IBM Spectrum LSF

What if…? Using the LSF Simulator to answer hard questions

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Additional Seminars

Details, Registration and Replays on www.ibm.biz/LSFCommunitySeminars

August 19, 2021
IBM Spectrum LSF: New Features and Futures
Speaker: Bill McMillan, Principal Product Manager

September 2, 2021
What's New in LSF Service Pack 12
Speaker: LSF Support Team

September 16, 2021
Best Practices for Upgrading your LSF Clusters
Speaker: Larry Adams, Expert Labs

September 30, 2021
What if....? Using the LSF Simulator to answer those hard questions
Speakers: John Welch & Renita Leung, LSF SME

October 14, 2021
Simplifying HPC – Just push the button! Tips & Tricks
Speaker: Gabor Samu, Product Management

October 25-28, 2021
IBM TechU: https://www.ibm.com/training/events

- Deploying LSF with OCP: Tips and Tricks
- HPC Cloud Bursting on IBM Cloud: Tips and Tricks

November 11, 2021
Expediting PMR's with the LSF Support Tools
Speaker: LSF Support Team

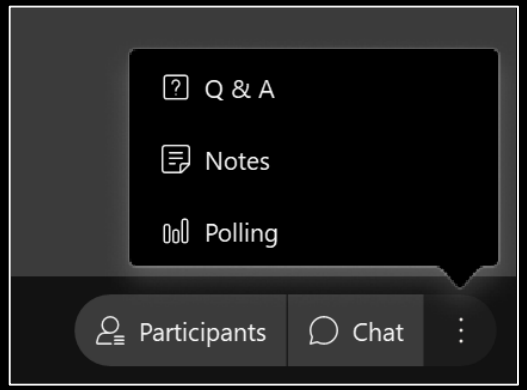
November 29, 2021
High Performance Computing - Health Check Services from Lab Services

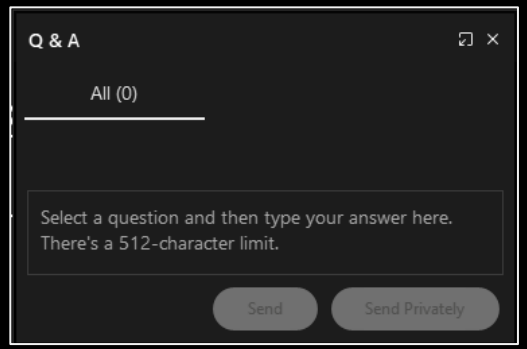
Agenda

LSF Simulator Overview

Live Demonstration

Summary





Q&A: You can ask questions at any time in the Q&A panel

LSF Simulator

Maximize your on and off-premise infrastructure investments through cognitive analysis and intelligent capacity planning.

LSF Predictor

Improve cluster utilization and boost efficiencies using AI for accurate resource predictions.

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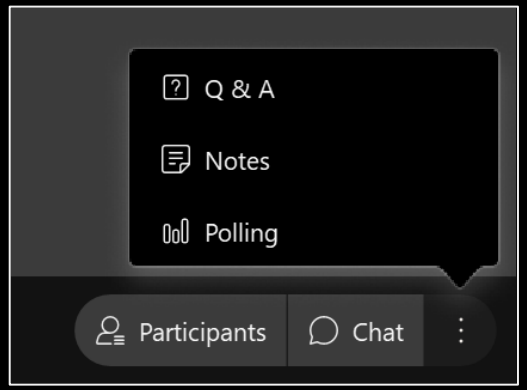

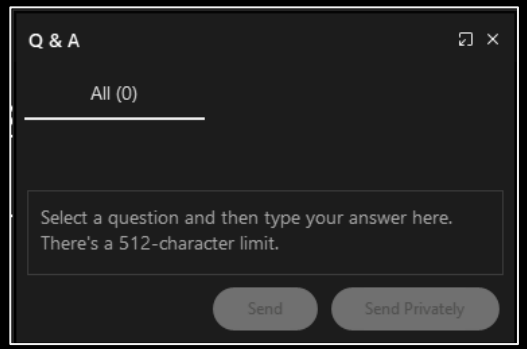

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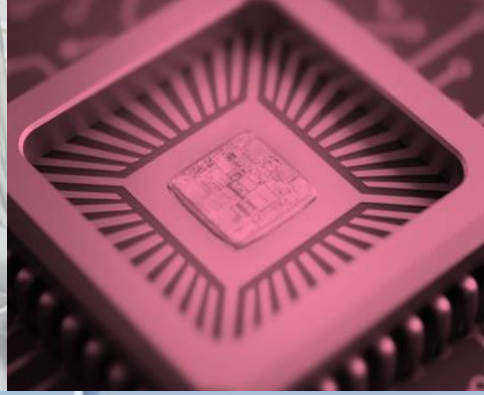
IBM Spectrum LSF Family

25+ years of sustained agility supporting **complex** HPC environments in multiple industries

2,000+ client driven enhancements since 1992

Reduces operational costs and increase productivity at massive scale

- 100s of projects with demanding deadlines
- 100s of commercial and home-grown applications
- 1000s of users and hosts



What do you change to increase the performance of your LSF cluster?

Add hardware or more licenses?

Workload policies?

Project priorities?

Something else?

New urgent project: What do you need?

More servers?

More memory?

More licenses?

Burst to the Cloud?

Change is hard

We've always done it this way.

We don't know what to change.

The business thinks they will be negatively impacted by any change.

Too much risk to change.

Introducing the IBM Spectrum LSF Simulator

The Simulator enables administrators to model changes to LSF scheduling behaviour:

What if I changed the policy?

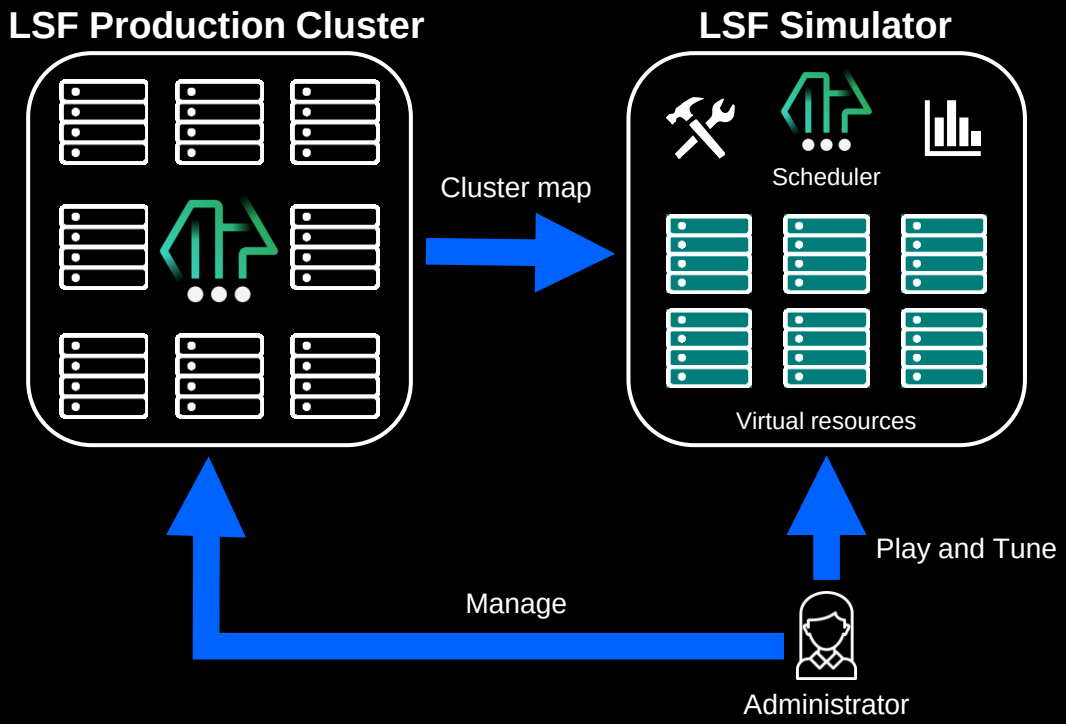
What if I changed the hardware?

What if I added a new project?

The Simulator leverages time compression to deliver results faster than real time.

Concept of LSF Simulator

LSF Simulator allows LSF administrators to simulate a production cluster in a separate environment with modified LSF configuration and workload trace, so that administrator can find the best scheduling policy and do resource planning without interrupting the production environment.



Implementation

- Functions as close to the real scheduler as possible
- Runs on a single host in a Docker container

Supports

- Existing LSF configurations
- Most LSF scheduling features
- Most LSF commands

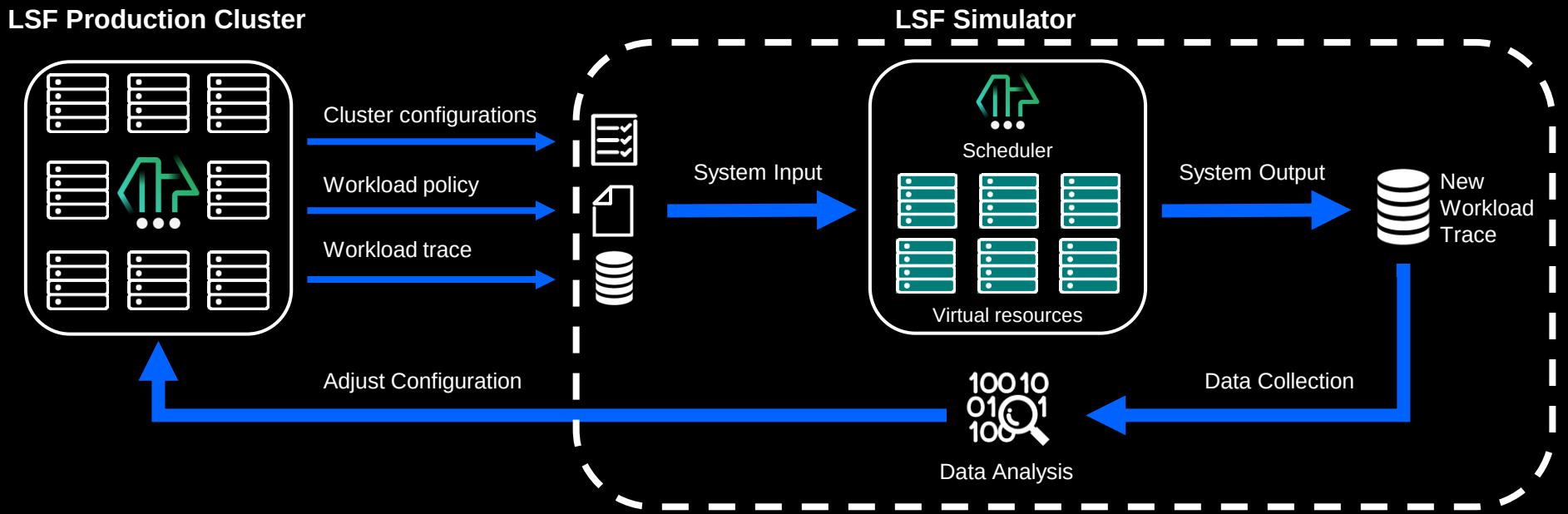
LSF Simulator Terminology and Workflow

Experiment – Simulation run

LSF Configuration – Full set of LSF cluster configuration and workload policies

Workload Trace – Set of workload submission and completion records

LSF Simulator's web GUI allows administrator to run experiments easily on top of modified set of configuration and workload. It also provides flexible charting to compare the results of these experiments.



LSF Simulator Demonstration

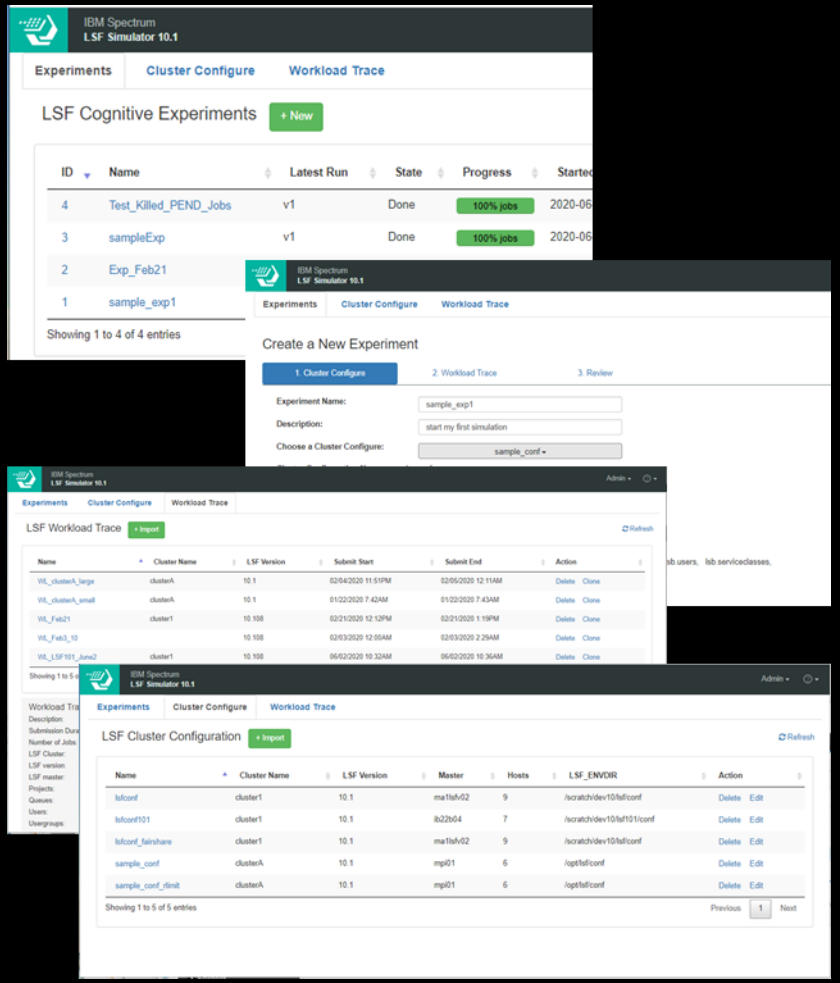
Import cluster configurations & workload

Modify a configuration

Modify the workload

Run simulations before and after changes

Compare results



IBM Spectrum LSF Simulator

Intelligent planning and operational peace of mind

Reduce Operational Risks

Test out LSF cluster configuration changes without impacting production environment

Save Infrastructure Costs

Analyze impact of increased infrastructure before making the investment

Fine-tune new infrastructure configuration by analyzing impact of different systems (type, mem, cloud) and volume of commercial licenses prior to acquisition

Improve Cluster Performance

Confidently benefit from new LSF functionality with simulated adoption

Find areas for configuration optimization by understanding interactions between workload and policies

IBM Spectrum LSF Simulator

De-risk changes with self-contained LSF modeling – model changes to policies, configuration and workload to evaluate the impact before making the change in the production cluster

Real results, not approximation – real scheduler running in simulation mode with time compression

User friendly and flexible – intuitive web-interface and optional scriptable plugin for complex modelling

Comprehensive comparison tool – visualize results to gain valuable insights and easily understand impact from multiple scenarios with metrics and filters

First step in cognitive scheduling

Q&A


IBM