



## I D C   A N A L Y S T   C O N N E C T I O N



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### Automation Is the Order of the Day

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*Enterprises are dealing with more complexity and scale in their datacenter infrastructures than ever before. With data expected to grow at a compound annual growth rate (CAGR) of 44% over the next five years, IT managers identify managing data growth as their number 1 storage management challenge. Significant heterogeneity; increasingly stringent service-level objectives (SLOs) in the areas of performance, availability, and recovery; and shrinking budgets have CIOs looking to more broadly implement automation solutions that can improve operational efficiencies, increase administrative span of control, ensure that IT governance is consistently and reliably applied across the entire infrastructure, and improve the level of satisfaction customers enjoy with their services.*

The following questions were posed by Hitachi Data Systems (HDS) to Eric Burgener, research director, Storage, on behalf of HDS customers.

**Q. Why should enterprises be concerned about the level of automation they can bring to bear in datacenter management?**

A. Today's datacenters have a wide variety of solutions in place that span physical and virtual infrastructure, legacy applications as well as next-generation applications (NGAs), different operating platforms, and on-premise and off-premise installations. This complexity has become too costly and too difficult to reliably manage with purely manual operations. At the same time, server, storage, and network management tasks are migrating away from dedicated administration groups to IT generalists in enterprises of all sizes in response to budget issues and the mainstream use of virtual infrastructure. Business requirements to manage explosive data growth while meeting Web-savvy customers' expectations for extremely high performance and availability are making it more difficult to cost effectively meet low response times and adequately ensure that recovery point objectives (RPOs) and recovery time objectives (RTOs) can be met for business continuance reasons.

Rapid data growth is at the core of many of the most pressing storage management challenges. In the very near future, even medium-sized enterprises will be managing hundreds of terabytes to petabytes of information, and the storage solutions that enterprises have deployed to meet performance, availability, and manageability requirements will only be put under more pressure as data growth continues at current rates. It is imperative that CIOs address these challenges without compromising reliability and quality, and with the extent of repetitive workflows in monitoring, data protection, disaster recovery, provisioning, and change management, automation provides a significant ability to address the concerns of a successful and growing business.

**Q. What benefits can automation bring to the table?**

- A. IDC survey data indicates that 45% of IT staff time is taken up by routine operations such as provisioning, configuration, maintenance, monitoring, troubleshooting, and remediation, whereas only 21% is allocated to innovation and new projects. Thankfully, many of these routine tasks are automatable. Automation can improve the reliability of operations while ensuring that established policies are followed, better enabling the use of generalists to manage the IT infrastructure while increasing administrative span of control for improved efficiencies. This in turn can free up IT staff to focus more on innovative IT projects, which can help move the business forward in new ways.

Many NGAs focus on mobile computing, social media, big data and analytics, and cloud applications. The ability of an enterprise to leverage these new areas to increase awareness, perform lead generation, collect and analyze new information sources that act as relevant inputs to product or services strategies, and judiciously use cloud-based options to improve agility and lower costs figures strongly in its ability to compete effectively in today's dynamic business environment. Enterprises that are getting the most out of their NGAs are those in which CIOs focus on driving innovation that sets their business apart from competitors.

**Q. What are some of the ways that enterprises are using automation effectively today?**

- A. Enterprises should review the workflows they have established today, rank the workflows in order of automatability, and work toward automating the workflows that are most automatable first. When purchasing IT infrastructure, enterprises should ensure that solutions offer programmatic access to all onboard functionality through public, documented, and supported APIs (or at least provide a command line interface). Enterprises should consider the ability to integrate new systems purchases into preexisting datacenter workflows, as well as the ability to create new workflows to accommodate evolving business needs. Comprehensive orchestration tools built into an enterprise's dominant virtual infrastructure (vSphere, Hyper-V, Xen, KVM, etc.) tool set can help establish the type of cross-platform workflows needed in today's heterogeneous datacenter.

Using tiered services models can help simplify new application deployment and control costs through some measure of standardization. Tiers with different service levels in terms of performance, availability, and recovery are established, and new applications (and/or servers) are put into a preestablished group. Administrators pick a desired service level and then use the appropriate application provisioning template to automate lower-level operations such as media selection (flash or spinning disk), LUN creation, RAID layouts, and replication configuration setup. Monitoring frequencies can be associated with particular service levels, using an "exception-based" approach that surfaces alert conditions only when manual intervention is absolutely required. Policy-based management in general is a common approach to enforce operational guidelines and ensure auditability. Where a process cannot be 100% automated, guided workflows that are based on best practices but that allow for customization help ensure more consistent outcomes in response to any number of requests or conditions.

In storage, data protection, disaster recovery, and provisioning lend themselves very well to automation. Policies can be set to tie snapshot frequency to a desired RPO/RTO and determine which failures result in automatic recovery versus which failures require manual intervention. Setting up and testing disaster recovery configurations can be extremely complex, but templates and orchestration tools can help minimize the effort and risk associated with establishing them. Automating provisioning tasks, particularly in

organizations that are spinning virtual machines (VMs) up and down frequently, improves response time, reduces risk, and frees up IT staff to perform other more strategic tasks.

**Q. How can service catalogs help enterprises more fully leverage automation to improve administrative efficiencies?**

A. Service catalogs are an option for enterprises that are already at a high level of automation, providing a pick list of operations, products, and/or services in an easy-to-browse format that can be applied in an automated and consistent manner. These automated operations have been carefully crafted to reflect an organization's best practices. A service catalog typically provides a description of the service or process, provides SLO information to set expectations, defines who is entitled to request or view the service, details any associated costs, and often provides escalation points and key contacts. A service catalog centralizes available offerings, allowing them to be easily and reliably accessed and invoked from any location worldwide.

A very effective method of improving IT staff efficiency involves offloading certain IT operations to other stakeholders when the processes lend themselves to it. These services tend to be very repeatable and have controlled inputs, processes, and outputs. Self-service catalogs can be a particularly effective way of even offloading certain tasks to end users because a list of only those operations that have been sufficiently automated and can safely and reliably be invoked without IT oversight is made available to end users. In this manner, even operations performed by end users are in compliance with the latest IT governance policies, and making certain services — such as deploying a new server or application or requesting additional capacity for an existing server or application — available "on demand" in this manner tends to increase end-user satisfaction with the services IT is providing.

#### ABOUT THIS ANALYST

*Eric Burgener serves as a research director for IDC's worldwide Storage practice, which includes Storage Systems, Software, and Solutions research offerings; quarterly trackers; and end-user research as well as advisory services and consulting programs. Mr. Burgener's areas of coverage include flash-based arrays (all-flash arrays and hybrid flash arrays) as well as storage virtualization solutions. A veteran of the storage industry for almost 30 years, he has worked with enterprise storage technologies since 1991, including both hardware and software-based solutions.*

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