



# 5 considerations for managing apps and data across environments

## Modern, flexible data management is a critical part of cloud-native application development.

Organizations are modernizing their application architectures, developing cloud-native applications, and adopting hybrid cloud environments to remain competitive in a digital world. In fact, companies plan to modernize 78% of their custom applications within the next year.<sup>1</sup> Many of these applications will need to access large amounts of distributed data. As a result, 84% of companies expect to run database workloads within the next two years.<sup>1</sup>

Aligning application modernization and data management strategies can be a complex task for IT organizations. Development and operations teams increasingly build and deploy applications with modern, microservices-based architectures on hybrid cloud platforms. Accordingly, administrators need to manage data in multiple formats and locations to support stateful and cloud-native applications, along with traditional services. A modern, integrated application and data management platform can help teams consistently deploy data access services, storage, and analytics applications next to stateless microservices.

Here are 5 things to consider when choosing your integrated application modernization and data management platform.

## 1 Rich feature sets

IT organizations—including developers and operations teams—require key capabilities to deliver and deploy fast, responsive, data-driven applications effectively and efficiently. Developers need a rich feature set that allows them to easily create applications that generate and query many different types of data from multiple locations. Operations teams want automation features that help them deliver data and services rapidly, reliably, and without manual intervention for common tasks like platform configuration, deployment, and life cycle management.

Look for platforms with features like SQL for JSON (JavaScript Object Notation), large-scale analytics, automatic resource provisioning, and over-the-air (OTA) updates that make it simpler to develop and deploy fast, responsive, data-oriented applications.

## 2 Scalability across locations

To maximize performance and cost efficiency, organizations often adopt a hybrid cloud approach that allows them to run data-oriented workloads in multiple locations, including on-site datacenters, public clouds, and edge deployments. At the same time, applications' changing demands for data must be consistently met to deliver the best possible user experience. To successfully deliver critical business applications, operations teams need platforms that are consistently deployable everywhere and scale automatically and immediately as demand changes.

Consider solutions that feature automatic provisioning to dynamically scale infrastructure and data management resources across on-site datacenters and public cloud providers, including Amazon Web Services (AWS), Microsoft Azure, and Google Cloud.

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<sup>1</sup> Red Hat report. [“How enterprises approach legacy application modernization.”](#) January 2023.

### 3 Data management capabilities

Organizations need the flexibility to use and manage their data to best meet their business needs at all times. The data generated by workloads changes as applications evolve. To deliver data to both existing and new applications, data management platforms must support multiple data structures. Additionally, applications need a consistent but flexible way to easily access data in multiple formats from different sources.

Evaluate systems that give you complete control of your data through lightweight, flexible schemas; access management based on JSON document structures; and unified data access functions like comprehensive data and caching layers and elastic search capabilities.

### 4 Reliable service delivery

To provide exceptional user experiences, modern, stateful applications require both real-time access to accurate, clean data and a stable, resilient operating environment. Data management platforms must ensure data accuracy and availability, while also protecting against potential disaster scenarios. At the same time, application platforms must automatically detect and quickly recover from any infrastructure issues. Finally, platform integrations must be rigorously tested and certified by all vendors to prevent unexpected issues.

Select systems that can automatically replicate data across multiple locations and support high-availability deployments across several sites to protect against failures and disaster scenarios while ensuring data reliability and availability.

### 5 Application performance

To deliver high-quality, personalized customer experiences, modern applications need to perform complex queries of distributed data in a short amount of time and respond to user requests in real time. As a result, data management platforms must perform database reads, writes, and queries with extremely high throughput and microsecond latency. Operations teams need the ability to optimize the compute resources allocated to each application running in their environment.

Explore platforms with built-in managed caches, memory-first architectures, and configuration and management options that let you optimize your application performance.

### Unify your data and applications

Red Hat and Couchbase help you simplify and unify data management in hybrid cloud environments to align your application modernization and data management strategies.

[Couchbase](#) on [Red Hat® OpenShift®](#) brings together Red Hat's hybrid cloud application platform and Couchbase's NoSQL database platform to form a scalable, automated foundation for running responsive, data-driven applications across datacenter, cloud, and edge environments. The [Couchbase Autonomous Operator](#)—a certified, level five (autopilot) [Red Hat OpenShift operator](#)—automatically provisions and scales resources, ensures that installations and upgrades are repeatable, and performs constant health checks. Features like full text search, ACID (atomicity, consistency, isolation, and durability) transactions, SQL++, and data streaming help developers build modern, personalized applications—all from a single, unified platform.

#### Explore our partnership

Find out more about our partnership and collaboration: [red.ht/couchbase](https://red.ht/couchbase) and [couchbase.com/partners/red-hat](https://couchbase.com/partners/red-hat).

#### Discover our solutions

[Watch these videos](#) to learn more about Couchbase on Red Hat OpenShift.



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