Becoming a Nonstop IT Shop

Eight steps to help you plan ahead for constant availability
Offering constant availability of systems and data can be your competitive advantage. This approach to nonstop IT requires realizing that while things will inevitably break, downtime doesn’t have to affect your users. Go beyond planned and unplanned downtime to discover eight actions you can take to become a nonstop IT shop.

A Nonstop World Calls for Nonstop IT

Imagine the loyalty your enterprise can inspire through constant availability. In today’s connected world, word spreads fast, and a reliable organization will make advocates out of customers and partners. Both expect services and data to be available at the tap of a screen, no matter where they roam. The key to becoming this reliable organization is nonstop IT.

Nonstop IT means planning ahead for constant availability: to both minimize downtime and mitigate the risks that come with it. Succeed, and your organization will start thinking of you less as someone who puts out fires and more as someone who keeps a finely tuned machine humming. Your IT team can become the creators of value and the guardians of a reputation for reliability.

Let us show you how the operating system can help you achieve all this. Plus, we have eight actions you can take to adopt the right hardware, software and culture to move your organization toward nonstop IT.

The Right OS and the Right Culture Make Nonstop IT

While selecting the right hardware platform will obviously play a huge part in cutting downtime, your choice of hardware is also affected by many other factors. Rather than tell you what hardware to deploy, we’ll show you the importance of accepting that things will break, and how the right operating system can help you reduce planned downtime and avoid or recover quickly from unplanned events. In fact, your operating system can go beyond helping with planned and unplanned downtime to move your organization in the direction of the nonstop data access it demands.

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Planned Downtime

By some measures, the patches and updates that make up planned downtime are a full 90 percent of the downtime affecting your organization. There’s no doubt you end up having to take systems offline far more frequently than you’d like. You should build a culture of patching proactively, and how easy that will be is in many ways determined by your operating system.

The rapid mutation of cyberthreats has exacerbated the patching problem. Live patching allows you to react quickly to such dangers without taking your operating system offline. Of course, you have to have an operating system vendor that offers patches for these kinds of issues quickly and supports live patching.

Data Protection

Pervasive encryption, strong user authentication and secure data replication can help protect data and ensure that data and services remain available. While data access controls and data integrity tools generally sit outside the operating system, your OS does play a role in supporting access controls and plays a crucial role in encrypting your data. The right OS can also help you establish secure data replication between clusters and sites.
Unplanned Downtime
Unplanned service interruptions may be rarer than planned ones, but they’re more likely to keep you up at night. While natural disasters get broad press, human errors still cause a high percentage of unplanned service interruptions.1

Hardware failures, particularly in large data centers, add up as well. Because these events are unavoidable, changing your culture to accept and prepare for them is key. Proactive maintenance and backup and replication solutions can help.

The operating system matters in these scenarios because the ease of management and the ease of setting up backup systems and clustering determine your ability to avoid or survive unplanned downtime.

Beyond Downtime: Demands for Constant Data Access
Ultimately, the difference between planned or unplanned doesn’t matter. Availability does. And that leads many organizations to data protection through strategies like encryption, replication and system clustering.

What these strategies have in common is that they are proactive cultural changes. Unfortunately, the mindset of many IT organizations hasn’t fully changed as well. What follows are eight ways to improve both the software and the processes that go into solving these issues.

Eight Ways to Begin Building a Nonstop IT Shop

1. **Streamline system patching.**
   Patching is too important, and too tedious, a task to do manually. You should preload your patches to eliminate wait times and automate the process of applying them. For some critical kernel patches, you can also implement live patching. That allows you to apply patches without interrupting the operating system kernel, so you can avoid any planned downtime.

2. **Extend your operating system lifecycle.**
   Ideally, you would be able to time an operating system update for a convenient downtime window. Updating on a vendor’s OS lifecycle calendar can force you to migrate when you’re not ready. An operating system with an extended support option lets you update on your schedule, to help you reduce the risks of a migration and the costs of a systems upgrade.

3. **Snapshot your systems.**
   You can reduce the danger of human error by taking OS snapshots before making a planned change and rolling back to known good states if something does go wrong. Snapshots and rollbacks are thus key to making sure a planned change doesn’t accidentally become an unplanned disaster.

4. **Build clusters—and replicate data between them.**
   Once you’re operating at any significant scale, building failover clusters is essential. This helps you plan for the inevitable hardware failures that come with scale. You should also replicate data to geographically dispersed clusters to address the potential for regional disasters. By replicating data—synchronously if possible, or asynchronously if necessary—to multiple clusters, the loss of one cluster or data center won’t cripple your organization.

5. **Embrace load balancing.**
   Load balancing can help you handle higher volumes of traffic or requests by spreading them across multiple clusters, so individual machines do not get overloaded and introduce delays. Load balancers also monitor which servers are available and can react accordingly, so if an individual server goes down, the load balancer can spread out the load and keep that failure from affecting users.

6. **Use rolling updates.**
   Rolling updates allow you to update the machines in a cluster without introducing downtime. In a rolling update, you don’t have to stop all your nodes at once. Instead, you ensure cluster uptime by sequentially updating nodes. Load balancers will distribute traffic to the servers that are not being updated, thus eliminating interruptions for your users. You should automate this process to reduce the burden on your IT staff.

7. **Unify your approach across hardware.**
   You likely have a mix of hardware, such as x86, IBM Power Systems or ARM, in your organization. You can increase availability by selecting a single operating system that offers reliability, availability and serviceability across these platforms. The common OS will make maintenance easier and less error-prone for your staff.

8. **Boost your security.**
   You should support the strongest encryption possible to help protect data in your environment. You should also follow strong authentication practices, such as multifactor authentication and the principle of least privilege. Under the principle of least privilege, you give users the lowest level of access you can while still allowing them to do their job. This prevents admins from accidently changing systems they do not normally work on (thus causing downtime) and can limit security incidents if a user’s credentials are compromised.

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“The availability, performance and manageability of SUSE solutions are fantastic. SUSE Manager was instrumental in accelerating the deployment, which we achieved in just one week. And thanks to the SUSE Linux Enterprise High Availability Extension, we have dramatically reduced the risk of unplanned downtime in the new SAP environment.”

Hubert Tsang
IT Manager
Pacific Textiles

Business Success Depends on Nonstop IT

With SUSE® software-defined infrastructure, it’s easier to implement the ideas above and achieve the availability, continuity and responsiveness you need to keep your organization competitive.

Maximize Service Availability
The SUSE Linux Enterprise High Availability Extension is open source clustering technology that enables you to easily set up physical or virtual clusters. It’s helped Rusan Pharma go two and a half years with no unplanned downtime for its mission-critical SAP systems. That’s helped the company focus on international expansion.

You can add Geo Clustering for SUSE Linux Enterprise High Availability Extension to implement rules-based failover for automatic or manual transfer of your workloads to other, physically distant clusters.

Maintain Business-Critical Continuity
No single solution can provide continuity of services, so at SUSE, our entire software-defined infrastructure is geared toward this goal. That includes SUSE Linux Enterprise Live Patching, which provides live patching for critical kernel security updates with no downtime, and SUSE Linux Enterprise Server itself.

The flagship SUSE operating system provides one-click rollback and system management tools to ease patching. SUSE Manager takes these management tools one step further, making it easier for you to preload and automate patching across your environment.

ABB (formerly Baldor Electric), an international manufacturer of industrial electric motors, drives and generators, benefited from these SUSE features when it switched from IBM AIX to SUSE Linux. The move improved uptime by 90 percent, decreased response time and reduced IT costs from 2 percent of sales to less than 1 percent.

Raise the Bar on Responsiveness
If your enterprise can respond quickly to new information and changing market conditions, you have a distinct advantage over those that cannot. Real-time systems are used in fields like automotive safety, advanced simulations, aeronautics and more. SUSE Linux Enterprise Real Time enhances nonstop IT with precision timing and predictability.

“Since moving to SUSE Linux Enterprise Server, our uptime has been insane.”

Bill York
Senior Linux Administrator
Burton

Proactive Uptime
There’s massive opportunity in availability. Nonstop IT is about building resilient systems that minimize downtime and the risk that comes with it. With nonstop IT, you can offer constant, predictable and reliable infrastructure that your enterprise can rely on anytime, anywhere. And that can give it a real advantage. Give your organization an edge with nonstop IT.
Contact your local SUSE solutions provider, or call SUSE at:

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