



RED HAT OPEN SOURCE TECHNOLOGIES IN HEALTHCARE IT

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The downturn in the economy, coupled with the healthcare reform of the Obama administration, has created an interesting atmosphere for the healthcare industry. Business and profitability are down for many players in the healthcare market. And of course, during tough economic times, budgets have been slashed, leading to an overarching desire to reduce IT costs. For these reasons, there is great excitement and anticipation for stimulus funds from the federal government.

From Washington, we're hearing about the benefits of open source for healthcare. And as the push for electronic medical records becomes stronger, there is a pressing need for open standards. While some in healthcare hold off on making IT decisions until stimulus funds have been allocated, forward-looking healthcare leaders are doing their research into market trends that will reduce costs while improving performance, such as open source and open standards, to prepare for the exciting industry changes ahead.

WHY RED HAT FOR HEALTHCARE IT NEEDS?

Healthcare organizations are increasingly dependent on complex information technology systems to serve their members and clients, to support clinical decision making, and for patient care delivery. The information technology infrastructure supporting these systems must provide complete interoperability across the continuum of care with life-critical reliability, availability, and security. Moreover, the traditional healthcare IT infrastructure is extremely fragmented among the various stakeholders, consisting of solutions from multiple vendors for different subsystems, operating environments, and connectivity. Due to this fragmentation, the integration and interoperability between subsystems has become a central issue for most healthcare organizations.

In the past, the lack of comprehensive, standards-based technologies in healthcare organizations has introduced significant complexity and increased costs. It has also created vendor lock-ins and limited interoperability. Open source technologies are based on open standards, and they facilitate transparency. Open source also eliminates infrastructure complexities while improving performance and reducing costs. Because of some of the inherent characteristics of open source, the healthcare industry is steadily incorporating open source solutions based on Red Hat technologies to achieve its technology goals in a scalable and cost-effective manner.

Due to their increasing dependence on information technology, healthcare organizations need technology infrastructure that is reliable and secure and that facilitates interoperability for transparent, yet authorized, information sharing. Red Hat technologies address those needs.

Red Hat provides healthcare organizations with the technologies necessary to build a reliable IT infrastructure for their life-critical applications, while at the same time helping them comply with stringent security requirements. And we do so while maximizing performance and minimizing costs. Thus Red Hat enables healthcare organizations to focus their business of serving patients and clients alike, without having to worry about complexities in their IT infrastructure.



Red Hat technologies enable healthcare organizations to:

- Maintain full control of IT investments
- Optimize open standards-based integration, enabling vertical and horizontal information sharing
- Consolidate services by extracting higher performance without increasing budget requirements
- Improve data and network security for protecting critical information, which helps healthcare organizations to better comply with regulatory requirements

RELIABLE INFRASTRUCTURE

The critical nature of patient data means that IT systems simply cannot go down. In many healthcare entities, patient lives depend on the availability of the organization's IT infrastructure.

Red Hat Enterprise Healthcare Platform is a reliable, affordable information technology platform designed for delivering safe, high-quality patient care. The platform packages Red Hat Enterprise Linux, JBoss Enterprise Middleware, and updates via Red Hat Network with services specifically tailored to the needs of the healthcare environment.

Continuous availability for life-critical systems through Red Hat Enterprise Healthcare Platform comes via integrated virtualization, application failover features, and clustered file system capabilities. Applications deployed in a virtual environment can be seamlessly migrated live from one system to another in the event that a system goes down for planned or unplanned outages. Critical updates to Healthcare Platform are managed by Red Hat Network, which can also manage and monitor thousands of systems as easily as a single system. These updates are provided for seven years after the initial product release, providing a stable platform that healthcare organizations can depend on.

Health First used the application failover and clustering capabilities of Red Hat Healthcare Platform to dramatically improve the reliability of its Picture Archive and Communication System. This improvement, coupled with its integration into the tiered storage environment in place at Health First, enables their cardiologists to more effectively care for their patients.

Read more: [redhat.com/solutions/successstories/healthcare/healthfirst](https://www.redhat.com/solutions/successstories/healthcare/healthfirst)

The McKesson Horizon Clinicals Solution Suite was the first to adopt the Red Hat Enterprise Healthcare Platform to provide affordable reliability to customers. By standardizing on an open source, reliable platform, McKesson was able to optimize product development and testing resources and pass those cost savings on to customers.

Read more: [redhat.com/solutions/successstories/healthcare/mckesson](https://www.redhat.com/solutions/successstories/healthcare/mckesson)



SECURITY

Healthcare IT systems handle sensitive patient data, so security is of utmost importance when building a healthcare IT infrastructure. It is unacceptable to expose patient medical data to unauthorized access. Regulations such as HIPAA demand that patient data be properly secured. Moreover, there are rising business and social costs to security breaches. Red Hat has been proactive in developing security features and has continued to lead the industry in providing secure solutions.

Red Hat's security model starts with the operating system. We build in security innovations like SELinux. ExecShield, PIE, and auditing are integrated into the operating system and operate automatically and transparently. These technologies eliminate entire classes of security exploits. Red Hat recognizes that sophisticated security features are useless if they aren't turned on, so we ship systems that are secure by default and test to ensure that these security systems are transparent to the user and applications.

Beyond the operating system, the JBoss Enterprise Middleware Platform provides a secure environment for application development and deployment. At the data layer, Red Hat MetaMatrix technology provides sophisticated, single-query access control to disparate data sources, preventing any unauthorized access to sensitive data. Finally, the Red Hat Directory Server and Certificate System work together to provide a unified user management system that can be used for authentication and access control.

Despite all of the effort Red Hat invests in preventing security attacks before they happen, exploits do occur. The open availability of Red Hat's source code subjects it to the continuous scrutiny of millions of users and developers. Any potential exploits are rapidly identified, triaged, and fixed. This global community is augmented by Red Hat's 24x7 dedicated security response team that analyzes any security issues and coordinates the appropriate response. Software patches that have critical security impact, while infrequent, can be rapidly made available to customers over the Red Hat Network.

INTEROPERABILITY

The healthcare industry today is faced with a combination of operational, regulatory, and information challenges. This is only going to get more challenging in the new world of healthcare, with the formation of health information exchanges (HIE) and the necessity to share patient data across the continuum of care. On the business front, companies must increase their productivity and reduce their costs to maintain shareholder return. They also must continue to take out costs mandated through healthcare reform, despite the fact that the cost of delivering care is accelerating at unprecedented rates. On the regulatory front, tighter governmental regulations, such as HIPAA, are forcing providers to more vigilantly manage access to electronic healthcare records.

Unfortunately, in the face of these challenges, much of a company's information structure is organized around the functional silos of major delivery areas—laboratory, imaging, nutrition, pharmacology, and the many different therapeutic avenues. These areas function autonomously in many cases and sometimes are multiplied by the number of different providers that comprise today's large-scale healthcare institutions.

Integration of information is a key enabler of the many decision processes driving everything from patient care delivery to research to complying with regulatory authorities. Many of these processes are fed by heterogeneous sources of distributed information. Timely access to this information can be a daily struggle.



JBoss Enterprise Middleware provides a platform for building and deploying applications using a standards-based service-oriented architecture. Coupled with the JBoss Enterprise Service Bus, these technologies enable applications to communicate across a wide variety of data protocols and messaging implementations at the service level.

At the data level, MetaMatrix integrates key data assets from various dispersed systems, presenting a single, real-time view of patient-centric clinical data and consolidated business data. Using the unique metadata-driven approach that MetaMatrix provides, organizations are able to allow the implementation of their unified view to evolve over time in response to changing information requirements and to changes brought about by the implementation, upgrade, and migration of clinical systems.

COST

The healthcare industry is facing acute cost pressures that are fueled by healthcare reform and shrinking profits. While improvements in IT will enable productivity improvements and reduce medical errors, the reality remains that healthcare organizations need to achieve their IT goals while containing costs.

The open source development model enables Red Hat to efficiently amortize development costs of commodity software with an ecosystem of partners, customers, and competitors. With its unparalleled track record of UNIX-to-Linux migration, Red Hat enables healthcare organizations to use standards-based commodity hardware platforms or to take advantage of existing mainframes with zLinux.

Red Hat's focus is on providing valuable service and support for freely available software. By eliminating licensing costs and enabling customer choice of hardware and service providers, Red Hat delivers fundamentally different cost savings to customers.

Learn how Highmark used Red Hat solutions to achieve its performance and security goals while reducing costs: [redhat.com/solutions/successstories/services/highmark](https://www.redhat.com/solutions/successstories/services/highmark)

CONCLUSION

Information technology has become a critical component of the healthcare industry in order to support the interoperability of patient data, enable safe patient care, and reduce the cost of healthcare. Traditional IT infrastructures, based on proprietary technologies, are costly, rigid, and complex to manage.

Red Hat has made consistent and continued investments in technologies that benefit the healthcare industry. Red Hat Enterprise Healthcare Platform delivers the next-generation infrastructure for healthcare organizations, making care delivery safe and transparent. This platform is scalable and flexible to deliver the agility needed in a changing environment. Based on open standards, it facilitates interoperability and simplicity while minimizing costs. Using Red Hat's open source technologies, healthcare organizations can start focusing on their primary objective of care delivery without having to worry about complexities of underlying IT infrastructure.



ABOUT RED HAT

Red Hat was founded in 1993 and is headquartered in Raleigh, NC. Today, with more than 60 offices around the world, Red Hat is the largest publicly traded technology company fully committed to open source. That commitment has paid off over time, for us and our customers, proving the value of open source software and establishing a viable business model built around the open source way. Red Hat provides high-quality, affordable technology to the enterprise. Our solutions are delivered via subscription and range from operating systems and platforms like Red Hat Enterprise Linux and JBoss Enterprise Middleware, to application and management tools, as well as consulting, training, and support.

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