



By Alan Drummer | 4 minute read

Simplify data access and reduce operational costs while advancing your business insights

The importance of modernizing your organization's underlying data management can't be overstated. By leveraging data virtualization, machine-learning-powered SQL queries, and containerization, data can be made more accessible across your whole organization. This can result in lower operational costs, faster query performance, improved analytics and more agile development.

Consider how Owens-Illinois, the world's largest global glass container manufacturer, reduced costs and accelerated data performance. The company runs 60 SAP instances in 78 facilities on five continents, and it chose to migrate 52 systems from

Oracle to IBM® Db2® databases. The entire project took just six months and led to:

- **7-figure reductions** in total cost of ownership (TCO)
- **20%–30% improvements** in transactional time
- **99% of transactions** finishing in less than one second
- **50% lower** storage use



Watch the video

[Owens Illinois + IBM: The benefits of migrating from Oracle Database to IBM Db2](#)

Explore data faster with data virtualization

Multiple data types and sources are often in silos throughout organizations. With data virtualization, you can access all your organization's data from a single point, regardless of data location, size, type or format. This enables data to be used faster and more efficiently.

[Learn how to eliminate data silos with data virtualization.](#)

Data virtualization also enables real-time analytics without data movement, duplication, ETL processes, or added storage requirements. As a result, processing times are greatly accelerated while security and governance are easier.

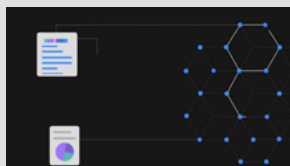
IBM data virtualization is designed and architected as a peer-to-peer computational mesh, which offers a significant advantage over traditional federation architecture. Using IBM Research® advancements, the data virtualization engine is able to rapidly deliver query results from multiple data sources by leveraging advanced parallel processing and optimization. Collaborative highly paralleled compute models provide superior query performance compared to federation, up to 430% faster against 100TB datasets.¹ IBM data virtualization has unmatched scaling of complex queries with joins and aggregates across dozens of live systems.

[Read a Forrester Total Economic Impact™ analysis](#) to learn how data virtualization in IBM Cloud Pak® for Data results in benefits totaling USD 932,569–2.4 million. It “democratizes” data accessibility across the organization, improves data governance and security, and can allow companies to avoid costly data migration projects.

Save time and improve decisions with embedded machine learning SQL query optimization

Machine learning can make database queries faster and improve outcomes. For example, a traditional cost-based query optimizer can provide a suggested execution strategy for a given query, but if the strategy doesn't work as expected, the optimizer can't learn from the experience. However, a machine learning-powered query optimizer can learn from experience and refine the query path with each execution. That's how the Db2 Machine Learning Optimizer works. It mimics neural network patterns to optimize query paths. The result is faster insights to your team—with some queries being completed up to 8–10 times faster as measured by IBM internal testing.





Watch the video
[Machine learning \(ML\)
SQL optimization with
IBM Db2](#)

[Explore the ebook “Db2: The AI database”](#) to learn more about the impact machine learning can have on data management. Machine learning also makes confidence-based queries possible. It can deliver SQL query results in terms of probabilities, or “best matches,” rather than simple yes-or-no answers.

Use containers to support agile development

There's good evidence that containerizing your data management will give you better results as you deploy databases in hybrid cloud and multicloud environments. Container use is growing rapidly: more than half of organizations had employed containers by late 2018, with usage expected to increase by 89% by the end of 2020.² And a Forrester survey suggests some reasons for this growth—75% of organizations using containers have experienced moderately or significantly increased speed, 67% increased security, 73% developed a more consistent deployment process, and 66% increased developer efficiency.³

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1 Performance measurements were gathered within a controlled test environment at IBM Silicon Valley Labs using IBM data virtualization against various 100TB data sources. The measurements taken in May 2019 and performance gains are compared to IBM federation.

2 Margaret Dawson, Red Hat Global Customer Tech Outlook 2019, December 18, 2018. Accessed November 18, 2020.

3 Forrester Consulting, Containers: Real Adoption and Use Cases in 2017, March 2017. Accessed November 18, 2020

A containerized version of Db2 is available in [IBM Cloud Pak for Data](#), a Kubernetes-based container platform run on Red Hat® OpenShift®. All libraries and dependencies are bundled in containers to better support agile development. Many other IBM Cloud Pak for Data services are included to help speed time to advanced analytics and AI value. One is IBM Watson® Knowledge Catalog, an automated, cloud-based metadata repository. It powers intelligent, self-service discovery and helps enforce data governance across the enterprise so you can provide trusted, business-ready data. Another included service is IBM Watson Studio, which automates AI lifecycle management and governs and secures open-source notebooks, helping your team build, run and manage models and operationalize AI.

Containers and container management efficiencies for managing software in IBM Cloud Pak for Data can provide benefits worth USD 12.5–14.4 million. [Learn more about the savings and benefits delivered by IBM Cloud Pak for Data.](#)

Get started with the benefits of an integrated data platform

Modernizing your data management can be very impactful to your business's success; from reducing cost savings and increasing agility with containerization, speeding time to value with ML-enhanced queries, or making data more accessible with data virtualization.

[Read the white paper, “Db2 on IBM Cloud Pak for Data”](#) to learn more about the benefits of deploying your data management to a fully integrated containerized platform.

[Watch the webinar, “3 ways data management drives AI initiatives”](#) with Forrester Research and IBM that details the value of an AI database, and shows how data management with embedded AI capabilities enables better data access, lower operational costs and better insights.

