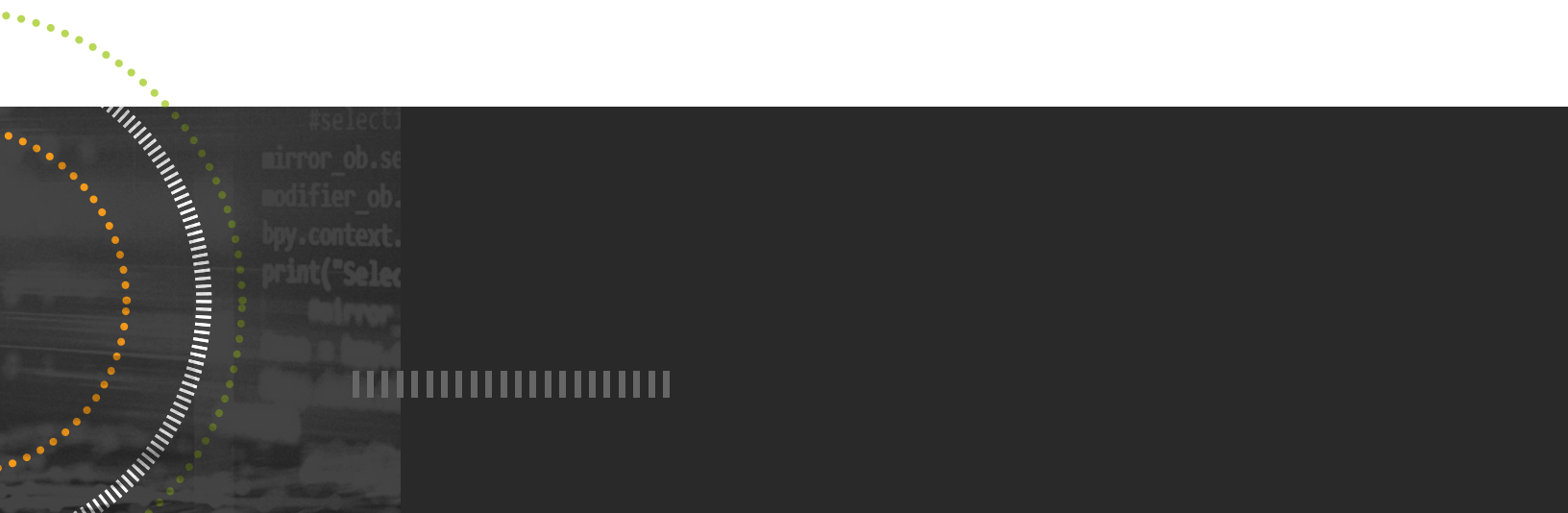




WHITEPAPER

# Accelerate Agility Through IT Operations Management and Automation



# Accelerate Agility

## INTRODUCTION

Recent events have impacted IT at unprecedented levels. Newly remote workforces have been set up and supported—many for the first time. Performance expectations and complexity are rising while budgets are shrinking. You need to stay ahead of your end-user experience, especially when they're remote.

There's tremendous pressure to respond to critical business needs faster than ever before. At the same time, you need to monitor and manage new technologies and applications both earthed and cloud. Whether it's the app delivering revenue lifeblood or the apps keeping your entire organization moving ahead, mission No. 1 is seeing ahead of the next issue. And preventing it when you can.

To get the job done, IT operations are renewing their focus on automation. Reducing time spent on repetitive tasks through automation allows IT to focus on more business-critical projects. For example, optimizing applications to improve performance and lower costs.

This whitepaper will focus on the following pillars: application performance monitoring (APM), database monitoring, infrastructure monitoring, network monitoring, and IT service management (ITSM).

## APPLICATION PERFORMANCE MONITORING (APM)

### Key Challenges

Database servers, collaboration and directory services, app server frameworks, and just about any other traditional enterprise app all generally have robust internal processes devoted to monitoring, analyzing, and reporting on their unique internal architectures, presented via a reliable, organized API. For years, we've more or less been able to run discovery on a stack, continuously monitor the rich details presented, correlate data, receive bacon.

Increasingly, however, apps combine on-prem resources, packaged apps, SaaS integration, cloud services, and more, all flying in formations of interconnected transactions. They're loosely coupled by design—the opposite of the convenient order of racks and data centers from which they emerge. And with the limitations of older management tools, "discovering the stack" may be all but impossible once root access is no longer an option for supporting infrastructures managed by someone (or something) else.

The result is a huge increase not just in the complexity of deployed components, but also in the skills needed to understand their interrelationships. In many ways, our IT management systems are now expected to fill visibility gaps, and effectively—

and operationally—to re-couple these deconstructed application stacks. They've become event and alert aggregation platforms to recompose logs from multiple systems into coherent stories for troubleshooting.

## Approach to Solve

Successful application management vendors share one thing—they offer integrated products to help IT teams adapt to changing technology and usage patterns. This demand is driven by a longstanding, cyclic IT paradox. As operations complexity increases, IT processes and solutions must be simplified. Otherwise, they become an additional parallel complexity burden for the team, leading both IT pros and leadership to streamline wherever possible.

However, fielding a team of admins and engineers ready to monitor all aspects of on-prem, cloud, packaged apps, open-source, relational and NoSQL data, and all the interconnections between them isn't easy. Your APM solution needs to measure user experience and allow for the tracing of transactions to discover the bottlenecks lurking in your network, server, database, and code.

Organizations should start by identifying skills gaps, providing meaningful team training to reduce errors, and knowledge-sharing between admins as they gain experience with new application tech. They can then plug their common knowledge into their monitoring and management systems, expanding or regaining visibility to all aspects of the applications for which they're responsible.

## DATABASE MONITORING

### Key Challenges

Traditional database monitoring platforms were built from the point of view of the database platform being monitored. They focus solely inside the database engine, with an assumption the database is running on a single server, and not a collection of servers. That idea no longer applies to the world of globally distributed applications. Your in-house custom accounting application requires different monitoring and tuning methods than your online ordering system.

Put another way, you wouldn't expect your mechanic to tune your Jeep the same way she would tune a Ferrari. Both are vehicles, yes, but built for different purposes. The tools and methods are distinct for both. And so are the metrics and dashboards you want for your legacy applications versus distributed ones.

But pretty dashboards aren't enough. In fact, they're often too much—too much data shoved into one view, making it too difficult to focus on any one issue.

### Approach to Solve

The Heisenberg uncertainty principle states the position and velocity of a particle cannot be measured exactly at the same time. The more you know about position, the less you know about velocity, and vice-versa.

The same theory applies to database performance tuning methods. The more you know about the activity happening inside of a database engine, the less you know about the entire system as a whole. Modern distributed systems don't focus on the internals of a database engine. Instead, they rely on four golden signals: latency, traffic, errors, and saturation. These signals combine to help provide a measure of overall user experience.

Applying some data science and machine learning, we can use the data from such metrics to offer true anomaly detection. This way, when an alert bubbles up to your pretty dashboard, you'll know there's something different happening, allowing you to focus on what needs your attention, and now.

Your monitoring systems need to provide you the ability to have deep database analysis, anomaly detection, as well as the golden signals for distributed applications.

## INFRASTRUCTURE MONITORING

### Key Challenges

The rise in popularity of containers is feeding the ever-growing need to monitor containerized deployments independently of their location. More and more businesses use containers for decentralized application delivery, and they're deployed anywhere. Larger organizations use multiple platform as a service (PaaS) providers based on region, department, business function, or just project based.

While some of these are self-sufficient infrastructures, many processes require multiple PaaS providers to work together. This comes with a variety of challenges and requires a variety of solutions to manage. In an ideal world, we'd all have the luxury of choosing the best platform depending upon the workload. But the reality is we're often forced to use platforms we find the most familiar, not always the best.

### Approach to Solve

Delivering critical business services today requires infrastructure (server, storage, and network) and applications residing on-premises, in the cloud, or in a hybrid IT environment. But regardless of where the equipment sits and who owns it, end users expect a seamless experience, and rely on you—the IT professional—to help ensure performance and availability.

Ideally, your underlying infrastructure is invisible to the end users, scales nicely, and adopts to new usage scenarios. It's a case-by-case decision where to run the workload best, and the decision-making process requires comparable key performance indicators (KPIs). The combination of KPIs helps users understand the health status of the entire deployment. Ultimately, what's needed is the ability to monitor the entire stack.

For containers, each node in the deployment requires a container dedicated for monitoring, with another container deployed on a single node as a collector. Besides health, this also allows for you to be alerted on any changes having a negative impact on the application delivery.

## NETWORK MONITORING

### Key Challenges

Your network management solutions must be flexible, adaptative, and automated to deal with the pace of change required by the business. For example, in 2020, many organizations, ones who'd been slowly testing the work-from-home (WFH) and telework waters for years, found they were—after a quick and sometimes frantic expansion of VPN capabilities—ready to go. Other businesses weren't nearly as prepared, or lucky.

The events of 2020 underscore the reality every IT professional understands from bitter experience: anything can, and likely will, happen—and usually at the worst possible time. As much as any other subsystem within the corporate infrastructure, your network has to be built with the ability to flex when necessary.

### Approach to Solve

Network engineers need to see how their role is shifting from being “all about layers 1-3” to seeing the ways in which automation and code can fundamentally change the way we build and interact with the network—and change it for the better. All the available protocols and technologies should underscore the truth of how traffic moves across your network, shifting from moment to moment, often in response to external pressures.

Traditional routing isn't going to hold up well, or for long, in this type of environment. It's time to get deeper visibility into critical network switches, firewalls, and load balancers. Gone are the days of being left in the dark, only able to monitor up/ down status.

## IT SERVICE MANAGEMENT

### Key Challenges

Implementing changes may seem daunting, but by documenting operations and change practices, organizations can drive effective communication, restore services faster, and reduce risk. You may be familiar with its predecessors, known as change control or change management, but with the introduction of ITIL 4, it pivoted to change enablement.

Change, in IT, boils down to modifying anything able to affect the services you provide. The premise of change enablement as a practice is to mitigate the impact of changes to your employees and your services by assessing risks and timelines with

the appropriate parties. Managing changes pushes teams to review their current environment, so those implementing and approving changes can better question what steps are needed to optimize the intended benefits and effectiveness.

## Approach to Solve

Practicing change enablement drives teams to adhere to the ITIL guiding principle “Start Where You Are.” This helps to cultivate an understanding of needed change. Discerning the baseline complexity of the change enables you to both structure a plan to test and implement the change, while also considering what resources are required.

When formulating your change plan, consider the associated risks. As you ascertain the risks, you begin to shed light between the current state and desired outcome. This visibility further enables you to define the test and rollback plans in parallel. By defining a test plan, you can run a pilot implementation prior to delivering a change organization-wide. Testing helps your team better understand the effectiveness and stability of the proposed change plan. It also provides an opportunity to examine and record rollback procedures.

## SUMMARY

You could probably get a lot more done if you could clone yourself.

Without clones, or integrated products to provide consistent view, managing your everyday IT needs is a massive and manual burden. Manual tasks result in wasted time, effort, and precious limited resources.

The world of IT grows more complex with each passing day, week, month, and year. We manage more things today than we did yesterday. And tomorrow, we’ll be asked to take on more. More devices, more applications, more data, in more locations.

So much more that it comes to the point where you have to make a choice. You can either spend the time and money trying to integrate a disparate set of monitoring tools or purchase a set of solutions already integrated for your success.

SolarWinds has developed a suite of solutions built to accelerate agility at scale by taming applications and complexity with a unified management and automation approach. Our products allow for integration between all areas of IT, giving complete visibility. Network performance monitoring, IT Service Management (ITSM), application performance monitoring (APM), database and application monitoring, and more. All integrated, providing full-stack insights into every layer in your infrastructure.

With SolarWinds, you have the ability to monitor your full stack, detect anomalies, automate manual tasks, remove interruptions, and even integrated service management. SolarWinds solutions are proven to help your company optimize costs, reduce risk, and ultimately grow revenue. And with SolarWinds you can do it and get immediate value without breaking the bank.

## ABOUT SOLARWINDS

SolarWinds (NYSE:SWI) is a leading provider of powerful and affordable IT management software. Our products give organizations worldwide—regardless of type, size, or complexity—the power to monitor and manage their IT services, infrastructures, and applications; whether on-premises, in the cloud, or via hybrid models. We continuously engage with technology professionals—IT service and operations professionals, DevOps professionals, and managed services providers (MSPs)—to understand the challenges they face in maintaining high-performing and highly available IT infrastructures and applications. The insights we gain from them, in places like our **THWACK** community, allow us to solve well-understood IT management challenges in the ways technology professionals want them solved. Our focus on the user and commitment to excellence in end-to-end hybrid IT management has established SolarWinds as a worldwide leader in solutions for network and IT service management, application performance, and managed services. Learn more today at [www.solarwinds.com](http://www.solarwinds.com).



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