Tibero Database on IBM Hyperconverged Systems powered by Nutanix

Tibero from TmaxSoft is a high-performance, highly secure, highly scalable relational database management system (RDBMS) for enterprises that want to fully leverage their mission-critical data. In a world where data is at the core of everything, Tibero provides an enhanced view of processing, managing and securing large-scale databases. Highly compatible with Oracle, Tibero lets you leverage your on-premise software defined data center (SDDC) investment by embracing a simple licensing model similar to software as a service (SaaS) subscription pricing.

Tibero is ideal for bridging the gap between legacy relational databases and running workloads in the virtualized data center and the cloud.

Furthermore, for Oracle Database Standard Edition or Enterprise Edition users, Tibero is a drop-in Oracle-compatible database that is certified for, and fully exploits the architecture of, the POWER platform. When running on IBM Hyperconverged Systems powered by Nutanix, customers receive massive cost savings and enormous performance advantages over Oracle and legacy storage area network-based deployments.

Database and Application Compatibility

Tibero has been designed from first principles to be drop-in, Oracle compatible. Oracle SQL executes in a consistent way across both platforms and applications that rely on embedded PL/SQL code also execute as they would under Oracle—without need for modification. This focus on compatibility extends to the way Tibero tools are designed so that they are instantly familiar to Oracle users. The way clustering, failover architectures, backup and restore operations, performance tuning, and even the location of the physical files on disk, are also consistent with Oracle. TmaxSoft expects an Oracle DBA to feel completely at home with Tibero after only three hours of training.

IBM AIX and Linux on IBM Hyperconverged Systems powered by Nutanix are an ideal platform on which to run the Tibero database. Furthermore, the long-standing IBM AIX and Linux focus on binary compatibility allows applications on Tibero to run unchanged and without recompilation on the newest releases—guaranteed.
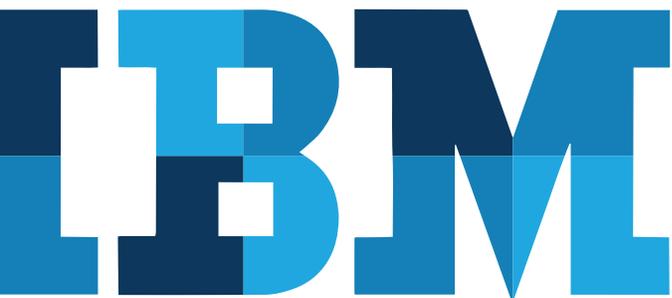
Focus on the Database, Not the Infrastructure

Nutanix Enterprise Cloud software enables simple management, nimbleness and cost efficiency for AIX and Linux environments, allowing IT experts to spend more time optimizing performance and extracting insight from applications and data. It does this through the following:

- Cloud-oriented design. Brings the latest innovations from web companies to the on-premises data center, enabling endless, predictable scale-out resources and built-in self-healing.
- Building block approach. Start small and grow linearly by adding nodes one at a time. Allows IT to only buy what's needed, which shrinks the data center footprint for OpEx and CapEx savings.
- Simple management. Installation, deployment, backup and ongoing management are done with just a few clicks. This speeds up database deployment, administration and capacity expansion.

IBM AIX and Linux run on IBM Hyperconverged Systems powered by Nutanix software. Leveraging the IBM® OpenPower™ LC Systems platform and the POWER® microprocessor, the IBM Hyperconverged Systems are designed for data-intensive workloads, providing more threads per core and an addressable cache size beyond what is found on commodity processor-based systems. These benefits translate into superior performance for Tibero databases running on AIX and Linux.

Web-Scale Infrastructure for Tibero

Whether upgrading existing infrastructure or deploying new environments, IBM Hyperconverged Systems powered by the Nutanix Enterprise Cloud are an ideal solution for Tibero deployments.

- Consolidate Tibero databases and VMs on to a single software-defined platform built on IBM hyperconverged infrastructure with excellent performance typical of deployments with local storage;
- Provide the same performance and management benefits hyperconverged infrastructure delivers for virtualized Tibero deployments to Tibero running on bare metal servers through Acropolis Block Services (ABS);
- Remove the complexity and reduce the costs of traditional storage, without giving up the availability, scalability, and manageability of shared architectures;
- Eliminate planned downtime and protect against unplanned issues for continuous availability; and
- Keep pace with rapidly growing business needs, scaling on demand a node at a time without the upfront investments or disruptive fork-lift upgrades.

Tier 1 Workloads
(running on all nodes)

Nutanix Controller VM
(one per node)

Node 1	Node 2	Node N
VM VM VM CVM	VM VM VM CVM	VM VM VM CVM
Hypervisor	Hypervisor	Hypervisor
POWER	POWER	POWER

Single Storage Fabric

Natively Supports

✓ Snapshots ✓ Compression
✓ Clones ✓ Deduplication

Flash
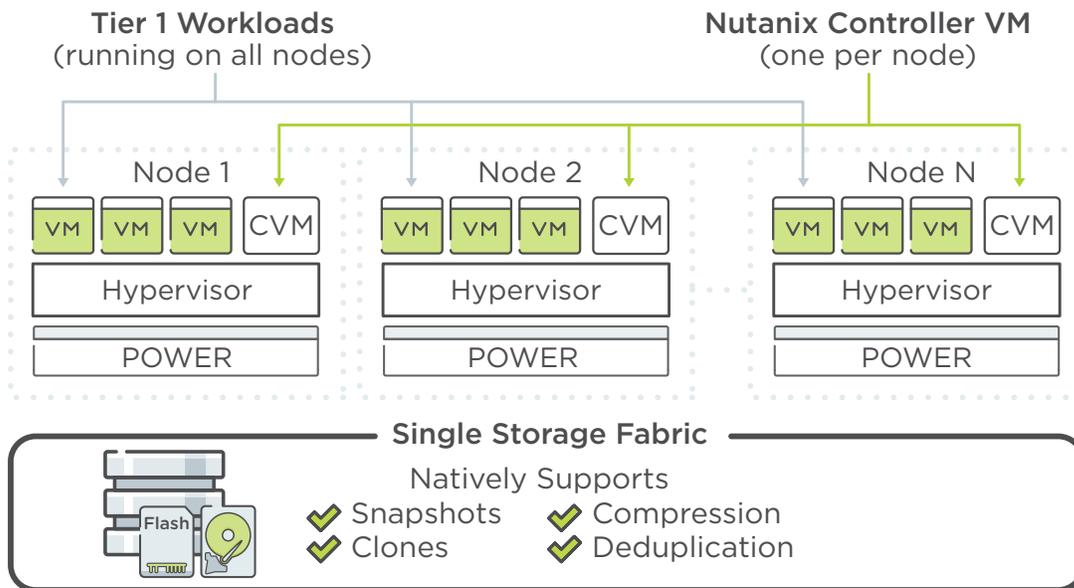
Highly Distributed Nutanix Architecture

Simplicity, Performance, and Agility

Database performance has long been the primary criterion for selecting server and storage infrastructure. Multicore processors and large system memory capacity have now moved the performance conversation away from compute to the storage system. Storage solutions supporting virtualized Tibero VMs need to handle a dynamic mix of transactional (OLTP) and analytical (OLAP) databases. This requires efficiently delivering both random and sequential read/write performance for all databases across sizable amounts of active data.

IBM Hyperconverged Systems powered by Nutanix Enterprise Cloud software bring the benefits and economics of web-scale architectures long used by companies such as Google, Facebook, and Amazon to the enterprise, through Nutanix Enterprise Cloud software. This 100% software-defined approach works with the Nutanix AHV hypervisor (included at no additional charge). Nutanix Enterprise Cloud takes less than 4 hours to deploy and delivers low-latency performance for virtualized Tibero database and application workloads. The Nutanix Enterprise Cloud software leverages storage controller VMs that run on each IBM Hyperconverged System node to form a single shared storage pool accessible by all VMs in the cluster. There is no need to deal with the complexity of managing separate storage systems with the burdensome tasks of zoning, provisioning, networking setup, and managing placement of VMs.

For high performance, Nutanix Enterprise Cloud serves active data associated with local Tibero VMs from local all-flash storage. It also enables local VMs on a Nutanix node to access storage across the platform. This strategy eliminates overprovisioning by delivering the right combination of high random read/write I/O and excellent sequential throughput for critical transactional and analytical workloads. Additional capacity optimization is done via features such as thin provisioning, deduplication, and inline compression. Growing an environment with the patented Nutanix architecture is as simple as non-disruptively adding additional nodes to the existing system. This process takes just minutes and results in linear scaling of performance and capacity.

Enhancing Availability

To ensure IT organizations are delivering on their promise of protecting data and keeping critical Tibero databases and applications available, they need advanced capabilities embedded in their infrastructure that complement existing Tibero features. The infrastructure should be able to take frequent snapshots of the database including data, control, and log files, and replicate them to secondary systems for disaster recovery, without requiring DBAs to constantly monitor and manage the process.

Because the IBM Hyperconverged Systems powered by Nutanix Enterprise Cloud software are built for virtualization, all management is done at the VM and virtual disk level. For backup and archiving, months and years worth of space-efficient snapshots can be stored locally, on a secondary cluster, or in the cloud. Policies can be set to efficiently replicate VMs over the WAN to another system to protect against catastrophic disasters.

Key Features

Nutanix Enterprise Cloud delivers a turnkey solution for Tibero databases and applications. Run Tibero alongside other virtualized applications and benefit from:

- **Higher performance and scalability**. Start small and scale databases and infrastructure as needs grow, enabling rapid database provisioning and database as a service, without the concessions of traditional infrastructure.
- **Improved availability**. Keep key applications protected and running with frequent, easy to restore, backups; one-click, non-disruptive upgrades; affordable, simple disaster recovery; and VM-centric operations.
- **Faster deployment and reduced operational complexity**. Get up and running in just hours and reduce overhead using simple, yet powerful management and APIs, unprecedented performance and operational insight, and advanced application automation and orchestration.

NUTANIX.   IBM

Tibero Deployment and Expansion Made Easy

Deployment and scaling of new database instances on dedicated hardware is cumbersome and time consuming, often requiring extensive hardware and software installation and configuration. IBM Hyperconverged Systems powered by the Nutanix Enterprise Cloud software take the pain out of the scaling process, making your operations much more agile. With a template created in advance, all you have to do is clone the template and roll it out in a new VM. Time to provision drops from hours to minutes.

For More Information:

IBM Hyperconverged Systems powered by Nutanix:
https://www.ibm.com/us-en/marketplace/ hyperconverged-systems/details

TmaxSoft Tibero Database: http://tmaxsoft.com/products/tibero/

Nutanix makes infrastructure invisible, elevating IT to focus on the applications and services that power their business. The Nutanix enterprise cloud platform leverages web-scale engineering and consumer-grade design to natively converge compute, virtualization and storage into a resilient, software defined solution with rich machine intelligence. The result is predictable performance, cloud-like infrastructure consumption, robust security, and seamless application mobility for a broad range of enterprise applications. Learn more at www. nutanix.com or follow us on Twitter @nutanix.