Managing Technology Change in a Dynamic Environment

Dynamic organizations often need to deploy tens to hundreds of similar systems to quickly replicate IT infrastructure and increase capacity. An automated approach to deployment, monitoring and management can help IT efficiently keep their IT infrastructure in-sync with business needs.
Dynamic organizations are continually challenged to keep their IT infrastructure in-sync with their business needs. Applications change often, new technologies must be addressed, and a continual stream of new software and hardware requires efficient deployment, monitoring and management.

In faster growing Internet business segments, like e-commerce, online travel, and digital media, organizations need elasticity in order to scale quickly and predictably in response to growth or volume-related increases in their capacity needs. In the retail industry, for example, seasonal demands require a dramatic increase in capacity that shrinks at other times of the year. These organizations may need to deploy tens to hundreds of similar systems to quickly replicate infrastructure and increase capacity, then decommission or retire these resources when application demand subsides. Ideally, dynamic organizations need to be capable of adjusting their resource capacity in an on-demand, automated fashion whenever needed. The most agile organizations can anticipate bottlenecks and react quickly to demands.

The requirement for rapid escalation of additional server and application infrastructure brings new challenges and stresses on IT, both during the initial deployment and later when it comes to the operational management of these systems and the potential impact on performance and availability.

Prior to “go-live”, each new deployment requires that hardware, application and OS builds be tested in a staging or test environment that is representative of the final production environment. With frequent test and release cycles, the staging environment continually needs to be cleaned and reset for the next effort. Without automated build and configuration management capabilities, many organizations simply can’t keep pace and insure consistency of these test environments.

THERE ARE MANY RISKS AND TRAPS INHERENT WITHIN SUCH DYNAMIC ENVIRONMENTS:

- Manual builds and deployment are labor-intensive, expensive, time consuming and error prone
- An inability to insure consistent deployments across all environments makes support more difficult and increases the risk of outages because of conflicting configurations
- Manual tools don’t adequately document the installed environment, impeding proper support and issue resolution
- Lack of change history and auditability
- IT can’t respond to changes in the business environment quickly enough to take advantage of business opportunities
- Trying to combat these issues by overbuilding point capacity well in advance of needs can be costly and prohibit IT from expanding in other required areas

Organizations must be able to effectively prepare for and react to challenges as they arise and utilize their existing resources efficiently to stay competitive in a fast-paced marketplace. Does your organization have the processes, resources, tools and expertise to address the myriad of challenges required to build and manage an ever changing IT infrastructure? Consider these points to determine if you have the requisite resources and expertise or if it is time to engage professional services.
The IT operating environment is continually evolving—new applications are frequently deployed, capacity is expanded, hardware and applications refreshed and new technologies are added to the mix. But in this seemingly tumultuous environment, IT infrastructure must remain rock solid.

The release management team requires the ability to evaluate, plan, and deliver complex enterprise infrastructure programs with minimal risk—release after release. Inconsistent deployments are unstable, “bug-laden” and harder to support, which places heavy burdens on labor resources, negatively impacts support costs and can have a reputation and revenue impact on Internet-centric businesses. Inconsistent builds introduce additional problems within the environment, create inefficiencies, raise operational costs, and risk application availability.

Beyond consistent deployment of the initial build, it is critical to employ a configuration management system that enables the organization to centrally manage post OS build configurations. Use of automated build and configuration management tools insures that all system configurations adhere to established standards. Configuration updates are deployed automatically and uniformly. On-going system configurations are monitored and any differences are reported or automatically reverted to the approved standard. Automated tools also bring in a high level of predictability, enabling more efficient utilization and re-utilization of existing hardware resources. Furthermore, automation reduces labor requirements in the ongoing deployments.

Critical events can unfold rapidly and unexpectedly, challenging even the most stable IT environment. More often than not, IT is challenged to respond quickly to an unplanned business issue, environmental change, or react to external market forces in order to take advantage of a new business opportunity or to maintain a competitive advantage.

However, most IT organizations are resource limited and hard pressed to react quickly and efficiently to bumps in the road. Furthermore, they have little time to plan, organize and proactively implement infrastructure maintenance, upgrades, and configuration changes to maintain the optimal level of operational performance required on a daily basis. An inconsistent computing environment further hinders the implementation of new technologies and applications.

If your staff is always reacting and can’t seem to address issues fast enough, your resources, processes, and/or tools are likely inadequate to maintain the level of operational performance you need. It may be time to call for help.
AUTOMATED APPLICATION MONITORING

CRITICAL QUESTIONS

- Do you have visibility into application performance and trending?
- Are you concerned about 24 x 7 system and application availability?
- Are you proactively monitoring your infrastructure and applications?
- Can you anticipate problems and address them quickly, or better yet, automatically before they impact your systems?

How do you know whether your systems and applications are operating at maximum efficiency? Beyond automated tools to help deployment consistency and speed, system and application monitoring tools proactively check for bottlenecks, infrastructure health and routinely detect and diagnose the root cause of issues that can affect service delivery and availability. Ideally, these monitoring tools are integrated with build and configuration management systems to automatically react to these issues.

For example, an automated monitoring system proactively tracks current resource demand, checks load on the network, systems and applications, and identifies whether the current infrastructure configuration has excessive, adequate or insufficient capacity. These monitoring tools can report on trends, send alerts, and even trigger actions to address problems and capacity realignments. Thus, you can mitigate application availability or other service risks by automatically deploying the right capacity in the right area at the right time.

Technology advances necessitate changes in the way you work, the tools you use, and the operational procedures you require to maintain a robust and agile infrastructure. Do you know if your IT organization is operating at peak efficiency?

DOCUMENTATION

CRITICAL QUESTIONS

- Are you using modern, automated tools to document your current computing infrastructure?
- Does your documentation accurately reflect your current environment?
- Does your documentation help you react quicker to issues and insure problem free deployment?

Inadequate documentation will greatly hinder the progress of new technology deployment and management. Accuracy is critical to building and managing modern IT infrastructure in complex environments and impacts troubleshooting and reaction time to issues as well. For many organizations, documentation remains a manual effort, and as a result, is always lagging or even ignored.

However, an additional benefit of modern automated build and configuration management tools is the capability to automatically generate documentation when build and configuration management changes are made. With self-documentation, you’ll be confident that you always have an accurate representation of your environment. This understanding of your infrastructure will help to ensure consistency, increase your IT staff’s understanding of the environment and facilitate troubleshooting.
OPERATIONAL COSTS

CRITICAL QUESTIONS

• What are the true revenue implications of system downtime or a missed business opportunity due to poorly managed service delivery?

It is important to fully understand the way in which your systems and applications are configured, deployed, monitored, managed and documented and the relative costs of efficient or inefficient service delivery. If you rely on manual processes, most likely your operational costs are high and resources misallocated. Consider the expenditure of resources required to constantly troubleshoot inconsistent builds or the slow response time to issues because of poor documentation.

SUMMARY

The world within which IT organizations operate is ever-changing, and successful organizations need to rapidly react to shifts within the business environment and technical capability. Frequent technology shifts necessitate changes in the way you work, the tools you use, and the operational procedures you require.

Dynamic organizations are hard pressed to keep their IT infrastructure in sync with their business needs. Applications change often, new technologies must be addressed, and a continual stream of new software and hardware require efficient deployment, monitoring, management, and documentation. However, many IT organizations suffer from an unstable computing environment. Builds and configurations are inconsistent and undocumented, hampering the speed in which IT can react to issues and deploy new systems and applications. Applications require continuous monitoring and management to operate at peak efficiency. Manual processes are slow and typically error prone. In fact, many IT departments cannot deliver the quality of service needed to keep pace with the dynamic business environment.

The most agile IT organizations are those that employ automated tools for build and configuration management, application monitoring, and documentation. With the help of these modern automation tools, IT is able to roll out consistent deployments with the speed necessary to keep pace with dynamic business needs. Applications are monitored and managed to operate at peak efficiency. Frequent changes in capacity demand are anticipated and automatically addressed. And, the computing environment is stable and issues can be identified and resolved quickly.

All organizations should assess whether they have the resources and expertise to address the challenges required to build and manage an IT infrastructure capable of achieving their business objectives.
ABOUT TRANSITIONAL DATA SERVICES (TDS)

The TDS infrastructure services practice provides expert consulting, implementation, and managed services that address the specific objectives and concerns of dynamic organizations. We have developed proven automated solutions and best practices to address the rapid growth and high availability needs of all types of agile companies. Our experience and automated tools allow us to quickly build and test configurations for a broad range of devices and applications, including servers, storage, virtualization, network gear and databases. These pre-built configurations can be rapidly deployed into production on any number of physical or virtual devices with all of the necessary operational components. Using automated build and provisioning methods, we integrate configuration management, build management, provisioning, documentation, and monitoring set-up. When new devices are deployed or when configurations are upgraded, updated documentation sets are automatically created and the monitoring system is automatically configured to monitor all aspects of the evolving infrastructure. We have provided support to budget-conscious in-house datacenters, cloud and hybrid environments as well as complete management of fully distributed, high-availability, large-scale e-commerce web deployments.

TDS provides independent assessments, recommendations and improvements for IT, including data center designs, relocations, and operational support. We are not a vendor, VAR, or real estate broker, so we are unbiased by the latest trends and highest commissions, seeking only the highest ROI for our clients. TDS clients include successful organizations of all sizes and focus including Kayak.com, The University of Texas, Boston Red Sox, Cedars-Sinai Medical Center, Liberty Mutual and many others.