Automation promises to unlock exceptional advantages in speed, efficiency and quality for IT resource deployments. But first, decision makers must address the complex and heterogeneous nature of many data center environments, which complicates the automation process. For example, deploying a single workload may involve the allocation and provisioning of servers, storage resources and networks — sometimes from multiple vendors — plus deployment of hypervisors, virtual machines (VMs) and operating systems. Not to mention the applications themselves.

Many of today’s provisioning tools are what might be called element-centric or device-centric. They take a bottom-up approach that can be complex and error-prone and often requires coding or scripting skills to achieve the automation. Furthermore, many tools concentrate on a single element domain, such as servers or VMs, and a single vendor.

To help simplify the provisioning process, Dell Active System Manager (ASM) takes an innovative, top-down and service-centric approach to IT automation. Powerful, flexible and easy to use, ASM leverages Dell intellectual property, open-source software and extensive research in user interactions to streamline infrastructure and workload automation. It is designed to simplify and automate the management of heterogeneous environments, enabling IT to respond rapidly to dynamic business requirements.

ASM accelerates the design and deployment of IT services through two

Service-centric approach to IT automation

By Scott Powers

By boosting data center agility and efficiency, IT can spark untold business and organizational advances. Dell Active System Manager is designed to unify and simplify IT service delivery, enabling IT to respond quickly to changing enterprise needs.
Dell Active System Manager provides a profoundly simple yet powerful user experience that delivers agility, efficiency and quality to IT organizations worldwide.

**Template-based provisioning**

The central tenet of ASM is a template-based approach to defining and deploying nearly any type of IT service. In a service template, both the component-level resources and the complete end-to-end environment can be defined, specified and saved — and then deployed repeatedly on demand. (See the sidebar, "Speed deployments using pre-built templates.")

A template can include definitions of storage resources, server configurations, hypervisor and operating system requirements, cluster configurations, script-driven application installations and on-demand VMs or VMs cloned from gold images. The physical and virtual networking connections and relationships among these elements are also included. Any or all of these

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main approaches. First, ASM employs a template-based approach to service design and deployment for application workloads and their underlying infrastructure. In addition, ASM provides a wizard-driven automation method with a visual design interface for the specification of end-to-end IT services.

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**Speed deployments using pre-built templates**

Dell Active System Manager (ASM) supports a wide range of infrastructure and workload provisioning tasks. It ships with several pre-built templates for rapid startup and out-of-the-box automation. For example, pre-built infrastructure templates are included for the following services:

- Installation of Windows or Linux® operating systems to bare-metal servers
- Installation of VMware ESXi® or Microsoft® Hyper-V® hypervisors and configuration of virtual machine (VM) hosts and clusters
- Deployment of new or cloned VMs in single- or multi-VM networked applications
- Deployment of hybrid physical and virtual resources — for example, servers and VMs — in the same template

Administrators can use pre-built templates to deploy resources in a virtual desktop infrastructure (VDI) environment. ASM provides two pre-built templates for VDI: one to deploy a suite of application servers and another to deploy the server, VM and storage infrastructure necessary to support up to 1,000 desktop users (see figure). Automating an end-to-end VDI service deployment based on a pre-built, best-practice template enables administrators to save hundreds of manual steps and hours, if not days, of hands-on effort.

![Sample Active System Manager service template for the Citrix® XenDesktop® 7 application](image)

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elements can represent a service. In other words, administrators can create a service to deliver nearly any IT resource, whether that resource is defined as a simple server or storage profile, a predefined gold VM or operating system, or a complete multi-tier application stack along with the required underlying infrastructure.

Accordingly, a template can be used to define a common configuration at any of these levels and then deployed repeatedly to create multiple identical instances of the service. For example, templates can help administrators deploy multiple identical servers across a data center in about the time it takes to deploy one server. Moreover, when bringing up new classrooms or business units, administrators can automatically provision the server and storage resources needed to support additional users in a virtual desktop infrastructure (VDI) environment with just a few clicks. This template-based approach to service automation facilitates the use of best practices and allows IT administrators to design once and use repeatedly — providing quality and consistency across IT service deployments.

Wizard-driven automation
To support template-based provisioning, ASM offers a wizard-driven automation method and an intuitive visual interface for the design and specification of end-to-end service templates. The ASM template builder interface provides a guided approach that allows administrators to simply point and click to select components and specify their properties and relationships. For each physical or virtual component selected and placed onto the template palette, the available settings and options are displayed for authorized users to select or specify.

Automating deployment based on a pre-built, best-practice template enables administrators to save hundreds of manual steps and hours, if not days, of hands-on effort.

To achieve a wizard-driven interface that abstracts the underlying settings, ASM integrates closely with element managers from Dell and third parties, plus virtualization managers such as the VMware® vCenter™ and Microsoft® System Center platforms. The visual workflow design approach is designed to significantly reduce the complexity normally associated with automation, including the coding and scripting that is traditionally required.

Profound simplicity
Dell performs extensive research into user interaction design, doing hands-on testing with IT administrators who range from specialists in servers, networking, storage and virtualization, to system architects and cloud administrators. This ongoing research and testing has yielded a template builder application that, while powerful and flexible, helps simplify the design of complex automation tasks.

By incorporating these advances in user experience design, ASM greatly facilitates the automation process and minimizes the learning curve for administrators. In turn, it accelerates the adoption of automation and the realization of its substantial benefits. By taking a top-down, service-centric approach to IT automation, ASM provides a profoundly simple yet powerful user experience that delivers agility, efficiency and quality to IT organizations worldwide.

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