

Maximize Application Performance

Create faster applications with less work by utilizing Sun™ Grid Engine software and Rogue Wave Hydra

Increasing dependence on technology within business enterprises, academic institutions, and research organizations continues to drive requirements for IT solutions that support greater transaction volumes and faster throughput. High volume transaction loads can quickly reach bottlenecks within traditional single-threaded application architectures, causing organizations to fail to meet required service levels. In order to reach top performance, many organizations are shifting toward application architectures that leverage parallelism and the full capabilities of multithreaded processors and grid processing environments.

Most importantly, a service grid runtime provided by Rogue Wave Hydra employs concurrency without the need to explicitly program multithreading in the application. Rogue Wave Hydra allows developers to break applications into core services that are reassembled at runtime, vastly lowering the effort to achieve service-level parallelism.

Optimize the service grid

Running pieces of an application on different systems simultaneously can improve overall throughput. However, effectively processing Rogue Wave Hydra jobs along with other types of workloads submitted to a

Combining Sun Grid Engine software and Rogue Wave Hydra offers organizations a simplified, cost-effective route to creation of a high-performance application architecture.

Highlights

- Transform existing single-threaded software into high-performance distributed applications without completely rewriting code
- Optimize the use of compute resources through intelligent, policy-based workload management
- Maximize the efficiency of application execution by keeping runtime environments resident within the compute grid
- Improve developer productivity with an IDE that offers automatic code completion, syntax checking, and advanced design and testing tools
- Create a grid environment that can maximize application performance and throughput while helping minimize operational expense

Create high-performance applications

Reconstructing an application to better leverage the power of parallel processing can lead to dramatic performance gains. However, the cost and effort of modernizing existing applications or creating new code can be a barrier to moving forward. Rogue Wave Hydra is an integrated development environment (IDE) and deployment framework for C++ and Java™ platform services that can dramatically simplify the transition. The Rogue Wave Hydra IDE is built on the open source Eclipse project which can improve developer productivity through C++ and Java code generation, a visual Web Services Description Language (WSDL) design tool, and automated deployment to runtime.

compute grid requires intelligent distributed resource management. To help this effort, organizations can take advantage of the Sun™ Grid Engine software, a resource and job management tool that provides policy-based workload management. Sun Grid Engine software aggregates compute resources and dynamically distributes jobs — identifying adequate compute resources on the network and sending tasks out to suitable servers. This process helps organizations increase resource utilization and eliminates the need to dedicate any portion of the service grid to a particular application set. By creating a shared service grid environment, organizations can optimize the use of IT assets and maximize ROI.

Simplify the transition to a faster application architecture

While many applications can improve performance by taking better advantage of the benefits of multicore processors and grid environments, organizations often lack the resources to commit to the conversion task. Rogue Wave Hydra simplifies efforts by supporting the execution of multiple instances of a service across threads, processes, or servers without the need to change business logic. The Eclipse-based IDE included within Rogue Wave Hydra reduces the time required to configure and manage multiple runtime instances, and provides a convenient way to view the status of Rogue Wave Hydra runtimes. To support added reliability within this processing model, Rogue Wave Hydra offers several high availability options and can be customized to support additional variants. Persistence and restoration of messages is supported, as is message replay.

Speed application execution

In a typical grid, a job dispatches to a server, executes, and fully exits. The integration of Rogue Wave Hydra and Sun Grid Engine software offers the opportunity to improve upon this traditional approach. Rather than running a job and exiting, Rogue Wave Hydra applications can execute within a Sun Grid Engine environment as a long-running server. As a result, the engine can place new work on a server without the need to replace the runtime environment. This model can save time, leading to significantly better application performance. Furthermore, many grid calculations perform in recurring loops — taking the result and putting it back into the same job. Using a long-running Rogue Wave Hydra server helps improve performance by avoiding the need to shut down and restart the executable repeatedly.

Optimize application performance

In a grid environment, matching the right compute resources to each job is critical to maximizing application performance. Utilizing an asset with inadequate compute power can introduce processing bottlenecks. Alternatively, over-allocating resources wastes valuable compute cycles and prevents other more intensive workloads from getting started. Sun Grid Engine software can help best manage the workloads created by Rogue Wave Hydra, optimizing the use of resources and helping make the most of every available compute cycle.

Specific features of Rogue Wave Hydra also help optimize application performance. For example, Rogue Wave Hydra provides parallel message processing with the ability to guarantee order of execution, and supports high-performance service interaction by allowing services written in C++ and Java code to directly invoke each other in memory. In addition, Rogue Wave Hydra delivers high-performance XML parsing through low memory usage and optimization for very large XML documents. Through the intelligence of Sun Grid Engine software and the high-performance features of Rogue Wave Hydra, organizations can speed application processing and get more work done faster.

Gain valuable flexibility

The flexibility offered by Sun Grid Engine software and Rogue Wave Hydra helps organizations to more easily meet specific business needs. The following list provides a few examples.

- Rogue Wave Hydra offers out-of-the-box support for popular message transports, and can be easily customized to support additional protocols.

- The Eclipse-based IDE supports creation of both C++ and Java projects.
- Rogue Wave Hydra utilizes both the Service Data Object (SDO) specification and the enterprise-class database support of SourcePro DB to provide a datasource-independent database representation.
- Sun Grid Engine software gives administrators the flexibility to accurately model their computing environments as resources, and to translate business rules into policies that govern the use of those resources.

Reduce operational costs

In today's challenged economy, every organization seeks to reduce costs through smarter use of resources. Sun Grid Engine software helps organizations more easily allocate compute resources evenly across a compute cluster, assuring availability of the disk space, processing power, and memory needed for optimal performance and successful job completion. Running applications created with Rogue Wave Hydra on a Sun Grid Engine cluster that utilizes high-performance, energy-efficient Sun systems, such as Sun servers with chip multithreading technology and other innovations, can result in better throughput, higher compute capacity utilization, and reduced energy and operating costs.

Sun and Rogue Wave

Rogue Wave Software offers development tools that simplify and accelerate the creation and enhancement of high-performance applications. Sun provides enterprises with flexible, scalable, and reliable platforms and software for building effective infrastructure solutions. Together, Sun and Rogue Wave Software can help organizations simplify and speed the creation of valuable IT solutions that deliver top performance.

