AUTOMATED, SELF-SERVICE CATALOG ON VBLOCK™ SYSTEMS WITH CA TECHNOLOGIES

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WHITE PAPER
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Executive Summary

Businesses large and small are moving quickly to take advantage of the financial and operational efficiency of virtualized converged infrastructures and cloud computing to transform from a reactive cost center to an agile, proactive, strategic business differentiator. One important way to achieve the benefits of the cloud is to offer automated data center capabilities as a business service through a user-facing, self-service catalog.

With converged infrastructure, IT organizations lower costs and become more efficient by centralizing IT resource management, consolidating systems, and increasing resource utilization. With greater efficiency and automated services on demand, IT organizations drive business agility while further reducing costs. Service catalog, automation, chargeback, and Service Level Agreement (SLA) monitoring on virtualized infrastructure are critical in the transformation to an IT as a Service model. VCE and CA Technologies are teaming to offer a solution for defining and publishing standardized IT offerings to business users on a converged infrastructure.

The self-service solution increases IT value and agility while reducing costs and risk. It also helps IT standardize fulfillment by automating service delivery processes—from request to approval to fulfillment—reducing labor-intensive tasks and speeding time to service provisioning.

The Challenge

In today's virtualized environments, IT departments are experiencing increased pressure to demonstrate more value in the services they provide to their businesses while being asked to spend less. Customers want access to new offerings, shorter time to value, consistent quality, ease of use and reduced costs.

The Solution

VCE has teamed up with CA, specifically leveraging Vblock™ Systems, the CA Service Catalog, and CA Process Automation to deliver a self-service solution that addresses these challenges. CA Service Catalog provides an intuitive view of the services IT provides to the business and the benefits that business users can realize with those services. The converged Vblock system provides revolutionary opportunities for standardization and rapid deployment of services. In addition, the automation capabilities provided by the integrated solution enable the end goal of consistent and true self-service for end users. For example, the solution helps IT to increase customer satisfaction by rapidly provisioning virtual desktops that allow end users to get what they need in less time.

The resulting tightly integrated, self-service solution provides access to standardized, repeatable services, and their associated costs. This gives users both the service details and the financial information they need to make informed choices.
Scope
This white paper discusses Service Catalog and Process Automation and the value these technologies have for the Vblock converged infrastructure. This paper:

- Highlights the key concepts of Service Catalog and Process Automation technologies in general
- Provides a specific example of how to leverage CA Technologies products to build an automated self-service portal for a Virtual Desktop use case

Audience
CIOs, infrastructure and operations VPs, directors and managers, as well as any technical management responsible for defining IT strategy will benefit from reading this paper. Sales engineers, field consultants, professional services, IT managers, infrastructure architects, partner engineers, and customers may also find the content useful when creating a self-service catalog.

Feedback
To suggest documentation changes and provide feedback on this white paper, send e-mail to docfeedback@vce.com. Include the name of this paper, the name of the topic to which your comment applies, and your feedback.

Terminology
The following table contains terms used throughout this paper.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud computing</td>
<td>Cloud computing is an evolving term used to describe a new model of computing whereby shared servers provide resources, software, and data to computers and other devices on-demand. Cloud computing is a natural evolution of the widespread adoption of virtualization, service-oriented architecture, and utility computing.</td>
</tr>
<tr>
<td>Converged infrastructure</td>
<td>A converged infrastructure packages multiple IT components into a single, optimized computing solution. Components of a converged infrastructure solution include servers, storage devices, virtualization, networking equipment, and software for IT infrastructure management, automation, and orchestration.</td>
</tr>
<tr>
<td>Enterprise Management Infrastructure</td>
<td>Infrastructure chosen by the customer to house management software. The management infrastructure is isolated from the infrastructure running core workloads because it is VCE best practice to separate management applications from the workloads that are being managed by the management software.</td>
</tr>
<tr>
<td>Information Technology Infrastructure Library (ITIL®)</td>
<td>The Information Technology Infrastructure Library (ITIL) is a set of concepts and practices for Information Technology Services Management (ITSM), IT development, and IT operations. ITIL is the most widely adopted approach for IT Service Management in the world. It provides a practical, no-nonsense framework for identifying, planning, delivering, and supporting IT services to the business.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IT as a Service</td>
<td>IT as a Service is the transformation of IT to a more business-centric approach, focusing on outcomes such as operational efficiency, competitiveness, and rapid response. In this model, IT shifts from producing IT services to optimizing production and consumption of those services in ways consistent with business requirements. This changes the role of IT from a cost center to a center of strategic value.</td>
</tr>
<tr>
<td>Process automation</td>
<td>Process automation is designed to speed the delivery of IT services while helping to remove manual errors. By defining, automating, and orchestrating processes across organizational silos that use disparate systems, process automation helps improve productivity while also enforcing standards. Process automation is a solution platform that enables organizations to orchestrate business or IT processes that span multiple organizational boundaries across different domains.</td>
</tr>
<tr>
<td>Service catalog</td>
<td>The service catalog provides a central source of information about the IT and business service offerings delivered to the business by the provider organization. A service catalog ensures that business areas can view an accurate, consistent picture of the IT services available, their details, and status. It also enables the provider organization to set expectations, communicate service levels, and provide visibility into service usage in financial terms.</td>
</tr>
<tr>
<td>Virtual Desktop Infrastructure (VDI)</td>
<td>VDI improves operational efficiency and control of data and users by offering a more flexible approach to desktop computing. With VDI, which leverages a client-server computing model to bring virtualization to the desktop, devices, operating systems, applications, and user settings can be managed independently and delivered based on user roles.</td>
</tr>
</tbody>
</table>
Technology Overview

Together VCE and CA offer a robust, best-of-breed solution through technologies that enable enterprises to present standardized IT offerings to business users on a converged infrastructure.

VCE Vblock™ Systems

Vblock Systems combine industry-leading compute, network, storage, virtualization, and management technologies into prepackaged units of infrastructure. Through standardization of building blocks, the Vblock system dramatically simplifies IT operations—accelerating deployment while reducing costs and improving service levels for all workloads, including the most demanding and mission-critical enterprise applications.

Vblock systems scale to deliver the right performance and capacity to match the needs of business applications. The following Vblock systems are available:

- **Vblock Series 300**: Designed to address a wide spectrum of virtual machines, users, and applications. Ideally suited to achieve the scale required in both private and public cloud environments. Vblock 300 scales from smaller to mid-sized deployments of enterprise CRM and SCM, e-mail, file and print, and collaboration.

- **Vblock Series 700**: Designed for deployments involving very large numbers of virtual machines and users. Ideally suited to meet the higher performance and availability requirements of an enterprise’s business critical applications. Vblock 700 scales to the largest deployments of enterprise Customer Relationship Management (CRM) and Supply Chain Management (SCM), datacenter operation environments, and service provider cloud computing offerings.

Refer to the [Vblock Infrastructure Platforms Technical Overview](#) for detailed information on the Vblock systems.

CA Service Catalog and CA Process Automation Software

To create and deploy an effective service catalog requires both presentation and automation software. CA offers two products with capabilities that support enterprises as they define service elements, build catalog content, define request and fulfillment processes, and publish services.

CA Service Catalog

CA Service Catalog helps transform an IT organization from a reactive cost center to a proactive strategic business partner. It is a highly intuitive, user-friendly, enterprise-class solution. With the CA Service Catalog, enterprises can define, publish, and measure services in business terms, and provide financial insight into consumption. CA Service Catalog automates the delivery of services across physical, virtual, and cloud environments to increase value, reduce risk, realize agility faster, and help reduce cost.

The CA Service Catalog software suites include the following major components: Service Builder, Budget and Planning Module, Billing Engine, Form Designer, and Policy Builder.
CA Process Automation

CA Process Automation automates IT processes that span multiple organizations and systems and reduces the time it takes to deliver services. It enforces standards and compliance policies across departments. It includes three main capabilities:

1. Design—Using the automation library of several hundred automation objects, designers can leverage a graphical drag-and-drop user interface to quickly create, test, and automate new processes. Existing legacy automation scripts may also be imported into the version-controlled library for reuse.

2. Integration—A standard set of connectors provide integration to a wide variety of common IT systems and the ability to read and write data and launch tasks within applications, operating systems, and other IT components. Custom connectors can be built for connecting to IT systems using generic APIs such as web services or command line interfaces.

3. Orchestration—Once in production, all processes execute in a highly scalable and fault-tolerant environment, and as processes execute, each step can be recorded in an audit log.
VCE and CA Integrated Solution Architecture

VCE and CA have collaborated to provide a consistent and repeatable self-service solution architecture that is scalable and easy to deploy. The solution outlined is applicable for all Vblock systems, but for the purposes of this solution, was validated on the Vblock Series 700 platform.

Deployment

Deploying this self-service solution on the scale of a Vblock system drives high availability and scalability requirements. Therefore, it is recommended to deploy this solution as follows:

- Two or more CA Service Catalog servers
- Two or more CA Process Automation servers

These components are cloud management applications and therefore should be installed on a customer’s Enterprise Management Infrastructure. VCE best practice calls for the separation of workload (which runs on the Vblock system) from management software. As a result, VCE recommends that all management components discussed in this paper be deployed on Enterprise Management Infrastructure. Each customer will likely have their own approach and infrastructure dedicated to housing management components.

Today, VCE provides an Advanced Management Pod (AMP), which can be considered part of an overall Enterprise Management Infrastructure. However, the AMP is designed to support only VCE base management applications and not broader enterprise or cloud management applications such as CA Service Catalog or CA Process Automation. Deploying this solution requires infrastructure to house the CA cloud management components. For the purposes of this paper, it is assumed that this infrastructure will be separate from core workload infrastructure (per VCE best practice) and will be referred to as the Enterprise Management Infrastructure.

Figure 1 shows the logical deployment architecture recommended by VCE and CA.
Figure 1. Logical Deployment Architecture
CA Service Catalog Design and Implementation

After deploying the architecture, the next step is to design and implement the service catalog. A design and implementation flow is illustrated in Figure 2.

Define Service Elements

Creating a clear definition for each service is the first step in designing and implementing the service catalog. This step requires collecting and understanding business requirements.

The definition of a service typically includes the following key elements:

- Service name
- Service description
- Features and options
- Service levels
- Service response (or service fulfillment) timeframes
- Service prices
- Service billing units of measure
The self-service catalog choices offered in this solution are based on user type—corporate, sales, and engineering. The VDI choices that appear depend on the type of user requesting the desktop. For example, a corporate user can choose a Bronze, Silver, or Gold desktop. Sales and Engineering users can choose Silver, Gold, or Custom desktops.

The following table is an example service definition for a sales user’s virtual desktop infrastructure (VDI).

<table>
<thead>
<tr>
<th>Element</th>
<th>Silver Sales User VDI Package</th>
<th>Gold Sales User VDI Package</th>
<th>Custom VDI Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>&quot;Corporate-approved virtual desktop for sales, configured with the latest operating system, Microsoft Office productivity suite and standard suite of sales applications. The virtual desktop will automatically…”</td>
<td>&quot;Corporate-approved virtual desktop for sales with additional memory and storage resources installed and configured with the latest operating system and Microsoft Office productivity suite of applications. The virtual desktop will automatically…”</td>
<td>Corporate-approved virtual desktop allowing requestors to specify their unique requirements including O/S, memory, disk, number of CPUs. The virtual desktop will be provisioned automatically after management approval.</td>
</tr>
<tr>
<td>Description</td>
<td>&quot;Corporate-approved virtual desktop for sales, configured with the latest operating system, Microsoft Office productivity suite and standard suite of sales applications. The virtual desktop will automatically…”</td>
<td>&quot;Corporate-approved virtual desktop for sales with additional memory and storage resources installed and configured with the latest operating system and Microsoft Office productivity suite of applications. The virtual desktop will automatically…”</td>
<td>Corporate-approved virtual desktop allowing requestors to specify their unique requirements including O/S, memory, disk, number of CPUs. The virtual desktop will be provisioned automatically after management approval.</td>
</tr>
<tr>
<td>Features and Options</td>
<td>- Windows 7 Pro w/2GB RAM&lt;br&gt;- 250GB Storage&lt;br&gt;- MS Office 2010 (Pro)&lt;br&gt;- ACME App suite, ACME CRM, etc.</td>
<td>- Windows 7 Pro w/4GB RAM&lt;br&gt;- 250GB Storage&lt;br&gt;- MS Office 2010 (Pro)&lt;br&gt;- ACME App suite, ACME CRM, etc.</td>
<td>- Guest OS (Windows 7, Windows NT, Linux)&lt;br&gt;- Memory Requirements (4GB, 8 GB, etc.)&lt;br&gt;- CPU Count (1, 2, 4, etc.)&lt;br&gt;- Disk Size (40G, 80G, etc.)</td>
</tr>
<tr>
<td>Service and Support Expectations</td>
<td>Business Hours Support</td>
<td>24/7 Support</td>
<td>24/7 Support</td>
</tr>
<tr>
<td>Approval Requirements</td>
<td>Manager approval required</td>
<td>Manager approval required</td>
<td>Manager approval required</td>
</tr>
<tr>
<td>Subscription Price (per month)</td>
<td>$40/image</td>
<td>$55/image</td>
<td>$75—150/image</td>
</tr>
<tr>
<td>Provisioning Timeframe</td>
<td>Within 5 minutes after approval</td>
<td>Within 30 minutes after approval</td>
<td>Within 1 hour after approval</td>
</tr>
</tbody>
</table>
Build Catalog Content

Once the service definition and all of its related information are documented, IT organizations can start to build the service catalog content. The CA Service Builder tool facilitates catalog content building, including defining a logical catalog structure. As a starting point, IT organizations may choose to take advantage of the multiple foundation-level catalog content templates provided by CA to build their own catalog content.

CA Service Catalog software provides five types of catalog entries to organize service offerings:

- Folders
- Services
- Service Option Groups
- Service Options
- Service Option Elements

With these catalog entries, IT organizations can define a logical structure and a hierarchy of services within the service catalog based on different business and service requirements. Each service definition can have an unlimited number of service options and service option elements.

Define Request and Fulfillment Processes

After defining a catalog’s logical structure, the next step for IT is to define service request and fulfillment processes.

- **Service requests**
  
  The CA Service Builder tool includes CA Form Designer, which is used to create the customer view of the service catalog, including both the business view and the technical view. During design, it is recommended to clearly define user roles so that different users can access the business and/or the technical views based on their roles.

  For example, a standard corporate user can be assigned a “catalog user” role so that this user can make service requests. Users that need to view service accounting can be assigned an “administrator” role.

- **Service fulfillment**
  
  We recommend using a business process to illustrate the fulfillment of a service, so that each step in a service process can be followed logically. Figure 3 illustrates a fulfillment process to provision a virtual desktop on the Vblock system using the VMware View product.
In this example, CA Process Automation provides workflow capabilities to automate the service fulfillment process. Predefined foundation-level catalog content from CA provides references for how to automate approvals and notifications for subsequent actions that complete the service fulfillment process.

Publish Service

In the final step, IT publishes the service catalog to its customers. Before publishing a service, it is good practice to first perform usability studies and performance tests, taking into consideration the variety of employees and user levels within the organization. It is important to consider the roles that users have in their business units and organizational policies.

After a service is published, the solution is available on a web-based, self-service interface. This is where users access service offerings in the catalog.
Design Considerations

When building and deploying this self-service solution, keep the following design considerations in mind:

- Use SSL to satisfy security requirements.
- When designing the structure of the service catalog, minimize the number of levels that users must navigate to reach specific services.
- Start with two instances of each component for failover and load balancing to accommodate the anticipated scale of workload in a Vblock environment. If the request response time is not meeting expectations, then additional instances can be deployed.

Integration Considerations

There are several integration points to consider when implementing this self-service solution:

- CA Embedded Entitlements Manager (EEM) is used to authenticate and authorize users. CA EEM can be configured to use an external directory service, such as Microsoft Active Directory, for user authentication.
- CA Process Automation uses graphical processes created by system administrators to execute operational processes automatically. For this solution, CA Process Automation interacts with Vblock APIs to perform the required workflow automations. For instance, CA Process Automation can invoke a Vblock system control API to carry out virtual machine provisioning as part of a user's request. For more information, refer to the API Reference for Vblock Infrastructure Platforms white paper.
- CA Process Automation can also integrate with applications running on the Vblock system through APIs provided by these applications. For instance, CA Process Automation uses the VMware vSphere API and the VMware View management interface to fulfill VDI provisioning requests from CA Service Catalog.
Solution Validation

The following sections describe the validation hardware, software, and environment.

Vblock Hardware and Software Components

The following table lists the hardware and software components that comprise the Vblock Series 700 used to validate the solution.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco UCS</td>
<td></td>
</tr>
<tr>
<td>▪ 2 x B-Series blade servers with 384GB RAM each</td>
<td>2 chassis</td>
</tr>
<tr>
<td>▪ 4 x 4-port Fabric Extender cards</td>
<td></td>
</tr>
<tr>
<td>Cisco Fabric interconnect 6120</td>
<td>2</td>
</tr>
<tr>
<td>Cisco MDS 9506</td>
<td>2</td>
</tr>
<tr>
<td>EMC VNX</td>
<td>1</td>
</tr>
<tr>
<td>VMware vSphere (version 4.1)</td>
<td>1</td>
</tr>
<tr>
<td>VMware vCenter Server (version 4.1)</td>
<td>2</td>
</tr>
</tbody>
</table>

Solution Software Components

The following table describes the CA Service Catalog and VMware software components used to validate the use cases in this document.

<table>
<thead>
<tr>
<th>Software</th>
<th>Version</th>
<th>Profile Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA Service Catalog</td>
<td>r12.6</td>
<td>Number of CA Service Catalog servers 8GB, 256 GB HD, 2vCPU</td>
<td>2</td>
</tr>
<tr>
<td>CA Process Automation</td>
<td>r3.0 SP1</td>
<td>Number of CA Process Automation servers 8GB, 256 GB HD, 2vCPU</td>
<td>2</td>
</tr>
<tr>
<td>CA Business Intelligence</td>
<td>r3.2</td>
<td>Number of CA Business Intelligence servers</td>
<td>2</td>
</tr>
<tr>
<td>CA IT PAM vSphere Connector 1.5</td>
<td>1.5</td>
<td>Number of vSphere Connectors 8GB, 256 GB HD, 2vCPU</td>
<td>2 (installed with CA Service Catalog Servers)</td>
</tr>
<tr>
<td>CA Embedded Entitlements Right Manager (EEM) packaged with CA Service Catalog</td>
<td>r8.4</td>
<td>Number of CA Embedded Entitlement Right Manager servers 8GB, 256 GB HD, 2vCPU</td>
<td>2 (installed with CA Service Catalog Servers)</td>
</tr>
<tr>
<td>VMware View</td>
<td>4.6</td>
<td>Number of VMware View connection servers 4GB, 80 GB HD, 2vCPU</td>
<td>1</td>
</tr>
</tbody>
</table>
### Physical Deployment Configuration

Figure 4 depicts the physical deployment configuration for the Automated Self-Service Catalog solution.

<table>
<thead>
<tr>
<th>Software</th>
<th>Version</th>
<th>Profile Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft SQL Server</td>
<td>2008 SP2</td>
<td>Database server 8GB, 256 GB HD, 2vCPU</td>
<td>1</td>
</tr>
<tr>
<td>Microsoft Windows Server Active Directory</td>
<td>2008 SP2</td>
<td>Active Directory for Security and Authentication 4GB, 80 GB HD, 2vCPU</td>
<td>1</td>
</tr>
</tbody>
</table>
Validation Environment

To set up the validation environment, each VMware vSphere Hypervisor (ESXi) server was provisioned using UIM and configured by following best practices for Vblock system configuration.

Next, several desktop pools were configured using pre-defined virtual machine templates:

- An automated pool type was used for the standard desktop offerings so that VMware View Manager could dynamically create and deploy new virtual desktop instances.
- Although manual pools are not typically required, for validation of this solution, a manual pool type was used for the custom desktop offering. The custom desktop was provisioned using a CA IT Process Automation workflow calling the VMware vSphere API and VMware View API directly. To complete the request, the Enterprise Administrator created a manual pool with dedicated assignment and added the requested custom virtual desktop using the View Admin UI.

Both DNS and DHCP server capabilities were enabled on the Active Directory installed on a Microsoft 2008 Windows server. VMware View connection servers and virtual desktop instances created in these desktop pools were configured to join the Active Directory domain. A hierarchy of users for a sample organization was created and configured in the Active Directory. CA EEM was configured to point to this Active Directory.

A CA Process Automation agent was installed and configured on the VMware View connection server. This agent served as the integration point for the resource allocations associated with the service catalog request and workflow.

Figure 5 provides a logical view of the validation environment.
Figure 5. Logical View of Validation Environment
Use Case 1—Requesting a Standard or Custom Corporate Desktop

The following scenario outlines how the easy-to-use, automated solution described in this document allows employees to quickly fulfill a VDI request—from initial request through approval, provisioning, and fulfillment to accessing the VDI. Figure 6 illustrates the steps in the fulfillment process.

Figure 6. VDI Fulfillment Use Case

Step 1: Make VDI Request

The user logs on to a company-branded, self-service user interface (Figure 7) and makes a VDI request for either:

- **Standard Corporate Desktop**—the user can see the services and the service levels (Figure 8) available to that user, saving valuable time and guesswork. With the specifications and time-to-provision displayed, the user is certain of what will be received, when, and the approval(s) needed to receive the VDI.
Custom Corporate Desktop—the user can choose multiple configuration parameters to create a custom desktop that meets their specific business needs. The custom corporate desktop options available to the user in this use case are:

<table>
<thead>
<tr>
<th>Configuration Parameter</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Count</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>Memory Size</td>
<td>4GB, 8GB, 12GB</td>
</tr>
<tr>
<td>Disk Size</td>
<td>20GB, 40GB, 80GB, 120GB</td>
</tr>
<tr>
<td>Guest OS</td>
<td>Windows 7, Windows XP, Linux,</td>
</tr>
<tr>
<td>Description</td>
<td>Reason for Requesting Custom Virtual Desktop</td>
</tr>
</tbody>
</table>

Figure 7 is an example of a self-service virtual desktop services request form.

![Virtual Desktop Services Request Form in CA Service Catalog](image)

**Figure 7. Virtual Desktop Services Request Form in CA Service Catalog**

Figure 8 is an example of the corporate virtual desktop services packages available to corporate users.
Step 2: Approval Request Email

The user’s manager instantly receives an email outlining the user’s request. The email contains a link to the self-service interface where the manager completes the approval process—without phone calls, IT involvement, or hallway conversations. Mobile devices can be integrated to facilitate quicker approval processes and faster SLA response times.

Step 3: Request Approved

From within the self-service interface, the manager can see quickly what the user has requested. Knowing the user chose from a predetermined list and appreciating that the standardized options are described in business terms, the manager understands the request and immediately approves it.

Step 4: Provisioning VDI

Through another automated workflow process, the service catalog provisions the appropriate VDI to the user’s desktop, making it accessible as soon the user enters the appropriate credentials.
Step 5: VDI is Ready

Minutes after sending the original request, the user receives an automated email confirming that the VDI request has been approved. The email contains a username, password, and a link for the user to access the VDI. This email provides traceable proof of when the request was initiated, approved, and fulfilled.

Step 6: Access VDI

Without any impact to productivity, the user clicks on the email link to launch the requested VDI. On the desktop, the user finds a complete and familiar computing experience.

In this example, the user is able to provision quickly and automatically a standard solution built around a complete, converged infrastructure with known performance, scale, and availability. The solution integration is performed on the Enterprise Management Infrastructure, a fully redundant and dedicated management environment. The resources are deployed rapidly without involving IT in the request, approval, or fulfillment process at any time. With this automated and standardized approach to VDI that scales to many users at the same time, users can quickly accomplish tasks while IT is free to work on more strategic projects that provide greater value to the business.

Use Case 2—Releasing a Virtual Desktop

This use case highlights the ability to support elastic operations with virtual desktops. This capability allows the user to release a desktop when they no longer need it or if it does not meet their business requirements. Once the desktop is released back to the pool, the business user is no longer charged for that service. Additional resources are added back to the general pool to be consumed by new requests.

Use Case 3—Requesting a Snapshot of a Virtual Desktop

This solution demonstrates the scenario where a user would like to back up or make a copy of their existing virtual desktop configuration and save it for restoration or future use. Providing this capability as a service offering eliminates loss of data and the time-consuming work required for restoration from disk or tape. The user takes a snapshot and later requests a restore of that snapshot. Vital business data is restored quickly and cost-effectively. The user can request that multiple snapshots be taken allowing for revision control during their development or work stream.

Examples of when a user might want to create a snapshot of the virtual desktop are:

- When certain complex application and software configurations are often crucial to a specific business project or requirement and may be needed later.
- When testing the environment for quality assurance purposes and need to return it to its original configuration, or repeat testing from a particular configuration state.
Use Case 4—Requesting to Revert a Snapshot of Virtual Desktop

This use case allows the user to request through the automated self-service portal that an earlier snapshot or version of their virtual desktop be restored. The user is able to view all snapshots of their virtual desktop and specify which snapshot to restore. This allows the user to start over or minimize data loss.

Use Case 5—Service Account Reports/Chargeback

An important capability of any IT service is the ability to effectively manage costing and pricing of the service. An important use case of this solution focused on providing the user with pricing information, an invoice, and accounting details when requesting and ordering a specific service. Invoicing and accounting information can be obtained at an individual user level or at a department or organization level depending on the reporting requirements.

These types of reports can be used by:

- Business managers to identify how their departments are using services.
- IT managers to assess the pricing/cost model being used and to adjust service offerings based on which services users are requesting and consuming.

The following diagram is an example of an invoice a user may receive for their VDI services. In this example, the invoice reflects the monthly price and the total cost to the user. In this case, the user did not utilize the VDI desktop for a full 30-day period so the final cost to the user is adjusted to reflect only time used.
Use Case 6—Service Level Reporting

The ability to run detailed reports is critical in monitoring and making changes or enhancements to the service portfolio or process. Detailed reports can include number of service requests made by business user, department, or organization, fulfillment times, and requested services. This use case demonstrates the ability to generate service level reports by individual users or business managers to track the effectiveness of the self-service process.
Conclusion

IT is undergoing a transformation to cloud computing. This transformation is leading enterprises to re-engineer IT and move to an IT as a Service delivery model. The driving forces are opportunities to:

- Reduce operating expenses
- Increase business agility
- Increase the efficiency and consistency with which IT provides services to business users

To achieve the goal of offering IT as a Service, IT must transition from a reactive cost center to a proactive strategic business partner. By defining and publishing services to users with the VCE and CA solution and automating the provisioning and de-commissioning of the underlying workflow, IT can begin to realize the operational efficiency that cloud deployments promise.

When IT organizations use CA Service Catalog and CA Process Automation to present services on Vblock systems, they clearly link IT and business, demonstrating value through transparency to consumers of those services and achieving:

- **Increased customer satisfaction** by rapidly provisioning resources and enabling end users to get what they need in less time.
- **Agility and standardized fulfillment** by automating service delivery processes from request to approval to fulfillment, reducing labor-intensive tasks, and speeding time to service provisioning.
- **Reduced costs** resulting from the reduction of manual effort and greater efficiency in allocating resources.
- **Reduced risk** by utilizing proven and tested service and process definitions for requested services.
- **Increased business management operations** by providing effective pricing, chargeback, and invoicing for the service offerings and by providing detailed service level reports to ensure that the agreed upon SLAs are being met.

Enterprises attaining these benefits quickly realize the power and efficiency of IT as a Service and the cloud model.

Next Steps

To learn more about this and other solutions, contact a VCE representative or visit [www.vce.com](http://www.vce.com).
Additional References

For additional technical information supporting this solution architecture, please refer to the sites and documents listed below.

- Service Catalog Strategies for Vblock Infrastructure Platforms
- API Reference for Vblock Platforms
- Vblock Infrastructure Platform Architecture
- Vblock FastPath Desktop Virtualization Platform
- CA Virtual Desktop Automation Solution website: [http://www.ca.com/us/content/page/desktop-virtualization/VCE.aspx](http://www.ca.com/us/content/page/desktop-virtualization/VCE.aspx)
- CA Service Catalog website: [www.ca.com/servicecatalog](http://www.ca.com/servicecatalog)
- CA Process Automation website: [www.ca.com/tpam](http://www.ca.com/tpam)
- Additional solution information: [www.ca.com/vce](http://www.ca.com/vce)
ABOUT VCE
VCE, formed by Cisco and EMC with investments from VMware and Intel, accelerates the adoption of converged infrastructure and cloud-based computing models that dramatically reduce the cost of IT while improving time to market for our customers. VCE, through the Vblock system, delivers the industry's only fully integrated and fully virtualized cloud infrastructure system. VCE solutions are available through an extensive partner network, and cover horizontal applications, vertical industry offerings, and application development environments, allowing customers to focus on business innovation instead of integrating, validating and managing IT infrastructure.
For more information, go to www.vce.com.

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