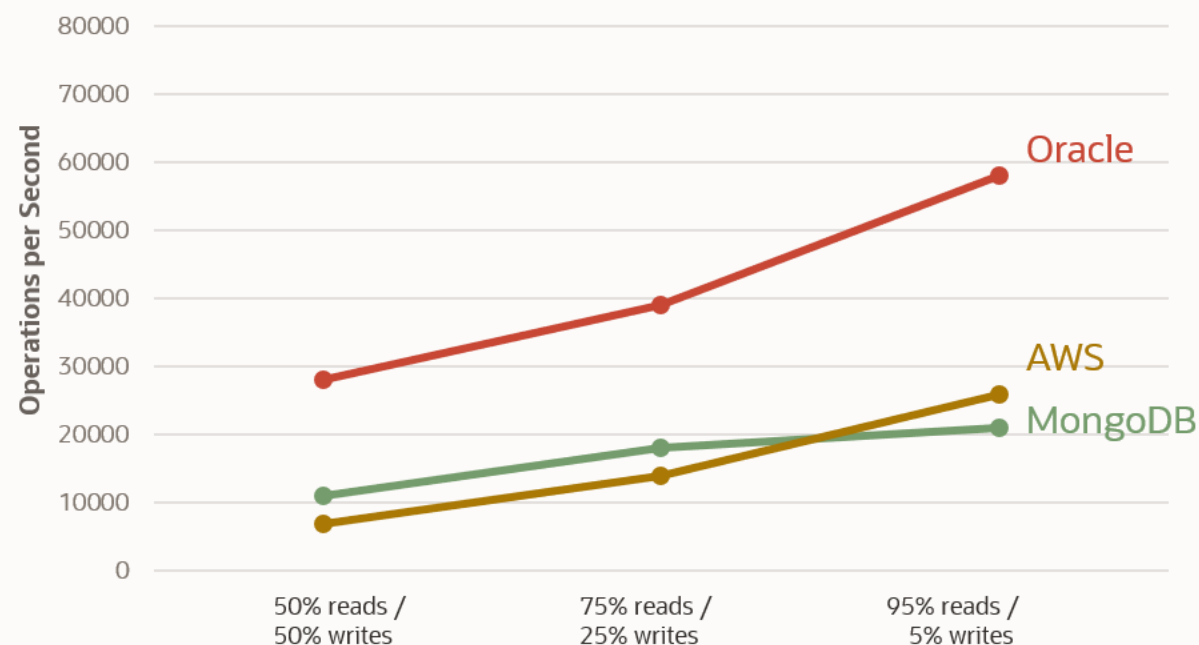
Binary JSON Data Type Enables
SCANS UP TO 10X FASTER | UPDATES UP TO 4X FASTER

Oracle資料庫處理 JSON 資料的效能 比 MongoDB and AWS DocumentDB* 快兩倍

YCSB-4M Documents



YCSB-81M Documents



Industry-standard Yahoo Cloud Serving Benchmark (**YCSB**)

Autonomous JSON Database with 8 OCPUs compared to: MongoDB Atlas on M60, AWS DocumentDB on R4.xlarge

Source: <https://www.mongodb.com/atlas-vs-amazon-documentdb/performance> as of 8/12/2020

GoldenGate 雲服務

市場領先資料複製產品也提供為Oracle完全管理的雲服務

Best of Breed Real-Time Data

- Changed Data Capture (CDC) Data Replication

Cloud Native with Auto-Scale

- Runs GoldenGate 21c, managed by Oracle
- True cloud elasticity, low operations cost

Differentiated Use Cases

- Active-active, real-time Data Warehouse and more...
- Capture or deliver data for Autonomous Databases
- Databases may be multicloud or on-premises



Database Migration 雲服務

Fully managed, 容易使用的資料庫遷移到 Oracle Cloud Infrastructure

Database Migrations

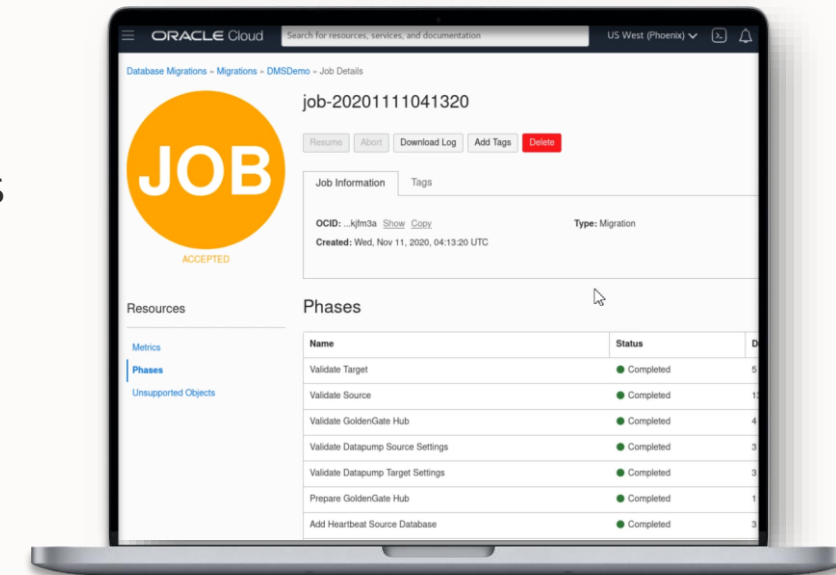
- 降低成本且加強效能 in Oracle Cloud
- Migration 雲服務對每個資料庫在前6個月是免費

Core Use Cases

- 機器輔助的(Machine-assisted)遷移 for Oracle Databases, Data Marts and Data Warehouses into Oracle Cloud

Differentiated Use Cases

- Simplifies underlying technologies and resources
- Logical offline and online migrations
- Schema/metadata migration
- Based on enterprise-strength Oracle tools: Zero Downtime Migration, GoldenGate, and Data Pump



Database Management 雲服務

Oracle資料庫的車隊式管理 for on-premises, in OCI and 3rd party clouds

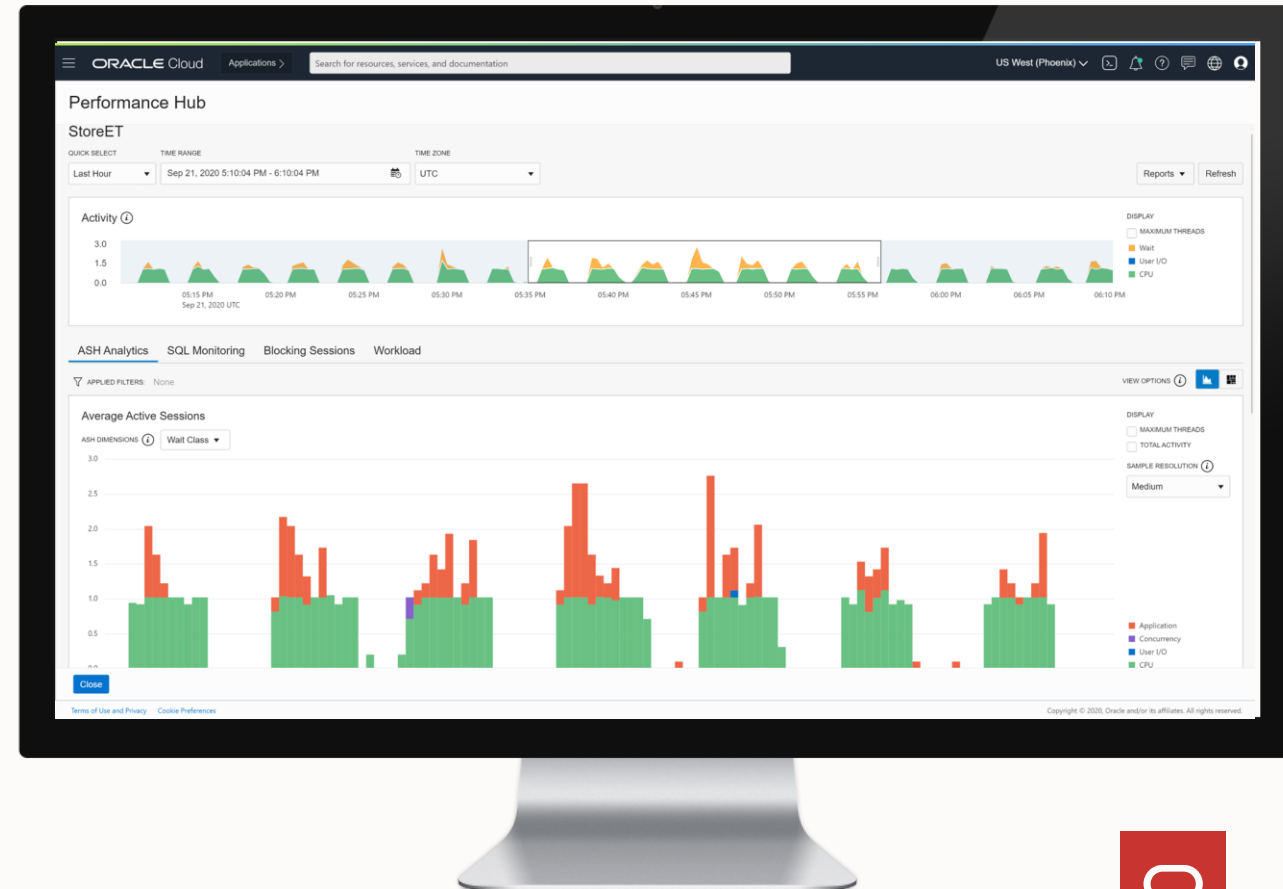
Provides consistent view of Oracle Databases in hybrid/multi-cloud deployments

Integrated view of database activity for easy performance diagnostics

- Features include ASH Analytics
- SQL/ Session details
- Blocking sessions, etc.

Advanced SQL execution plan analysis for monitoring and optimization

Simplified space, configuration, users, and backup management



New in Oracle Database 21c

Oracle Database 21c 新功能

為應用開發者, 架構師, 分析師, 資料科學家, 及資料庫管理員帶來更多創新

21c

Blockchain Tables

In-Database JavaScript

New ML Algorithms

In-Memory Enhancements

Multitenant Enhancements

Gradual Password Rollover

Native JSON Type

SQL Macros

AutoML

Better Graph Analytics

Persistent Memory

Easier Sharding



For 開發者和架構師 | Blockchain Tables

不可變的 SQL table with cryptographically chained rows

容易建立和使用

- 看起來像標準 tables 加上一些宣告SQL語法
- 用來在 blockchain data 上做交易和分析

提供多層的詐欺防護

- blockchain 擁有者對新資料的加密式簽章可達到不可否認性
- 加密式 blockchain hash 可偵測任何資料修改
- 使用者對新資料的加密式簽章可防制”冒充”

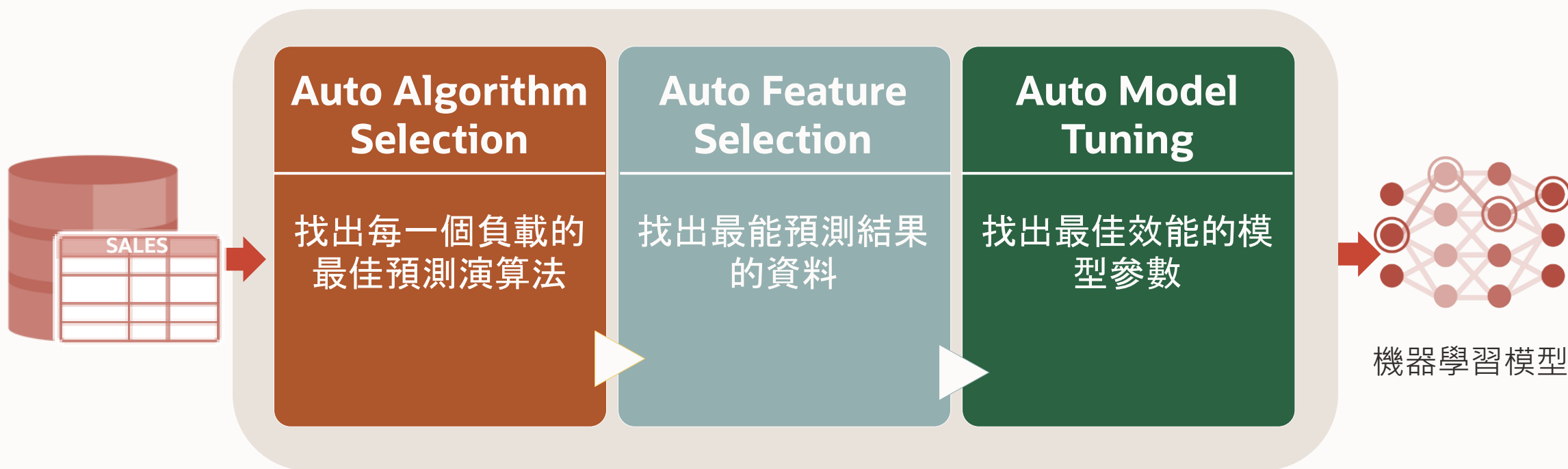
```
CREATE Blockchain Table  
Trade_Ledger ...;
```

ID	User	Value	Hash
1	Tom	500	ADSJS
2	Carol	176	%SHS
3	Steve	500	SH@1
4	John	176	DHD3
5	Mike	332	*EGG
6	Sarah	632	AH11
7	Eve	25	LIO\$
8	Prisha	850	SHS4



For 分析師和資料科學家 | AutoML

簡易化機器學習模型的開發



For 資料庫管理員 | Persistent Memory (PMEM)

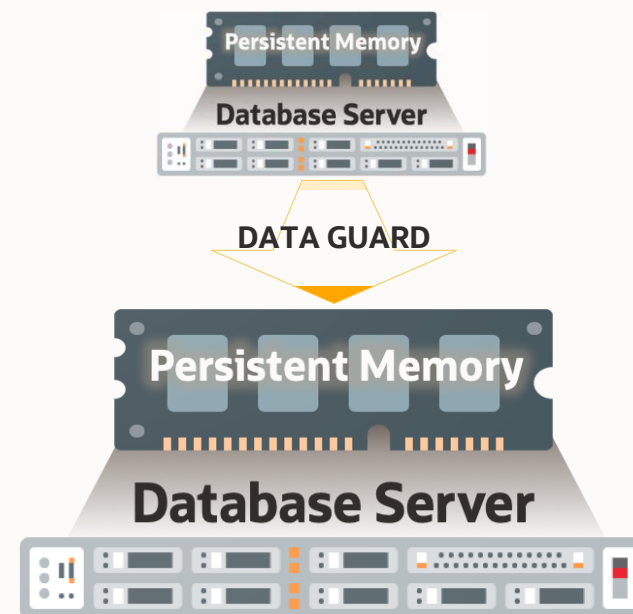
無須修改程式即可加快效能

將資料庫的資料檔和 redo 存放在本機的 PMEM 上

- SQL runs directly on data stored in mapped Persistent Memory file system
- Eliminates I/O code path, no need for large buffer cache

新的資料庫演算法會避免部分或不一致的存取到 Persistent Memory

以 Native Database Sharding 來延展(scale out)



For 資料庫管理員 | Gradual Password Rollover

確保符合資安法規又避免應用程式斷線

Set new password limit

`PASSWORD_ROLLOVER_TIME` in user profile

Create new service account password in the database

- Old and new passwords will be valid for a period

Passwords will be updated on the application side

Old passwords will expire – leaving the new password as the only valid credential



For 開發者和架構師 | SQL Macros

封裝複雜 SQL 語句的簡易方法

建立可重複使用且便攜的程式碼

如同 SQL 的 pre-processor

兩種 SQL Macros:

- **TABLE** expressions in a FROM-clause
- **SCALAR** expressions in SELECT list, WHERE/HAVING, GROUP BY/ORDER BY clauses

沒有昂貴的 context switching

- 可得到更佳效能

```
CREATE or replace FUNCTION
orders_waiting_to_ship(order_value number)
  RETURN varchar2 SQL_MACRO(TABLE)
  IS
BEGIN
  RETURN q'[
    SELECT i.*
    FROM ORDERS o,
         ORDER_ITEMS i
    where order_status > 6
         and o.order_total >= order_value
         and o.ORDER_ID = i.ORDER_ID
  ]';
end orders_waiting_to_ship;
```



```
SQL> select *
      from
      orders_waiting_to_ship(200);
```

For 開發者 | Express Edition and Docker Images

Oracle Database 21c Express Edition (XE)

- 免費版 Oracle 資料庫 for 開發, 測試, 學習, 和 production (internal business operations)
- Available on Linux and Windows
- Up to 252 PDBs per CDB
- XStream APIs enabled



Oracle Database 21c Docker Images

- Oracle Container Registry
- RAC and single-instance databases



Oracle 資料庫 21c 新功能 (**backport to 19c**)

More innovations for developers & architects, analysts & data scientists, DBAs

21c

Blockchain Tables*

In-Database JavaScript

New ML Algorithms

In-Memory Enhancements

Multitenant Enhancements

Gradual Password Rollover*

Native JSON Type

SQL Macros*

AutoML*

Better Graph Analytics

Persistent Memory*

Easier Sharding

*** Have been backported to a Database 19c Release Update**

Oracle 資料庫功能及授權查詢網站

https://apex.oracle.com/database-features

DATABASE

Features and Licensing

Want to learn more about the latest 21c new features and practice with them? We recommend our [new learning guide](#).

Features

Licensing

Search

blockchain table

Focus Area

All Focus Areas

Version

☐ 11.2

☐ 12.1

☐ 12.2

☐ 18c

☒ 19c

☐ 21c

☒ New features only

Feature

Oracle Blockchain Table

Database Overall → Core Database

Blockchain tables are append-only tables in which only insert operations are allowed. Deleting rows is either prohibited or restricted based on time. Rows in a blockchain table are made tamper-resistant by special sequencing and chaining algorithms. Users can verify that rows have not been tampered. A hash value that is part of the row metadata is used to chain and validate rows.

21c Release

All Offerings

Feature Details

Oracle Blockchain Table

Database Overall → Core Database

Blockchain tables are append-only tables in which only insert operations are allowed. Deleting rows is either prohibited or restricted based on time. Rows in a blockchain table are made tamper-resistant by special sequencing and chaining algorithms. Users can verify that rows have not been tampered. A hash value that is part of the row metadata is used to chain and validate rows.

Business Benefit: Blockchain tables can be used to implement blockchain applications where the participants trust the Oracle Database provider, but want means to verify that their data hasn't been tampered with. The participants are different database users who trust the Oracle Database provider to maintain a verifiable, tamper-resistant blockchain of transactions. All participants must have privileges to insert data into the blockchain table. The contents of the blockchain table are defined and managed by the application, with a few added metadata fields maintained by Oracle Database. By leveraging a trusted provider with verifiable crypto-secure data management practices, such applications can avoid the distributed consensus requirements. This provides most of the protection of the distributed peer-to-peer blockchains, but with much higher throughput and lower transaction latency compared to peer-to-peer blockchains using distributed consensus.

Release Availability

☒ 11.2

☒ 12.1

☒ 12.2

☒ 18c

☒ 19.10

☒ 21c

Available On

ALL OFFERINGS

Initial Release

21c

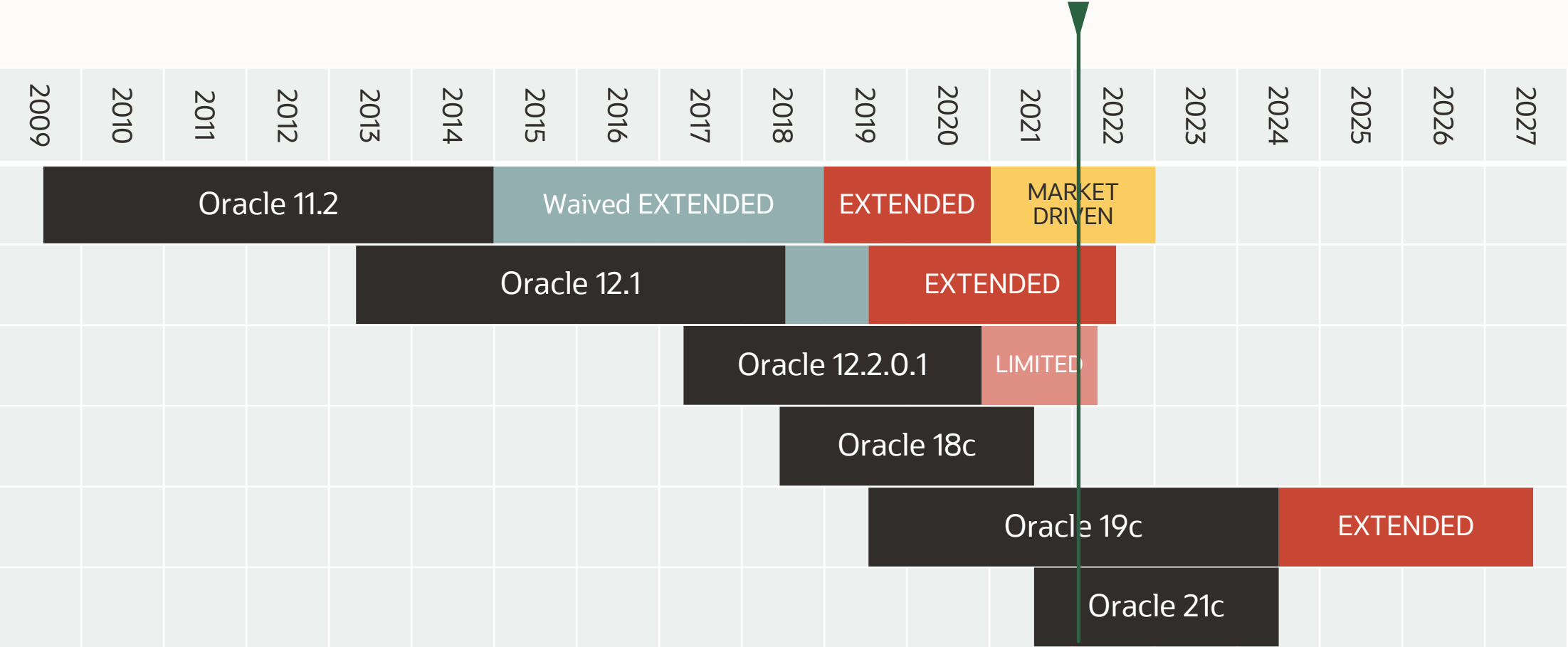
Backported To

19.10 [More Information](#)

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資料庫版本和支援時程

隨時參閱 MOS Note 742060.1 可得最新時程



Premier Support Waived Extended Support Paid Extended Support Market Driven Support Limited Error Correction



What's Coming Next

Next | Data Management 相關雲服務

新服務和主要加強點

- Database Tools Service
 - 資料庫連線 are an OCI resource to be shared across multiple services/products/groups/users
- Data Lake 與 Oracle 自主資料庫整合
 - OCI Data Catalog Service 與自主資料倉儲(ADW)整合
 - 橫向擴展 object storage 存取
- Oracle API for MongoDB
 - Use MongoDB drivers 存取Oracle自主資料庫

Oracle API for MongoDB

讓 MongoDB drivers and tools 可以存取Oracle自主資料庫

Key Features

- CRUD – create, read, delete, and update documents
- DDL – create and drop collections and indexes
- MongoDB 3.6 compatibility

Included with Oracle Autonomous Database

- Autonomous JSON Database, ADW, ATP

Use Cases

- Build microservices and applications using MongoDB language drivers, tools, and frameworks
- 容易遷移 MongoDB 到 Oracle自主資料庫



All the benefits of the converged database, such as SQL and analytics, apply directly over JSON collections

Next | 未來的Oracle 資料庫版本

在每一個領域推出創新或加強



架構



載入



查詢 / 交易



分析/檢索

一個完整的 **Converged Data Platform**



資料
安全



應用開發



HA/DR



工具

The background of the slide features a complex, abstract pattern of concentric circles and wavy lines in shades of blue, orange, and dark brown, reminiscent of traditional Indigenous Australian art. A large white rectangular area is centered on the slide, containing the Oracle logo and the main title.

ORACLE

Oracle Support Reward Program & Free Training

Oracle Support Rewards 專案



在 Database 維護期
間內的附加價值



可使用 Oracle Cloud
Infrastructure (OCI) 累積
Support Rewards



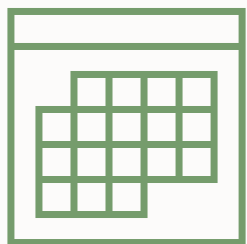
使用累積的 **Support Rewards**
抵扣 **Database 維護費用**

依據 Oracle 雲
(OCI) 實際使用量之

25 %

回饋金額用於抵扣
Database 維護費用

Oracle 雲 (OCI) 實際使
用量越多 – 回饋越多



Oracle Support Rewards

在每個月底基於 **OCI 雲服務**
一整個月消費金額賺取

範例

Database
維護費用

原本需支付的
維護費用

\$450

OCI 一整個月
的消費金額

\$1000

Oracle
Support
Reward 產生的
回饋金額

\$250

新的
維護費用

\$200



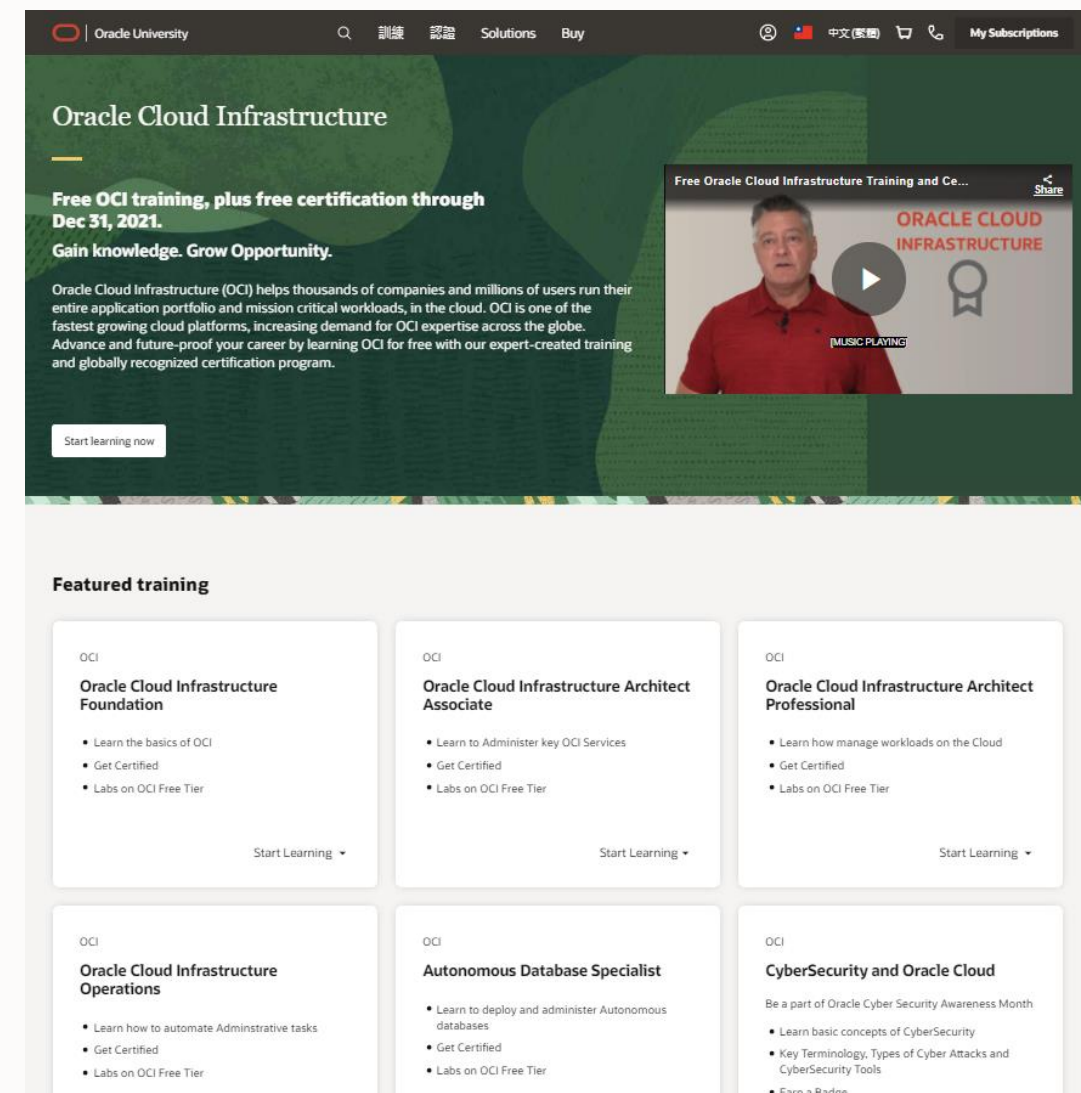
藉由使用 Oracle 雲 (OCI)，客戶有機會可以將 Database 維護費用降至 0*

* 不適用於抵扣 Database 維護費用所需繳納的稅金



免費 Oracle Cloud Infrastructure 教育訓練課程及認證考試

- 幫助增加客戶對 OCI 服務的了解和後續使用。
- 客戶可以免費參加我們針對所有學習階段和角色的 OCI 雲端課程培訓內容
- 包括 培訓課程及認證考試。
 - OCI 教育訓練課程
 - 資料管理訓練課程
 - OCI 免費認證考試 從 2021/9/8 至 2022/2/28.



The screenshot displays the Oracle University website interface. At the top, there's a navigation bar with the Oracle University logo, search, training, certification, solutions, and buy links. The main banner features the text "Free OCI training, plus free certification through Dec 31, 2021." and "Gain knowledge. Grow Opportunity." Below this, a video player shows a man in a red shirt speaking. The "Featured training" section lists six courses:

- OCI Oracle Cloud Infrastructure Foundation**
 - Learn the basics of OCI
 - Get Certified
 - Labs on OCI Free Tier
- OCI Oracle Cloud Infrastructure Architect Associate**
 - Learn to Administer key OCI Services
 - Get Certified
 - Labs on OCI Free Tier
- OCI Oracle Cloud Infrastructure Architect Professional**
 - Learn how manage workloads on the Cloud
 - Get Certified
 - Labs on OCI Free Tier
- OCI Oracle Cloud Infrastructure Operations**
 - Learn how to automate Administrative tasks
 - Get Certified
 - Labs on OCI Free Tier
- OCI Autonomous Database Specialist**
 - Learn to deploy and administer Autonomous databases
 - Get Certified
 - Labs on OCI Free Tier
- OCI CyberSecurity and Oracle Cloud**
 - Be a part of Oracle Cyber Security Awareness Month
 - Learn basic concepts of CyberSecurity
 - Key Terminology, Types of Cyber Attacks and CyberSecurity Tools
 - Earn a Badge

Oracle 網路研討會列表(2021/12-2022/2)

Date/time	Topic	Description	eDM or Replay Link
2021/12/16	重新思考資料庫架構，促進現代化新一代資料導向應用程式開發	您可以使用最新的開發技術來開發現代化、強大且可靠應用程式，而不會使您的資料架構複雜化。透過 Oracle 新一代技術的獨特功能可讓開發人員以更快速的方式，建立符合企業最高標準的強大解決方案	Replay : 請點選Link
2021/12/21	多模式資料庫與微服務應用	分析Oracle 多模式資料庫功能，並在微服務下的資訊架構中如何應用及如何更好的支持微服務架構	Replay : 請點選Link Password: Oracle1221
2022/1/6 (2:00-3:00pm)	圖(GRAPH)資料庫新領域	Oracle數據庫的 (Oracle Spatial and Graph)拓展了對圖資料庫的儲存，查詢以及分析功能。說明如何利用Oracle 19c 融合資料庫的GRAPH來構建一個圖分析應用場景的目的，讓您踏入圖(GRAPH) 儲存與分析的新的領域	
2022/1/11 (2:00-3:00pm)	所有人員適用的自動化資料管理及 資料庫新功能及未來發展	Oracle Autonomous Database 簡化了作業與分析資料庫工作負載的管理。此主題將探討創新如何持續改善分析師,資料科學家及開發人員的生產力並說明資料庫新功能及未來發展	業務產生Social&Mobile Link 報名Link
2022/1/18 (2:00-3:00pm)	極限性能/Database In-Memory	介紹企業HTAP混合負載需求的DB In-Memory系統架構、適用場景、使用方法及最佳實踐	https://mailchi.mp/04c119160ea4/oracle-database-19c
2022/1/20 (2:00-3:00pm)	建立 安全快速 資料庫的 RESTful API	透過 Oracle REST DATA Service(ORDS) 讓開發人員可以快速、安全的開啓數據的 REST服務能力，讓您能快速掌握ORDS核心概念，並且快速的開發出基於ORDS的REST APIs能力	https://mailchi.mp/04c119160ea4/oracle-database-19c
2022/1/25 (2:00-3:00pm)	最高安全架構Maximum Security Architecture(MSA)	介紹資料庫最高安全架構，結合行業和資料庫安全性角度，進行深度分析	https://dynasafe.webex.com/dynasafe/j.php?RGID=rf9f579d1f8e1c937606f88be3db8ed61
2021/1/27 (3:00-4:00pm)	新一代數據驅動的應用開發/New-gen, Data-Driven Apps Development	新一代應用系統需要實時處理多種類型的數據，以從中得出明智的決策。透過Oracle 數據架構開發技術來降低開發的複雜度，使開發人員能夠快速建構符合最高企業標準的強大解決方案。	https://dynasafe.webex.com/dynasafe/j.php?RGID=rf5f403831f109ab0dffbfb8fd98e4e48
2021/2/10 (2:00-3:00pm)	快速 建置 JSON 於 Oracle 平台	介紹企業中JSON數據格式是如何被使用的，並根據客戶案例學習如何將關係型資料(Relational DB) 和 JSON 結合起來，以提高應用的靈活性。	https://dynasafe.webex.com/dynasafe/j.php?RGID=r5c464b3c0c0affce1c1caf4d1c69676d
2022/2/15 (2:00-3:00pm)	資料庫持續可用性設計 /Continuous Availability	介紹應用系統連續性的核心技術，讓您掌握如何正確應用該特性，降低資料庫可能的停機和維護時間，極大提升應用系統持續性和客戶體驗。	https://dynasafe.webex.com/dynasafe/j.php?RGID=rbd3d827c379ee6f1245961b762acd925
2022/2/17 (2:00-3:00pm)	透過 Oracle Machine Learning 來建置機器學習平台	Oracle Machine Learning 內嵌在 資料庫中，因此資料科學家可以避免將資料移至外部系統以進行分析和模型建置、計分及部署，提高生產力來建立和評估更高品質的機器學習 (ML) 模式，來支援資料導向的業務目標。	
2022/2/22 (2:00-3:00pm)	19c 資料庫 升級的策略及方法	介紹資料庫升級的方法，幫助客戶熟悉資料庫升級的整個流程，確保資料庫升級前後的效能及測試流程，回退策略等，幫助客戶打消疑慮，提高客戶對數據庫19c升級的信心	
2022/2/24 (2:00-3:00pm)	低程式碼開發作業平台/Oracle APEX	透過 APEX，開發人員可快速開發與部署極具吸引力的 App 並解決實際的問題，不需精通各種技術專家，不需要複雜解決方案，只要專注於問題，剩下的就全交給 APEX 負責處理。	https://mailchi.mp/04c119160ea4/oracle-database-19c

Thank you!

Oracle Cloud Free Tier

Always Free

Services you can use for unlimited time



30-Day Free Trial

Free credits you can use for more services

<http://oracle.com/DatabaseWorldFreeTier>