Managed Storage Services

*Designed to Meet Your Custom Needs for Availability, Reliability and Security*
A complete Storage Solution

Oracle Managed Cloud Services (OMCS) provides managed storage services to complement application management of Oracle applications such as EBSO, PeopleSoft, Siebel, JD Edwards EnterpriseOne and the full Oracle Applications and Fusion portfolio. Oracle storage is network attached and provides highly secure, available and reliable storage in a utility based pricing model designed for your comprehensive storage needs:

- Highly available and reliable storage and infrastructure with around the clock monitoring to support your business processes
- Scalable storage architecture to meet your growing business needs
- Access to historical archives of data to meet regulatory requirements and/or to perform a very quick point-in-time restore and recovery

OMCS provides comprehensive managed storage services to meet customers’ needs today and in the future.
Oracle Managed Storage Services

Storage at Oracle is designed to protect customers against potential downtime, revenue loss and agility requirements. Unlike other companies, Oracle only charges customers for actual storage used and does not charge customers for allocated storage that typically includes reductions due to RAID, system overhead and backup limit. Customers only pay for the network attached storage and not for the storage on the server (up to 1TB). In addition, there is no charge for storage associated with backups, snapshots and offsite tape storage, it’s all included in one convenient monthly fee per gigabyte. Many competitors typically charge customers for Operating System storage, flash recovery access storage and temporary backups. This would result in customers needing storage sized at least 50% or higher than they need and pay for at Oracle.

Managed Storage Services at Oracle include the following features:

- **Availability:** Greatly reduced system downtime through redundancies across network interfaces, power supplies and multiple Infiniband switches; eliminating single point of failures to provide 99.5% availability and up to 99.95% with additional services.

- **Reliability:** Oracle has designed a highly reliable system that maintains regular snapshots, daily backups. Oracle snapshots allow the system to be restored to a previous state within minutes. Oracle uses a centralized monitoring system to increase reliability and identify potential problems - all at no extra charge.

- **Archive:** All data is backed up on to tape semi-weekly and moved off-site for retention up to five weeks. These features are included in the storage service and customers do not have to pay an additional charge.

- **Scalability:** Oracle’s Solaris ZFS file system uses the concept of pooled storage that removes the necessity to predetermine the size of storage. As your business grows and you need more storage, you can consume storage on a per gigabyte per month basis, whilst still having high degrees of security and isolation for your data. This allows you to lower your costs while retaining the ability to scale as your business needs.

**Availability and Monitoring Service**

With Oracle Managed Cloud Services, your systems and data are secured and protected at every layer. Oracle uses a variety of Network Attached Storage (NAS) and Storage Area Networks (SAN) networks over Solaris based ZFS storage to provide high availability. Oracle internally created a variety of configurations such as high capacity, high performance and dedicated architectures to fine-tune the storage for the performance and security needs of customers. As a default, Oracle offers a RAID 10 with a 2-way mirroring solution that is tiers above commodity storage or storage types offered by other managed service providers. Oracle uses ZFS storage that offers unique technologies like de-duplication and transactional file systems that provide highly consistent data on disk, even when there is a loss of power, with no performance over-head compared to technologies that employ a journal records based system.
Oracle’s proprietary Cloud Automation Platform is integrated into the storage administration and provides a 24x7x365 web-based view of embedded monitoring, management and response capabilities – conveniently accessible through the web or an iPad®. OMCS will perform any predictive maintenance as indicated by Oracle Enterprise Manager and Oracle Ops Center to proactively identify problems and improve availability.

![Storage monitoring architecture at OMCS](image)

**Figure 1: Storage monitoring architecture at OMCS**

**Backup and Restore Service**

Oracle backup and restore service, offered as part of the full-service storage, includes tape backup and restoration, off-site retention and archiving.

Utilizing the ZFS based storage capabilities, Oracle takes very reliable snapshots and provide incremental backups every two hours as well as a daily backup and semi-weekly tape-backup - all included in your monthly fee. Capabilities like ZFS De-duplication and simplified architecture remove redundant data and also simplify storage management, resulting in reduced storage needs for the customer. Unique to Oracle, CloudZone architecture isolates customer issues and disruptions to the affected CloudZone – other CloudZones within the same datacenter are immune and protected.

**Scalability**

Oracle builds highly scalable systems leveraging the capabilities of ZFS Storage. As a first step, customers are allocated dedicated storage to meet their growth needs, but only pay for it when they...
start consuming. ZFS uses the concept of storage pools to manage physical storage; it eliminates volume management and restrictions to create virtualized volumes. This translates into a highly scalable storage system because as new storage is added to the pool, it can immediately be used without any additional work. Customers benefit by having to pay only for the storage they consume over the entitled amount, akin to a utility based model.

Delivering Value, Choice, and Confidence

With Oracle Managed Cloud Services, you can leverage Oracle’s years of experience so that you are able to focus and re-direct your resources. Managed Storage Services are included as part of the managed application services and provide more value from your investments, more choice to deploy your business applications in the cloud and more confidence that your business applications will be available when you need them.