BACKUP AND RECOVERY FOR ORACLE ENGINEERED SYSTEMS WITH ORACLE ZFS STORAGE ZS3-BA

Oracle ZFS Storage ZS3-BA provides an integrated high-performance backup solution for Oracle engineered systems that reduces backup and recovery time by more than half and total cost of ownership by up to 5x compared to competitive products.

COST-EFFECTIVE DATA PROTECTION FOR ORACLE ENGINEERED SYSTEMS

KEY FEATURES

• Current support for:

  • Oracle engineered systems backup including: Oracle Exadata and Oracle SuperCluster

  • Backup of multiple databases on multiple InfiniBand fabrics

  • Secondary processing on snaps of clones of backups

  • Backup for multiple databases and general-purpose servers with or without NDMP backup

  • Native QDR InfiniBand, 10 Gb Ethernet, and 16 Gb Fibre Channel connectivity

• Advanced, intuitive management tools

• Real-time analysis and diagnosis of performance

• Data compression

• High-performance NAS storage appliance

• Co-engineered with Oracle Database

KEY BENEFITS

• Superior performance—up to 26 TB/hour backup and up to 17 TB/hour restore throughputs

• Cost effective—lower TCO than comparable NAS storage systems and backup products

• Simplified management—easy-to-use management interface

• Fast deployment with engineered systems—built-in utility shortens installation process

• Reduced risk—end-to-end check-summing and fault management architecture

Oracle ZFS Storage ZS3-BA, a Cost-Effective Platform for Disaster Recovery

Ever-growing amounts of data present system and database administrators with a number of challenges—the most difficult task is to provide fast and efficient backup and recovery of the database. In addition to growing in size, today's databases must meet stringent data protection requirements—a task made more difficult by the significant failure rate of backup and recovery. According to industry reports one out of every seven backups and one out of every six recoveries fail. Without reliable data protection and processes, mission-critical data is at risk.

Oracle ZFS Storage ZS3-BA is a tested, validated, and supported backup appliance specifically tuned for Oracle engineered systems' backup and recovery. It comes pre-racked, pre-configured and ready to install quickly with Oracle's exclusive engineered systems backup utility. The ZFS Storage ZS3-BA has extremely fast backup and restore throughputs when compared to alternative competitive products, ensuring that backup windows and recovery time objectives (RTOs) are met by providing timely recovery in the event of a disaster.

Superior Performance

Oracle is leading the way with native high-bandwidth interconnects to accelerate IT operations. The QDR InfiniBand fabric provides a direct high-bandwidth connection between the Oracle engineered systems InfiniBand backplane and Oracle ZFS Storage ZS3-BA. Backup and restore operations can be automatically parallelized across all database nodes, storage cells, Oracle ZFS Storage ZS3-BA channels, and controllers. This significantly reduces backup and recovery times compared to traditional NAS storage systems.

Due to its high-bandwidth interconnects and superior processing power, the Oracle ZFS Storage ZS3-BA testing has shown that Oracle Exadata in a half-rack configuration with Oracle ZFS Storage ZS3-BA demonstrated backup performance over InfiniBand at a data rate of up to 26 TB/hr, and a restore rate of up to 17 TB/hr. Additionally, the Oracle ZFS Storage ZS3-BA can back up an Oracle SuperCluster T5-8 at a data rate of up to 14 TB/hr, and restore at a data rate of up to 7 TB/hr. Additionally, Oracle ZFS Storage ZS3-BA is a scalable architecture, and with additional capacity, it can support up to 3.4 PB while maintaining balanced system performance.

Co-engineered with Oracle Database

Oracle ZFS Storage ZS3-BA is co-engineered with Oracle Database, yielding unique features

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with impressive benefits not available to third-party storage systems and filers: Oracle Hybrid Columnar Compression and Oracle Intelligent Storage Protocol. With HCC, you can compress data by as much as 50X, reducing storage capacity requirements and footprint. These savings multiply as RMAN backups of compressed data go much faster, use less network bandwidth, and take up less space as do snaps and clones of backups. In contrast to competitive products, the HCC compressed data is directly usable by dev/test users with no need for uncompressing. The same is true for the restore process.

Oracle Intelligent Storage Protocol opens a direct line of communication between Oracle Database 12c and Oracle ZFS Storage ZS3-BA, passing critical metadata to the storage with information about the incoming database data so that the storage can automatically and dynamically setup and tune itself, on the fly, optimizing performance for the precise incoming data. This automation reduces manual tuning by 65%, enabling you to deploy IT staff to revenue-enhancing projects.

Cost Effective

Because Oracle ZFS Storage ZS3-BA connects directly to Oracle engineered systems' internally-managed InfiniBand network, there is no need for a media server and the associated software licenses used in traditional disk backup architectures. This needless extra hardware, software, and support can add significantly to TCO compared to a directly connected Oracle ZFS Storage ZS3-BA solution. Furthermore, since extra third-party agents are not utilized, risk is reduced and management savings result from utilizing existing Oracle database backup best practices.

License-free data services, including snapshot and compression, drive down capital and operational costs and extend the utilization of backup data sets. With Oracle ZFS Storage ZS3-BA snapshot and cloning capabilities, database backups can be used for value-added work and provide system administrators with additional recovery options. For example, snapshot deployment of database clones provides development, test, quality assurance (QA), and other organizations with up-to-date copies of production data. These additional copies provide yet another safeguard in the unlikely event of an outage.

With the Oracle ZFS Storage ZS3-BA, you can achieve significantly lower TCO than with EMC and NetApp. Lower TCO means that you can afford more backup capacity than you can with competing products and you can manage more data with fewer resources.

Simplified Management

Thanks to the groundbreaking intuitive user interface provided by the Oracle ZFS Storage ZS3-BA, enterprises can reduce administration time by more than 30 percent, making it the preferred platform for Oracle Database backup and recovery. Provisioning and management is dramatically simplified on Oracle ZFS Storage ZS3-BA with an easy-to-use management interface that takes the guesswork out of system installation, configuration, and tuning. In addition, the built-in suite of software data services and communication protocols eliminates add-on software evaluation and procurement challenges.

DTrace Analytics, a feature of Oracle ZFS Storage Appliance, provides unparalleled visibility for administrators to monitor vital system parameters that can affect backup and recovery of Oracle Database environments. Performance bottlenecks and other issues can be pinpointed and resolved faster than ever before—thus minimizing adverse impacts on recovery time

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objective (RTO), recovery point objective (RPO), and service-level agreement (SLA).

Reduced Risk

Oracle ZFS Storage ZS3-BA provides data integrity features that reduce risk of lost data or silent data corruption. End-to-end checksums constantly read and check data to ensure that it's correct. Predictive self-healing capabilities maximize system availability by automatically diagnosing, isolating, and recovering from faults. For example, Oracle's fault management architecture detects and diagnoses underlying problems using an extensible set of agents. When a faulty component is discovered, self-healing features automatically take the faulty component offline. The system also provides concise diagnostic messages that link to Oracle's knowledgebase, guiding administrators through corrective tasks when human intervention is required. And industry-leading triple-parity RAID further reduces the risk of data loss.

Remote replication is available at an extra charge to facilitate disaster recovery processes. The Oracle ZFS Storage ZS3-BA can replicate an Oracle RMAN backup set or image copy to another Oracle ZFS Storage ZS3-BA to ensure protection from a complete loss of the primary site. Clustered controllers ensure access to data is not compromised during maintenance operations or the unlikely event of a complete head failure.

Flexible Configuration

To meet a variety of capacity, price, performance and upgrade needs, Oracle ZFS Storage ZS3-BA is available in flexible storage configurations: high-capacity 4 TB disk drives or high-performance 900 GB disk drives, ranging in capacity from 40 TB raw to 3.4 PB, and flexible networking connectivity, ranging from eight 10 Gb Ethernet ports and eight 40Gb InfiniBand ports or sixteen 10 Gb Ethernet ports and four 16 Gb Fibre Channel ports.

Sold and Supported by Oracle

Oracle ZFS Storage ZS3-BA is tested, validated, and supported by Oracle. Oracle provides a complete integrated technology stack, which provides customers with a single-vendor solution to meet their data center needs. Oracle offers a wide range of services for the Oracle ZFS Storage ZS3-BA to meet your unique architecture, implementation, and support requirements. Oracle service professionals can help you mitigate the risk of downtime, data loss, and costly delays, and they provide the expertise to ensure that vital systems are running at an optimal level right from the start.

Oracle ZFS Storage ZS3-BA Specifications	
Controller	8x 8-core 2.4 GHz Intel® Xeon® Processors per controller
DRAM cache	1 TB per system
Base Configuration	
Configuration options	• 40 TB raw capacity using high-performance 900 GB SAS-2 disks • Supports high-performance and high-capacity disk enclosures • Expandable up to 3.4 PB
Standard and Optional Interfaces	
Integrated network	Four 10/100/1000Base-T Ethernet ports

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Network connectivity	Four 10 Gb Ethernet NICs and Four QDR InfiniBand HCAs; OR Eight 10Gb Ethernet NICs and two 16Gb Fibre Channel HBAs per system
Ports Per System	
10 GbE/InfiniBand/16Gb FC	8/8/0 OR 16/0/4
Regulations[1]	
Safety	UL 60950-1 2nd Ed, EN60950-1:2006 2nd Ed, CB Scheme with all country differences
RFI/EMI	FCC CFR 47 Part 15 Subpart B Class A, EN 55022:2006+A1:2007 Class A, EN 61000-3-11:2000, EN 61000-3-12:2005, ETSI EN 300 386 V1.4.1 (2008)
Immunity	EN 55024:1998+A1:2001:+A2:2003
[1]In some cases, as applicable, regulatory and certification compliance were obtained at the component level.	
Certifications[1]	
Safety	UL/cUL, CE, BSMI, GOST R, S-Mark, CSA C22.2 No. 60950-1-07 2nd Ed, CCC
EMC	CE, FCC, VCCI, ICES, KCC, GOST R, BSMI Class A, AS/NZ 3548, CCC
Other	Complies with WEEE Directive (2002/96/EC) and RoHS Directive (2002/95/EC)
[1]In some cases, as applicable, regulatory and certification compliance were obtained at the component level.	
Dimensions	
Maximum weight – lbs (kg)	1,103 (500)
Depth – inches (mms)	47.24 (1,200)
Width – inches (mms)	23.62 (600)
Height – inches (mms)	78.66 (1,998)

Oracle ZFS Storage ZS3-BA	
Included Features	**Details**
File system	Oracle Solaris ZFS (128-bit addressability)
File level protocol	NFS v2/v3/v4
Data compression	Four levels of data compression available
Monitoring	DTrace Analytics (for system tuning and debugging); dashboard monitoring for key system performance metrics; plug-in for Oracle Enterprise Manager Cloud Control
Automated serviceability	"Phone home" capability with automatic case creation, configurable alerts
RAID	Striping, mirroring, triple-mirroring single-parity RAID, double-parity RAID, triple-parity RAID
Remote management	HTTPS, SSH, IPMI
Snapshots	Read only
Directory services	NIS, AD, LDAP
Network services	NTP, DHCP, SNMP v1/v2c, SMTP
Backup	NDMP v3/v4, ZFS NDMP
Local replication	Replication within same Oracle ZFS Storage ZS3-BA

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Separately Licensed Features Details	
Clones	Writable snapshots
Remote replication	Replication from one Oracle ZFS Storage ZS3-BA to another one: 1:N, N:1, manual, scheduled, continuous
Oracle Snap Management Utility for Oracle Database	Fast, efficient, and automatic way to back up, restore, clone, and provision an Oracle Database that is stored on Oracle ZFS Storage ZS3-BA

	Key Requirement	Maximum Storage Capacity	Space (Rack Units)	Clustered
Oracle ZFS Storage ZS3-BA	Capacity configuration for streaming backups and additional processing on snapshots and clones	Up to 3.4 PB	3U/controller, 4U/high capacity disk enclosure 2U/ high-performance disk enclosure	Y

The Upgrade Advantage Program (UAP) is a trade-in program that offers up-front trade-in discounts on new Oracle systems for the trade-in of older Oracle/Sun and Competitors' eligible systems. Oracle also provides free return shipping and free state-of-the-art recycling of the old system including the disposal of hazardous waste.

For more information about UAP go to:

http://www.oracle.com/us/products/servers-storage/upgrade-advantage-program/index.html

Contact Us

For more information about Oracle ZFS Storage ZS3-BA, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.

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