EMC ONDEMAND: ENTERPRISE CONTENT MANAGEMENT LEAPS TO THE CLOUD
FOREWORD
As an enterprise professional with strategic responsibilities, time is your most precious commodity. When you want information, you want it fast and you want it focused. With that in mind, we’ve developed a series of 15-minute guides to essential topics in IT.

In this guide, we discuss taking enterprise content management to the cloud with EMC® OnDemand. First, we’ll outline the business case, then we’ll examine the way OnDemand eliminates the usual downsides of a cloud implementation with its revolutionary architecture. You’ll learn how OnDemand can:

• Save money
• Simplify deployment and maintenance
• Truly transform a business

Whether you are just approaching enterprise content management, or looking to re-deploy an existing EMC Documentum®, Captiva®, Document Sciences®, or other EMC installation, we think you’ll find it 15 minutes well spent.

TABLE OF CONTENTS
THE NECESSITY AND CHALLENGE OF ECM ................................................................. 2
ENTER THE CLOUD ...................................................................................................... 2
ADVANTAGES OF THE PAAS MODEL ....................................................................... 2
NAGGING ISSUES IN CLOUD DEPLOYMENT ......................................................... 3
AN ENTIRELY NEW APPROACH FROM EMC ............................................................ 3
COMMITTING TO THE PRIVATE CLOUD ................................................................. 4
VIRTUAL CUBE: A REVOLUTIONARY APPROACH .................................................. 5
  Preconfigured Instances: “Dev to Test to Prod” .................................................... 5
  Portability: Floating the Cube .................................................................................. 6
  Management From a Unified Command Center ...................................................... 7
THE ROCK-SOLID SECURITY OF THE CUBE .......................................................... 7
  At the Network Level .............................................................................................. 7
  At the Application Level ......................................................................................... 8
EXPERT SERVICES, TRAINING, AND SUPPORT ................................................... 9
BREAKING OUT THE VALUE PROPOSITION ......................................................... 9
JUST TO SUMMARIZE ............................................................................................. 9
ABOUT EMC ............................................................................................................. 10
THE NECESSITY AND CHALLENGE OF ECM

Every business is now in the information business. No matter what its product or service, a company which learns to manage and capitalize the ever-increasing flow of chat, images, video, voice, posts, blogs, email, docs, and scans in the new information environment will prosper. An organization which fails to capture, manage, analyze, communicate, and properly govern its information, will fall behind.

That means the role of the IT professional has changed, and changed dramatically. Every IT department must now go beyond merely enabling and protecting information, to leveraging it for business advantage.

For larger organizations, the crucial transformation comes with the deployment of true enterprise content management, or ECM. Only an enterprise-class ECM solution can capture, locate, govern, and create context for the rapidly-expanding media which now constitute business.

But let’s face it, the cost and complexity of implementing and maintaining a mission-critical ECM system can be daunting. The factors include not just the ECM solution, operating system, database, server, and virtualization infrastructures, but security administration, scalability planning, upgrade planning, disaster planning, third-party application purchases, application integration, and support—not to mention recruiting and keeping the right expertise.

You may ask, “Is the business advantage large enough to rationalize the investment?”

ENTER THE CLOUD

For most companies, the answer will eventually lie in the cloud. As we move forward, it’s become clear that only “As-a-Service” in the cloud will adequately cope with the challenge and opportunity of the data explosion. Only this model will provide the right ROI. Think of it as historic symmetry: the Internet created the situation, and the Internet must solve it.

“As-a-Service” in the cloud refers to any IT service provided over the Internet and available to any computer, any time. But there are just three basic types of service from the cloud: applications can be shared from the cloud (Software-as-a-Service, or SaaS); server infrastructures can be rented from the cloud (Infrastructure-as-a-Service, or IaaS); or an entire platform and all its related applications can be offered as a service (Platform-as-a-Service, or PaaS).

“Effective Enterprise Content Management can transform IT from a cost center to a growth engine.”

ADVANTAGES OF THE PAAS MODEL

The Platform-as-a-Service model, in which the entire solution stack is remotely hosted and managed by expert professionals, offers the best opportunity to cut the business risk and accelerate the benefits of enterprise content management. A fully-managed PaaS offers quicker startup, expert administration, a lower TCO, dynamic scalability, and SLAs for disaster recovery and high availability.

Just as importantly, the PaaS model allows for the rapid evolution of new features and bug resolution—along with the seamless adoption of new features as they become available.

Enterprise-Class Content Management in the Cloud

Many vendors now offer simple file storage in the cloud or provide portals and platforms on which customers can develop their own content solutions. While many cloud-based content management solutions provide useful services to their users, it’s important to understand the difference between these products and enterprise content management systems built to support mission-critical business processes.

Enterprise-class ECM provides governance, security, and (most importantly) context for all forms of information—not just documents—but blogs, chat, email, audio, video, and rich media. It eliminates the silos in which information is typically stored by legacy applications (e.g., ERP) or cloud-based filing systems (e.g., Dropbox), and creates a central repository for all content, which includes federated search and enforces information policies automatically as content is created.

If major organizations fail to provide this level of content management in the cloud, users are likely to create their own ungoverned accounts with public services, further scattering corporate information.

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In the end, it’s all about leverage. Only Platform-as-a-Service allows you to fully leverage a common infrastructure for ECM, leverage pretested configurations, and leverage outside expertise. Suddenly, you don’t have to worry about the mechanics of server farms and product configuration. Your own best people are freed from patching, monitoring, and routine maintenance, so they can turn their attention to more productive work—like building specific solutions for business users.

NAGGING ISSUES IN CLOUD DEPLOYMENT

Until now, however, major hurdles have prevented the widespread use of PaaS for genuine, large-scale enterprise content management.

CIOs were rightly concerned about the security of content stored and delivered through multi-tenant Cloud-as-a-Service models—which often shared not just executables, but database repositories. Configurability was severely limited, and custom features were often unavailable. Generic PaaS offerings did not provide the needed SMEs in enterprise content management, while governance and compliance were uncertain. In addition, for many organizations, the adoption of PaaS was frequently an “all or nothing” proposition, as IT departments were asked to fully abandon existing infrastructure investments.

Until now, the right Cloud-as-a-Service model was simply not available to fully address the security, features, control, expertise, and ROI required by IT pros for true content management platforms. The solutions were just not “enterprise-class.”

AN ENTIRELY NEW APPROACH FROM EMC

When we set out to offer our flagship EMC Documentum, Captiva, and Document Sciences xPression® products as platform services delivered from the cloud, we took an entirely new approach to the problem. In fact, we teamed up our Information Intelligence Group (IIG), Storage, and RSA® Security divisions with VMware® to develop an entirely new technology.

EMC ONDEMAND PLATFORMS
This EMC OnDemand design team was given clear instructions:

• **Require zero installation of EMC technology**—virtualize not just the server side of our products, but the desktop side as well. (See the sidebar for a quick explanation of “virtualization.”)

• **Provide the highest level of security**—must be as solid as the most hardened on-premise data centers.

• **Ensure that everything was pre-installed and optimally configured for instant startup**—customers had to be up and running in a matter of hours instead of months.

• **Integrate with existing filing and collaboration products**—allow customers to leverage their existing investments (e.g., Box, Google, SharePoint).

• **Offer freedom of use**—provide customers with the flexibility to configure the application as an on-premise installation.

The last point is crucial. Typically, Cloud-as-a-Service, especially public cloud solutions, force-fit customers into a standard way of building applications, leaving little room for the kind of flexibility required in enterprise-class deployments. We knew we had to create a balance: enable our customers and partners to build fully-customized solutions while ensuring a solid, pre-built backend infrastructure managed by EMC experts.

**COMMITTING TO THE PRIVATE CLOUD**

The idea of the “private cloud” is fundamental to EMC OnDemand, and to our overall approach to the PaaS model. To ensure security, applications hosted from the OnDemand platform are delivered in a single-tenant manner through the power of virtualization. Unlike public cloud offerings, customers never share an application, operating system instance, or database. This eliminates the possibility of “data intermingling” or unauthorized access to data. Each customer works within his or her own entirely locked-down and network-secured environment.

At the same time, and again thanks to virtualization, the physical infrastructure used for EMC OnDemand customers can be shared in a multi-tenant manner. That means that a common—and massive—pool of storage and compute power can host multiple private clouds, and become immediately available to each, depending on business requirements. That makes scalability an economical and hassle-free event.
VIRTUAL CUBE: A REVOLUTIONARY APPROACH

To create these locked-down, yet configurable and scalable private clouds, the EMC OnDemand team created a revolutionary new technology that we call “Virtual Cube,” or VCUBE for short. We believe that the OnDemand VCUBE sets an entirely new standard for PaaS, and resets the definition of “enterprise content management in the cloud” for our enterprise-class customers.

Developed by the EMC Information Intelligence Group, and using a range of technologies from VMware, RSA, and EMC, a VCUBE is best described as a multi-service or multi-product container. It differs from the familiar “virtual appliance,” which is typically a single-service container. This means that one VCUBE can contain many EMC and EMC partner products, dynamically provisioned. Its multi-service capability greatly improves the ability of our customers and administrators to use and manage the multiple technologies that now constitute a business solution. We call it “the power of adjacency.”

In fact, this capability makes the entire cube completely portable from one data center to another. For now, let’s be clear that each OnDemand customer enjoys his or her own private cloud, delivered from a secure VCUBE and controlled by an integrated dashboard, known as the VCUBE Manager. The VCUBEs benefit from a shared and scalable hardware infrastructure, but do not interact with one another.

WHAT IS VIRTUALIZATION?

As explained by VMware, “A virtual machine (VM) is a tightly isolated software container that can run its own operating systems and applications as if it were a physical computer. A virtual machine behaves exactly like a physical computer and contains its own virtual (i.e., software-based) CPU, RAM hard disk, and network interface card (NIC).” The advantages of virtualization are enormous: Multiple VMs can run on one physical server, and can be moved from server to server. Sandbox environments can easily be established to try out new configurations. EMC OnDemand’s VCUBE technology greatly extends the VM concept to meet the needs of enterprise content management delivered from the cloud.

PRECONFIGURED INSTANCES: “DEV TO TEST TO PROD”

One of the revolutionary innovations of the OnDemand VCUBE technology is the way it fully optimizes and virtualizes the entire deployment process.

Individual products are pre-installed and provisioned inside the cube using templates that EMC has individually engineered and optimized for each product and its best practices. These templates, or “vApps,” specifically address the need to promote applications from development to test to production environments. Indeed, inside the VCUBE, instances of “Dev, Test, and Prod” are already configured, so customers need not spend any effort in building their own constructs, and can work “in a sandbox” whenever needed.

In short, EMC OnDemand does all the heavy lifting in virtualization and provisioning, and having such configurations already available can save as much as six months of customer deployment effort per product.
PORTABILITY: FLOATING THE CUBE

Because it is an entirely self-contained environment, an EMC OnDemand VCUBE is agnostic, not just to products, but to “place.” That means a VCUBE can run on an off-premise data center or can run in your own or your service provider’s data center using, for example, an EMC-approved platform like the integrated VCE VBlock® Infrastructure Platform.

Indeed, a VCUBE is designed to be “floated” from one data center to another—an ability which offers two unique benefits:

• The ability to develop a solution off-premise, then float the VCUBE to the customer’s data center for production
• The ability to run in a customer’s data center, but then be promoted back to an off-premise data center when more compute or storage capacity is required due to a business change

No other private or public cloud solution offers this flexibility.
MANAGEMENT FROM A UNIFIED COMMAND CENTER

The OnDemand VCUBE is fully managed real time through the VCUBE Manager, which allows EMC or its partners to dynamically monitor, provision, integrate, and update the total cube environment, from operating system and VMware stack to individual applications.

From this virtual and unified command center, the operator can view and control the complete range of content management and related technologies. As the first reference architecture to merge VMware View™ for desktop virtualization with VMware vCloud™ Director, VCUBE Manager offers a significant step forward in provisioning enterprise-class applications—usually with just a few clicks of the mouse.

While customers have access to the public interfaces in their hosted applications, and can create and configure custom business processes just as if they were using those applications on-premise—they work through the EMC OnDemand VCUBE Manager to control their application administrators and users.

No other private or public cloud offers a simpler or more powerful dashboard—and the VCUBE Manager is equally place-agnostic, giving expert EMC operators realtime control over the VCUBE—no matter where it “floats.”

“What is EMC OnDemand? A new enterprise-class hybrid cloud deployment model managed by EMC experts.”

THE ROCK-SOLID SECURITY OF THE CUBE

The EMC OnDemand VCUBE architecture was constructed for security from the ground up. We believe that EMC OnDemand is more secure than most apparently “hardened” on-premise installations—and we know that EMC customers can move to this new and very private cloud with full trust and confidence. Let’s take a quick look at the levels of our security model.

AT THE NETWORK LEVEL

At the network level, OnDemand offers a combination of physical and virtual safeguards which extend an existing private trusted network into a private cloud, fully separated and defended from Internet-facing threats. These safeguards have been constructed using long-proven solutions with impeccable track records.
VMware is the leader in the secure design and deployment of virtualization solutions at the enterprise level and in the virtual data center operations theatre. Within the OnDemand Architecture, VMware’s vShield™ works in concert with a suite of EMC’s industry-leading security management solutions.

- vShield protects applications against internal network-based threats, and reduces the risk of policy violations within the customer’s security.
- Failover and disaster-recovery measures within the data centers are, of course, world-class.

AT THE APPLICATION LEVEL
Encrypted communications are just a part of the security infrastructure at the application level. The administration of your virtual environment requires multi-factor authentication and authorization controls. The authentication credentials for user accounts are transmitted using the most secure, strong encryption mechanisms. Strict policies for EMC passwords are implemented, and digital certificates are issued by a trusted third-party Certificate Authority.

The data classification for your application is assumed to be “confidential” as data elements may contain personally identifiable information. The production application data shares and stores for your organization may employ encryption as a mitigating control and is determined by your business needs and compliance regiment. Last, a centralized log analyzer correlates application logs thereby providing a centralized location for viewing incidents and events and prioritizing them based on threat level.

The result of all these measures? A new standard in PaaS security and data protection.

EXPERT SERVICES, TRAINING, AND SUPPORT
Critical to the ROI of Cloud-as-a-Service deployment is behind-the-scenes management by expert personnel—expertise you don’t have to locate, recruit, or hire.

But of course, every business is different. To help customers get the maximum value from their OnDemand implementations, our consulting team offers highly customized assistance in areas such as architecture validation, migration assessment, and development.

In addition, EMC provides topnotch training in all aspects of enterprise content management, the hosted applications, and the OnDemand environment. Customer support is world-class and deployed to ensure consistent, long-term results.
BREAKING OUT THE VALUE PROPOSITION
With EMC OnDemand, we believe we are delivering on the full promise of the cloud—with precisely none of the previous cloud-based drawbacks or risk. We break out the value proposition like this:

SAVE—TIME AND MONEY
• EMC OnDemand can be up and running in hours instead of months—and without the long lead times typically associated with system acquisition, configuration, and setup.
• Scale up or down to fit your “point-in-time” business requirements.
• Hybrid options utilize the existing infrastructure.

SIMPLIFY—LESS COMPLEXITY, FULLY SECURE, INHERENTLY FLEXIBLE
• EMC takes on the complexity of software, systems, storage, configuration, and ongoing management, leveraging secure cloud delivery so you don’t have to.
• Fully secured using virtual, technical, and physical control including firewalls, intrusion prevention, and detection in a virtualized single tenancy private cloud architecture, ensuring complete data separation and protection.
• Managed from the cloud whether deployed onsite or in an EMC cloud data center, EMC experts provide continuous monitoring, support, and expertise.

TRANSFORM—INNOVATE AND DIFFERENTIATE
• Significantly speeds time to value for the business, allowing instant incorporation of technology innovations that enable organizations to create differentiated services for competitive advantage and increased business performance.
• Effective enterprise content management can transform IT from a cost center to a growth engine.

JUST TO SUMMARIZE
We’re almost at the end of our 15 minutes—just enough time for a quick summary.

In this guide, our goal is to show you how you can rapidly and securely leverage the economies of the cloud by deploying enterprise content management through EMC OnDemand. We’ve seen how OnDemand eliminates the need for in-house expertise and expanded infrastructure, because it’s fully managed and dynamically scaled by EMC—whether delivered from our site or yours. With OnDemand, we believe that any large organization can better capitalize on its information assets while streamlining its operations. Put succinctly, it will help you “save, simplify, and transform.”

EMC OnDemand brings together the leaders in content management: Documentum, Captiva, and Document Sciences (EMC IIG); EMC storage; EMC security (RSA); virtualization (VMware); and Vblock partners Cisco and Intel—all under one roof, and available to you where and when needed.

It’s a new era for enterprise content management in the cloud, and we hope you will contact us to learn how quickly and easily you can implement EMC OnDemand for your organization.
ABOUT EMC
EMC Corporation is the world’s leading developer and provider of information infrastructure technology and solutions that enable organizations of all sizes to transform the way they compete and create value from their information. Information about the products and services discussed in this guide can be found at www.EMC.com/ecm.

CONTACT US
To learn more about deploying enterprise content management through the EMC OnDemand Service, visit www.EMC.com/ondemand, or call 800.607.9546 (outside the U.S., call 1.925.600.5802).

This Guide contains “forward-looking statements” as defined under the Federal Securities Laws. It presents the complete EMC OnDemand strategy, which may be deployed in successive phases. Certain product features may not yet be available, or may not become available due to changed market conditions, or for a specific deployment and infrastructure. Please contact your EMC representative for a current update on OnDemand features.

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