IDC

ANALYZE THE FUTURE

Business Value Highlights

Reduced staff time to deploy, moving from basic to dynamic:

54% less staff time to deploy per server

66% less staff time to deploy per storage array

73% less staff time to deploy per network device

User impact, moving from basic to dynamic:

17% less time lost due to data loss/data settings problems

10% less time lost due to unplanned downtime

$1,838 in productive time saved per device deployed

The Business Value of Optimizing Datacenter Deployments

IDC OPINION

Adopting innovative business models is at the forefront of the enterprise agenda. It is IDC's belief that most companies today should be focusing on how IT can advance their business. To achieve business transformation, companies need to modernize their datacenters. Deploying new technology in these complex IT landscapes can present significant challenges, even for the most sophisticated IT organizations.

For the past 20 years, IDC has been surveying enterprises to get a deeper understanding of the amount of time spent on different IT tasks. The results have been resoundingly the same year after year: 80% of time spent on day-to-day tasks, such as patch management, installation, monitoring, troubleshooting, and remediation, and only 20% on innovation. In today's hypercompetitive environment, this 80:20 time allocation impedes the type of innovation that can lead to sustainable competitive advantage. IDC believes that CIOs and IT managers will increasingly rely on service providers with comprehensive offerings that can help improve the efficiency of IT service delivery and optimize IT operations. This reliance can free up IT resources to focus on innovative technologies that drive new business models.

The key areas where most time is spent are provisioning/deployment and remediation activities. When properly managed and deployed, enterprise datacenters will become the foundation upon which business transformation can be achieved. Further, the deployment of datacenter infrastructure such as servers, storage, and networking devices can be time consuming, and drawn-out deployments can slow down business processes. This puts the burden on IT organizations to make these activities as efficient and effective as possible.

To understand the impact of carrying out deployments more efficiently, IDC surveyed organizations worldwide about their experiences deploying datacenter assets. Survey results demonstrate that organizations capture strong value by limiting the time their IT teams devote to deployment activities while executing deployments more efficiently to support their businesses. IDC's research shows that organizations achieve the following results by advancing from least mature (basic) to most mature (dynamic) approaches to datacenter deployments:

- **Server deployments:** 54% less staff time required per server deployed

- **Storage deployments:** 66% less staff time required per storage array deployed

- **Network deployments:** 73% less staff time required per network device deployed

- **User impact:** 17% less productive time lost due to data loss or data settings problems and 10% less productive time lost due to unplanned outages associated with device deployments

- **Refresh cadence:** 50% more frequent refreshes, ensuring that organizations have modern hardware in place to effect business transformation

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IN THIS WHITE PAPER

This IDC white paper shows how utilizing outside resources, and in particular Dell EMC deployment services, can help companies focus on business initiatives. Implementing new technologies can be very complex, and utilizing the right partner to deploy the resources can mean the difference between a successful implementation and an implementation that may be destined to fail or operate less efficiently than proposed.

To support the analysis, IDC surveyed 580 IT decision makers at organizations worldwide.

These organizations were evenly split between organizations with fewer than and more than 1,000 employees. As shown in Table 1, IT teams at these organizations are supporting 2,500 users on average and deploying 19 new servers, 6 new storage arrays, and 21 network devices per year.

TABLE 1 | Survey Demographics and Deployment

	Average
IT users	2,500
Number of servers deployed per year	19
Number of storage arrays deployed per year	6
Number of network devices deployed per year	21

Source: IDC, 2018

IDC's analysis informing this study is based on categorizing the level of optimization each organization has achieved for deploying server, storage, and network devices. On the basis of surveyed organizations' reported practices for a number of activities related to datacenter deployments, IDC classified all surveyed organizations into the following categories in terms of overall level of optimization: "basic" (least optimized), "standardized," "rationalized," and "dynamic" (most optimized). The analysis demonstrates the changes in staff time required for deployment activities, the productivity costs associated with deployment-related problems, and the change in the frequency with which organizations refresh datacenter equipment.

SITUATION OVERVIEW

Technology is still improving at a staggering pace, and keeping employees well trained and well versed in a myriad of technology initiatives is expensive and time consuming. Server, storage, networking and, increasingly, converged and hyperconverged technologies are continually evolving. Keeping up with the best practices in each of these key technology areas may be difficult at best. Some of the key questions enterprises should be asking themselves when looking to implement a new technical solution are:

- What technologies, properly deployed and provisioned, provide the greatest potential to achieve the company's business objectives?

- Where does the expertise needed to best bring the solution to a purpose-ready state reside? To manage and maintain? Is it in-house staff or third party, or a combination of both?

- Who on the IT staff has the expertise to manage the project effectively?

- How should the life cycle of that system be approached and financed?

Keeping IT staff up to date on all the latest technologies, tools, system designs, and best practices, whether related to servers, storage, networking, or hyperconverged infrastructures, can be a daunting task, especially in complex infrastructures. IDC has identified different foundational attributes for deploying, migrating, and integrating systems needed for business success. The following list includes some of the parameters required for deploying assets:

- Ensuring proper cabling and labeling of the assets to reduce human error (the number 1 cause of downtime in many IT environments)

- Ensuring the installation of firmware to enable continuity of the environment, setting up proper administration, and monitoring features to provide more robust performance information and predictive analytics

- Creating documentation to accurately lay out how networks, storage arrays, and servers are configured in complex virtualized or hyperconverged environments

- Delivering automation that provides for instantaneous provision of capacity and workloads

- Integrating efficiently — bringing other components into the server that are not purchased from the OEM, which can be labor intensive and time consuming

- Monitoring all assets — proactively managing the environment to not only help detect errors to provide higher SLAs but also watch KPIs and optimize the user experience with the provisioned workload

- Determining the consumption model that works best for the organization — whether lease, capex, or opex (as a service)

Figure 1 depicts the tasks on which most IT time is being spent. A modernized datacenter will help reduce the time spent on these duties and free up cycles to work on IT-driven business initiatives.
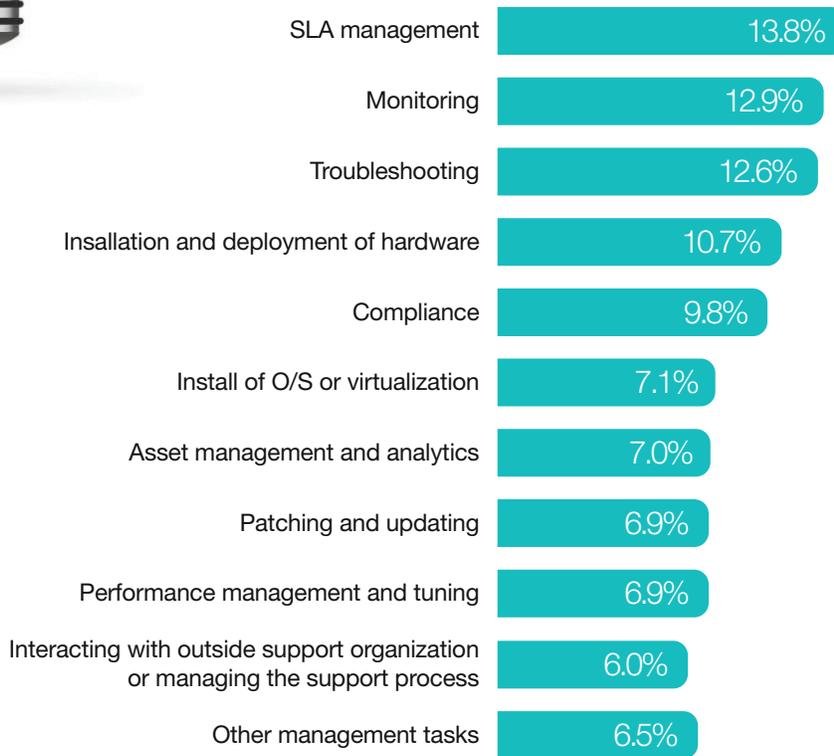
FIGURE 1 IT Operations

IT staff spends too much time with routine support tasks
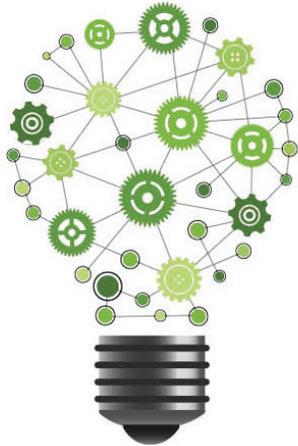
IT needs to drive innovation to enable the organization to differentiate itself in today's competitive digital business environment.

% of IT staff time spent on…

Task	%
SLA management	13.8%
Monitoring	12.9%
Troubleshooting	12.6%
Insallation and deployment of hardware	10.7%
Compliance	9.8%
Install of O/S or virtualization	7.1%
Asset management and analytics	7.0%
Patching and updating	6.9%
Performance management and tuning	6.9%
Interacting with outside support organization or managing the support process	6.0%
Other management tasks	6.5%

Source: IDC, 2018

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For enterprises, there is no one right answer with regard to the best way to deploy systems. Every enterprise is unique and deployment experiences can vary greatly. Enterprises that are highly dynamic will be able to rapidly roll out assets in an efficient and reliable manner, while enterprises that are considerably less experienced and lack controls and processes will have less effective deployments. To that end, enterprises that have proper life-cycle processes and routines will see advancement in the following disciplines that are crucial for datacenter maturity and modernization:

- **Infrastructure management:** Actively managing systems, which includes monitoring, patching, and error handling infrastructure, with single-pane-of-glass visibility, extending visibility to the entire infrastructure or just select silos using distinct tools

- **Modernized datacenter:** Using the latest technologies and maximizing the use of embedded features to deliver purpose-built platforms for use on today's workloads

- **Automation best practices:** Providing platforms for line-of-business owners that are scalable and can be automatically deployed easily, rapidly, and error free

- **Security:** Stretching from securing the endpoint to securing the hardware/infrastructure (OS patching) to securing the network (firewalls), implementing security policies, and doing ongoing penetration monitoring

- **Software-defined datacenter:** The ability to control infrastructure through software with limited intervention; should operate independent of hardware-specific dependencies and be highly programmable

- **IT worker readiness:** Accounts for the human element of datacenter management (Examples: Are customer personnel sufficiently trained and certified? Are best practices documented and followed? Is documentation available? Would a third-party expert providing onsite operations and management be the right fit?)

- **Performance versus business SLA:** Is uptime/availability of the environment sufficient? Is the recovery and failover time sufficient, along with the operating performance of the environment?

IDC surveyed customers on their journey to modernizing their datacenter. The model shown in Figure 2 was posed to 580 companies, and results show that over 50% of customers are still in the basic or standardized category.

FIGURE 2 Datacenter Deployment Maturity Model

The categories in the maturity model are best accomplished during the planning and deployment phase of datacenter transformation. When companies think about how to accomplish these tasks, they should be thinking about using third-party service providers

	Basic	**Standardized**	**Rationalized**	**Dynamic**
Infrastructure management	Ad hoc or manual processes, no use of tools or automation	Partial monitoring and nonintegrated management, use of some tools	Full monitoring and nonintegrated management, higher reliance on tools	Fully proactive integrated management; high utilization of tools and automation
Modernized datacenter	Maintaining a large base of legacy systems and implementations	Deploying some systems to become automated, <50% optimized	Deploying most systems to become automated, >50% optimized	Modern datacenter with optimally configured features and systems
Automation best practices	Ad hoc or manual processes for application deployment	Partially automated request-based processes	Automated but no integrated processes	Integrated, automated, and scalable self-service processes
Security	Systems management <50% successful in IT standards	System management >75% successful in IT standards	Systems management >90% successful in IT standards	Integrated proactive protection of devices and data
Software-defined datacenter	Single system, single process being deployed with very little virtualization	>50% of the systems are deployed in a virtualized environment	>75% of the systems are deployed in a virtualized environment	Fully virtualized, with the exception of technology that cannot be virtualized
IT worker readiness	Focused on ad hoc manual processes	Blend of manual and automated processes	Focused on supporting the business	Focused on transformation and strategy
Performance versus business SLA	No performance SLAs defined, no backups	SLAs defined, frequently violated	SLAs defined, rarely violated	Performance fully meeting SLAs

Source: IDC, 2018

with the expertise and experience to move them to the dynamic end of the spectrum. Using third-party providers removes the risk of improper deployment of these complex solutions. More dynamic processes in the datacenter will allow for a more flexible and resilient environment, and this provides the foundation for effective business transformation.

# THE BUSINESS VALUE OF OPTIMIZING DATACENTER DEPLOYMENTS

IDC's research demonstrates that by taking steps and adopting approaches to become more modern and effective in deploying systems, organizations are achieving substantial gains in both staff efficiencies and supporting their businesses. Organizations need to deploy new systems to ensure they are modernizing and transforming their IT operations to support business demand. However, the costs of deployment — including staff time requirements and problems that deployments can create for users — can be a drag on their ability to roll out purpose-ready technology when they do not have the proficiencies and partners to effect efficient and problem-free deployment.

When organizations adopt approaches that help them optimize the deployment of datacenter resources, they realize substantial efficiencies in areas such as; automation, standardization, integration, and greater use of third-party support. Compared with organizations that continue to use more ad hoc and manual approaches to deployment, they incur much lower staff time costs. IDC's analysis shows that an advance from the basic (least mature) to the dynamic (most mature) stage of maturity achieves the following benefits (see Figure 3):

- **Servers:** Reduces the staff time cost per server by 54%, worth over $4,000 per server

- **Storage arrays:** Lowers the staff time cost per storage array by 66%, worth over $6,600 per storage array

- **Network switches and routers:** Minimizes the staff time cost per server by 73%, worth over $9,100 per network device

These staff efficiencies add up to support much more efficient IT operations. By saving tens of hours per deployment on tasks such as installation, integration, and application migration, IT organizations free up staff time to support other activities and initiatives. Further, IDC's analysis shows that more mature organizations execute deployments more effectively and frequently. They create fewer problems related to data loss, experience less frequent application outages related to deployments, and roll out new technology at a more regular cadence. This not only limits productivity losses associated with deployments but also helps IT teams better support business transformation initiatives through the rollout of new technology and solutions.

FIGURE 3 Cost per Deployment per Device
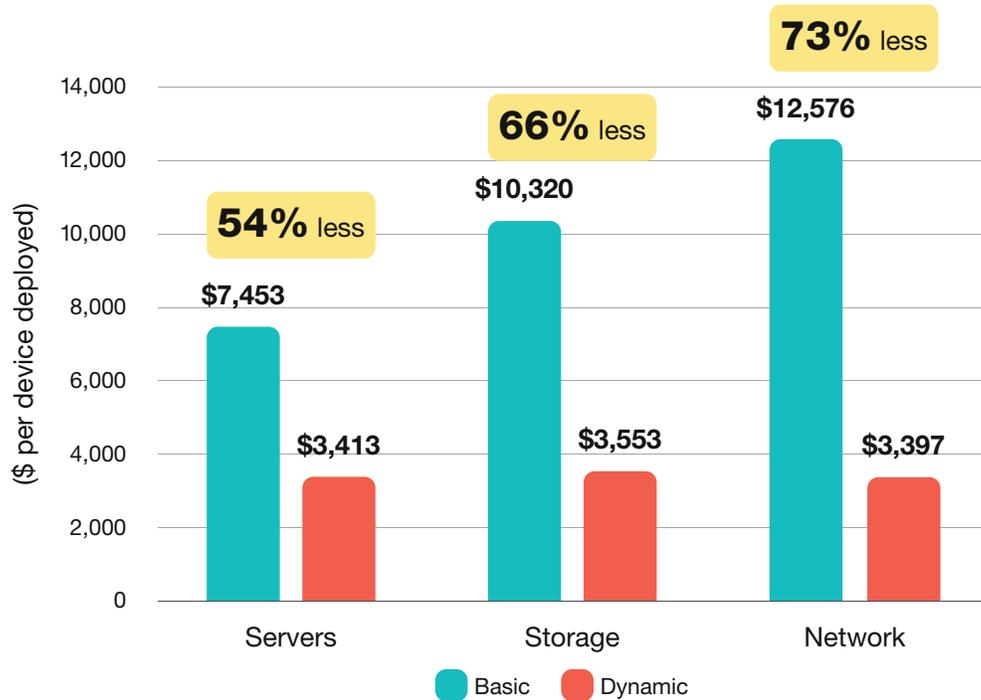
Source: IDC, 2018

Server Deployments

Virtualization and myriad new software, which help configure and manage these infrastructures, have made the installation and configuration of x86 servers and hyperconverged systems complex. Identifying proper firmware and patch levels to ensure compatibility, working with new system designs, and racking and cabling systems have made installation and integration of these devices more complex than otherwise thought.

This is often especially the case as organizations replace and upgrade significant numbers of servers or deploy converged or hyperconverged infrastructure solutions. In either scenario, the deployment of new server resources often becomes complex given the need for integration with existing IT infrastructures and the new technologies and software-driven approaches that upgraded servers bring with them. In this context, keeping IT staff up to date on all the latest tools and system designs can be a daunting task.

Organizations become substantially more efficient as they adopt more modern, mature approaches to server deployment. For instance, allowing a partner to pre-integrate systems prior to shipping, and address tasks such as image burn, system build through OS and virtual layer, cable, labeling, and documentation, can be very effective. As Figure 4 demonstrates, IDC calculates that organizations that reach the highest level of maturity (dynamic) with regard to server deployment require 54% less staff time on average than less mature organizations (basic). These efficiencies reflect how automation, standardization, and expertise from third parties can reduce the burden of server deployment.

IDC's analysis shows the following efficiencies for tasks related to server deployments:

- **Project management (47%) and datacenter planning and assessment (56%)** require much less time as automation and standardized processes streamline these activities.

- **Physical installation (47%)** goes faster as automation reduces touch points and third-party experts handle installation with ease.

- **Software installation (54%)** consumes less time as standardized and software-driven management pushes out updates and patches and partners optimize deployment.

- **Integration (65%) and data migration (62%)** activities create less friction as systems and appliances link together seamlessly and fewer problems arise.

FIGURE 4 Server Deployment — Relative Staff Time Savings with Increasing Maturity
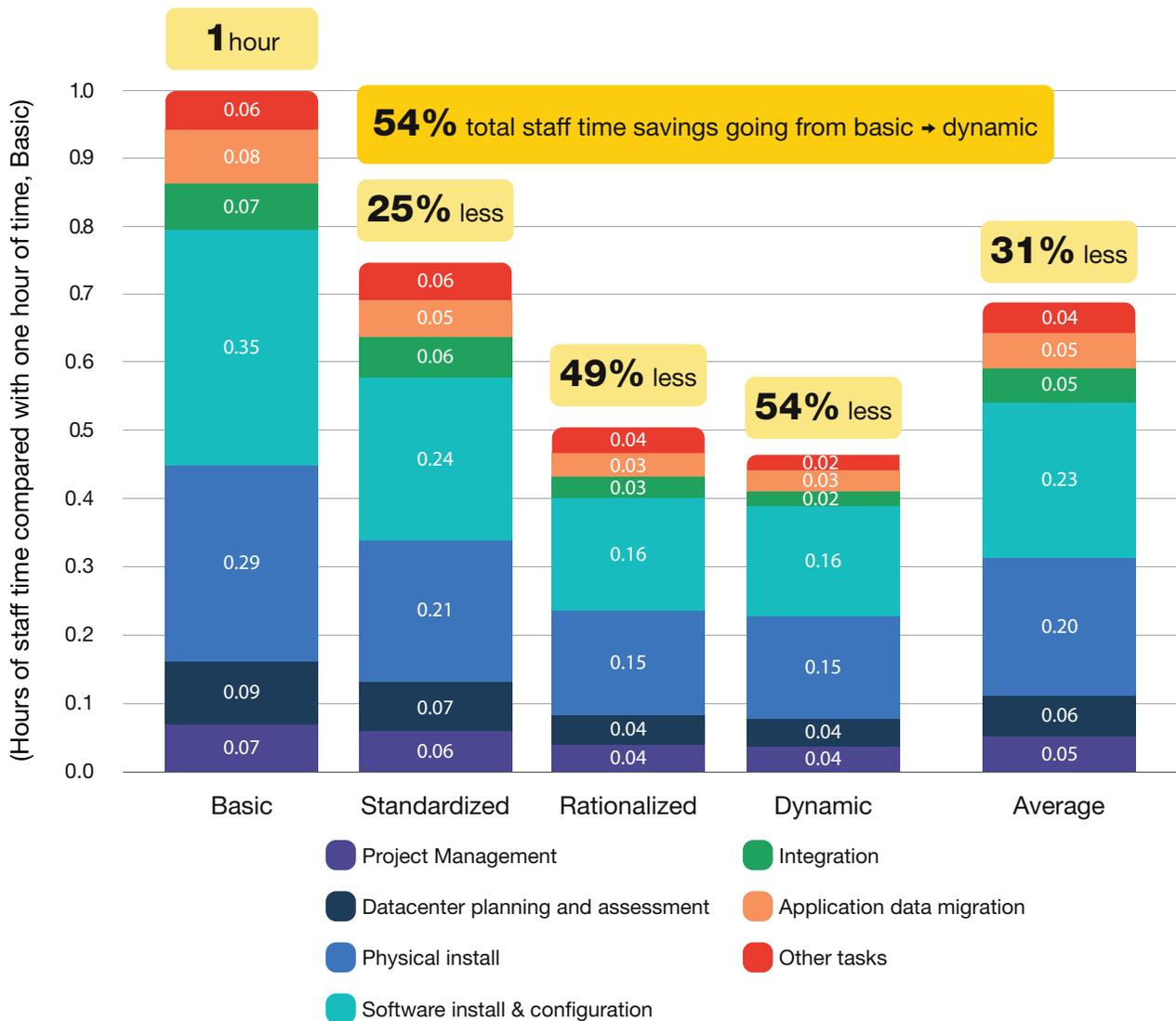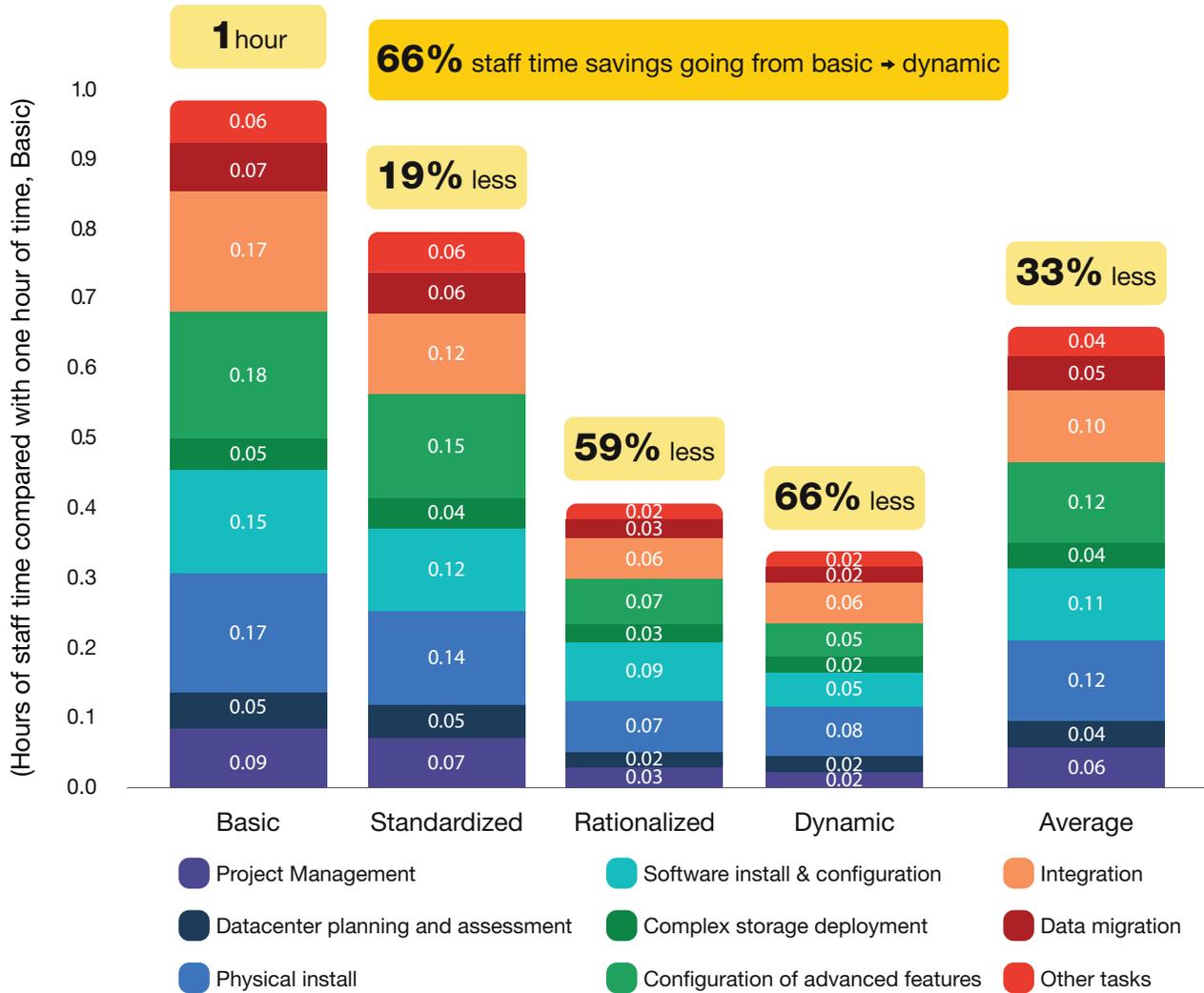
Storage Deployments

Installing storage arrays in heterogeneous environments is as complex as ever. Determining proper firmware and patch levels across multiple platforms to avoid incompatibility issues can dizzy even the best of technicians. Assessing, planning, and deploying storage are critical aspects to enterprise growth. Proper storage configuration and connectivity are especially difficult. High and low watermarks to support virtualized environments — so that storage is not overprovisioned — are sometimes overlooked when working in more complex converged environments.

IDC's research shows that organizations can make storage deployment efforts more efficient with more mature deployment approaches. This means that not only is less staff time is consumed by storage deployment activities — 66% less staff time for organizations that reach the dynamic stage compared with those residing at the basic level — but also that these organizations can offer their lines of business higher-performing storage in a timely manner to support business growth. As shown in Figure 5, IDC measured the impact of adopting more efficient storage deployment approaches across various activities, including:

- **Physical installation (56%)** takes less time as a result of automation and software-driven processes as well as benefiting from third-party expertise.

- **Basic storage installation and configuration (69%)** occur in less time with processes in place to follow best practices and leverage automation in deployment.

- **Configuration of advanced features (58%)** goes more smoothly thanks to more use of advanced features as well as having staff and partners that have the expertise to support more advanced configurations.

- **Integration (73%)** requires less time with enhanced visibility and overall infrastructures that can better handle the addition of new storage resources.

FIGURE 5 Storage Deployment — Relative Staff Time Savings with Increasing Maturity

Source: IDC, 2018

Networking Deployments

One of the most significant aspects of the datacenter is the network, which serves as the backbone that allows access to all of the information stored for the enterprise. Proper deployment of networks can make the difference between running on a high-speed, highly secure bullet train and meandering down the road on a bike. Configuring networks in these environments is critical on many fronts, but the most important aspect is making the network fast, secure, and agile. Improper deployment of networks can have large-scale disastrous effects. The misconfiguration of a network can create security holes or disrupt business operations.

Likewise, the deployment of network devices such as network switches and routers can become quite time consuming with less mature and efficient deployment practices.

Survey results show the extent to which organizations can optimize their deployment of network routers and switches (73% less staff time required on average for organizations reaching the dynamic group versus the basic group) across the following deployment activities (see Figure 6):

- Physical installation (62%) occurs faster as automation brings repeatable processes and third-party partners deliver network devices in a ready-to-be-deployed state.

- Router configuration (62%) and switch configuration (71%) become less burdensome with programmable software-defined processes and third-party support.

- Integration (83%) requires less time as standardization and automation reduce integration-related challenges.

FIGURE 6 Network Deployment — Relative Staff Time Savings with Increasing Maturity
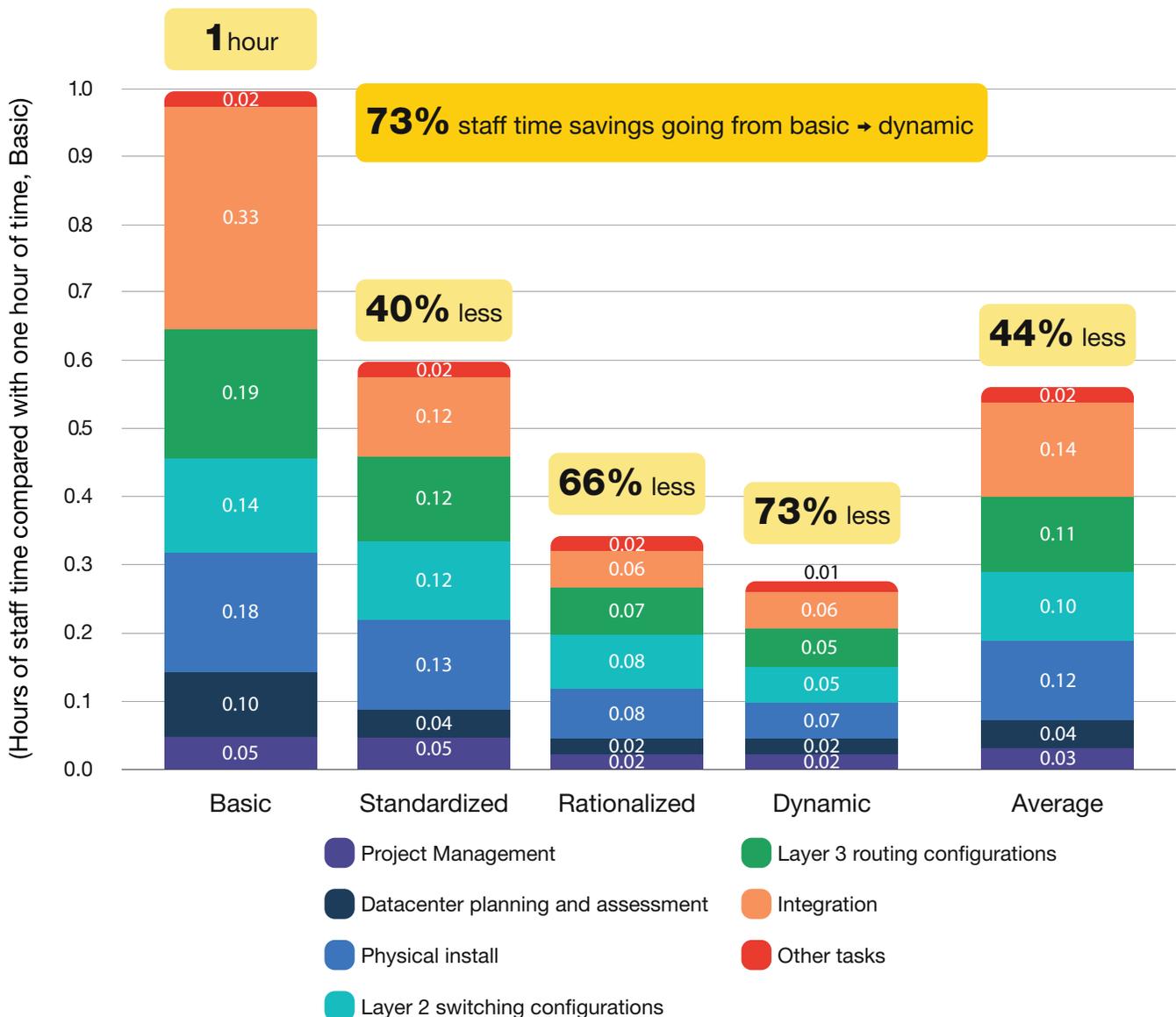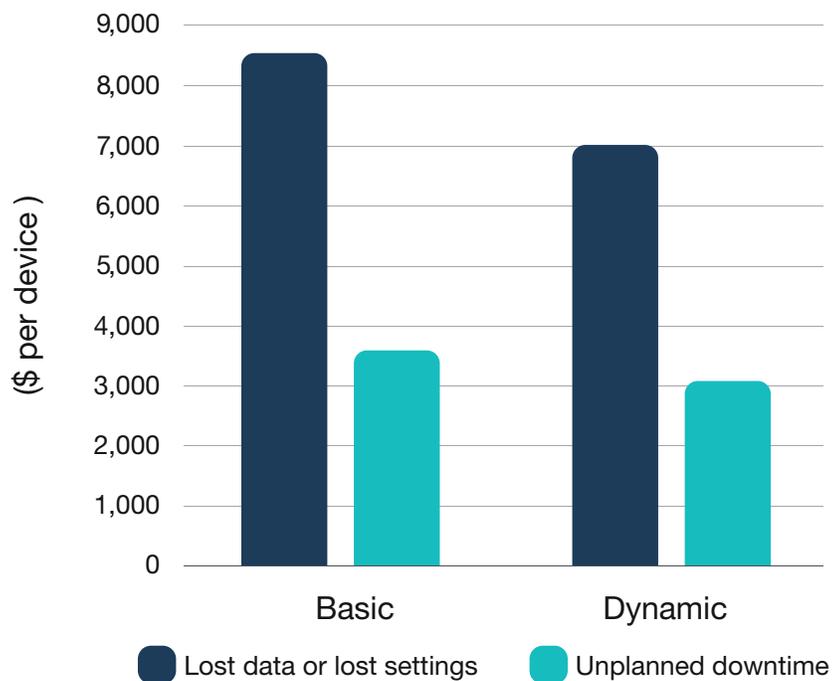

Source: IDC, 2018

User Productivity Impact

Ultimately, the deployment of new datacenter resources is the first tangible step in organizations' efforts to provide the IT resources needed to support business transformation. This reflects the critical core role of these datacenter deployments: They are the first step in delivering high-performing and robust applications for employees and customers.

The reason is that organizations can not afford deployments that negatively impact users, whether through data loss, unplanned outages, or other problems. Survey results demonstrate that as organizations become more mature in their approaches to deploying server, storage, and network devices, they carry out more effective deployments, thereby minimizing the frequency and impact of such events. Figure 7 shows the impact from a financial perspective: Dynamic organizations lose 17% less productive time than basic organizations because of deployment-related data loss and 10% less productive time because of unplanned outages. In total, this means that organizations save $1,838 worth of productive employee time with each device deployment by moving from the basic to the dynamic level. This equates to the saving of almost one-half hour of productive time per user per year, which adds up to avoiding significant productivity losses when tens, hundreds, or even thousands of devices are deployed per year.

FIGURE 7 User Productivity Losses from Device Deployment

Source: IDC, 2018

More Frequent Refresh Cycles

Survey results also show that as organizations adopt more advanced and efficient approaches to deploying datacenter equipment, they deploy new servers, storage, and network resources more frequently — 50% faster refresh cycles on average by moving from the basic to the dynamic level of deployment (see Table 2). This is due to the reduced burden that deployment activities present to more mature organizations as well as the typically more proactive approach of these organizations take, leveraging modern IT technology and methods to support their businesses.

In turn, more frequent refreshes mean that organizations are more likely to undertake IT modernization efforts that provide the modern, high-performing IT infrastructures that they require to support business transformation efforts. In addition, IDC's research consistently shows that as datacenter infrastructure ages, it exerts more significant costs on organizations, especially in terms of IT staff time requirements and user productivity costs associated with unplanned outages and other problems.

TABLE 2 Frequency of Datacenter Refreshes for Basic to Dynamic Deployment Customers (Years)

	Average	Basic	Standardized	Rationalized	Dynamic	Reduction in Refresh Cycles — Dynamic Versus Basic (%)
Servers	3.89	5.29	3.92	3.22	2.62	50.5
Storage arrays	3.89	5.40	4.00	3.01	2.65	50.9
Network devices	3.55	4.95	3.49	2.85	2.56	48.3
Average life cycle (all devices)	3.78	5.21	3.80	3.03	2.61	49.9

Source: IDC, 2018

FUTURE OUTLOOK

Technology will continue to advance and become more complex due to business accelerators, such as IoT and edge strategies, artificial intelligence and cognitive capabilities, and robotics. Enterprises should focus on and consider these as key areas for development, expansion andinnovation. Keeping internal staff trained on the nuances of deploying and supporting IT assets instead of how those assets should be used to drive business initiatives is a disservice to the business. Integration of these complex datacenter solutions is best left to experts who practice the art on a regular basis.

Enterprises will continue to develop and make advances on these accelerators. The key to a well-built infrastructure will be leaning on expert advice and integration services from vendors and other well-qualified service providers.

For these reasons, Dell EMC has developed a series of offerings to mitigate risk (outages and downtime), optimize IT resources, and help keep organizations focused on streamlining business processes.

Why Dell EMC Deployment Services?

Dell EMC has provided enterprises with quality engineering and solutions for decades. Utilizing this type of proven expertise when deploying IT assets, as shown in the business value data presented, makes good economic and business sense. Many enterprises utilize deployment services to help keep their IT teams focused on innovation. IDC believes that this should be one of the primary reasons businesses utilize external deployment providers. Dell EMC's expanded offerings can certainly help businesses stay focused on business needs and save on overall IT costs.

Dell EMC provides a standardized solution set that companies can match to the complexity and criticality of their needs (see Figure 8).

FIGURE 8 ProDeploy Enterprise Suite Feature Comparison

		Basic Deployment	ProDeploy	ProDeploy Plus
Pre-deployment	Single point of contact for project management		●	In-region
	Site readiness review		●	●
	Implementation planning		●	●
	Technology Service Manager (TSM) engagement for ProSupport Plus entitled devices			●
Deployment	Deployment service hours	Business hours	24x7	24x7
	Onsite hardware installation*	●	●	●
	Packaging materials disposal	●	●	●
	Install and configure system software		●	Onsite
	Project documentation with knowledge transfer		●	●
Post-deployment	Deployment verification		●	●
	Configuration data transfer to Dell EMC technical support		●	●
	30 days of post-deployment configuration assistance			●
	Training credits for Dell EMC Education Services			●

Hardware installation not applicable on select software products

Source: IDC, 2018

According to IDC data, organizations are looking for more than just deployment help when bringing new technical assets to a purpose-ready state. Key additional areas are pre-deployment assessments, data migration, integration into existing IT framework, and training on new technologies. Dell EMC has done an excellent job of identifying common problem areas and developing process and tool capabilities to mitigate them. Dell EMC has integrated these capabilities into a set of pre-packaged and easy to purchase services for servers, storage, data protection, and networking to help customers have smoother implementations. Dell EMC also complement this ProDeploy Suite of standardized offers with additional deployment capabilities – including rack integration, data migration, config services, and broader customizable services to best fit customer needs for even the most complex of integrations.

Source: Dell EMC, 2018

CHALLENGES/OPPORTUNITIES

IDC believes that as IT organizations look to vendors to provide best practices and engineering talent to help install and integrate their complex infrastructures, they also face an ongoing struggle to coordinate efforts across heterogeneous IT landscapes. Many are looking for a provider to just "make it work." Dell EMC has consistently demonstrated success when working with hardware and software vendors to support deliverables that span multiple vendors and technologies. IDC expects that Dell EMC will utilize that advantage to expand its installation and integration capabilities.

IDC believes that these services will begin to blend in with the ongoing management and support of IT environments and that Dell EMC should watch for customer needs to keep evolving. IDC believes that to be successful in this market, Dell EMC must continue to build capabilities as a trusted advisor for technical services.

According to IDC, enterprise IT faces the challenge of providing a consistent delivery mechanism for all its new services on a global scale. Dell EMC has been delivering deployment services for years, but talent can sometimes be an issue when rolling out global initiatives, and Dell EMC needs to make sure that it has trained its global sales and technical resources to meet the possible influx of demand these new services may generate.

CONCLUSION

Enterprises will need to think about how they will take advantage of the new drivers we are seeing in the market, such as IoT and edge strategies, artificial intelligence and cognitive capabilities, and robotics. The architecture and the use of these next-generation capabilities will ensure an enterprise's longevity in today's competitive landscape. This will require a cultural change in how enterprises look at the future; the important ingredients will be people and process in a defined strategy. The CIO's consideration of how a modernized datacenter will be planned, deployed, and supported to meet future business objectives will be paramount for success.

IDC has shown in this study through extensive survey work that there are significant savings to be realized when utilizing deployment and other services from partners and vendors. As enterprises struggle to deploy purpose-built systems and support and manage complex environments, they must also optimize these systems to deliver key benefits that can directly affect the business. IDC believes that IT organizations will look to partners such as Dell EMC to help them navigate these challenging mandates with a broad, comprehensive approach to deliver life-cycle services. In addition, IDC expects organizations will prefer partners who not only have expanded offerings that include the expertise and guidance necessary for successful deployment of purpose-built systems but also a focus on how these new technologies can improve business performance.

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