PURE STORAGE® DATA PROTECTION FOR ORACLE®

Comprehensive data protection for Oracle technologies

Capacity Optimized for Lower Economics and Still 100% NVMe

FlashArray//C products break down the divide between tiers of storage to deliver a consistent and optimized enterprise experience for tier-2 test and development environments, disaster recovery, and data protection—both on premises and in the cloud—all at hybrid- or disk-based economics.

The benefits of FlashArray//C products include:

- **Consistent latency** with an end-to-end NVMe architecture
- **Enterprise-class 99.9999% availability** paired with cloud-based management[1]
- **Industry-leading data reduction**, data protection, and cloud-based mobility
- **Extreme density**—from 1PB to 10PB effective capacity in less than 9RUs

DATA ALWAYS ENCRYPTED

Whether online, nearline, or offline, all data is encrypted with the AES-256 algorithm. Encryption is *always on*, and performed as data enters the Pure Storage array.

Pure Storage solutions can help you effectively protect the data in your Oracle system against loss, breach, or availability interruption. Our portfolio of modern data-protection solutions, including Purity and Pure Cloud Block Store™, provides flexibility and reliability—including online, nearline, and offline protection for all of your data.

DATA SERVICE PROTECTION: ALWAYS ONLINE, NEVER LOST

If it's not available *all the time*, your online Oracle data is not truly protected. Pure Storage Purity software and NVM Express® (NVMe™) hardware deliver best-in-class, 99.9999% availability for the FlashArray//X storage solution.[1] Pure Storage keeps your data available through maintenance, failures, and generational upgrades. Your Oracle databases will always be available, always performing, and always protected by design. Simultaneously, Pure Storage RAID-HA provides flash-optimized data-loss protection to prevent the disappearance of data entering the storage system.

ZERO
Data Loss
RAID-HA protects against data loss

99.9999%
Availability
Pure Storage Purity protects against array outages[1]

NEARLINE SNAPSHOT PROTECTION

Nearline is an increasingly important data-storage tier that is warmer, closer to the server, and more readily available for rapid use than offline data backups. With nearline snapshot protection, snapshots of the online production database are used to rapidly restore services and to clone or refresh data environments for development, testing, disaster recovery, and more.

Pure Storage Purity Protect snapshots provide the means to create space-efficient snapshots of Oracle storage volumes representing a consistent image of the storage volumes in a precise point-in-time. Snapshots are typically created in a few seconds, even for large Oracle databases, and they don't impact the source storage volumes. Plus, snapshots can be kept on the storage array where they were taken or replicated to other FlashArray instances, Pure Storage FlashBlade™ products, third-party network file system mounts, or Pure hybrid-cloud services—Cloud Block Store and Purity CloudSnap™. Pure Storage ActiveCluster™ technology can cluster storage volumes between arrays with automatic synchronization. This enables Oracle database metro configurations, including Oracle Real Application Clusters (RAC), on extended-distance clusters.

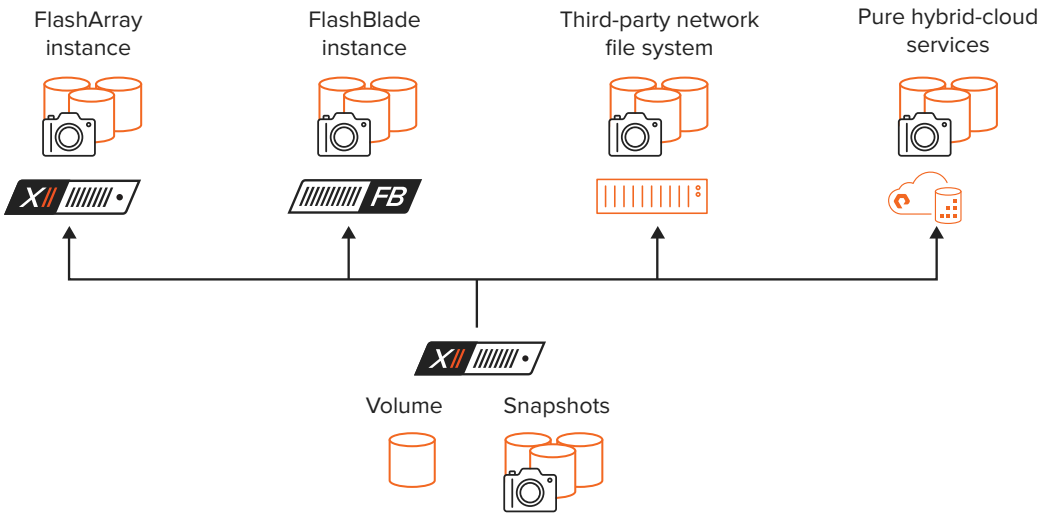

Figure 1. Replicate snapshots to a variety of destinations.

OFFLINE BACKUP PROTECTION

Offline data protection involves making copies of infrequently accessed data for long-term storage as backups or archives. With Oracle databases, backups are often performed with Oracle Recovery Manager (RMAN), which is significantly slower than snapshots but offers storage-vendor and database-server operating system portability. Pure Storage offers options that speed backup and restore times when using RMAN or other backup clients.

One option is to use a FlashBlade rack as an RMAN target. Tests using a single FlashBlade rack with 15 blades and the Oracle Direct NFS (dNFS) client achieved 15TB-per-hour backups and 45TB-per-hour restores.[2]

Another option would be to rely on volume snapshots and make use of the public cloud using Pure Cloud Block Store block storage and Purity CloudSnap cloud backup software. This is a performant approach that seamlessly integrates the on-premises FlashArray solutions and Pure Storage's cloud-connected services. Take advantage of snapshot performance paired with the economic benefits of the public cloud.

SAFE ENOUGH ISN'T GOOD ENOUGH

Your online Oracle data isn't truly protected if it's not available all the time. Your customers depend on you, so you depend on best-in-class data availability. Pure Storage's portfolio of modern data-protection solutions for Oracle can deliver online, nearline, and offline protection for *all* your data.

LEARN MORE

Data sheet: "**FlashBlade Scale-out Storage for Modern Data**"
White paper: "**Pure Storage Data Protection with Oracle RMAN**"
Solution brief: "**Modernize Data Protection with Flash + Cloud**"

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[1] "**FlashArray//X10**," Pure Storage, 2018.
[2] For testing, an Oracle database server was built with Oracle Linux® on an Cisco UCS® blade. The single-instance database was setup on a file system hosted on a Pure Storage FlashArray//M50. The RMAN target was a 15-blade Pure Storage FlashBlade system, which was connected via Ethernet. The NFS file systems from FlashBlade were mounted on the database server. See the "**Accelerate Oracle Backup & Recovery**" paper for more information..