Oracle Maximum Availability Architecture

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Availability Architecture

Oracle Maximum Availability Architecture (MAA) is the set of capabilities and best practices that enable continuous availability and zero data loss protection for the most demanding database applications. Oracle MAA also provides the flexibility to address a complete range of high availability (HA) requirements at the lowest cost and complexity.

KEY BUSINESS BENEFITS

- Maintain continuous availability through any unplanned outage
- Eliminate downtime during planned maintenance and migration
- Eliminate data loss
- Increase return on investment (ROI)

Oracle Maximum Availability Architecture (Oracle MAA)

There are many causes of downtime that prevent I.T. organizations from meeting their objectives for availability and data protection. Component failure, software bugs, data corruption, network outages, human error, site failures and planned maintenance are just a few examples. Fortunately, Oracle Database provides the most comprehensive set of HA capabilities of any database management system. Each capability is deeply integrated with Oracle Database to provide unparalleled levels of data protection.

Oracle MAA configuration and operational best practices are essential complements to Oracle's industry-leading HA solutions. Oracle MAA best practices are continuously enhanced and validated in Oracle labs, incorporating both Oracle engineering expertise and experience from thousands of customer deployments world-wide.

KEY PRODUCTS

- Oracle Database Enterprise Edition
- Zero Data Loss Recovery Appliance
- Oracle RAC and RAC One Node
- Active Data Guard
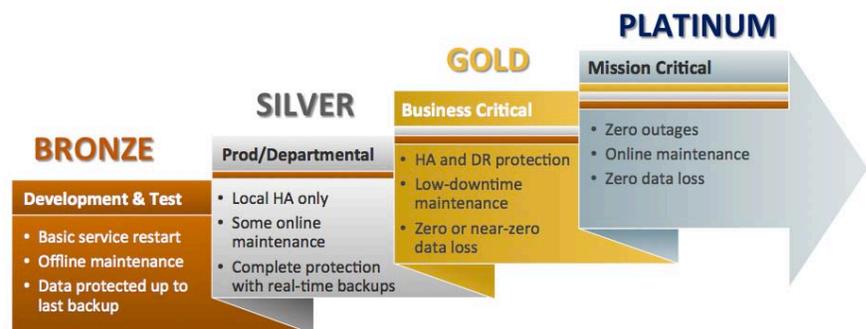- Oracle GoldenGate
- Oracle Database Cloud Service

Figure 1, Oracle MAA Reference Architectures

Oracle MAA prescribes four reference architectures that provide progressively higher levels of availability and data protection. Each architecture is based upon a common infrastructure optimized for Oracle Database. This enables cost-effective HA across the complete spectrum of service level requirements to support a variety of use cases.

Built-in Database Protection

Capabilities included with Oracle Database provide low-cost HA for the Bronze reference architecture and are the foundation for all that follows. Bronze includes: automatic restart of a database instance, fast point-in-time recovery, Oracle block

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validation, automatic repair of in-memory corruption, and reliable backup and recovery.

Zero Data Loss Backup and Recovery

The Zero Data Loss Recovery Appliance provides reliable, cost-effective, and highly scalable enterprise-wide backup for all Oracle Databases across all reference architectures. The Recovery Appliance enables incremental-forever backup that offloads production databases of backup processing and provides native de-duplication to optimize storage usage. Continuous real-time backups and Oracle validation protect every database transaction and ensure complete database recovery.

Zero Downtime Server HA

Oracle Real Application Clusters (RAC) is introduced in the Silver architecture. It is the only active-active clustered database for continuous availability that eliminates the impact of unplanned server outages and many planned maintenance activities from end-users. Its active-active architecture enables elastic scale-out/scale-in to address any performance requirement and utilizes all assets for high return on investment (ROI).

Zero Data Loss High Availability and Disaster Recovery

Oracle Active Data Guard is introduced in the Gold reference architecture to maintain one or more synchronized copies of a production database for both HA and zero data loss disaster protection across any distance. Continuous Oracle data validation isolates each copy from faults that can impact production. Automatic failover immediately resumes service if an outage occurs. Each copy can also offload read-only workloads such as ad-hoc queries, reporting and backups for higher asset utilization and ROI.

Zero Downtime Maintenance and Migration

Oracle GoldenGate supports advanced replication topologies, including bi-directional and heterogeneous replication (across multiple OS and database platforms). From an HA perspective Oracle GoldenGate is ideal for implementing zero-downtime planned maintenance and migrations as prescribed by the Platinum reference architecture.

Hybrid Cloud – Backup and Disaster Recovery on the Cloud

Oracle Database Cloud is a robust and rapidly expanding set of HA services that complement on-premises systems, including backups for on-premises and cloud databases and disaster recovery on the cloud. These offerings reduce on-premises capital expenses and slash operating costs with automated administration and common management tools across on-premises and cloud databases. These services also provide low-risk entry points for eventual migration of production systems to the cloud.

ADDITONAL INFORMATION

- *Oracle High Availability on oracle.com*
- *Oracle MAA Reference Architectures - The Foundation for Database as a Service*

CONTACT US
For more information about Oracle MAA visit oracle.com or call +1.800.ORACLE1 to speak with an Oracle Representative.

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Integrated Cloud Applications & Platform Services

Oracle is committed to developing practices and products that help protect the environment