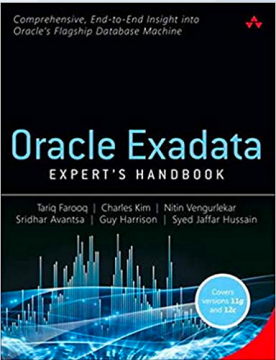


# VISCOSITY EXADATA SERVICES

## DATABASE MIGRATIONS, PERFORMANCE TUNING, IMAGING & PATCHING

Exadata Is the Platform of Choice for Vectorization,  
Database Consolidation and High Performance Workloads.



As fast-growing businesses strive for the highest performance, scalability, availability, and security of their applications and Oracle database workloads — Oracle Exadata provides a system scale-out design with optimizations to drive extreme database performance to support consolidation, modernization, and prioritization of business and analytical applications.

Viscosity offers comprehensive and mission-critical support for Oracle Exadata stacks using industry-standard best practices with services spanning installation, configuration, and patching to advanced monitoring. These services are comprised of proactive guidance and preventive maintenance, which includes an end-to-end Exadata upgrade and patching at a fixed (no hassle) rate for customers who need their Exadata stacks patched to the latest and greatest patch level regularly. Our main goal is to ensure maximum availability, reduce risk, and optimize the performance of Exadata for our customers.

### OUR SERVICES



**Exadata Design & Configuration Services**



**Exadata Upgrading & Patching Services**



**Exadata Performance Tuning Services**



**Exadata Remote Support Services**

### THE CHALLENGE

How to map an Exadata solution to business application usage

How to reduce complexity and extensive effort to maintain Patch Levels on Exadata Stacks

How to identify application components to leverage Exadata extreme performance features

How to provide 24x7 support with High Availability of Exadata to the business

### OUR SOLUTION

A Comprehensive Design and Configuration Plan for each Exadata Deployment

A Full-Stack Patching Plan  
- Can be customized for each Exadata  
- Offer training to our customers

A Comprehensive Application and Database Performance Optimization Plan

A cost-effective managed service with 24x7 support for High Availability of Exadata to the business

## How Viscosity Can Help

Viscosity realizes that you have made, or are about to make, a significant investment in Exadata technology, so we're focused on providing complete enterprise-ready solutions and confidence with Viscosity's unrivaled Exadata experts and complete proactive support toward your Exadata investment. Viscosity's Exadata experts are certified and have extensive experience working on large and complex projects, with a laser focus on on-time deliverables, within budget requirements, and consistently achieving customer business objectives.



 VISCOSITY NORTH AMERICA



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# EXADATA DESIGN & CONFIGURATION SERVICES

## How To Map an Exadata Solution to Business?

Design and configuration of Exadata stacks require planning to ensure meeting of business goals and utilization of computing resources efficiently across enterprises. Without comprehensive design and configuration of Exadata resources, business application performance could be impacted significantly, such as exposure to systems over deployment and an unmanageable budget.

## Viscosity's Solution: A Comprehensive Design & Configuration Plan for Each Exadata Deployment

Viscosity will map each business application and database consumption use case to the Oracle Exadata configuration

- Identify IOPS and IO Bandwidth for database usage
- Identify Memory and CPU for database usage
- Identify Network bandwidth for application and backup

Viscosity will cover the key business application requirements for the following:

- HA, DR, Storage, and Backup
- Security and Access Control
- Computing Resource Management
- Application Performance Mapping to Database
- Migration planning to Exadata
- Identify pre-production readiness execution plan
- Identify business application requirements for migration
- Oracle Database software and Operating Systems compatibility
- Identify Zero or Minimum Down Time for migration
- Oracle Database License review and assessment

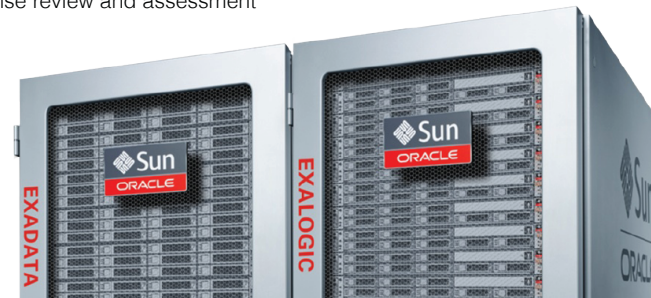
# EXADATA UPGRADING & PATCHING SERVICES

## How To Reduce Complexity & Extensive Effort To Maintain Patch Levels on Exadata Stacks?

Patching and maintaining the Exadata stack can be a complex endeavor, usually requiring extensive research on available patches and careful selection of appropriate patches to ensure compatibility between databases currently deployed on Exadata and applications that rely on those databases.

## Viscosity's Solution: A Full-Stack Patching Plan

- Viscosity provides patching of Oracle Exadata through our tried-and-true methodology based on extensive experience with global deployments and acknowledged industry best practices.
- Due to the complexity of Exadata deployment, each patching project is customized with our extensive research and careful review of the Exadata environment.
- We **share** our detailed plans with your support teams for effective communication and cutover planning
- We offer technical training services to ensure maximum return on your Exadata investment.
- Viscosity will provide patching and upgrades of software and firmware for all components that comprise your Exadata systems, including Oracle Databases, Oracle Grid Infrastructure, and Linux OS.
  - Exadata Compute Servers (ILOM and Linux)
  - Exadata Storage Servers (ILOM and CellOS)
  - InfiniBand/RoCE Switches and Cisco Switch, PDUs



# EXADATA PERFORMANCE TUNING SERVICES

## How To Identify Application Components To Leverage Exadata Extreme Performance Features?

Due to the newly optimized features of Oracle Database for Exadata, many existing applications may not leverage all the Exadata extreme performance features. These new features are only available on Exadata with the latest Oracle Database version, so many customers will be required to upgrade their application's database. Consequently, the customer will face many challenges, including performance, when upgrading to the latest database due to the new Oracle Database Optimizer and old DB execution plans.

### Viscosity's Solution: a Full-Stack Patching Plan Customized for Each Exadata

- Due to extensive experience working on large, complex projects and understanding how to achieve performance on the Exadata stack, Viscosity leverages the Exadata new features, the "secret sauce," and the traditional performance tuning methodologies to achieve extreme performance on the Exadata. Viscosity will partner with your DBA/DMA team to provide Exadata consolidation, expansion support, and performance optimization.
- Viscosity will work closely with the Exadata DBA and development teams to effectively tune the long-running and resource-consuming queries.
- From the SQL tuning perspective, Viscosity will:
  - ✓ Leverage usage of Exadata optimization features:
    - Smart Scan and Storage Indexes
    - Hybrid Columnar Compression
    - Smart Flash Cache and Persistent Memory
    - SQL Quarantine
    - IORM
  - ✓ Diagnose performance bottlenecks and collaborate to resolve issues on Exadata
  - ✓ Perform a comprehensive review of the backend application stack
  - ✓ Review AWR/ASH reports
  - ✓ Identify potential execution plans with performance deviations
  - ✓ Review/manage baselines, profiles, histograms, and skewed data
  - ✓ Review database statistics, missing statistics, and stale statistics
  - ✓ Assess sequences for potential areas of contention
  - ✓ Review schema, stored packages, procedures, and functions as needed
  - ✓ Review partitions for performance and scalability considerations
  - ✓ Review index usage patterns, unused indexes, auto index, global and local index usage
  - ✓ Check invalid objects, usage of materialized views, and query rewrite





# EXADATA REMOTE MONITORING SUPPORT SERVICES

## How to 24x7 Support With High Availability of Exadata to the Business?

Identifying the unique needs for the application and database support on Exadata can be daunting. With each application-specific need and key business demands, complete end-to-end monitoring and support of Exadata Systems from storage, network, and OS to the database will be required for every deployment of Exadata. Many specialized technical resources, from network and system to database experts, must be engaged to ensure the stability of Exadata and maintain business continuity. Also, businesses face many challenges in retaining and acquiring Exadata Resources.

## Viscosity's Solution: Cost-Effective 24x7 Remote Monitoring & Management Support for Exadata to the Business

- Viscosity offers advanced remote management and proactive monitoring solutions for the complete Exadata stack.
  - ✓ Exadata Storage Server, Compute Server, RoCE/InfiniBand Network, Cisco Switch, ILOM, and PDU
  - ✓ Oracle RAC, ASM, Database
- Viscosity will provide remote support services on a 24-hour, 7 days per week, 365 days a year schedule.
- Viscosity can set up and configure alerts, notifications, and events and install custom scripts for monitoring and management activities.
  - ✓ Base monitoring of the Exadata environments will be achieved using Oracle Enterprise Manager
  - ✓ Enhanced monitoring will happen through Viscosity's proven set of custom scripts and other tools
  - ✓ Integration with customer's existing monitoring processes

Leverage our complete Exadata Professional and Managed Services to augment or complement your staff DBAs, system administrators, storage administrators, and network specialists. Partnering with Viscosity guarantees your Exadata environments are administered and maintained based on recognized, stringent industry standards for enterprise and database security and application performance. Since our Exadata experts are fully certified and have significant Exadata and DBA expertise, your existing staff can limit, reduce, and even eliminate often-tedious workloads. This is especially beneficial when reliable after-hours database support is required to support 24x7 business operations.

So, whether you're consolidating onto Oracle Exadata, Oracle Database Appliance (ODA), or any Oracle Engineered System, you're partnering with genuine experts and acclaimed authors of industry best practices.

