



A SOLIDFIRE BENCHMARK REPORT

The Storage Automation Report

How IT professionals are utilizing and benefiting from automation of the storage layer

What's in the report?

This research report queried more than 300 global IT professionals to gain insight on how they are using storage automation to realize a variety of benefits. This report details the drivers behind storage automation, what tools and interfaces IT professionals are using, preferences around storage management plug-ins and software development kits, and benefits realized by implementing storage automation.

Introduction

Look anywhere these days in the world of information technology and you'll encounter "automation." IT provisioning and deployment has no shortage of tasks that need to be executed, from launching or configuring web servers, to stopping or restarting services, to account creation, to RAID grouping and drive sparing.

As much as 75% of data center downtime is caused by human error¹. Data growth is projected to grow 10x a year and reach 44ZB by 2020², yet IT management growth is projected to increase nowhere near as quickly. It's clear automation can be a remedy for myriad data center management ills.

The rise in organizations utilizing a Development Operations (DevOps) approach has also fueled interest in automation. Automation is an essential tool for the successful creation and deployment of new software, as are communication and collaboration between developers (Dev) and the IT staff (Ops) tasked with deploying the software. The more infrastructure deployment processes that can be automated and standardized, the more an organization can focus on its core business offerings, on how to accelerate innovation, and on what differentiates it.

A key but often underestimated area of automation is storage automation. IT professionals are increasingly automating all aspects of their environments, including the storage layer, turning manual tasks like provisioning, performance management, data movement or migration, and RAID grouping into automated ones. Automated storage tasks are tasks that no longer consume management cycles each day; that are no longer suspect to human error; that return precious time to over-taxed admins, who can then be more efficient, manage more systems, and focus on projects that may have been deprecated because spare time was lacking.

1. SearchDataCenter. The causes and costs of data center system downtime: Advisory Board Q&A. Available at <http://searchdatacenter.techtarget.com/feature/The-causes-and-costs-of-data-center-system-downtime-Advisory-Board-QA>. Accessed November 2015.

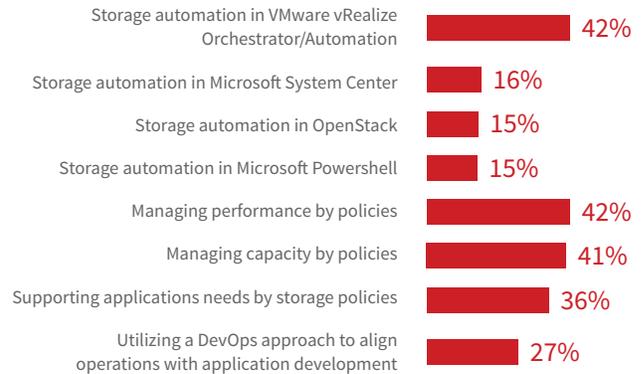
2. IDC. The Digital Universe of Opportunities. Available at <http://idcdocserv.com/1678>. April 2014.

KEY FINDING | VMware vRealize is the most popular tool currently being used for storage automation

Respondents were asked which technologies they were using to implement storage automation, with VMware vRealize being the most popular (42%). Microsoft System Center (16%), OpenStack (15%), and Microsoft Powershell (15%) were fairly evenly split. Managing performance and capacity by policy were the most common responses among the processes being automated. Among industries, Computer Software companies embrace utilizing a DevOps approach the most.

VMware vRealize, managing performance by policies popular with IT professionals

Which of the following initiatives and processes are you currently implementing?



DevOps approach popular with Computer Software companies

44% of surveyed Computer Software IT organizations are implementing utilizing a DevOps approach to align operations with application development.

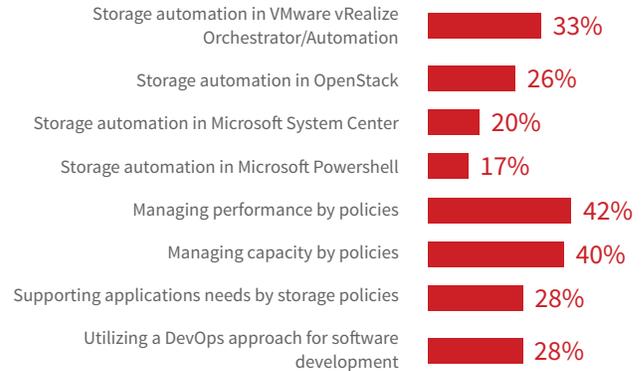
KEY FINDING | OpenStack is under consideration, particularly with computer software professionals

VMware vRealize is not only the most popular tool currently in use for automation, it is also the most popular tool under consideration. 33% of respondents have plans to use it in the next year. However, OpenStack – which has gained in popularity with IT professionals, often as a next generation solution to VMware and traditional virtualized environments – is showing interest from respondents with 26% indicating plans to use it in the next year.

Validating OpenStack’s “disruptor” status, 51% of current VMware automation users indicate they are considering implementing OpenStack in the next year. Computer software companies are evenly split between considering VMware vRealize and OpenStack. And even though only 28% of respondents overall indicated they are considering implementing a DevOps approach, a majority of computer software organizations indicated an interest.

IT Professionals considering vRealize for automation, managing performance by policies

Which of the following initiatives and processes are you considering implementing in the next year?

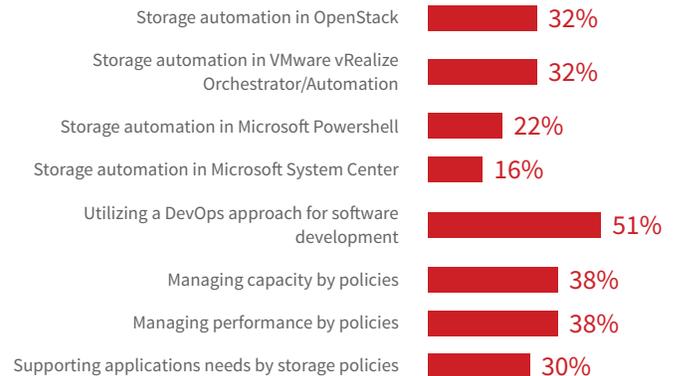


VMware users are considering OpenStack

51% of surveyed IT organizations who are implementing storage automation in VMware vRealize Orchestrator / Automation are considering OpenStack.

Computer Software companies considering DevOps approach, OpenStack

Which of the following initiatives and processes are you considering implementing in the next year?



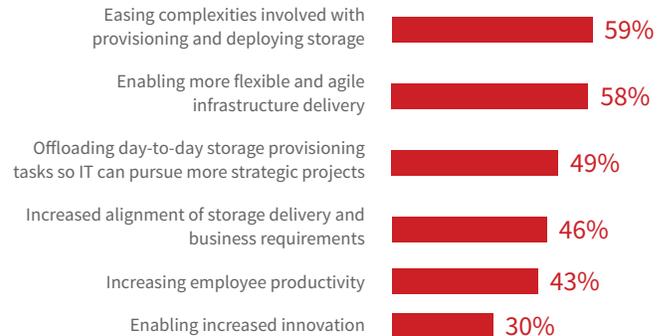
KEY FINDING | Easing deployment and delivery of storage are top drivers of automation

Of the many drivers behind an organization's deployment of storage automation, easing complexities involved with provisioning and deploying storage (59%) was most common, followed closely by enabling more flexible and agile infrastructure delivery (58%).

VMware vRealize Automation users were primarily driven by infrastructure delivery, whereas OpenStack, PowerShell, and System Center users were driven by simplifying deploying storage. Respondents identifying as utilizing a DevOps approach were primarily driven by enabling more flexible and agile infrastructure delivery. Interestingly, enabling increased innovation, which is a common stated benefit of increased automation, ranked last among all groups.

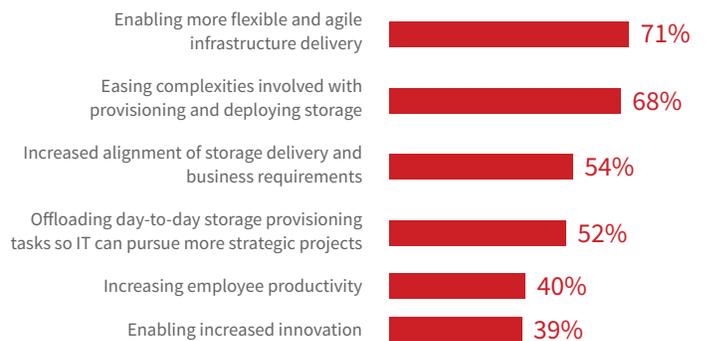
Easing complexities, more agile infrastructure delivery driving storage automation

What are the top drivers behind your organization's deployment of storage automation?



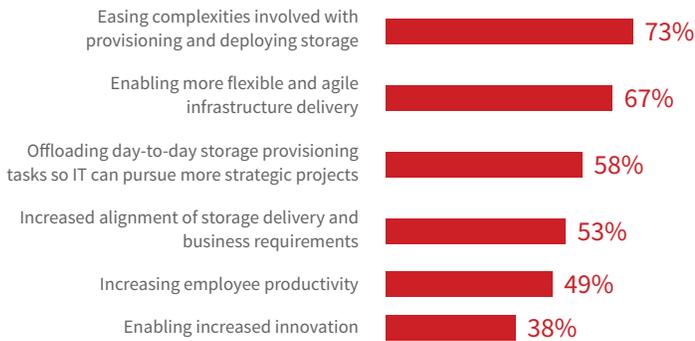
VMware automation users driven by agile infrastructure delivery

What are the top drivers behind your organization's deployment of storage automation?



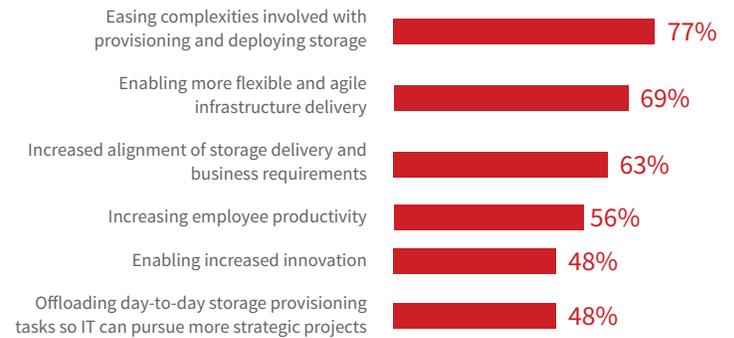
OpenStack users looking to ease complexities around provisioning, deployment

What are the top drivers behind your organization's deployment of storage automation?



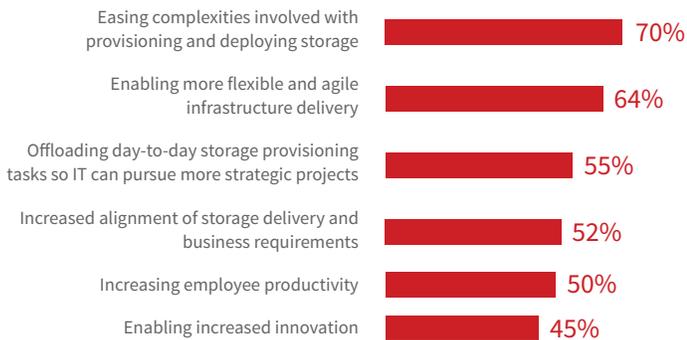
System Center users looking to ease complexities around provisioning, deployment

What are the top drivers behind your organization's deployment of storage automation?



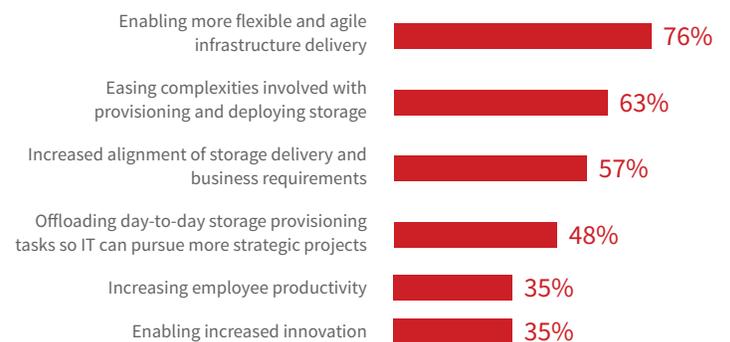
PowerShell users looking to ease complexities around provisioning, deployment

What are the top drivers behind your organization's deployment of storage automation?



Agile infrastructure delivery driving DevOps automation usage

What are the top drivers behind your organization's deployment of storage automation?



KEY FINDING | IT professionals using vendor-specific automation platforms are more likely to use associated third-party tools

IT professionals prefer third-party management tools for storage automation overall (62%). This is no surprise, given the majority of respondents indicated using VMware, which is managed through vSphere.

Breaking down the responses by technology used brought some insights to light: OpenStack users prefer API control; again not surprising given OpenStack is an API-driven platform. Somewhat surprising is that VMware users, while preferring third-party tools overall, also showed a strong preference for API control. PowerShell users prefer PowerShell; System Center users and those utilizing a DevOps approach prefer third-party management tools.

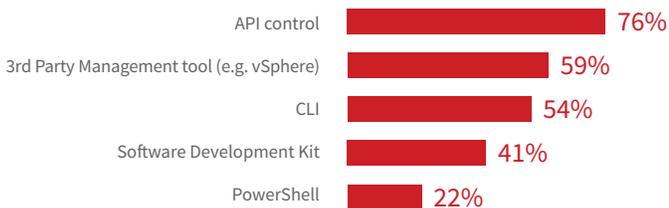
IT Professionals prefer third-party management tools for storage automation

How likely would you be to use the following interfaces and tools for your storage automation?



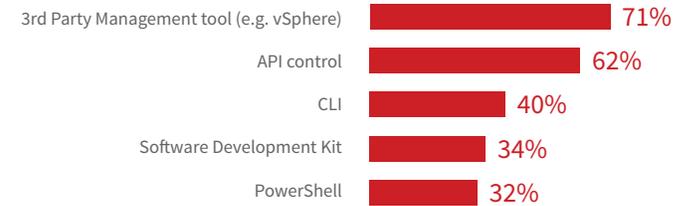
OpenStack users prefer API control for storage automation

How likely would you be to use the following interfaces and tools for your storage automation?



API control popular among VMware automation users

How likely would you be to use the following interfaces and tools for your storage automation?



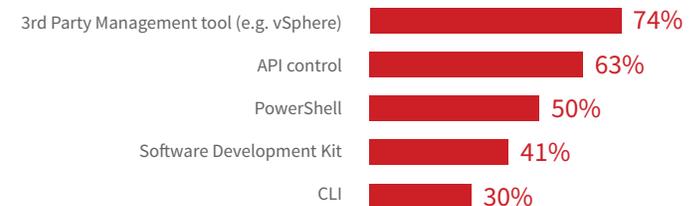
PowerShell users prefer using PowerShell and API control for storage automation

How likely would you be to use the following interfaces and tools for your storage automation?



System Center users prefer 3rd party management tools for storage automation

How likely would you be to use the following interfaces and tools for your storage automation?



Users of DevOps prefer 3rd party management tools for storage automation

72% of surveyed IT organizations who selected utilizing a DevOps approach to align operations with application development are likely to use a 3rd Party Management tool (e.g. vSphere) for their storage automation.

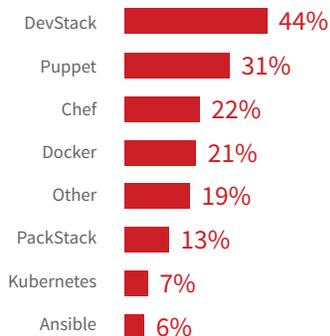
KEY FINDING | DevStack use across automation platforms is indicative of OpenStack's rising popularity

Further highlighting OpenStack's growing use, DevStack, a tool used to quickly create an OpenStack development environment, was the most listed tool that respondents are either using or considering (44%), followed by configuration management tools Puppet and Chef. Further validating that VMware users are dabbling in OpenStack, a majority indicated they are using or considering DevStack.

Across automation platforms, Docker is being used or considered by VMware users and even more so by those deploying OpenStack. Containers are often seen as a replacement to traditional VMs, so the interest among virtualization users is noticeable. For configuration management, the majority of industries prefer Puppet, including computer hardware and services. However, telecommunication companies prefer Chef.

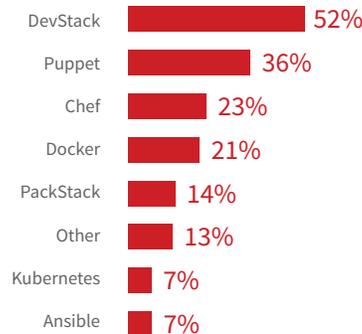
Common tools used include DevStack, Puppet and Docker

Which of the following tools are you using currently, or considering in the next year?



VMware automation users are also using OpenStack with DevStack

Which of the following tools are you using currently, or considering in the next year?



VMware automation users are considering Docker

21% of surveyed IT organizations who are using VMware vRealize Orchestrator / Automation are currently using or considering Docker.

OpenStack users are considering Docker

38% of surveyed IT organizations who are using OpenStack are currently using or considering Docker.

Computer hardware and services users prefer Puppet for configuration management

43% of surveyed Computer Hardware and Computer Services IT organizations are currently using or considering Puppet.

Telco users prefer Chef for configuration management

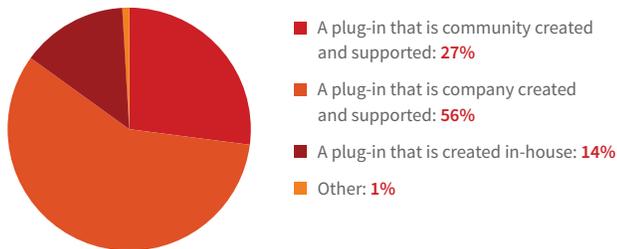
29% of surveyed Telecommunications Services IT organizations are currently using or considering Chef.

KEY FINDING | OpenStack users are more open to community created and supported plug-ins.

Plug-ins can facilitate storage automation tasks, and are typically community, company, or inhouse created and supported. Overall, respondents preferred company created/supported (58%), with VMware and Microsoft PowerShell and System Center users agreeing. OpenStack users were more supportive of a community created plug-in. OpenStack is open source, and by its nature embraces community contributed and driven projects.

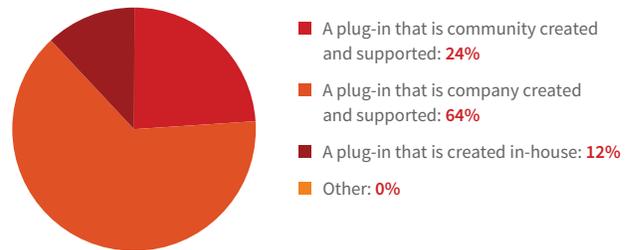
IT Professionals prefer company-created and supported plug-ins

Many automation tasks are facilitated through storage plug-ins. Which type of plug-in would you be most comfortable using?



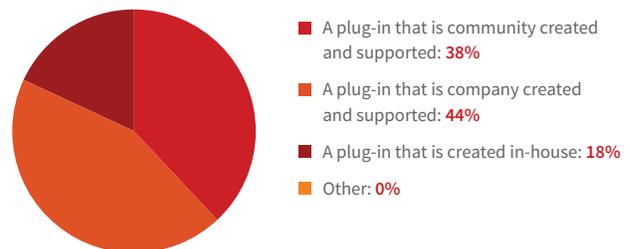
Company created/supported plug-ins are popular with VMware and Microsoft automation users

Many automation tasks are facilitated through storage plug-ins. Which type of plug-in would you be most comfortable using?



OpenStack users are more supportive of community created/supported plug-ins

Many automation tasks are facilitated through storage plug-ins. Which type of plug-in would you be most comfortable using?

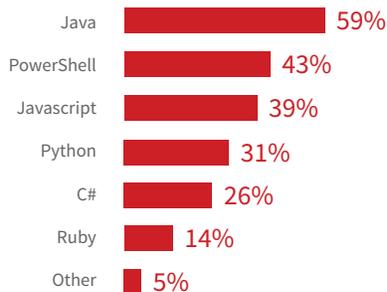


KEY FINDING | Java is the most popular Software Development Kit (SDK) for users overall and across all platforms

SDKs are tools that enable the creation of applications for particular platforms or frameworks, including hardware. They can significantly accelerate the development process. Storage automation users prefer Java overall (59%), followed by PowerShell (43%), and then Javascript (39%). OpenStack users similarly prefer Java but also have a strong preference for Python. Large-scale web applications are a common cloud workload, and Python is increasingly becoming standard for development of these applications. VMware vRealize users prefer Java and PowerShell. Unsurprisingly, PowerShell users overwhelmingly prefer using a PowerShell SDK, and System Center users are fairly evenly split between PowerShell and Java.

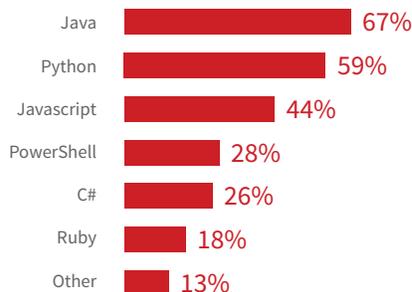
Java, PowerShell popular SDKs for IT Professionals

Which Software Development Kits (SDKs) would you be most likely to utilize?



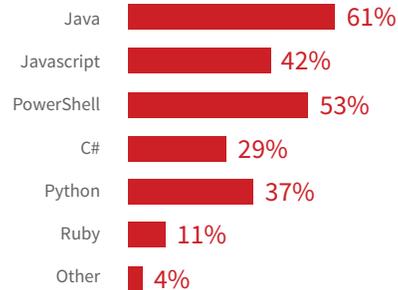
Java, Python SDKs popular among OpenStack users

Which Software Development Kits (SDKs) would you be most likely to utilize?



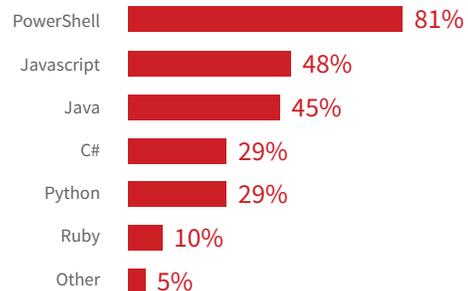
Java, PowerShell popular SDKs for VMware automation users

Which Software Development Kits (SDKs) would you be most likely to utilize?



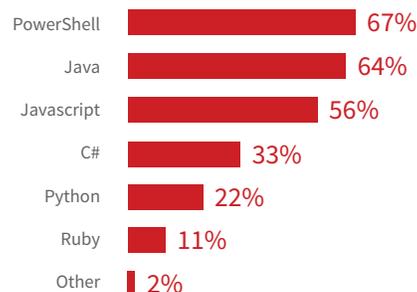
PowerShell users prefer using PowerShell SDK

Which Software Development Kits (SDKs) would you be most likely to utilize?



System Center users prefer using PowerShell, Java SDKs

Which Software Development Kits (SDKs) would you be most likely to utilize?

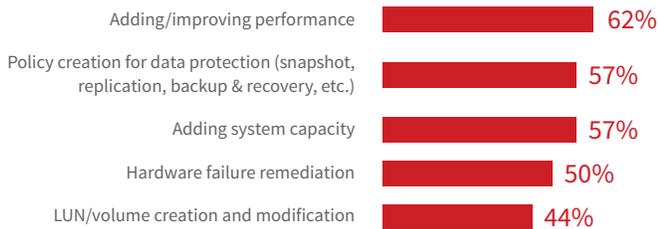


KEY FINDING | IT professionals are fairly evenly split over what tasks they are automating

Overall, respondents most often automate performance management (62%), with adding system capacity and policy creation for data protection following closely (57%). VMware vRealize users prefer automating data protection policies, whereas OpenStack users prefer to automate performance management. PowerShell users exhibit a preference toward automating adding system capacity, and System Center users would like to automate performance management.

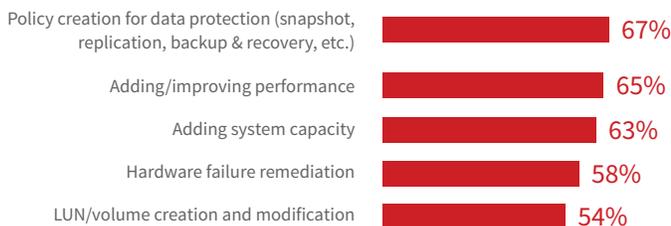
IT Professionals want to automate performance management

Which of the following storage tasks are you currently automating or planning to automate in the next year?



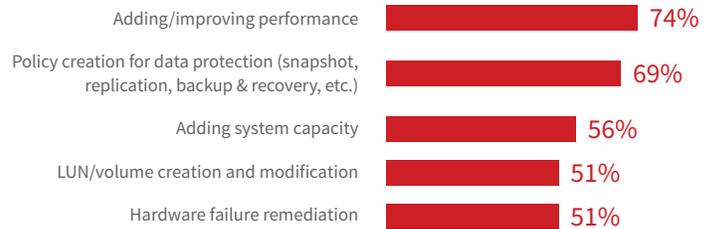
VMware users are automating policies around data protection

Which of the following storage tasks are you currently automating or planning to automate in the next year?



OpenStack users want to automate performance management

Which of the following storage tasks are you currently automating or planning to automate in the next year?



Powershell users are automating adding system capacity

62% of surveyed IT organizations who selected storage automation in Microsoft Powershell are automating or planning to automate adding system capacity.

Microsoft System Center users are automating performance management

80% of surveyed IT organizations who selected storage automation in Microsoft System Center are automating or planning to automate adding / improving performance.

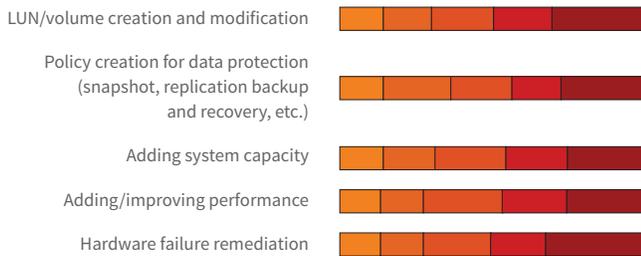
KEY FINDING | The majority of storage management tasks can be accomplished more than 4x faster using automation

The majority of IT professionals are seeing more than 4x gains in the speed at which they perform a variety of management tasks after automating. The largest gains were seen in policy creation, which was true for VMware, PowerShell, and System Center users as well. OpenStack users, however, saw greater gains in volume creation and modification, but also, notably, in hardware failure remediation.

Improvements with storage automation

After automating, how much faster can you complete the following tasks?

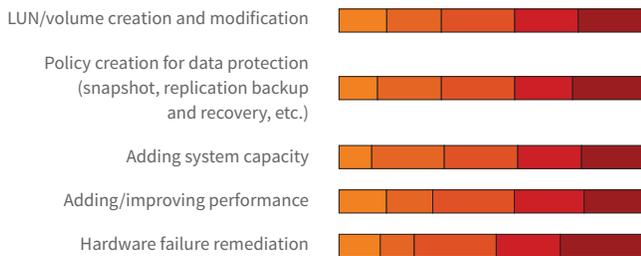
Over 10x faster 8x-10x times faster 6x-7x faster 4x-5x faster Up to 4x faster



VMware users benefitting from automating data protection policies, adding system capacity

After automating, how much faster can you complete the following tasks?

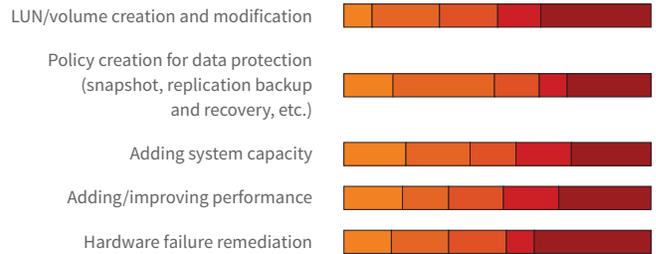
Over 10x faster 8x-10x times faster 6x-7x faster 4x-5x faster Up to 4x faster



PowerShell users benefitting from automating data protection policies

After automating, how much faster can you complete the following tasks?

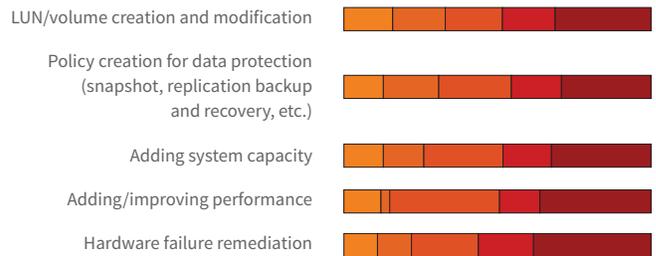
Over 10x faster 8x-10x times faster 6x-7x faster 4x-5x faster Up to 4x faster



System Center users benefitting from automating data protection policies

After automating, how much faster can you complete the following tasks?

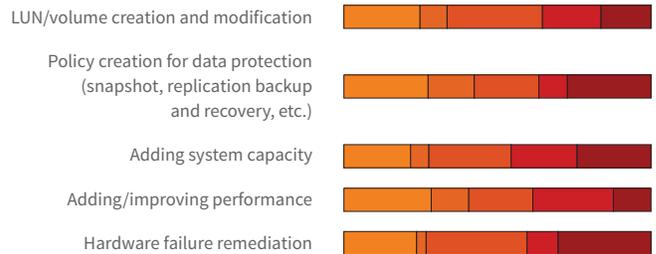
Over 10x faster 8x-10x times faster 6x-7x faster 4x-5x faster Up to 4x faster



OpenStack users see benefits automating data protection policies, performance management

After automating, how much faster can you complete the following tasks?

Over 10x faster 8x-10x times faster 6x-7x faster 4x-5x faster Up to 4x faster



Conclusion

Automating the storage layer is not new, as evidenced by the depth and breadth of ways organizations are utilizing it to streamline management and improve efficiencies. By and large, IT professionals are relatively homogenous in their approaches and hoped-for outputs around automation, with those organizations more cloud-focused having noticeable differences.

Several noteworthy findings include:

1. Despite “improving innovation” often being mentioned as a benefit of increased and improved automation, it ranked last among respondents as a driver of their automation initiatives. Storage automation is continuing to address the immediate problems of today and IT professionals have not overwhelmingly yet transitioned to tools that can accommodate next generation strategies of IT deployment, such as large-scale, orchestrated infrastructure.
2. VMware, as the virtualization/hypervisor market share leader, unsurprisingly has a large contingent of organizations utilizing their tools for storage automation. Peripheral tools and interfaces provided by VMware or that interface closely with VMware’s offerings enjoy correlated popularity. However, despite market dominance today, survey responses indicate a subtle shift to next generation technologies.
3. OpenStack, while not showing overwhelming usage currently, is notably being investigated or actively considered by many current VMware, System Center, and PowerShell users. The large percentage of respondents who indicate they are using DevStack validates that OpenStack is on their IT radars in some form.

4. Containers, too, are poised to be a disrupting force to traditional, virtualized environments. A non-trivial number of VMware users, and even more OpenStack users, expressed interest in Docker and Kubernetes — both alternatives to the traditional VM-based approach to application development and deployment.

Storage automation adoption is closely tied with the evolution of the data center. As the adoption of cloud-native designs and IT infrastructure architectures goes, so too goes the adoption of new or different methods of automating the storage layer.

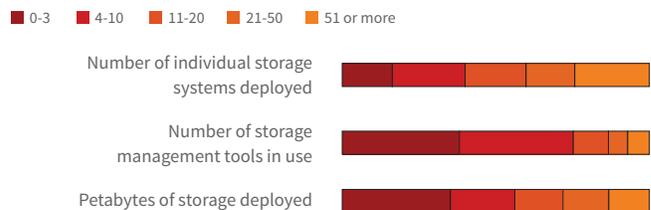
While transition pace may be slow, it has momentum. We will see an inevitable increase in more agile, cloud-compatible methods of automating storage.

About this survey

Conducted through an independent research organization, this study collected quantitative data from over 300 survey participants around the world, across a variety of job roles, industries, and company sizes. Respondents’ number of individual storage systems deployed was fairly evenly split from 0-3 all the way to 51 or more; the majority were using 10 or fewer storage management tools and 10PB or less of storage deployed. Survey participants are not SolidFire customers.

Storage Infrastructure Characteristics

Please describe your current storage infrastructure.





solidfire.com
1-855-376-4752
info@solidfire.com