Accelerate Oracle Applications with IntelliFlash™

INTELLIFLASH

Accelerate Database Throughput and Response Times While Reducing Your Storage Footprint

Data is an asset to your business. Therefore, you need to rethink how your Oracle application data is being operationalized, captured, preserved, accessed, and transformed to deliver more transactions and better insights to your business – whenever, wherever, and however you need it.

IntelliFlash systems empower Oracle databases and applications to thrive by accelerating transactions and simplifying workflows. High performance at low latency, flexibility at scale, and easy-to-use data services and analytics make IntelliFlash the choice to drive your most valuable database workloads.

Accelerate your Oracle databases and applications with intelligent infrastructure, Tintri IntelliFlash systems!
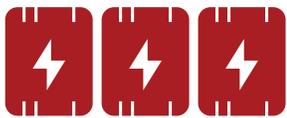
Run Your Oracle Applications at the Speed of Memory

With our patented meta data acceleration technique, whether it's real-time processing, machine learning, data analytics or business intelligence, IntelliFlash systems dramatically reduce transaction wait times by orders of magnitude – enabling you to upgrade to intelligent infrastructure and set new business targets.

Your business depends on Oracle databases for data warehousing, analytics, and online transaction (OLTP) workloads. It's essential that you deliver consistently high levels of performance and availability. But that can be difficult without the right storage infrastructure. As a result, revenue and productivity can suffer.

IntelliFlash systems offer a comprehensive portfolio of all-flash and hybrid storage solutions that deliver high I/O per second (IOPS) at sustained low latency at a price that will fit most budgets. Each system includes a comprehensive set of data protection and management capabilities and can seamlessly support multiple storage media (NVMe flash, SAS flash, and hard drives) powered by the IntelliFlash Operating Environment. You can select the amount of flash to align with the performance and economics needs of your business applications.

Highlights

- Crush database latency at a lower cost than traditional storage
- Instantly provision volumes tuned for Oracle databases with application-aware provisioning
- Thin provision volumes and compress databases in line to significantly reduce your storage footprint by up to 75% depending on workload
- Run applications and manage files on a single system
- Create application-consistent snapshots to prevent data loss and ensure recovery
- Quickly recover from a site disaster with remote replication
- Create multiple read/write clones without negatively impacting performance

All-Flash Systems

- All-flash systems for sustained low latency
- 368TB of All-Flash (raw) in 2RU
- 2580TB of (raw) in 14RU
- Latency as low as 200 milliseconds

Hybrid Systems

- All-flash and hybrid media for most database workloads
- Pin redo logs and temporary tables in all-flash storage pool
- Store static cold data in hybrid storage pool
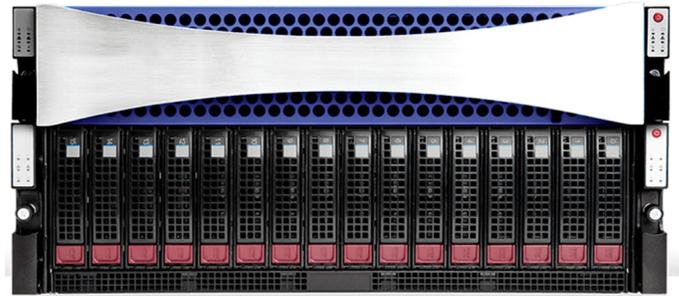- Cost-effective performance and capacity

Reduce Your Storage Footprint

Compress your databases by 1.5x – 2x and maintain multiple copies of your data without taking up additional storage space.

Selectable real-time compression and deduplication capabilities can dramatically reduce the overall storage footprint of your Oracle databases while helping to improve performance. Data blocks are compressed, and redundant data blocks are removed before they are committed to persistent storage. You can select the compression rate and turn on/off deduplication at the LUN/file share/project level to strike the perfect balance between performance and capacity.

However, in conjunction with our metadata and write acceleration capabilities, our data reduction implementation becomes a performance multiplier as the number of writes to and reads from the capacity tier are significantly reduced. The deduplication reference table comfortably resides in dedicated SSDs for the fastest possible processing.

And since this all occurs inline, data will appear to the requestor as if it were in its original state (uncompressed and hydrated).

Tintri

Inline Compression

- Reduce database storage consumption by 30%
- Block-level compression
- Performance multiplier
- Selectable at LUN / file share level

Inline Deduplication
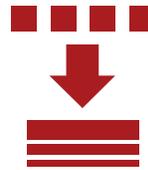
- Reduce space consumption for online backup images by up to 90%
- Block-level deduplication
- Selectable at LUN / file share level
- Deduplicate both SSD and HDD storage pools

Maximize Storage Efficiency

Maximize storage efficiency by not over-allocating capacity. Thin provisioning on IntelliFlash systems automatically allocates physical storage as data is being written. Any allocated space that hasn't been consumed remains available for other applications.

Consolidate Workloads with Multi-Protocol Support

IT organizations often deploy multiple storage systems to meet the protocol needs and workload characteristics of specific databases. IntelliFlash systems natively support both block and file protocols, enabling you to host Oracle databases and your other workloads on a single system. Supported block protocols include iSCSI and Fibre Channel. You can configure different block sizes for each database or even for different LUNs within the same database, which is considered a key requirement for Oracle DBAs. Supported file protocols include NFS and SMB 3.0. You can even use Oracle Direct NFS (dNFS) by exporting NFSv3 and v4 shares. Any or all protocols can be used simultaneously over a variety of storage ports.
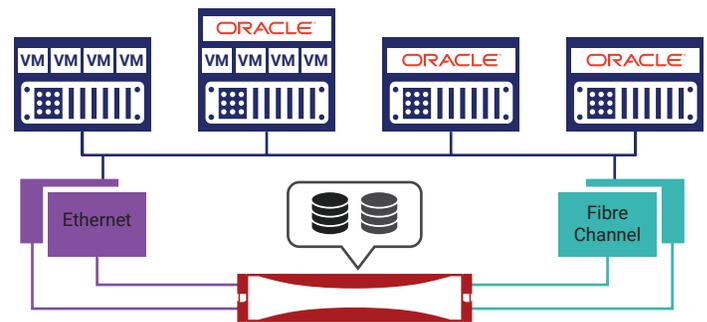
As you provision storage, you can choose the granularity of the block size and other parameters at the database or individual LUN level.

You can also ask the system to do it for you within the user interface. IntelliFlash systems include application-aware provisioning. Simply select the use-case (database, server virtualization, or VDI), and the system will instantly select the appropriate configuration (block size, compression algorithm, deduplication settings, etc.)

Help Ensure the Availability and Protection of Your Business-Critical Data

Thin Snapshots   Quick DB Recovery
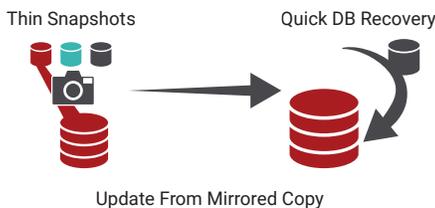
Update From Mirrored Copy
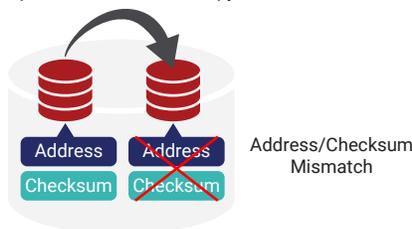
Address   Address   Address/Checksum
Checksum   Checksum   Mismatch

Prevent data loss due to corruption and help ensure your data is available 24x7. When deploying Oracle databases on IntelliFlash systems, you'll benefit from resilience, end-to-end data integrity, and high availability.

With IntelliFlash, there is no single point of failure. All media are dual ported and accessible through a pair of highly available, redundant controllers. The controllers are configured in an active/active mode and can be configured for simultaneous data access. Capacity expansion, system upgrades, and media swaps can be performed with zero downtime and minimal performance impact.

To protect against silent data corruption, our systems perform a checksum process to match data blocks as writes and reads happen and automatically fix corrupt blocks.

IntelliFlash systems offer built-in data protection capabilities so you can take point-in-time, application-consistent snapshots of your Oracle databases. The snapshots are space-efficient and incur no performance overhead. For disaster recovery, you can replicate snapshots to a remote site. Restoring a database is nearly instantaneous from either a local or remote snapshot.

Accelerate Deployment of Oracle-based Applications

Development, test, and quality assurance (QA) teams often need copies of production databases for a variety of tasks. In these situations, it's necessary to create copies of production databases to ensure that online data is not impacted by dev/test work. However, this can consume a lot of storage space.

IntelliFlash systems enable you to create multiple read/write clones of the production databases without consuming additional storage space or incurring a performance hit during creation. As with our snapshots, only the changed blocks are stored, resulting in significantly reduced storage consumption.
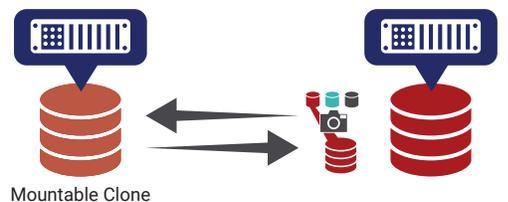
Mountable Clone

Easily Scale Performance and/or Capacity as Needed

As your database storage needs grow, you can add the most cost-effective media that will maintain your existing performance levels. You can add expansion shelves with performance flash, dense flash, and/or hard drives as dictated by your performance requirements. Competing solutions often require all flash all the time or simply deploy flash drives in a legacy system built for spinning media.

Getting Started

IntelliFlash systems are the ideal storage solution for your Oracle environment as they deliver sustained performance and resiliency while lowering your storage infrastructure costs. To get you started, Tintri has developed and validated a reference architecture for running Oracle databases using Cisco USC® servers and IntelliFlash systems.

Tintri works closely with Oracle to ensure its IntelliFlash systems are optimized for Oracle environments. IntelliFlash systems have been rigorously tested and certified with Oracle VM. They have also been validated in Oracle Linux® environments with Unbreakable Enterprise Kernel (UEK) in single instance and Oracle Real Application Clusters (RAC) deployments.

Experience different! For more information on how IntelliFlash systems can turbo-charge your business success through a simple, intelligent infrastructure, visit tintri.com/intelliflash.

@tintri   **www.tintri.com**   **info@tintri.com**