



Secure and Scalable Cloud Infrastructure

May 2011

EXECUTIVE SUMMARY

INDUSTRY

Healthcare IT Cloud Computing.

CHALLENGES

Quickly build and implement a scalable and reliable cloud-based infrastructure for up to 5 million customers while complying with HIPAA security rules.

SOLUTION

Dinoct's experienced team engineered, provisioned and deployed a complete infrastructure solution using multiple cloud providers and 3rd party tools to deliver a secure, scalable and regulatory compliant platform within 2 months.

BENEFITS

- ✓ HIPAA security rules compliant
- ✓ Cost effective cloud economics
- ✓ 99.9% system availability
- ✓ Scalable for high-volume traffic
- ✓ 24x7 pro-active monitoring

VALUE

Continuous uptime, high availability and regulatory compliant infrastructure with 24x7 Service Desk support for critical cloud, virtual or physical environments.

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Secure, scalable & highly available cloud infrastructure for Healthcare IT

(Herndon, VA) hCentive, a leading healthcare technology provider, selects Dinoct to design, provision and manage the cloud infrastructure needed to support their web-based health insurance portal.

Cloud infrastructure to support 5 million members

When hCentive's health insurance portal was selected by a leading U.S. health insurance company as their online customer portal, it was time to celebrate.



It was also time to quickly figure out how to scale their newly launched portal to support the insurance company's millions of members across the USA.



As a hosted solution, hCentive required a secure, scalable and highly available infrastructure with built in redundancy and failover to ensure a rock solid foundation for their rapidly expanding customer base. The solution also had to comply with the Health Insurance Portability and Accountability (HIPAA) Security Rules.

Enter Dinoct's Cloud Infrastructure Services

Already familiar with Dinoct's reputation as a leading provider of infrastructure services, hCentive enlisted Dinoct to design, provision, deploy and manage a cloud based infrastructure that would meet their demanding requirements for scalability, reliability, security and compliance.

Solution Highlights

Dinoct integrated multiple providers, tools and technologies to achieve:

- ✓ **HTTPS enabled load-balanced server clusters**
- ✓ **SSL enabled server component transactions**
- ✓ **SSL enabled database replication**
- ✓ **Encrypted disk volumes & storage components**
- ✓ **Security hardened server & database components**
- ✓ **Redundant multi-availability zone based components**
- ✓ **AES-256 encryption standards for stored and transmitted data**
- ✓ **Secure SSH tunnels between server components.**

Architecting a comprehensive solution

Dinoct's team of architects quickly went to work designing an infrastructure based on hCentive's requirements and their extensive knowledge of Healthcare IT and the constantly changing Healthcare regulatory landscape.

A combination of EC2, ELB and S3 Amazon Web Services (AWS) were selected to provide the reliability and redundancy required by hCentive. AWS, the leading provider of storage and infrastructure, was the perfect solution to meet the web portal's 99.99% system availability commitment.

Dinoct utilized a different vendor for offsite storage to avoid vendor lock-in and developed a fail-over architecture with elastic IPs utilizing multiple servers across three different availability zones to create a robust and scalable infrastructure with failsafe disaster recovery capabilities.

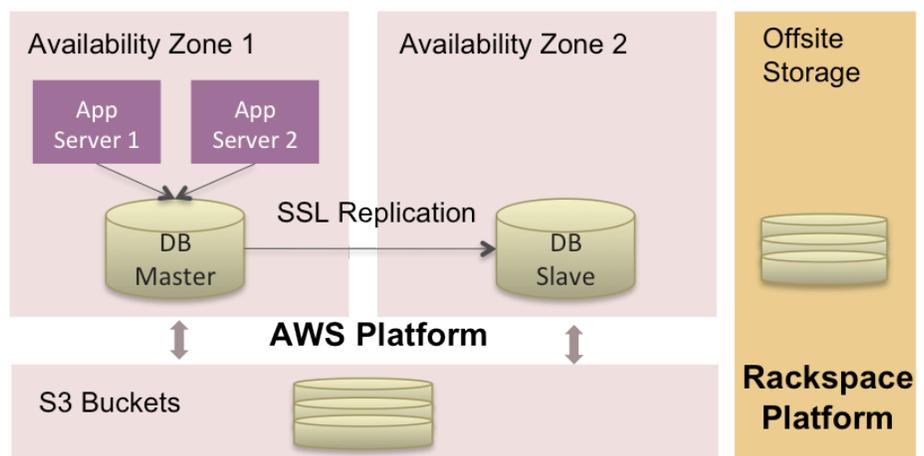
Provisioning and deployment

Using ITIL-aligned standards and methodologies, Dinoct's team began configuring the servers and deploying the infrastructure, including a secure framework to comply with HIPAA security rules.

AES-256 encryption standards were used to store and transmit all EC2 and S3 data, while SSL encryption and certificates ensured security for data replication between master and slaves. A secure SSH tunnel was used for application server connectivity to the database.

Testing and optimization

Dinoct's QA team was up next to perform the extensive testing needed to certify the system, including functional, performance and load testing, and the optimizations needed to ensure the network would support the high volumes and peak work loads anticipated by hCentive.





24x7 Pro Active Monitoring and Support

Dinoct not only engineered and deployed a complete infrastructure solution, but also provides a 24x7 Service Desk for end-user support using a web-based ticketing system, email and an online communication system.

Dinoct's systems and staff are housed in a state-of-the-art operations facility that includes redundant systems, continuous monitoring and the ability to quickly respond and resolve emergency situations.

This unique combination of high-performance facilities, staff and tools enables Dinoct to meet demanding SLAs such as 5, 15 and 30-minute response times as well as ensuring 99.99% system uptime.

What Dinoct Clients Are Saying:

"Dinoct's ability to rapidly design, provision and deploy a highly-available HIPAA security rules compliant AWS cloud infrastructure using a wide variety of leading 3rd party tools and technologies was critical to the success of our web-portal." - Tarun Upadhyay, CIO hCentive

"Dinoct's infrastructure solution increased our system availability from 96% to 99.9% and their ongoing tuning and optimization resulted in 3x better storage utilization and a 5x boost in overall system performance." - Tom Lewis, CEO Innovectra Inc.

"Dinoct did great job in helping us create a robust Business Continuity & Disaster Recovery solution that enabled us to operate our SaaS offering on a 24x7 basis while reducing support man-hours by 15% through their automation and process solutions" - Gaurav Pal, CEO fedXcel.

DINOCT BENEFITS

- ✓ **High availability and performance for mission critical infrastructure**
- ✓ **Continuous analysis for ongoing improvements and innovation**
- ✓ **Rapidly deploy feature & services to improve time to market**
- ✓ **Seamless IT solutions enable you to focus on business objectives**
- ✓ **Cost effective IT management services for savings of up to 30%**

About Dinoct

Based in Herndon, Virginia, Dinoct provides Cloud, Virtual and Physical infrastructure management services to SMBs throughout the U.S. and Europe. Industry verticals include healthcare and online media publishing, with extensive experience in ecommerce and SaaS solutions.

Dinoct's team is highly skilled in both Linux and Windows-based platforms, and harnesses the power of Open Source technologies to innovate cost effective client solutions. Dinoct conforms to top industry standards and employs proven tools and methodologies to provide innovative, high quality and cost-effective infrastructure solutions.

Dinoct also provides professional services in the areas of hosting strategies, network design and data modeling.

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