

operate

Oracle Exadata with Atos

Operational Excellence through increased availability and reduced downtime

The Oracle Exadata database machine helps reduce outages to your mission critical systems.

Your challenges - Our solutions

Empowering our clients on their digital journey is our key objective - in a tough economic environment, enterprises have to be performant. You cannot be in a sustainable business if your operations are not best in class. Atos and Oracle work hand in hand to help you maintain current IT operations and reduce costs; while simultaneously enabling the transformation of the business to embrace new digital opportunities.

As the all-inclusive service provider for Oracle and Platinum Partner, the Atos team has the expertise in managing and supporting all the hardware and software elements of the entire Exadata solution and Oracle Engineered Systems technology. Our global strategic alliance combines the strength of Oracle's business hardware and software together with Atos' sector specific expertise in Consulting, Systems Integration and Managed Services.

Oracle Exadata database machine

Our focus is on stability and ensuring constant availability by providing a robust, yet flexible infrastructure required to keep businesses agile and available 24x7. The system can be maintained through hardware maintenance, software upgrades and repairs with minimum or zero outages whilst remaining current and up-to-date with the latest software, patches and security updates.

The Exadata database machine is capable of running consolidated OLTP and data warehouse databases on a single platform. It's a robust, scalable and highly available platform that can reduce costs whilst increasing throughput and lowering downtime for both planned and unplanned outages.

This is achieved by:

- ▶ Employing fault tolerant architectures
- ▶ Improving Systems availability
- ▶ Providing zero downtime configuration, options and solutions
- ▶ Utilising leading edge software and clustering technologies that increase availability.

Additionally Atos is able to offer further services such as Data Masking and Active Data Guard on top of your Engineered Solution.

The solution

In order to increase availability and reduce downtime Oracle Exadata is delivered ready-made and pre-configured and tested, with all hardware and software components in place.

Oracle Exadata has been around since 2008 and is renowned as a tried, tested, stable and comprehensive mature solution.

Each machine is engineered for minimum disruption, and optimal performance, ensuring superior throughput for both OLTP and data warehouse environments which deliver real advantages.

Each engineered system is built and tested in the same manner using the same components,

ensuring compatibility. Standardisation enhances customers support experience and ensures all customers benefit every time improvements are made.

The Exadata platform has built in hardware redundancy helping protect against unplanned outages, regardless of the size of the Exadata machine chosen and is optimised to provide maximum performance.

The use of Oracle Real Application Clusters can be used to keep your databases available during patches with rolling updates.

Increasing resilience and availability

The hardware and software inside each Exadata system provides a high degree of availability and scalability for the most demanding mission critical systems.

A large number of redundant hardware components protect against unplanned outages, for example database servers, storage servers and network components all have redundant power supplies and fans.

One example of the Exadata failure detection capability can be seen if you pull out a single disk from the storage array by mistake and then push it back in. In this scenario Exadata can make the distinction between a failed disk and a healthy disk - whilst your applications would not suffer any impact the system would be able to determine that the disk was good and automatically address the problem of bringing it back into the configuration.

The use of Oracle Real Application Clusters allows many database instances to run across many servers. The database hardware server(s) running in a clustered environment are also able to suffer loss whilst the databases continue to operate.

All disks are redundant, whether they are in the database servers, storage servers or Exadata cells. The use of ASM further compliments this by being able to handle caching failures.

When a failure is detected, client failover allows client connections to failover to another database instance.

In addition, the Oracle database software also provides a flashback capability that can be used to recover actions from human error that enable rows, tables, tablespaces or even the database to be put back to a previous time. The use of Oracle's backup utility compliments this solution by enabling a number of tablespaces to be recovered to a particular time.

The common Oracle software components which are used include; the Exadata Storage software, Oracle RAC, Active Data Guard, ASM and Fast Recovery Area.

Oracle Exadata can also perform faster backups which contribute to availability by reducing outages from improved restore and recovery times.

The Oracle Exadata database machine also increases performance in other areas such as database archiving, instance recovery and performs faster backup and restore operations.

Efficient management of unplanned outages

Despite rigorous testing of the high quality components within the Exadata rack it is essential that all the components inside the Exadata rack are fault tolerant/ intelligent and able to provide protection due to unplanned failures.

Examples of potential failures would include not only power loss, but also cooling fans, server/ node problems, cache problems, disk failures, an infiniband network switch failure or maybe the disk software has a bug.

Fortunately, combining the resilience of Oracle Exadata and the service and support provided by the Atos Engineered Systems team we can ensure that any unplanned problems are managed appropriately and resolved in a timely manner.

Planned outages & reducing downtime

For planned outages Exadata provides a number of options to reduce the time of an outage or remove the need for an outage completely.

By making use of a standby site it is possible to eliminate planned outages by first applying the necessary patches on your standby site, testing and then switching over to this standby site whilst you patch the original Production system. This allows for continuous availability of your databases and removes the outage to your users. Once complete you can then switch back to your original configuration. In addition, it is also possible to make use of the standby environment for read only reports to maximise its usage.

If you require an alternative to Oracle Data Guard, then the Oracle GoldenGate product can be used to ensure zero downtime is achieved for your database upgrade.

The use of Oracle Real Application Clusters can also be a great advantage when looking to reduce downtime and outages. Rolling database patches can be applied to your configuration whilst the database remains operational to its users.

Performance and Compression

Exadata is able to provide extreme performance by off-loading data intensive processing to its storage layer. The record breaking performance comes from the ability for Exadata to make use of the flash storage servers which contain 1.6Tb flash drives to result exceptionally high performance gains.

The Exadata Storage Server provides a very advanced compression capability called Hybrid Columnar Compression (HCC) that provides dramatic reductions in the storage requirements and also improves data throughput.

More Atos added value

By working closely with Oracle, Atos has always been able to ensure a fast time-to-market in the delivery of the latest innovations to businesses. It's this approach that saw us become an early adopter of Oracle Engineered Systems, shaping the technology within our Extreme Performance Computing environment. We are also at the forefront of Oracle SaaS offerings for both eBusiness and Fusion where clients pay for services as they use them.

About Atos

Atos SE (Societas Europaea) is a Global digital services leader with 2014 pro forma annual revenue of circa € 10 billion and 86,000 employees in 66 countries. Serving a global client base, the Group provides Consulting & Systems Integration services, Managed Services & BPO, Cloud operations, Big Data & Cyber-security solutions, as well as transactional services through Worldline, the European leader in the payments and transactional services industry. With its deep technology expertise and industry knowledge, the Group works with clients across different business sectors: Defence, Financial Services, Health, Manufacturing, Media, Utilities, Public Sector, Retail, Telecommunications, and Transportation.

Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and is listed on the Euronext Paris market. Atos operates under the brands Atos, Atos Consulting, Atos Worldgrid, Bull, Canopy, and Worldline.

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