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## Highlights

- Simplify Apache Spark application management with a consolidated framework
  - Improve time to results through efficient resource scheduling and shared infrastructure
  - Cut costs and increase resource utilisation with granular, dynamic allocation
  - Integrate Spark with other application frameworks such as Hadoop, Cassandra and MongoDB
  - Eliminate resource silos tied to multiple instances and different versions of Spark and other applications
  - Enhance security with role-based access control.
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# IBM Spectrum Conductor with Spark

*Simplify Apache Spark deployments, speed time to results and maximise resource utilisation*

Apache Spark offers compelling performance advantages as an open-source, big-data analytics framework. However, implementing Spark poses significant challenges, including investment in new expertise, tools and workflows and integration with other frameworks. Setting up ad-hoc Spark clusters can lead to inefficient use of resources, as well as management and security challenges.

IBM® Spectrum Conductor with Spark is designed to address those issues, helping users overcome the challenges of Spark deployment and management. Unlike competitive open-source offerings that require piecemeal assembly of components, IBM Spectrum Conductor with Spark is an integrated solution that is backed by IBM services and support. It incorporates a Spark distribution and supports multi-tenancy for Spark and other frameworks, augmented by technologies for granular and dynamic resource allocation. These technologies have been widely and successfully implemented in many demanding customer environments to improve performance and efficiency.

IBM Spectrum Conductor with Spark allows organisations to deploy Spark applications efficiently and effectively. The enterprise-grade, multi-tenant management solution can support multiple instances of Spark, maximising resource utilisation, increasing performance and scale and eliminating silos of resources that would otherwise be tied to separate



Spark implementations. IBM Spectrum Conductor with Spark supports integration of Spark with other application frameworks such as Hadoop, Cassandra and MongoDB.

### **Accelerate time to results**

By supporting the simultaneous running of multiple instances of Spark and other frameworks on a single shared infrastructure, IBM Spectrum Conductor with Spark enables applications to take full advantage of available resources. A proven, efficient resource scheduler provides fine-grain resource allocation, helping to deliver superb application performance, improved utilisation and a faster response to business-critical demands. In environments running multiple application workloads, IBM Spectrum Conductor with Spark allocates resources so service levels are met while preserving security isolation between application instances.

IBM Spectrum Conductor with Spark offers up to 58 percent higher throughput for Spark jobs than competitive open-source resource managers. It also provides GPU support to take advantage of the full power of GPU floating and vector processing for compute-intensive tasks. In addition, cached or persisted RDDs can be shared across users to avoid reloading or recomputing previous results. All of these elements combine to provide the fastest possible time to results while minimising expenditure on computing infrastructure.

### **Increase resource utilisation**

IBM Spectrum Conductor with Spark helps organisations avoid cluster sprawl and inefficient use of resources. By running workloads on a single shared platform, the solution enables individual applications to use resources that would normally be dedicated to other application instances and might otherwise be idle. IBM Spectrum Conductor with Spark also supports multi-tenancy, which allows users to run multiple instances and

different versions of Spark simultaneously in a shared environment. This capability helps organisations manage fast-moving Spark lifecycles by allowing various groups to run different versions of Spark without the need for them to be upgraded in lockstep.

### **Reduce administration costs**

By providing advanced service orchestration and workload management, IBM Spectrum Conductor with Spark helps contain infrastructure and management costs. A sophisticated policy-based resource manager offers dynamic resource allocation, allowing organisations to optimise existing hardware usage and defer the need for incremental capital investment. A unified interface lets administrators manage multiple Spark frameworks, eliminating the need to collect and aggregate metrics from each framework individually.

### **Easily implement a complete solution**

Organisations are looking to move to solutions that optimise storage, analysis and protection of their information assets. IBM Spectrum Conductor with Spark is an integrated solution that includes a Spark distribution for data analytics, workload management, monitoring, reporting and enterprise-grade security. For storage management, IBM Spectrum Conductor with Spark can be combined with IBM Spectrum Scale, which provides significant storage efficiencies compared to the Hadoop Distributed File System (HDFS). IBM Spectrum Conductor with Spark also supports HDFS for users who prefer that option. The included Spark distribution makes the framework simple to deploy both for exploratory projects and in production environments.

### Deploy Spark with confidence

IBM Spectrum Conductor with Spark offers an efficient and highly effective solution for organisations that need to:

- Employ resource sharing among Spark instances to speed time to results and improve resource utilisation
  - Manage fast-moving Spark lifecycles
  - Provide fine-grain control of resource allocation for multiple Spark instances
  - Rationalise management of the Spark environment and integrate Spark with other frameworks
  - Take advantage of graphics processing unit (GPU) floating and vector processing power for compute-intensive tasks
  - Share cached/persisted resource definition data sets (RDDs) across users to avoid reloading or recomputing previous results.
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### Why IBM?

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

Whether deployed in a data centre (DC) or on the cloud, IBM Spectrum Computing solutions fuel product development, critical business decisions and breakthrough insights in financial services, manufacturing, digital media, oil and gas, life sciences, government, research and education. From designing Formula One race cars to credit risk analysis, organisations in a wide variety of industries are using IBM Spectrum Computing as a foundation for [software-defined infrastructure solutions](#) for big data, analytics, HPC and cloud to improve business results.

### For more information

To learn more about IBM Spectrum Conductor with Spark, contact your IBM representative or IBM Business Partner (BP), or visit:

- [ibm.com/systems/spectrum-computing/products/conductor/](https://ibm.com/systems/spectrum-computing/products/conductor/)
- [ibm.com/software-defined-infrastructure](https://ibm.com/software-defined-infrastructure)

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