IBM Spectrum LSF

Complete workload management for demanding, mission-critical computing environments

Highlights

- Speed time to solution with superior repeatable performance
- Manage large numbers of jobs with a reliable and scalable architecture
- Improve productivity with intuitive interfaces for admins and users

The IBM® Spectrum LSF family is a complete portfolio of workload management solutions for demanding high-performance computing (HPC) environments. Featuring a comprehensive set of intelligent scheduling capabilities, it helps to make sure the right resources are automatically allocated to the right jobs for maximum application performance and efficiency. With powerful management features and unparalleled scalability, IBM Spectrum LSF lets you take advantage of heterogeneous resources, helping ensure that resource allocation is always aligned to business priorities while reducing costs and accelerating time to results.

Ease administration burdens

IBM Spectrum LSF enables multiple users and applications to share a cluster of computing resources, which optimizes performance and cost efficiency, and simplifies management. Advanced dashboards provide comprehensive monitoring, tracking and reporting, allowing administrators to easily pinpoint failures and inefficiencies in the computing environment.

Increase responsiveness and performance

IBM Spectrum LSF delivers superior repeatable performance at large scale for more predictable run times and faster time to results. Regardless of where the work is submitted from, the workload manager schedules and dispatches it to the most eligible compute node or cluster. Reductions in job dispatch, scheduling and communication overhead reduce the time required for a job to be executed. Increased scalability and efficiency allows IBM Spectrum LSF to support larger numbers of jobs and larger array operations.

Optimize utilization with smart scheduling

IBM Spectrum LSF provides flexible, policy-driven scheduling capabilities, helping ensure that resources are allocated to users, groups and jobs in a fashion consistent with your service-level agreements (SLAs). Utilization-driven dispatch automatically determines the minimum run time needed to meet a targeted utilization rate across the cluster. If a job finishes before the minimum run time, IBM Spectrum LSF can immediately dispatch another job without having to wait on a scheduling cycle. The result: more work is done with fewer resources and lower administration costs.

The user experience features simplified "job-pending" notices that clearly show users the single main reason why their job is not yet running. IBM Spectrum LSF can identify which pending jobs are actually eligible for scheduling and provide a job start-time prediction. Users can also drill down in the reason message for a more detailed explanation.

Simplifying HPC

IBM Spectrum LSF drives user productivity with easy-to-use interfaces. By hiding complexity and simplifying the management of jobs and workflows, users can focus on outcomes rather than how to interact with the system. Mobile clients for Android and iOS provide job monitoring and notifications on the go, and a tightly integrated desktop client for Microsoft Windows provides a seamless user experience.

An environment that grows as you grow

IBM Spectrum LSF supports organizations on their journey from small clusters to large, distributed computing environments, on-premises and in the cloud.

IBM Spectrum LSF Suite for Workgroups and IBM Spectrum LSF Suite for HPC deliver complete HPC management solutions for organizations running compute environments for science and engineering. Both feature the following capabilities:

- Cluster management and deployment
- Powerful yet simple workload management
- Web-enabled job management
- Support for Linux on IBM POWER8® Little Endian and x86

IBM Spectrum LSF Community Edition is a no-charge, fully-integrated solution for HPC featuring cluster provisioning and management, workload scheduling, an application-centric portal and an MPI library. Get more details here.

Optional add-ons extend IBM Spectrum LSF to provide a complete set of workload management capabilities—all designed to work together to address your HPC needs (Figure 1).

- **IBM Spectrum LSF Analytics:** An advanced tool for visualizing and analyzing massive amounts of workload data for improved decision-making.
- **IBM Spectrum LSF Application Center:** A rich environment for building easy-to-use application-centric web interfaces, simplifying job submission, management and remote visualization. Use the web-based interface to remotely monitor jobs, access job-related data and perform basic operations.

- **IBM Spectrum LSF Data Manager:** An intelligent data manager for automating data transfer within and between IBM Spectrum LSF clusters and to and from the cloud.
- **IBM Spectrum LSF Explorer:** A powerful, lightweight reporting solution for IBM Spectrum LSF clusters.
- **IBM Spectrum LSF License Scheduler:** A license management tool that enables policy-driven allocation and tracking of commercial software licenses. Monitor license usage in real time to help improve productivity and increase overall access to license resources.
- **IBM Spectrum LSF Process Manager:** A powerful interface for designing complex engineering computational processes and capturing repeatable best practices that can be leveraged by other users. Integrate with IBM Spectrum LSF Application Center to create a consistent web-based environment.
- **IBM Spectrum LSF RTM:** A flexible, real-time dashboard for monitoring global workloads and resources. Gain timely insights into the current status of your HPC environment to help improve decision-making, reduce costs and improve service levels.
- **IBM Spectrum LSF Session Scheduler:** A high-throughput, low-latency scheduling solution for IBM Spectrum LSF environments. Schedule high-throughput, low-latency workloads for faster and more predictable job delivery times.

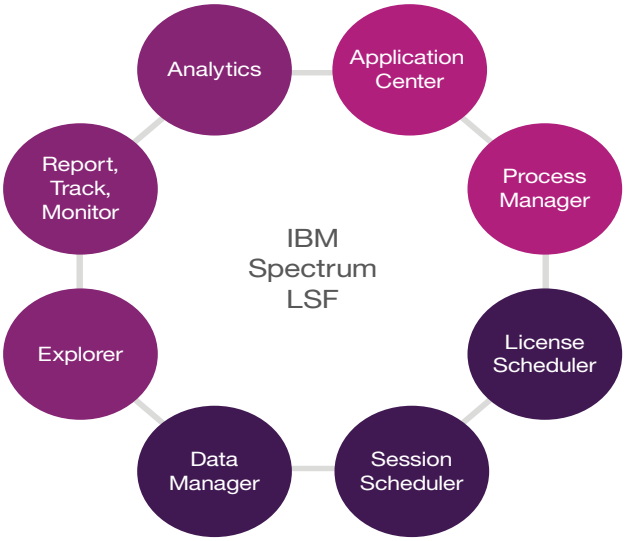

Figure 1. IBM Spectrum LSF family provides a complete set of workload management capabilities.

Why IBM?

IBM Spectrum Computing offers a comprehensive portfolio of software defined infrastructure solutions designed to help your organization deliver IT services in the most efficient way possible, optimizing resource utilization to speed time to results and reduce costs. These offerings help maximize the potential of your infrastructure to accelerate your analytics, HPC, Hadoop, Apache Spark and cloud-native applications at any scale, extract insight from your data and get higher-quality products to market faster.

Whether deployed on-premises or in the cloud, IBM Spectrum Computing solutions are widely viewed as the systems software of choice for technical and HPC applications, including computationally and data-intensive design, manufacturing, financial analytics, business and research applications. The core value of the portfolio is simplifying and accelerating high-performance simulations and analysis to help you uncover insights into your business, products and science.

For more information

To learn more about the IBM Spectrum LSF product family, contact your IBM representative or IBM Business Partner, or visit: **ibm.com**/us-en/marketplace/hpc-workload-management

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