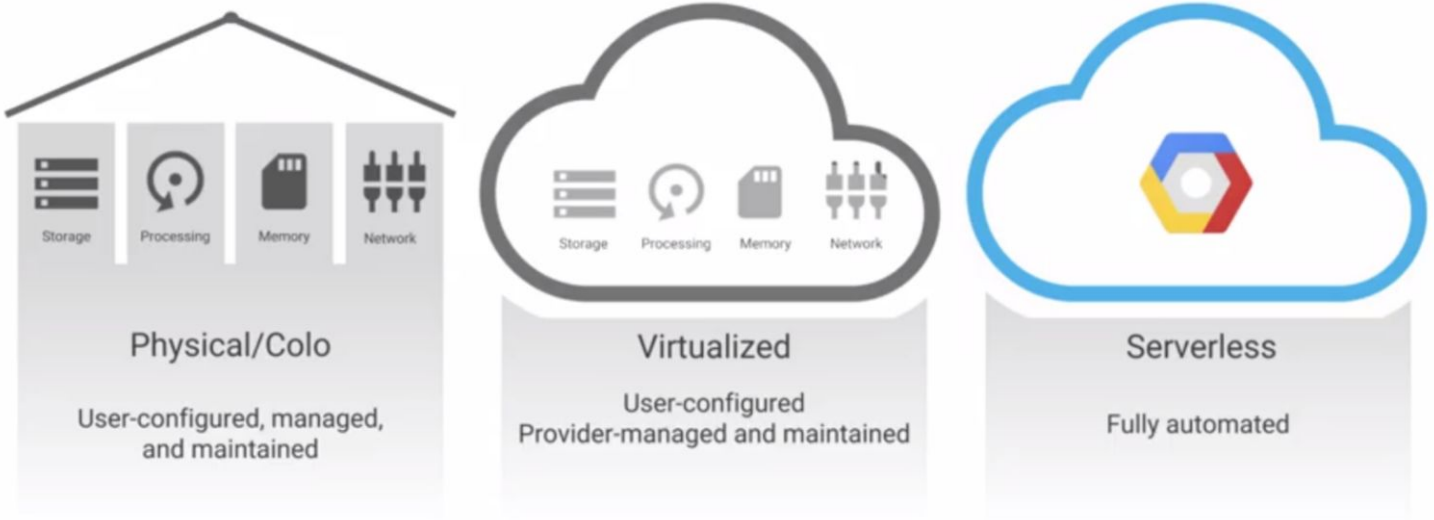
Cloud Waves

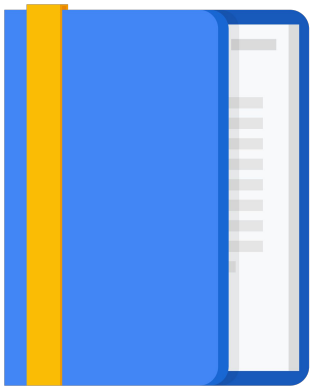

Storage
Processing
Memory
Network
Physical/Colo
User-configured, managed, and maintained
Storage
Processing
Memory
Network
Virtualized
User-configured
Provider-managed and maintained
Serverless
Fully automated

Agenda

Why Run Oracle on Google Cloud

Technical Specs

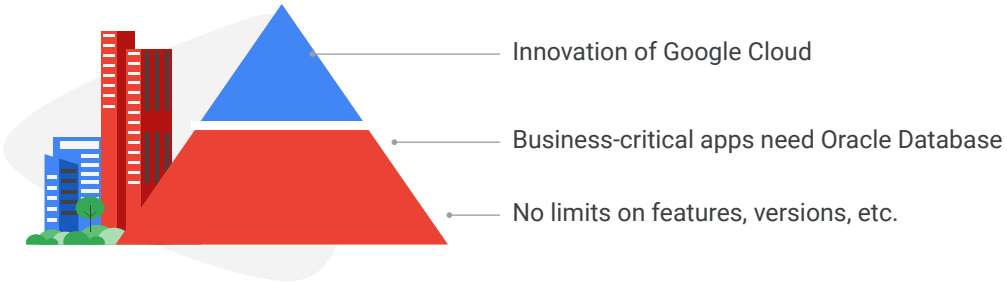
Use Cases



Google Cloud

You may have one or more Oracle servers on-premises and want to migrate them off-premises to the cloud. Google provides an excellent solution for this scenario.

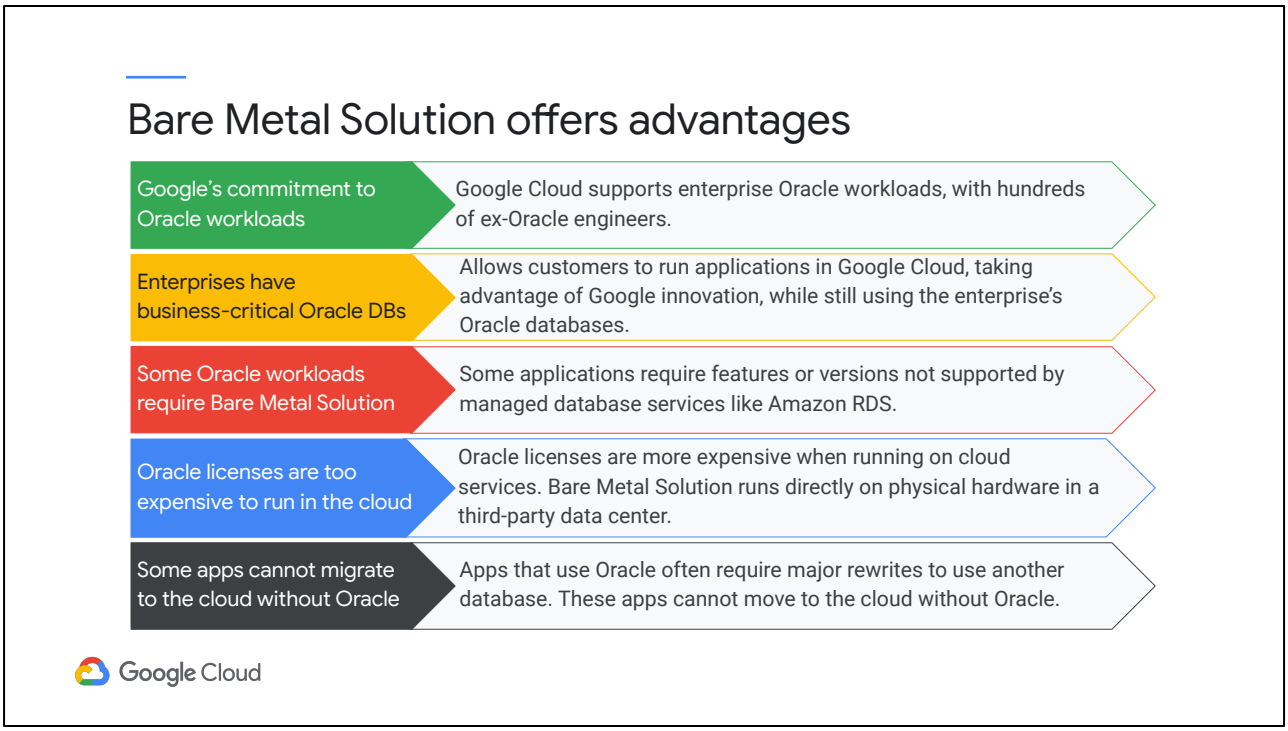
You want the innovation of Google Cloud, but your business-critical apps rely on Oracle with no limitations



Google Cloud

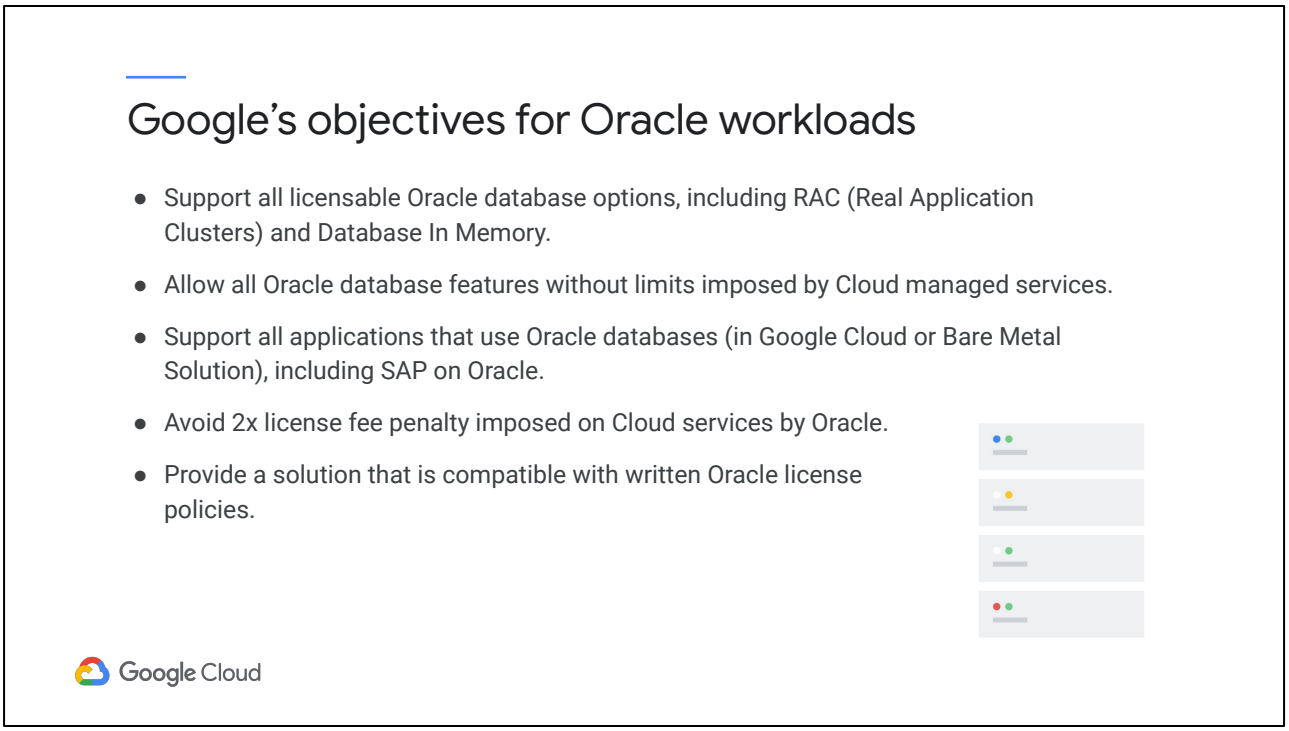
You may have existing applications that are heavily dependent on Oracle backends, and uncoupling them might be difficult. Using Cloud SQL or a SQL Server instance may not be an option.

However, you want to benefit from many of Google Cloud's features, such as off-site servers and scalability. Google has a solution that allows you to keep your Oracle database and also migrate to the cloud, with no restrictions or limitations on the Oracle side of things. It is truly a best-of-all-worlds solution.



Bare Metal Solution offers many advantages over a traditional on-premises server.

- Google is fully committed to integrating Oracle workloads into its cloud environment and employs many ex-Oracle engineers.
- Many enterprises depend on Oracle databases for their mission-critical applications. Google's solution allows customers to run applications in Google Cloud, taking advantage of Google innovation, while still using the enterprise's Oracle databases.
- Some features of Oracle require bare metal servers. So even though Cloud-based services like AWS RDS support Oracle, many Oracle features are not supported on that service.
- There is also a license penalty when running Oracle on virtual machines. When you use virtualized services like RDS, Oracle charges for licenses by the virtual CPU. That makes the licensing twice as expensive. On Bare Metal Solution, licenses are charged per physical CPU.
- Many times you can't migrate your applications until you also migrate your Oracle database, and moving to a different database might require expensive rewrites that are not practical.



Google has several key objectives for Oracle workloads.

- There must be support for all licenseable Oracle database options, including Real Application Clusters and Database In Memory.
- All Oracle database features must be supported without the limits imposed by Cloud-managed services.
- All applications that use Oracle databases, including SAP on Oracle, must be supported.
- There should be no 2x license fee penalty imposed on Cloud services by Oracle.
- Finally, Google's solution must be compatible with Oracle's license policies.

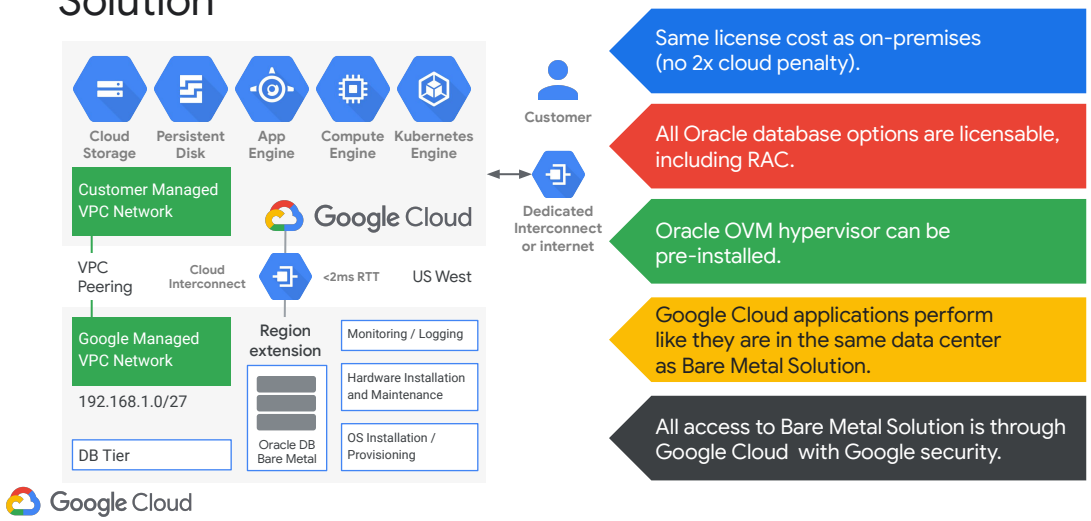
Oracle Real Application Clusters (RAC)

- Increase Oracle Database availability
- Scale database performance across multiple database servers
- Enable horizontal scalability
- Hide the impact of the outages from end users

SAP SE

- A German multinational software company
- Develops enterprise software to manage
  - business operations
  - customer relations
- The world's leading Enterprise Resource Planning (ERP) vendor

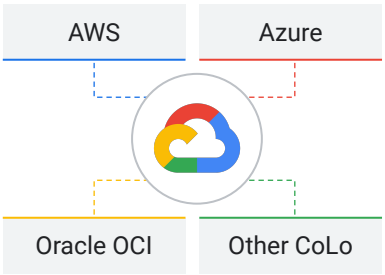
There are no limitations to Oracle on Bare Metal Solution



Bare Metal Solution has no limitations regarding Oracle versions, features, or configurations and has the same license costs as an on-premises server.

Because of the close proximity of the physical Oracle servers to the Google facilities, you get the high performance you would expect as if the servers were in the same data center. Additionally, Google handles the security through Google Cloud.

Bare Metal Solution works with other clouds



- Bare Metal Solution is the only solution that provides a colocation data center with a low-latency (< 2 millisecond RTT) connection to Google Cloud.
- Other vendors (e.g., Equinix) offer high-bandwidth connections to Google Cloud, AWS, Azure, Oracle Cloud, and other offerings.
- If you have an appliance (e.g., Exadata), you can host it in another partner data center or on-premises and have a high-bandwidth network to Google Cloud and Bare Metal Solution.

Google Cloud

Bare Metal Solution can also be used by applications running in other clouds.

Bare Metal Solution is the only solution that provides a colocation data center with a connection to Google Cloud of less than 2 milliseconds of latency.

Plus, vendors also offer high bandwidth connections to AWS, Azure, Oracle Cloud, and other colocation facilities.

Thus, you can host applications and appliances in another partner data center or on-premises and have a high bandwidth network to Google Cloud and Bare Metal Solution.

IBM POWER / AIX

- `IBM Power Systems`
  - a family of server computers that are based on its Power processors
  - created in 2008 as a merger of the System p and System i product lines

- `IBM AIX`
  - a series of proprietary Unix OS
  - developed and sold by IBM for several of its computer platforms

Round-trip Time (RTT)

- `Amount of time`
  - for a signal to be sent
  - `+`
  - for acknowledgement of that signal to be received

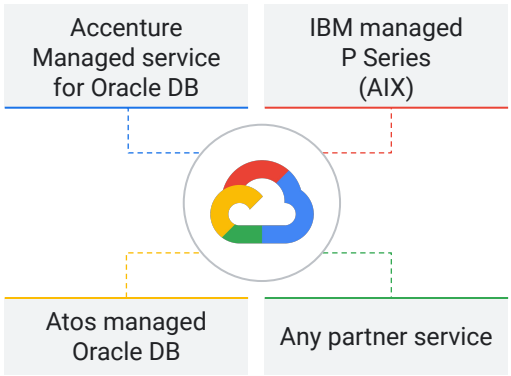
Oracle Exadata Database Machine

- A combined hardware and software platform

- is engineered to deliver dramatically
  - better performance
  - cost effectiveness
  - availability

Bare Metal Solution works with managed partner services

- Bare Metal Solution provides customer-managed bare metal for Oracle workloads.
- Accenture, Atos, and other partners provide a managed Oracle as a service.
- Non-x86 platforms are also provided by partners (e.g., IBM POWER / AIX).
- The customer signs a separate contract directly with the partner. Costs of managed services are typically higher than self-managed offerings.



Google Cloud

Bare Metal Solution leverages other partners for managed Oracle services and hardware.

Other partners like Accenture and Atos provide managed Oracle databases.

non-x86 platforms are offered by partners like IBM.

What about Oracle support and licensing?

- Bare Metal Solution is bare metal in a subprocessor-managed data center, NOT cloud.
  - Hundreds of customers do this with Oracle in Equinix, Atos, Rackspace, etc.
- BullSequana S is officially certified by Oracle.
- The solution meets Oracle's requirements for RAC support.
  - Native storage device supported by the storage vendor (NetApp)
- We recommend engaging a third-party Oracle license compliance firm such as Palisade Compliance.
- Rely on Oracle License Management Services (LMS) or Palisade for licensing policies.
  - Not Oracle sales teams

Google Cloud

Because Bare Metal Solution uses Oracle-certified bare metal servers, there is no problem with Oracle licensing and support.

Bare Metal Solution is not a virtualized cloud solution. Thus, all Oracle versions and features are supported.

You need to provide your own Oracle licenses and ensure that you are in compliance.

You might consider using a third-party compliance firm to help ensure that you conform to license policies from Oracle.

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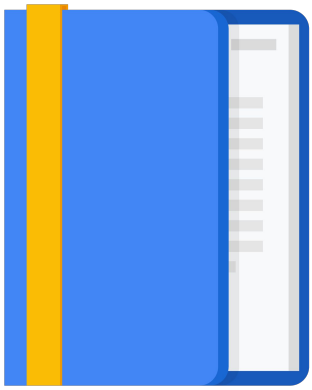
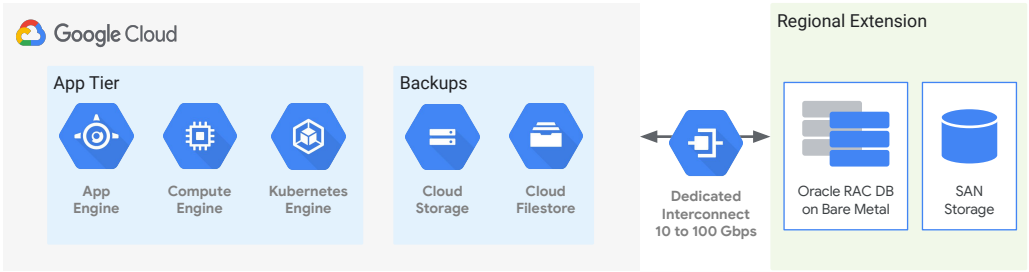


Google Cloud

So far we have been talking about running Oracle databases on Google Cloud using Bare Metal Solution.

Now, let's look into some of the technical details about how the solution is architected, some of your options, and how you connect to and administer the servers.

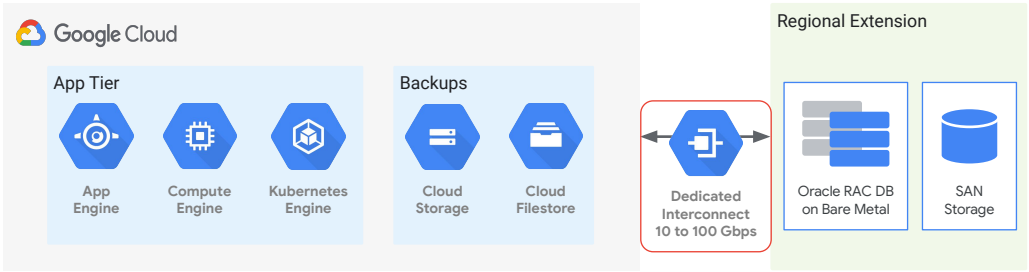
Bare Metal Solution provides physical hardware with a high-speed connection to a Google Cloud region



Google Cloud

Bare Metal Solution hardware is traditional physical hardware, except it is located close to the Google hardware and has high-speed connections to the Google Cloud region where it's located. This allows the App layer and backups to perform with the same high speed as if they were other Google-provided database solutions.

Bare Metal Solution provides physical hardware with a high-speed connection to a Google Cloud region



Google Cloud

The Oracle servers are housed in a Google partner data center. A high-speed interconnect is set up between the partner and your Google region with less than 2-millisecond latency between them.