

**WHITE PAPER**

Implementing a Service Catalog is Essential for Cloud-Computing Success | March 2011

without a service  
catalog, your  
public, private,  
or hybrid cloud is  
just a fog bank

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# executive summary

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## Challenge

The concept of cloud computing implies that the cloud computing platform is “mist” - ethereal and simple. In reality, like electricity to your home, cloud computing requires a complex infrastructure and sophisticated processes to make the illusion of the cloud a reality.

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## Opportunity

Implementing a service catalog can bring the forces to bear to realize your cloud computing vision. From presenting your cloud-based service offerings in an intuitive way to your customers – be they internal or external service consumers—to automating your service support and service delivery processes, a service catalog implementation can make your concrete environment look simple.

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## Benefits

Your service consumers can understand what cloud-based services are available, what they cost and what they provide for greater customer satisfaction. Then processes can be automated, leading to increased organizational agility, cloud-based services scalability, and reduced service delivery and service support costs.

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## Section 1: challenge

# Without a service catalog, cloud computing implementation is too complex

### **Customers can't identify what services are available**

The first challenge service consumers have is identifying what services are available. Your cloud may provide Infrastructure as Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), Data as a Service (DaaS) or some combination thereof. Without a service catalog, your customers or potential customers cannot understand what services are available much less what options exist for each service. They don't know service costs. They do not know quality of service so they cannot do cost-benefit analysis. In other words, your service offerings are not transparent.

### **Customers can't easily request services**

Even if customers could identify services and service options, without an actionable service catalog, they can be dissuaded from requesting your cloud-based services, thus reducing the value of your cloud implementation. If requesting services is not simple and intuitive, people tend to either go elsewhere to obtain their services (if they have that option), or utilize more general service request mechanisms such as escalating to managers or opening service desk requests.

Either of those general request mechanisms can reduce your organizational productivity by requiring extensive manual processing thus increasing costs and reducing time-to-implementation and agility. Obviously, this is a problem for a service provider who desires to establish themselves as a proactive business partner.

### **Inappropriate service bundles can be requested**

In the absence of a service catalog to bundle associated services, service consumers can make nonsensical service requests. For example, they might select a SaaS or PaaS service on an unsupported platform. Picture a service request for a Microsoft SharePoint portal, which runs only on a Windows Server, on Linux. The problem with such a request, again, is the need for manual intervention to communicate with the requestor to educate them and to redefine the request

### **Request metadata is not accurately captured in a useful format**

Making a request for service is merely the tip of the iceberg. Once a service request is made, many processes must ensue. Those processes require data. In the absence of a service catalog, capturing request metadata is a manual process as is replicating that data across the many systems required to enable your cloud implementation.

## Section 2: opportunity

# A service catalog implementation can simplify your cloud-computing implementation

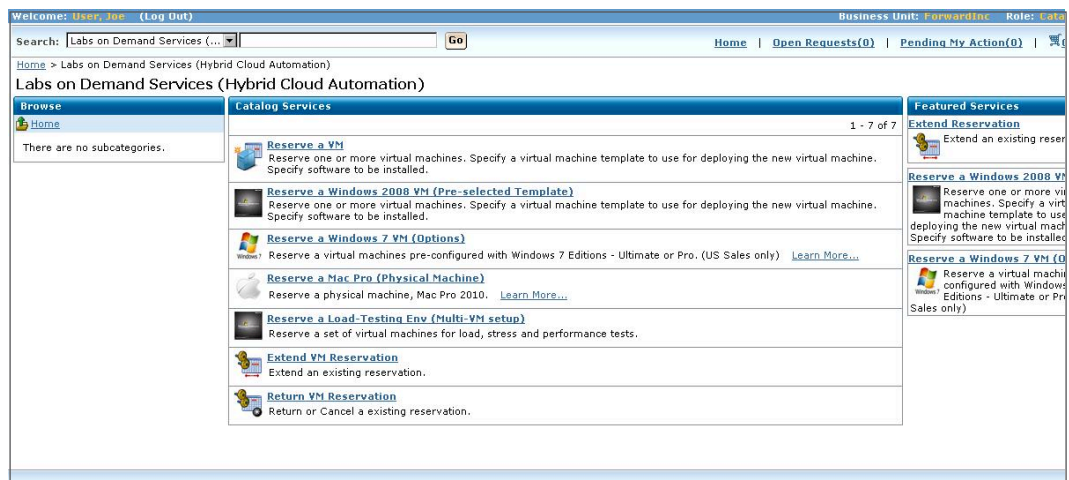
**The service catalog can present your services in a manner that your customers and potential customers can understand**

**The service catalog can support service identification.** Often, it is wise to use a service catalog to locate services. Many service catalog tools support at least two mechanisms for locating a service. The first mechanism is to create a service hierarchy. For example, one might categorize their service offerings as infrastructure services, platform services, software services, and other services. Within those categories, one might have subcategories. For example, under Infrastructure Services, one might have Linux Virtual Servers, Windows Virtual Servers and Storage. As you can see, a hierarchical service hierarchy supports logical service identification. In addition to a service hierarchy, one might support the identification of services using a key word search. In the case of our service above, one might search on the terms “Linux” and “servers” to quickly identify a Linux Virtual server.

The image below demonstrates a catalog with a category of services called “Labs on Demand Services (Hybrid Cloud Automation).” That category contains a number of specific offerings such as “Reserve a VM.” In addition, this service catalog provides keyword search capabilities and even “Featured Services,” which might be new or commonly requested service offerings.

**Figure A**

Using a service catalog to list services



**The service catalog can support service bundling.** We saw the case earlier where a service requester asked for a SharePoint platform on Linux and that such a request was nonsensical. Instead, it is better to bundle services in combinations that make sense. This reduces the number of combinations that a service consumer must consider, simplifying their service request experience. For example, one might create a SharePoint platform service for an existing Microsoft Windows server or on its own Windows server.

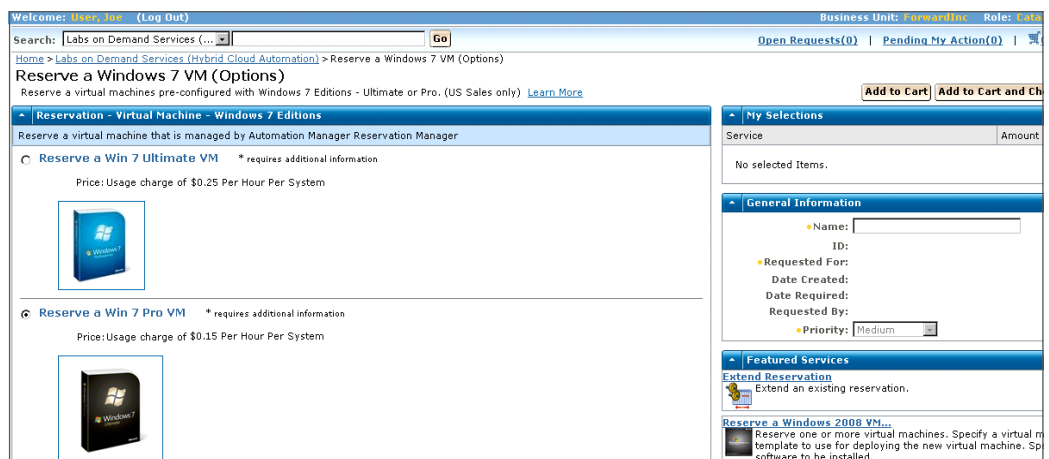
One might also present options for service levels. For example, the SharePoint service bundle might present a high-availability option, which includes clustered servers (virtual or physical). The example below bundles Windows 7 virtual machines and forces the service consumer to select one or the other, but they cannot accidentally select both. This design enforces business rules and eliminates manual intervention and rework.

**The service can support service selection.** Once potential services have been identified, the service catalog can present the service consumer with information required for them to choose an appropriate bundle. For example, along with service bundles, one might include service costs or charges. With that information service consumers can make cost-benefit decisions. For example, if the cost for 99.999% availability is five times the cost for 99% availability, the service consumer may choose the lower level of service.

The example below not only details the operating system on the virtual machines, but includes the costs—\$.25 per hour per system vs. \$.015 per hour per system—so service consumers can perform cost—benefits analysis, thus optimizing their resource usage.

**Figure B**

Using a service catalog to bundle services and support service selection

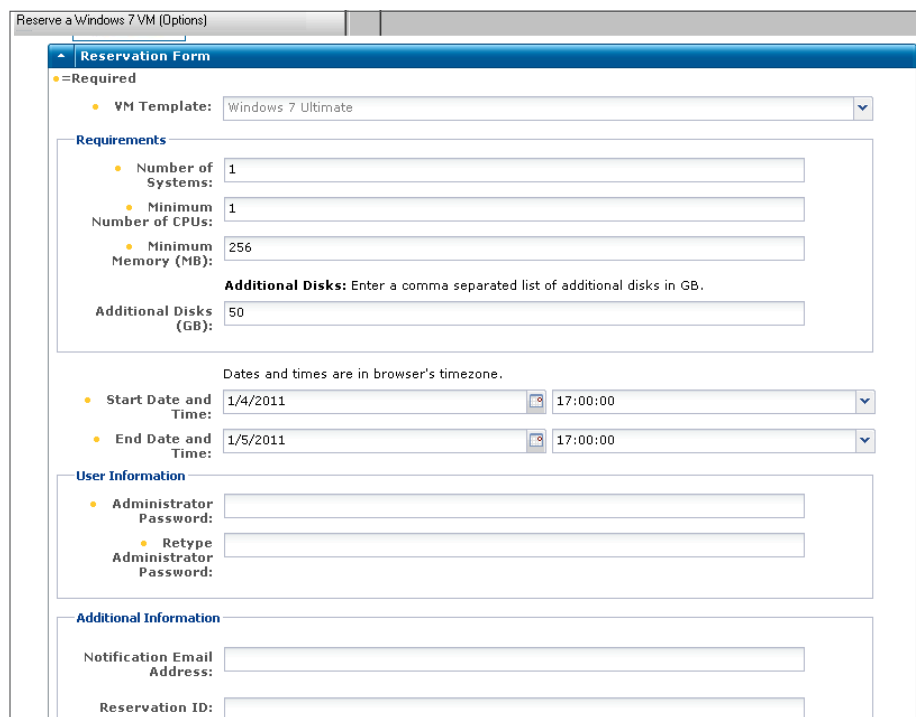


**The service catalog can accurately capture request metadata.** In addition to embedded request data (e.g. the items selected, the total cost of the request), during the service request process, much useful information can be captured to simplify and automate downstream processes. That information may include “Who actually made the request?” and “Who was the request made on behalf of?” (i.e. an admin can make the request on behalf of a vice president who might be offsite).

Another common piece of metadata that might prove useful is “Who can approve this request?” to support the approval process. Other common metadata might support service billing such as “Who is going to pay for this request?” In this example, the request captures details required to configure and deploy a Windows 7 virtual machine.

**Figure C**

Using a service catalog to capture request metadata



The screenshot shows a web-based reservation form titled "Reserve a Windows 7 VM (Options)". The form is organized into several sections:

- Required:** A dropdown menu for "VM Template" is set to "Windows 7 Ultimate".
- Requirements:**
  - Number of Systems: 1
  - Minimum Number of CPUs: 1
  - Minimum Memory (MB): 256
  - Additional Disks (GB): 50
- Start and End Date and Time:**
  - Start Date and Time: 1/4/2011 17:00:00
  - End Date and Time: 1/5/2011 17:00:00
- User Information:**
  - Administrator Password: [input field]
  - Retype Administrator Password: [input field]
- Additional Information:**
  - Notification Email Address: [input field]
  - Reservation ID: [input field]

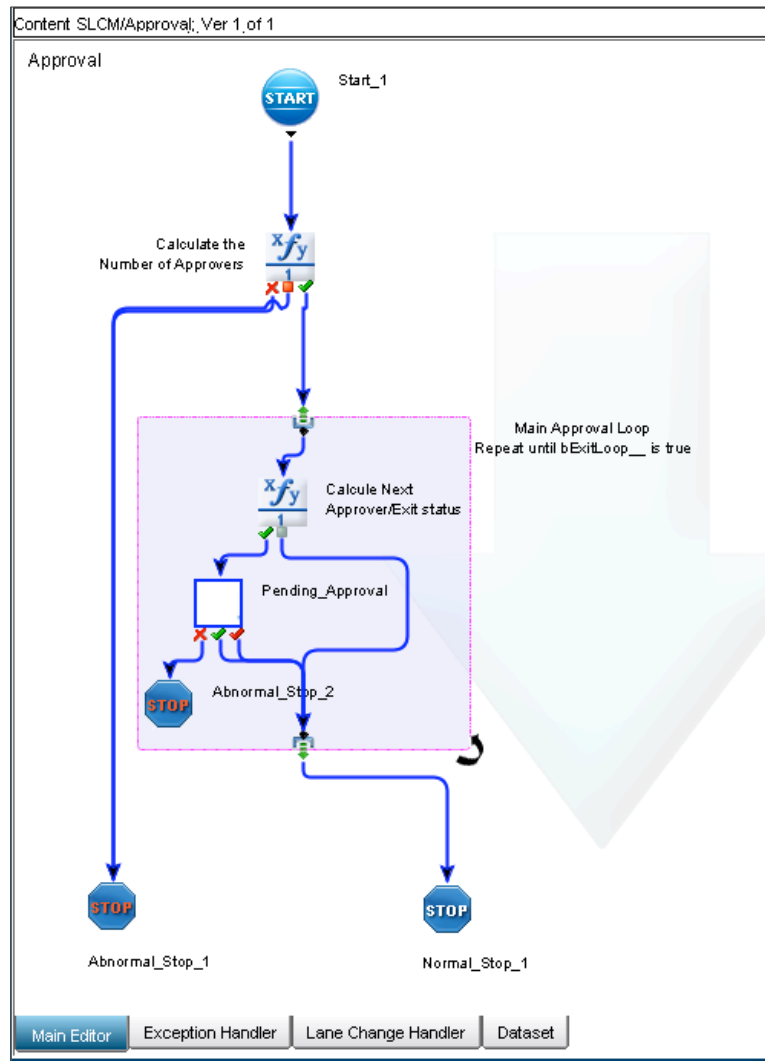
**The service catalog can integrate other necessary processes.** Once services have been identified, requested, and their request metadata has been captured, end-to-end processes required to provide and support your cloud services can be triggered and integrated. We will review some of these processes at a high level.

**The service catalog can integrate the approval processes.** In a cloud-based service scenario, the service catalog workflow can use request metadata to automatically enforce business rules. For example, many organizations have a price threshold under which service requests do not require approval, saving many hours of time and effort. Others have business rules such as “When the requestor is (or it requested on behalf of) a vice president” and that person’s department is being billed, go ahead and automatically approve the request.

Your goal should be to define business rules such that most standard requests are approved or denied automatically. For the remaining requests, you should use the metadata to automatically route the request to the appropriate approver. The example below illustrates a rules-driven multi-layer approval process.

**Figure D**

Using the service catalog to Integrate the Approval Process



**The service catalog can integrate the provisioning process.** Once a service has been requested and approved, the deployment process can begin. In the case of a cloud-based service provider, that might trigger the creation of a virtual server based on a prebuilt template. That server might then be deployed on a specific physical server.

**The service catalog can integrate service metering.** Upon service deployment, the components that comprise that service usually require monitoring. The first use of monitoring is obvious—to manage the service availability in real-time. Other less obvious uses for monitoring data includes supporting service level compliance (What was the service availability over the last hour, day, or week?), billing (How much of the service—e.g. email—was consumed over the month?), and even the capacity management processes (How many virtual machines are on a physical machine, and at what amount has the service usage been increasing/decreasing?).

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## Section 3: benefits

# Benefits of service catalog implementation

### **Implementing a service catalog can help transform a technical service provider organization into a business service provider**

The biggest challenge we encounter with new cloud- based service providers is that the staff has traditionally been geared toward technology. They have not seen themselves as business service providers and have not seen their service consumers as customers. Implementing the service catalog triggers the redefinition of technical services in business terms familiar to service consumers—typically business units. This represents a massive cultural change which is required to integrate business and technology functions. For a CIO, this transformation is especially critical because providing business services will become the norm as service consumers get used to dealing with public cloud providers.

### **Implementing a service catalog reduces service costs**

Imagine that you have chosen a cloud computing platform which reduces your service costs by reducing hardware requirements, power usage, and floor space using virtualization technology. Now picture that each time you add a service, you require additional staff to manage the end-to-end service processes. The cost saving realized by virtualization can soon be eaten up in increased staff costs. Clearly that is not the desired result. You must automate end-to-end processes and tasks, eliminating manual effort and process inefficiencies. Your service catalog implementation will go a long way to help you to realize your desired cost savings.

### **Implementing a service catalog increases customer satisfaction**

As we stated at the beginning of this paper that when service consumers hear the phrase “cloud computing,” they expect services that are simple to understand, easy to request, quick to deploy, and cost effective. Any cloud computing implementation that fails to deliver on these expectations are sure to be considered a failure. Conversely, if you provide a service catalog implementation that simplifies the service identification, service request, and hides the behind-the-scenes complexity, you can deliver on the promise of cloud computing, whether you are a public or private cloud provider.

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## Section 4: Conclusions

Too many cloud-based solution providers imagine that their cloud computing-enabling systems stop at the deployment technology layer (e.g. virtualization or grid platforms). They quickly find that it is not enough to have the deployment infrastructure in place. They also need to define and present their services in such a manner so their target service consumers can understand what is available, what options exist, and perform cost-benefit analysis when choosing appropriate services. Then service providers need to make their end-to-end processes efficient and effective. Otherwise, their need for additional staff will overwhelm the cost advantages that cloud computing seeks to deliver.

There is no better mechanism to realize the potential for providing cloud-based services than implementing a service catalog. A service catalog is designed to support the presentation and request for services, the capture of data required to make the service life-cycle efficient, and the workflow to automate service processes.

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## Section 5: About the Author

Frank Bucalo is an enterprise architect with CA Technologies specializing in risk management systems. Prior to his time at CA Technologies, he was an architect and a consultant with banking and brokerage clients. He is a member of the Global Association of Risk Professionals (GARP) and an ITIL® Service Manager. Mr. Bucalo represents the new breed of “Total Architect”—knowledgeable and experienced across business, technology, and technology management domains.

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