Cisco Hyperconverged Infrastructure for End-to-End Epic EMR

Flexibility and Performance for Electronic Medical Records

- The Cisco HyperFlex All NVMe configuration with Intel® Optane™ technology was recently tested and exceeds Epic's operational database performance requirements for small community hospitals and medical practices.

- Our simplified architecture uses a clustered, hyperconverged approach that supports end-to-end Epic environments.

- Flexible scaling is easy with the ability to independently match resources to Epic applications.

- Intel Optane technology helps accelerate performance for Epic applications and InterSystems Caché databases.

© 2019 Cisco and/or its affiliates. All rights reserved.

Our hyperconverged solutions make the dream of a simplified, end-to-end infrastructure for Epic applications a reality.

Healthcare providers, medical clinics, and small and large hospitals alike use Epic applications to manage electronic medical records (EMR). For smaller organizations, quality patient care depends on timely and dependable access to EMR data, yet budget constraints often make selecting an infrastructure platform a challenge. With Cisco HyperFlex™ systems, you can run your end-to-end Epic application and data solutions on a single platform that delivers high availability, simplifies management, and allows for future growth without overspending on excess infrastructure at the outset.

Innovative solutions for end-to-end deployment

Cisco HyperFlex systems are part of a comprehensive Cisco Unified Computing System™ (Cisco UCS®) portfolio that supports Epic application deployments. By deploying our hyperconverged solutions from end to end, your healthcare organization can help ensure the reliable delivery of critical patient information through the use of a proven, supported solution for Epic deployments.

Our hyperconverged solutions can help you:

- Simplify the deployment and management of IT infrastructure
- Deliver increased performance and high availability for Epic applications and InterSystems Caché databases
- Increase agility with a scalable architecture that supports growth with new Epic releases or applications
- Align your deployment with Epic guidance and target platforms
- Reduce the cost of operation

Hyperconvergence delivers more

- **Performance and efficiency.** Our solutions offer compute-only nodes and independent scaling of computing, storage, and network resources so that you can match the needs of your Epic applications and environments.
- **Only the storage you need.** Continuous data deduplication and compression, fast, space-efficient clones, thin provisioning, and optional hardware-accelerated compression all contribute to lowering the cost of your storage.
- **Built-in data protection.** You can use native snapshot and replication capabilities with the same data protection solutions you use in your data center, because Cisco HyperFlex systems interoperate with leading backup tools that support Epic deployments.

Cisco HyperFlex systems

Cisco HyperFlex systems, powered by Intel Xeon® Scalable processors, bring the pay-as-you-grow economics of public clouds to IT infrastructure. An innovative server cluster design that can be stretched across geographies combines with an integrated network fabric, powerful data optimization capabilities, storage management, and your choice of hypervisor to bring the full potential of hyperconvergence to your Epic applications and users (Figure 1).

Designed to increase agility, efficiency, and adaptability, these solutions are fast to deploy, simple to manage, and easy to scale. They arrive ready to provide you with a pool of infrastructure resources for Epic operational databases, client presentation servers, and multipurpose application servers.

Fast and flexible scaling

Cisco HyperFlex systems provide a cluster configuration that scales resources independently to closely match the resource needs of your end-to-end Epic deployment. You can start small and support tens or hundreds of users and easily and cost-effectively scale to support thousands. After a system is deployed, you simply add nodes to the cluster, and data is automatically rebalanced across all shared resources. You can easily tailor the configuration to support persistent and nonpersistent desktops and deliver full desktop infrastructure or application streaming, depending on the needs of your clinical team.

Adaptable, optimized IT infrastructure

Our solutions let you independently scale your computing, storage, and network resources to support an increasing application load. You also benefit from a reduced data footprint. Native inline deduplication and compression are always on to help ensure that your storage resources are used optimally without adversely affecting your end-to-end Epic deployment.

Easy deployment

Unlike traditional solutions that result in deployment silos, Cisco HyperFlex systems with Citrix solutions bring the simplicity and flexibility of hyperconverged infrastructure to Epic EMR deployments. We bring all application tiers—InterSystems Caché database, Cogito, Hyperspace, and WSS—onto a single platform for easy, unified deployment and management (Figure 2).

End-to-end lifecycle management with embedded Cisco Intersight™ technology lets you install, configure, manage, and monitor your Epic infrastructure. We integrate the entire hardware stack for lights-out, zero-touch deployment; no other vendor offers this capability. Full-stack provisioning and upgrades keep firmware, hypervisor, and data platform revisions at the level you specify. Cluster profiles make it as easy to deploy hundreds of sites as it is to deploy a single

© 2019 Cisco and/or its affiliates. All rights reserved.

Figure 1 Cisco HyperFlex systems with compute-only nodes

one. And Connected Cisco® Technical Assistance Center (Cisco TAC) can automatically initiate support cases using results from cloud-based monitoring.

Fast application access for clinicians

Your clinical staff interact through the familiar Epic Hyperspace interface to deliver patient care. Unlike other vendors that require Epic Hyperspace to be deployed on client systems, we partner with the leading virtualization provider in healthcare: Citrix. Our solution uses Citrix application virtualization or virtual desktop infrastructure (VDI) to deliver fast, efficient access to the presentation tier, and to simplify its management. In fact, the combination of virtualized Hyperspace with Citrix solutions on Cisco HyperFlex systems meets or exceeds Epic performance requirements.

Increased performance for InterSystems Caché databases

Patient-facing time is precious, and you don't want your staff to waste it waiting for applications. The Cisco HyperFlex HX Data Platform combines with Intel Optane technology to deliver fast access. In the solution, the InterSystems Caché database resides on Intel 3D NAND and write operations to the database are accelerated by Intel Optane technology. Large amounts of data can be moved and stored closer to processors to reduce latency and provide very large data sets at less cost. This combination of low-latency access and fast throughput with high quality of service (QoS) means that our solutions unleash CPUs and reduce bottlenecks so that you get faster access.

Flexible deployment options

For smaller organizations, Cisco HyperFlex systems are an ideal platform for running the entire Epic application deployment. Additional HyperFlex clusters can be designed and implemented to run your enterprise healthcare suite. Organizations with larger deployments today, or smaller deployments that may grow over time, can combine HyperFlex systems with Cisco UCS solutions for a unified approach. For example, you can run core EMR and analytic databases on Cisco UCS platforms, and Epic Hyperspace on Cisco HyperFlex systems, to allow large-scale applications and databases to take advantage of the underlying system capabilities and performance characteristics of different types of servers.

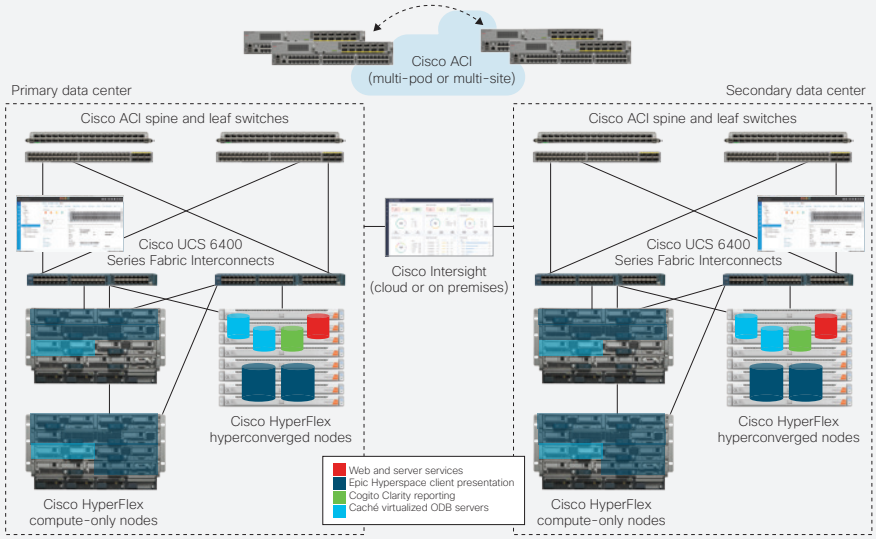

Figure 2 Solution architecture

© 2019 Cisco and/or its affiliates. All rights reserved.

For more information

For more information about Cisco solutions for healthcare, visit cisco.com/go/healthcare.

For more information about Cisco hyperconverged infrastructure solutions, visit cisco.com/go/hxsolutions.

For more information about Cisco desktop and application virtualization solutions, visit cisco.com/go/vdi.

Business advantages

Although the technical advantages of Cisco HyperFlex systems are many, they are not the only reason to consider a move. Our solutions also offer many business advantages.

Simplified management

Because we designed our systems to be deployed, provisioned, and managed through an API, our products are simpler, and so are our tools. You can use Cisco Intersight, a cloud-based lifecycle management platform, to manage your traditional, hyperconverged, edge, and remote offices through a single cloud-based GUI. Alternatively, you can use Cisco UCS Manager to perform server, fabric, and storage provisioning, as well as device discovery, inventory, configuration, diagnostics, monitoring, fault detection, auditing, and statistics collection. If third-party tools are imperative, our management plug-ins provide a seamless experience for those already using other monitoring, analysis, configuration, deployment, and orchestration tools.

Right-sized configurations

There's no need to overprovision your hardware. We can help you evaluate your requirements today and discuss scaling for the future. These planning assessments help reduce the amount of hardware, software licenses, and support you purchase up front. You can expand as your Epic infrastructure and enterprise applications grow.

Migration from expensive platforms

New x86-architecture processors lead the market and deliver higher levels of performance than the RISC processors in your data center. You can move from expensive systems to high-performance platforms that cost less to acquire and maintain. And you can choose workhorse processors with lower core counts and higher frequencies to help reduce software license costs.

Move forward

If you're a small community hospital or medical practice, consider Cisco HyperFlex systems. Our hyperconverged infrastructure is designed to help you simplify deployment, provide timely access to medical records, and optimize efficiency. If you have a larger system, you can deploy Epic Hyperspace and multipurpose guest applications on Cisco HyperFlex systems. Consult your local Cisco team for guidance.

© 2019 Cisco and/or its affiliates. All rights reserved. Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

LE-69502-00 07/19