Slide 1 - Introduction:

"Hi Team Good morning and Good evening Everyone!

Today, I am here to talk about IBM Spectrum LSF RTM (Real Time Monitoring), It’s a tool designed to optimize and manage high-performance computing (HPC) and big data workloads. In this presentation, we will see the key features of LSF RTM and walk you through a live demonstration of the tool .

Slide 2 - IBM Spectrum LSF RTM Overview:

"IBM Spectrum LSF RTM provides real-time monitoring and analytics for HPC clusters. Its real-time insights help optimize resource utilization, identify performance bottlenecks, and proactively address issues. With customizable dashboards and alerting capabilities, administrators gain full control of their clusters."

 RTM uses Cacti as a rich graphical user interface framework to provide monitoring, reporting, and alerting functions specifically for the LSF environment.

About the diagram:

Here is the overview diagram of How RTM functions, We need to add RTM server as a client in each LSF master node and with that RTM Poller automatically pulls the data from each of the cluster and you can see the results on GUI designed using Cacti Framework.

Overview: slide 4

Unlike other monitoring tools that focus on just one facet of cluster monitoring, RTM provides a complete, integrated monitoring facility that is designed specifically for LSF environments. Multiple clusters can be monitored easily and effectively through a single intuitive interface.

Slide 5 - Key Features of IBM Spectrum LSF RTM:

"LSF RTM offers a range of features that empower users to efficiently manage their HPC environments:

Real-Time Monitoring: Live updates on resource usage, job status, and system health.

Customizable Dashboards: Personalized views with graphs and charts.

Job Monitoring: Detailed information on running and queued jobs.

Resource Utilization: Metrics on CPU, memory, and network usage.

Alerting and Notifications: Configurable alerts for critical events.

Historical Data Analysis: Access to historical graphs for trend analysis.

Cluster Overview: Health and performance summary of the entire cluster."

Demo:

I have here a fully functional IBM Spectrum LSF environment with LSF RTM properly installed and configured. Now, let's move on to the live demonstration."

"Here we are at the LSF RTM interface. As you can see, the main dashboard gives us with real-time graphs displaying key metrics such as CPU usage, memory utilization, and job status. The dashboard provides an instant snapshot of the cluster's health and performance. We can customize this dashboard and create others to cater to different users or specific monitoring needs. Let's explore that next."

The tab cluster is very important as I feel it should be used majorly by our team for either troubleshooting or if someone is looking for any information about a particular host or cluster. This gives the status of the LSF CLusters. From the menu pane you can select either cluster or Host depending on your requirement and the Cluster page is where I am currently on. This gives you an option to filter by the cluster or the kind of view you want to see the status. When I say status I mean the health status job status and all other different metrics that one may be interested in. Hovering over each icons here will give you a tooltip to say what each one of them are for and clicking on each will take you inside them and give you more details.

The Host tab gives the status of the host in a pictorial form with each color signifying different status. You can refer to the legend color for reference.

Creating Custom Dashboards:

[Show how to create a new dashboard or display a pre-made custom dashboard]

"To create a custom dashboard, we can simply click on the 'Create Dashboard' button and add or remove widgets to tailor it according to our requirements. For instance, we can add a line graph to monitor CPU usage for specific nodes, or a bar chart to track the number of queued jobs on different hosts. This flexibility allows us to focus on the metrics that matter most to our cluster management. Now, let's move on to job monitoring."

Cluster Overview and Resource Topology:

[Show the cluster overview and resource topology views]

"The cluster overview offers a comprehensive summary of the entire cluster's health and performance. It displays key metrics, such as the number of nodes, active jobs, and system health indicators. This quick snapshot allows us to assess the cluster's overall status at a glance. Additionally, the resource topology view provides a visual representation of the cluster's architecture and resource distribution. This helps us understand how resources are connected and distributed across nodes and racks. Lastly, let's explore the potential for integration with other IBM Spectrum products."

The Statistical tab gives you the host and cluster statistics. You have an option to filter here as well and also change the views as per your requirement.

Alerts:

Alerts are something I have tested very few and currently its not triggering any alerts but we can definately make use of this feature as well.

"With LSF RTM's alerting system, we can set up alerts for specific events or when certain thresholds are reached. For example, we can configure an alert to notify us via email when CPU usage exceeds a predefined limit or when a job encounters an error. This way, we can promptly respond to critical events and ensure smooth cluster operation. Now, let's explore the power of historical data analysis."

Job Info:

This page gives you the information about the jobs either at the level of the host , host group, queue, job array application or group. You can view the detailed information about specific jobs and pending reason history jobs as well.

The other tabs are also designed to give you different status and information and I would leave that to you to explore and hope this demonstration was helpful and you may ask questions now.