Standardize to improve IT efficiency

Eight considerations for building a standardized operating environment

See what's inside

IT efficiency requires standardization

IT teams must deliver more services at a faster pace than ever before to meet expectations and support digital business.

Even so, most organizations use IT infrastructure that encompasses many operating system vendors and versions, server hardware configurations, and management tools. These complex environments require large, highly skilled IT teams to handle the associated interoperability issues, complicated administration, and convoluted processes. The result is often delayed provisioning, increased downtime, and greater security and compliance risks.

Standardizing your IT environment can help you increase flexibility and efficiency. A **standardized operating environment (SOE)** greatly simplifies your IT infrastructure to overcome many of the challenges of varied, disparate environments. Streamlined management and operations lead to lower operating expenses (OpEx), increased uptime, faster provisioning and deployment, and improved IT and user productivity. And complete visibility into your SOE increases asset control, security, and compliance.

Key benefits of standardized operating environments

An SOE can deliver many benefits for your IT teams, users, and overall business:

Automate error-prone manual tasks.

Centralize and streamline system life-cycle management.

Manage software license use and subscription agreement compliance.

Speed software installation, upgrades, and patching.

Improve security and decrease shadow IT.

This e-book reviews eight key considerations for implementing an effective SOE.

Gain more value by standardizing on Linux

Linux® is a popular operating system, with widespread adoption across industries and emerging technologies. Building an SOE based on Linux can help your organization experience:

Up to

3x

faster database response times.[1]

Up to

60%

less required IT administrator support and maintenance time.[1]
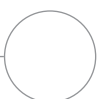

Up to

45%

lower IT maintenance costs.[2]

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1 Red Hat case study. "**Colombian energy company uses Red Hat for SQL servers**," *September 2020.*

2 Red Hat case study. "**Indesso reduces IT maintenance costs by 45% with Red Hat**," *July 2020.*

Consideration 1

Simplify your IT infrastructure

Simplicity is at the core of all standard operating environments.

Complex IT infrastructure can be difficult to manage and maintain, resulting in increased downtime, reduced efficiency, and higher costs. Standardizing your operating environment helps you reduce complexity and its associated risks. Your SOE should use a defined set of components, interfaces, and processes across your entire infrastructure, including physical, virtualized, and cloud-based resources. This creates a consistent, known foundation for all systems and streamlines both your infrastructure and your operations.

Fewer variations makes it easier to provision systems, scale resources, troubleshoot errors, and remediate issues across your environment. An SOE also allows you to create a single, standard set of operating procedures and processes, speeding operations and allowing your current staff to manage larger infrastructure.

Business demands on IT are growing

Simplifying your infrastructure can help you address many business issues. Key business expectations include:

| 57%	57%	56%	56%
Increasing cybersecurity protections.[3]	Improving customer experience.[3]	Transforming existing business processes.[3]	Increasing operational efficiency[3]

"We were able to do all the installation ourselves because it was so easy to add these Red Hat solutions to our existing IT landscape."[4]

Adrian Dexheimer
Head of IT, Mann & Schröder Cosmetics

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3 CIO. "**2021 State of the CIO Executive Summary**," *January 2021.*

4 *Red Hat case study.* "**German cosmetics company migrates early to SAP S/4HANA to support growth***," October 2019.*
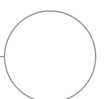
Consideration 2

Document your IT assets continuously

Documentation records how your IT infrastructure works.

A good understanding of your infrastructure and operations is needed to support business requirements for stability, reliability, and uptime. A lack of knowledge about components, resources, and processes can result in more outages, delayed repairs, and lower efficiency.

Good documentation can help you avoid these hazards. Documentation creation and maintenance is an integral part of infrastructure management and operation. You should thoroughly document everything in your infrastructure — from components and configurations to governance policies, operational processes, and automated tasks. Once you have a detailed set of documentation, record every change to your environment and version-control each document.

Each role within your IT organization has specific documentation requirements. As a result, you will likely need to document parts of your infrastructure in multiple, different ways to allow all staff to work effectively.

Developers require information about the purpose of application code, usually listed as comments in the source code itself.

IT operators need administration guides that specify installation, configuration, management, and troubleshooting processes.

End users require manuals that describe how to use applications and resources to accomplish a task.

To avoid infrastructure issues and keep your IT staff and end users informed, document your IT infrastructure in detail at all levels.

Documentation needs differ

A single resource typically requires multiple versions of documentation for different audiences. For example, developers understand source code, while operators consult administration guides, and end users refer to manuals.
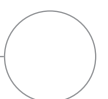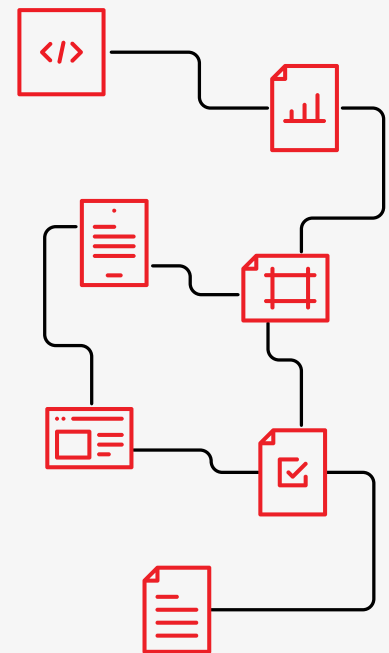
Consideration 3

Maintain the right level of flexibility

IT flexibility is essential to keep up with changing demands.

While standardizing your IT infrastructure provides many benefits, it is possible to standardize too much. To be most effective, you need to balance your level of standardization with your organization's needs for flexibility and agility.

SOEs are based on core builds—designated sets of components, interfaces, and processes that form known foundations for applications, virtual machines, and tools. Large enterprises that run hundreds or thousands of servers may need several core builds to ensure that their employees have the right tools to do their jobs effectively. Smaller companies typically need only a few core builds. Careful analysis can help you develop a reasonable number of core configurations for your organization.

**Balance standardization with flexibility and agility**

Maintain flexibility in your standard operating environment by assessing the needs of your organization. Some organizations need only a few core builds, while others require dozens.

> "Our goal is to improve effectiveness and efficiency while keeping infrastructure costs down. With Red Hat, we get a better return on our investment."[5]
>
> **Dennis Moncrieff**
> IT Superintendent, Tomago Aluminium

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5 Red Hat case study. "**Tomago Aluminium improves SAP performance with Red Hat and IBM**," February 2021.
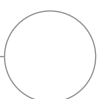
Consideration 4

Automate your infrastructure

Automation can free your IT staff to focus on high-value projects.

Manual operations lack the speed, efficiency, and accuracy needed to succeed in a fast-paced digital world. In fact, 83% of organizations cite too many manual processes as a challenge in managing IT spend.[6]

Automation can accelerate tedious and time-consuming tasks, allowing your IT staff to refocus their time and effort on projects that deliver more business value. Using automation, you can rapidly provision new resources and services, enforce consistency across IT environments, and complete day-to-day infrastructure maintenance tasks with fewer IT staff members. These improvements provide many business benefits for your organization:

Faster delivery of new applications and services

Fewer security and compliance risks

Lower operational costs

More time and budget for IT staff to focus on innovation and strategic initiatives

Automation is not an all-or-nothing proposition. You need a sustainable strategy to guide your automation adoption journey. Document and review all automation assets regularly to be sure that they are understood and working as planned. A human-read-able, self-documenting automation framework can greatly simplify these efforts while allowing all staff members to contribute.

Read **The automated enterprise e-book** to learn more about adopting automation across your entire organization.

Take advantage of automation

Automating common infrastructure tasks accelerates deployment of new applications and services, lowers the risk of errors, and reduces OpEx. Organizations that automate their IT experience:

68%
more productive IT infrastructure management teams.[7]

68%
faster deployment of new storage resources.[7]

53%
less unplanned downtime.[7]

41%
more efficient application environment management teams.[7]

25%
more efficient IT security teams.[7]

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6 Flexera. *"*2021 Flexera State of Tech Spend Report*," January 2021.*

7 *IDC White Paper, sponsored by Red Hat. "*Red Hat Ansible Automation Improves IT Agility and Time to Market*," June 2019. Document #US45090419.*
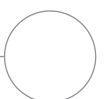
Consideration 5

Build in dynamic scalability

Change is inevitable, especially in IT.

Over time, the demand or load placed on a given service will fluctuate. Static infrastructure cannot keep up with these changes. Traditional methods of over-provisioning capacity to meet peak demands consumes too much budget while leaving systems idle for long periods of time.

Adopting an SOE can help you build dynamic scalability into your infrastructure. With a common, shared foundation across your environment, each system can deliver a variety of services instead of being dedicated to a single application. You can allocate the same resource to multiple services at different times to adapt to changing demand without over-provisioning. As a result, you can maintain a smaller, more efficient infrastructure, reducing capital expenses (CapEx) and power, cooling, and floor space costs.

This approach also prepares you to take advantage of cloud technologies. You can operate a small on-site IT infrastructure to meet average daily needs and deploy cloud resources to meet additional demand during peak times.

Keep up with changing demands

Demands on IT are constantly changing. Your infrastructure needs to scale dynamically and elastically to keep up. Using a common foundation for your systems lets you scale up and down faster while maintaining a more efficient infrastructure.

> "The success of this project was essential for the 800 people who work on this environment on a daily basis. The Red Hat solution will enable us to scale up projects faster, and grow our organization more quickly."[8]
>
> **Nikolaus Schillinger**
> Team Leader Network & Server Team, TTTech

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8 Red Hat case study. "**TTTech automates virtualized environment with Red Hat**," January 2020.
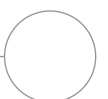
Consideration 6

Implement a layered security approach

Security is a top concern for organizations.[9]

Effective security strategies go well beyond simple authorization checks using a centralized identity management system. A layered security approach can reduce your risk of breaches and help you find and stop intrusions faster.

SOEs are ideal for layering security throughout your infrastructure. Consistency across systems allows you to integrate security measures over multiple layers of your infrastructure stack. Increased control lets you keep systems up to date and in compliance with security policies more easily.

Even so, each layer of security places an additional burden on authorized users. Deploying too many security measures can prevent employees from effectively accessing the applications and data they need, while deploying too few measures increases the risks of intrusions and breaches. Risk management is a key part of effective security strategies. Assess the value of each application and piece of data, identify who needs to use the application or data, and evaluate the potential effects of unauthorized access or use. Using this information, you can define your security policies to appropriately balance risk with accessibility to protect your business without unnecessarily impeding employee productivity.

Ineffective security can be costly

Security threats continue to grow and breaches are expensive.

$3.86 million
average cost (USD) of a data breach in 2020.[10]

280 days
average time to identify and contain a data breach in 2020.[10]

76%
share of organizations that believe that remote work due to COVID-19 will increase the time to identify and contain a breach.[10]
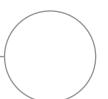
$1.12 million
savings in costs (USD) if a breach can be identified and contained in

200 days
or less.[10]

9   Flexera. "**2021 Flexera State of Tech Spend Report**," *January 2021.*

10   IBM Security. "**Cost of a Data Breach Report 2020**," *2020.*

Consideration 7

Ensure consistency across hybrid clouds

Cloud adoption is growing.

Organizations deploy cloud infrastructure to reduce costs, improve flexibility, and access the latest technologies. In fact, 82% of enterprises have a hybrid cloud strategy in place today.[11]

Cloud infrastructure is designed to scale dynamically and elastically. Servers are treated as single-workload devices that are deployed quickly, configured automatically, and easily replaced. This approach deconstructs systems into layers and components that can be combined easily, released independently, and maintained as collections.

Hybrid cloud architectures combine on-site infrastructure and private or public cloud infrastructure into a single environment. Consistency is critical for effective hybrid cloud operation. SOEs offer an ideal deployment strategy for hybrid clouds. Because SOEs provide consistency across physical, **virtual**, **container**, and cloud environments, they work the same wherever they are deployed, allowing you to place and move applications and workloads as needs change.

Centralize SOE management for more efficiency

Organizing your SOE core builds under a centralized management platform lets you deliver fully provisioned systems in minutes, regardless of the underlying infrastructure.
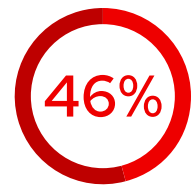
82%
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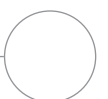
59%
of organizations heavily use cloud technologies.[11]

50%
of all corporate workloads run in a public cloud.[11]

46%
of all corporate data is stored in a public cloud.[11]

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11 Flexera. *"***Flexera 2021 State of the Cloud Report***," April 2020.*

Consideration 8

Unify platform management tools

Effective management can help you get more from your IT environment.

Advanced management tools and approaches are critical for large-scale IT environ-ments. A comprehensive management strategy — based on an SOE and consistent, connected tools — can help you get the most from your IT environment while protecting your assets and business.

When defining your SOE, consider the management tools available for your chosen platforms. This set of tools will form the core of your IT operations and should work together to provide the features and capabilities your teams need to be productive. Ideal tools will help you effectively manage system life cycles as well as security vulner-abilities and compliance.

Key platform management tool capabilities

System life-cycle management

- Build and scale systems.

- Monitor and track systems, assets, and subscriptions.

- Maintain, patch, and update systems consistently.

- Retire systems and resources when they are no longer needed.

Security vulnerability and compliance management

- Identify noncompliant, vulnerable, and unpatched systems.

- Organize remediation actions by effort, impact, and issue severity.

- Quickly and easily patch systems.

- Validate changes and report results.

IT management best practices

Choosing the right set of management tools is only the beginning — you must define operational processes using those tools to maximize the value of your IT environment.

- Retire abandoned and unused resources to save costs.

- Deploy automation to streamline common tasks and reduce errors.

- Connect your management, automation, and security tools to improve productivity.

- Scan systems regularly to identify compliance issues and security vulnerabilities faster.

- Patch systems often and test your patches to keep systems up to date.

Read the **Manage your Linux environment for success e-book** to learn more about IT management best practices.

"We've achieved a significant 60% cut in the number of support and maintenance hours performed by administrators."[12]

Miguel Cañas
Architecture Team Leader, XM

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12 Red Hat case study. "**Colombian energy company uses Red Hat for SQL servers**," September 2020.
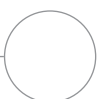
Are you ready to standardize?

Standardization is the future of efficient, effective IT.

Outdated approaches to infrastructure design, management, and operation can prevent you from effectively and efficiently delivering the services your business needs. A standardized operating environment lets you simplify and modernize your infrastructure and operations for reduced costs, higher uptime, and improved flexibility, security, and productivity.

Find out how a modern infrastructure can help you improve operational efficiency:
redhat.com/hybrid-cloud

Standardize faster with Red Hat experts.

Red Hat® Consulting can help you create a standardized operating environment faster. All Red Hat Consulting engagements begin with a half-day complimentary on-site discovery session. During these sessions, Red Hat experts work with you to identify your most pressing business challenges, viable approaches for overcoming them, and desired outcomes for implementing.

Schedule a complimentary discovery session:
redhat.com/consulting

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