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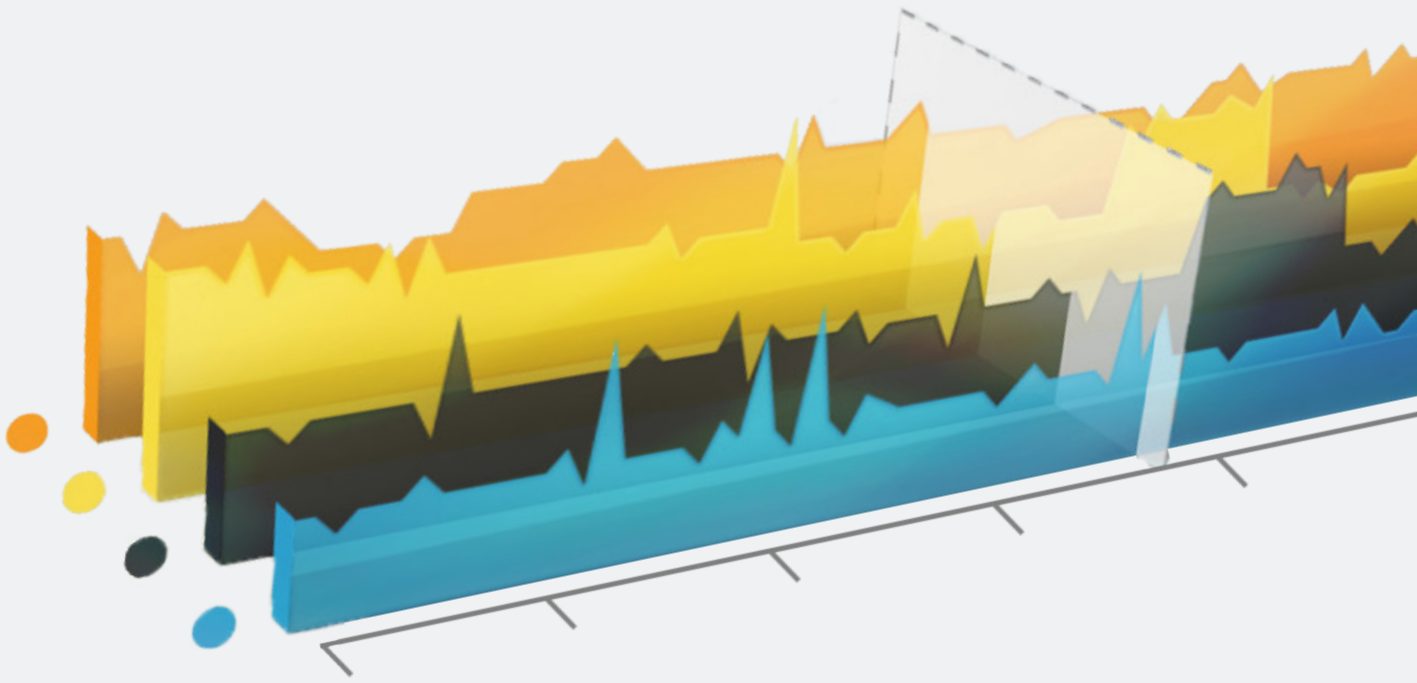

eBOOK

An Integrated Approach to IT Troubleshooting

by Jared Hensle

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Introduction

Delivering critical business services today requires infrastructure and applications that reside on-premise, 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.

In an IT world rife with complex environments, monitoring can no longer be an afterthought. By establishing monitoring as a core IT function—aka monitoring as a discipline, or MAAD—organizations can benefit from a much more proactive IT management strategy, while also streamlining infrastructure performance, cost, and security. Finding the true source of service delivery problems across both on-premise and cloud resources, however, requires a tightly integrated toolset that surfaces a single point of truth across those platforms. The normalization of metrics, alerts, and other collected data from applications and workloads, regardless of their location, will enable a more efficient approach to troubleshooting, remediation, and optimization, while minimizing friction across silos.

In this eBook, we will share some approaches to monitoring your IT environment and how those approaches impact troubleshooting. We'll also discuss how SolarWinds® Orion Platform provides an optimal integrated platform, and how PerfStack™ can simplify data correlation for efficient problem-solving.

TWO APPROACHES TO MONITORING: FONDUE VS. CHEESE PLATTER

There are two primary approaches to monitoring the IT environment that I will refer to as Fondue and the Cheese Platter.

The first approach is to take several different tools, throw them in a pot, and melt them into a lovely integrated tools-fondue that provides end-to-end visibility across your entire IT stack. What's not to like about that? Everyone loves melted cheese, right? The unfortunate reality is that getting the fondue just right so that it satisfies everyone at the table is quite often difficult to achieve. Most platform solutions end up including features that will never be used, are incredibly difficult to implement, and require significant resources to manage on a day-to-day basis. All of this ends up costing you more money, and your fondue suddenly turns into a bloated, overcooked pot of burnt cheese. However, when done properly, a fondue can be a true delicacy, balancing all of the flavors and satisfying all of the diners, or users, in our case.

The cheese platter approach allows diners to experience a variety of flavors that suit their own tastes. Often, the cheese platter is a potluck collection of "bring your own tools." Yes, it is possible for an expert to assemble a great cheese platter. If you understand how various flavors complement or contrast (i.e. integrate with) each other, you can give your diners/users a pleasant, customized experience. It's all about creating a foundation that acknowledges how the cheeses interact with each other.

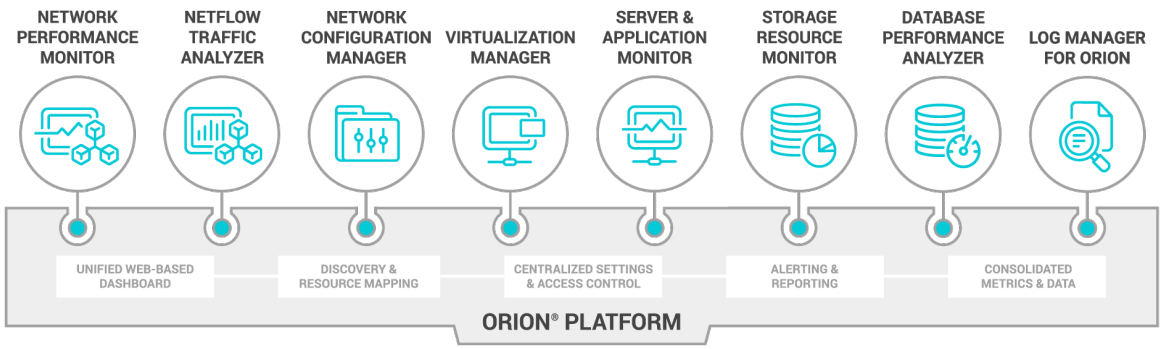
When done poorly, cheese platter-like integration uses discrete tools, with little to no integration. They don't go together and often conflict. The network operation center has one set of tools, while the systems, storage, and virtualization admins each have their own. While each of these tools may be very powerful in their own right, it can be nearly impossible to correlate and share data between them.

INTEGRATED MODULAR MONITORING WITH THE SOLARWINDS ORION PLATFORM

When we talk about monitoring, we recommend the fondue option, because it offers an optimally blended range of the finest tools designed to complement each other. This combination brings together a set of features that please the palate of each person at the table (i.e. teams from separate IT disciplines can use it), and pairs well with the rest of the meal (i.e. the IT environment that needs to be monitored). We think the SolarWinds Orion Platform is a good example of this.

The Orion Platform is the common modular foundation on which many individual SolarWinds products are built upon. The Orion Platform simplifies integration by providing a common set of services across products, including a unified U/I, customizable dashboards, and intelligent alerts and reports. With the Orion Platform, you can accelerate troubleshooting across the entire IT stack by sharing data for contextual visibility and relationship mapping.

The Orion Platform's modular architecture extends and scales as your IT needs grow. You can start with one product, and add more as needed, allowing you to scale to monitor hundreds of thousands of devices, systems, applications, or elements. In addition, the Orion Platform provides consolidated metrics and data within a single view, puts that into a meaningful context, and provides the mechanism for creating advanced alerts and responses for faster root cause identification and automated resolution.



WHAT ARE THE PRACTICAL IMPLICATIONS?

Monitoring networks, systems, virtualization, infrastructure, and storage environments involves collecting and analyzing millions of different metrics. With this amount of data to parse through, while the clock is ticking and pressure is mounting, your SLA is left hanging in the balance. This also doesn't factor in the inevitable finger-pointing regularly engaged in by storage admins, DBAs, cloud architects, application engineers, and systems engineers.

Even when a tightly integrated monitoring platform has been implemented, comparing data from different sources with dissimilar units and variable timelin makes troubleshooting harder than it needs to be. You can approach this challenge by creating elaborate, purpose-built, custom summary dashboards. But there are a few problems with this attempt at a solution.

First, depending upon the complexity of the custom dashboard, the creation process can be tedious, resource-intensive, and highly iterative.

Second, only those with administrative rights have the necessary permissions required to build or modify these custom summary dashboards. And gaining permission requires specialized knowledge of the systems and elements that are being displayed. This places a significant burden on the monitoring admin, making that person the bottleneck that holds up efficient troubleshooting.

Third, there's the issue of maintaining these custom dashboards. Some larger organizations may have dozens or even hundreds of these for various business services, and if not properly maintained to reflect changes made throughout the organization, these dashboards become less useful.

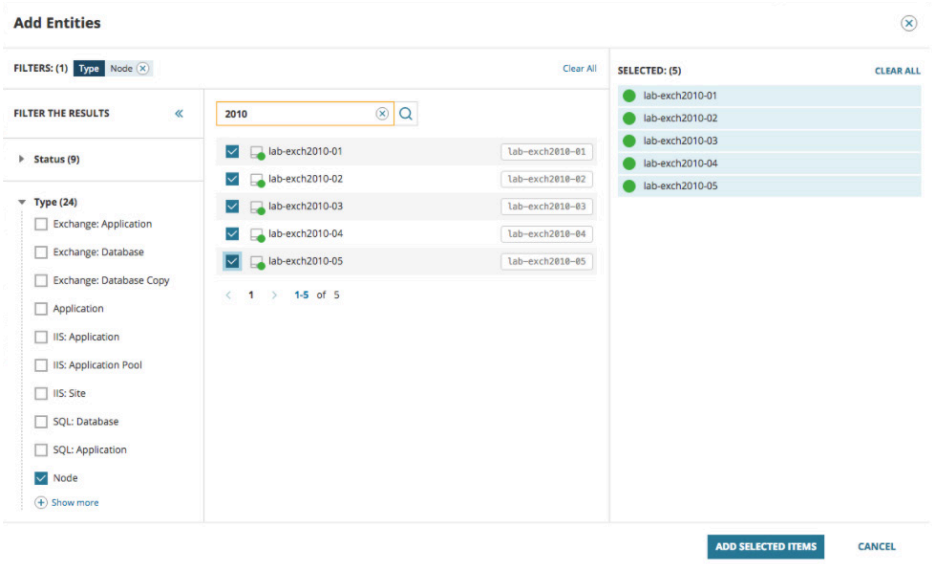
IT teams have to be able to sort through the noise created by millions of metrics being collected by monitoring tools. This is where cross-stack data correlation comes in, because it's no longer acceptable to simply rule out your own silo and kick the issue over the wall to the next team.

In a perfect world, you could correlate data across your application delivery stack to compare collected metrics, regardless of their physical location or their location within the delivery path. Further, you need to be able to overlay the metrics of differing units of measurement on a common timeline within a single view. And, the whole process needs to be simple enough to allow you to create ad hoc dashboards on the fly.

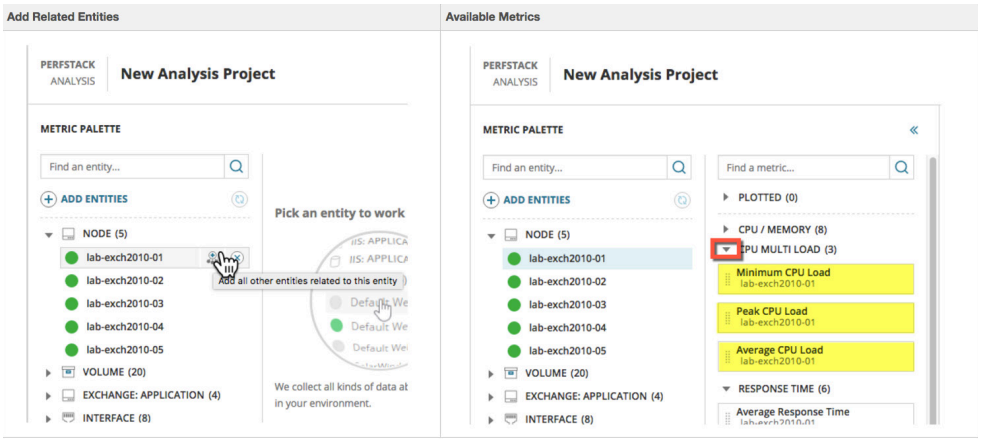
The latest release of the Orion Platform comes with a completely new method for visualizing and correlating data across the IT stack. It's called PerfStack™, and it allows you to quickly sift through the massive amounts of data that SolarWinds Orion Platform products collect, filtering out the noise, and focusing on what's truly relevant to the issue at hand. Drag and drop any entity's performance metrics into a PerfStack project to quickly see time series and relationship data in one easy-to-view graph. With this kind of transparency, IT professionals are able to troubleshoot issues faster and pinpoint root cause in a flash.

IT DATA CORRELATION WITH PERFSTACK

Let's take a moment to walk through the steps it takes for PerfStack to detect issue symptoms. PerfStack (the Performance Analysis dashboard) can be accessed from the home menu of any of your deployed Orion Platform products. You start with a blank canvas—a new analysis project—to explore your data. Begin by adding one or more entities of an active investigation—typically the one showing the symptom. This could be the switch, router, virtual machine, host (or node), or something more specific, such as the application, LUN, array, or web transaction. You can add as many entities as you wish to your analysis project.

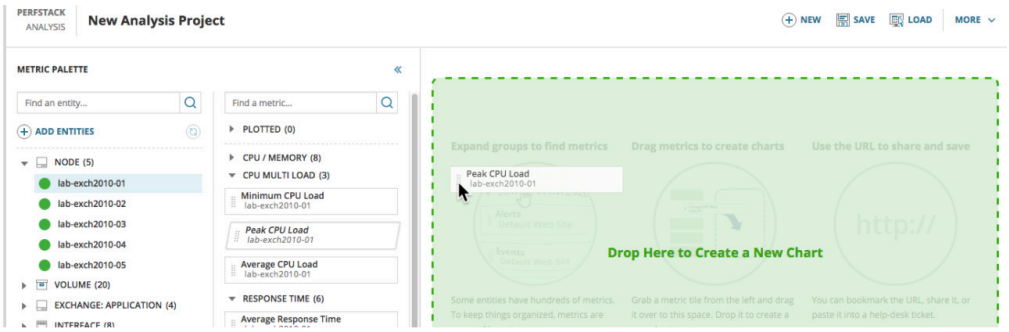


Once you've added your entities to the PerfStack dashboard, hover your mouse over any of those entities in the list and you will notice two icons to the right of the entity name. When clicked, the first icon brings in all other entities related to that object by leveraging existing relationship data. This is great for virtualized applications, where you can start with an application and automatically discover related entities, such as the virtual server, virtual host, cluster, LUN, and physical array. Automatically discovering relationship information within PerfStack allows you to dramatically accelerate the troubleshooting process and focus exclusively on what's likely related to the issue at hand.

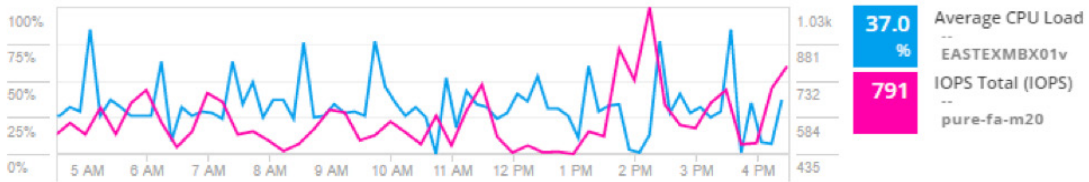


All available metrics for an entity are shown by clicking on an entity name. A list of all available metrics associated with that entity are shown in the adjacent column. These metrics are categorized into collapsed groupings based on their type, any of which can be expanded to reveal individual metric tiles.

You can easily drag metric tiles and drop them onto the chart area on the right where the metric data is plotted. Add as many metrics to the chart area as you like. You can add multiple metrics to the same chart, and stack multiple charts on top of each other.

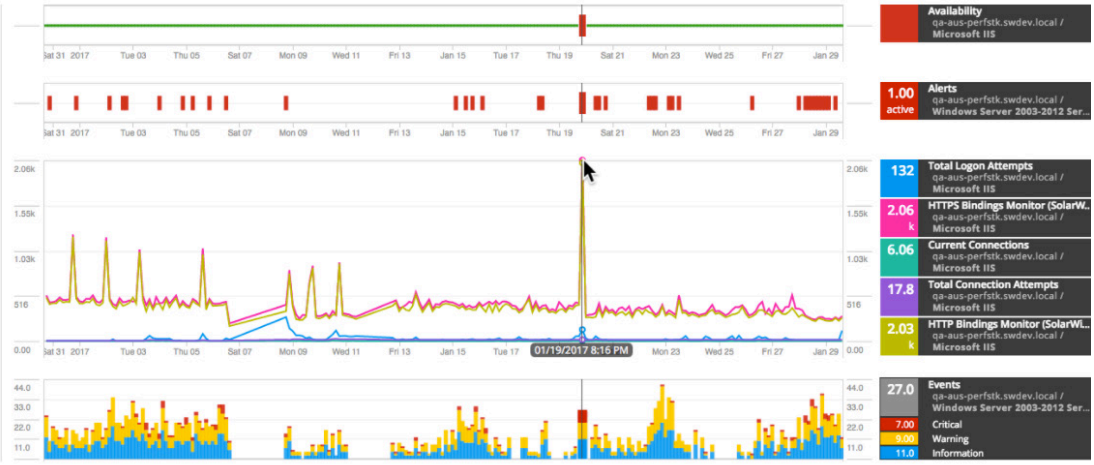


PerfStack can also combine data from disparate data sources into the same chart. For example, combine Server & Application Monitor's Server's Average CPU and Storage Resource Monitor's Array's IOPS total into the chart to help troubleshoot performance issues. Until now, this hasn't been possible with any full stack monitoring solution.



PerfStack also allows you to combine disparate metrics, such as integer-based metrics with percentage-based metrics, while maintaining the appropriate scale. This is accomplished by maintaining two separate Y-axes when metrics of dissimilar types are combined within the same chart.

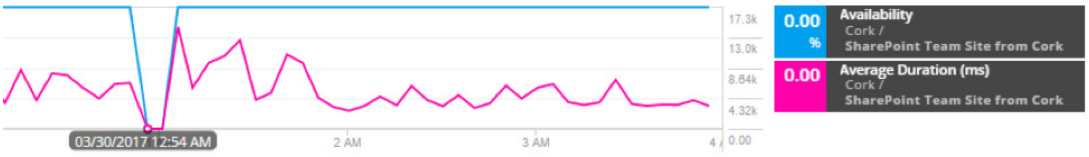
Data for all metrics displayed within the chart area are automatically aligned across the same time period. Hovering your mouse over any chart area adds a vertical marker that tracks your mouse movement to visually align all data points across the series. It also displays the date and time that data point was collected. As you move your mouse horizontally across the time period of the chart area, the values within the legend update to reflect the values aligned to the vertical marker.



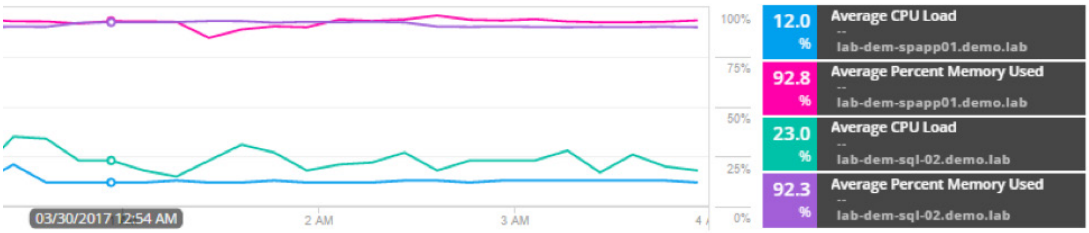
The result is a dynamic chart that you can save for future reference. Charted metrics, the entities they're derived from, and the custom or relative timeframe are all included as part of your saved project. Saved PerfStack projects can be loaded easily, making juggling between projects a snap. Each individual Orion user can create, save, load, update, and delete their own works of art within PerfStack. Any Orion user can also create and save as many PerfStack dashboards as they like and manage them independently.

REAL-WORLD SYSTEMS ADMINISTRATION EXAMPLE

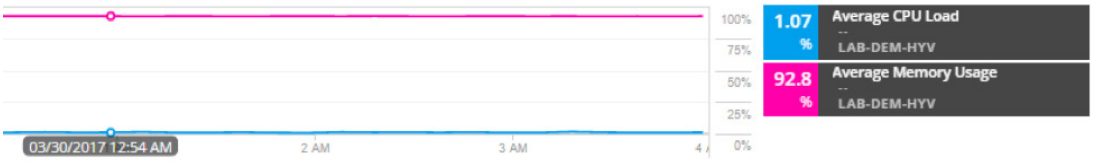
Let's take this example: You receive an alert that your SharePoint website is down. You can quickly use your intranet PerfStack dashboard to confirm that SharePoint availability is down.



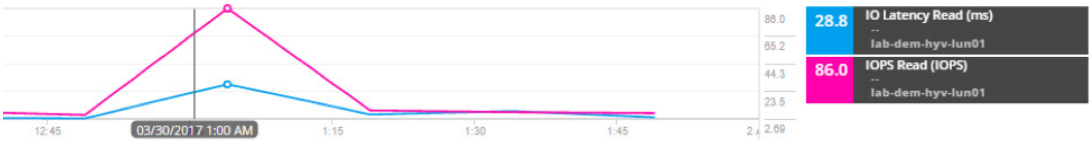
You then move to check the Windows Server® and SQL Server® to see if CPU or memory may have spiked or changed.



In this example, the memory usage is high, but running memory usage around 90% is normal for these servers. So, what is your next step? Check the ESX® host, because these servers are virtual servers.



Again, you see that memory utilization is high, but that is expected, since you run a dense virtual environment, and nothing appears to be abnormal.



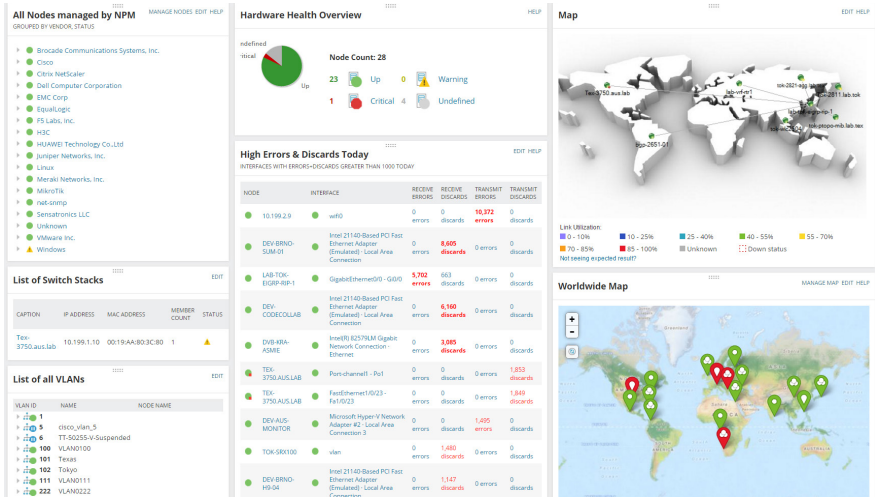
Once you drill deeper into the storage layer, you notice a spike to the IOPs in the datastore, and you conclude that it was a "noisy neighbor." You begin troubleshooting the other VMs on that storage to see which one may have caused the spike. Curiosity leads you to look up the other VMs on the data store. Sure enough, you see high utilization on one of the other VMs.

Problem solved typically in just a few minutes.

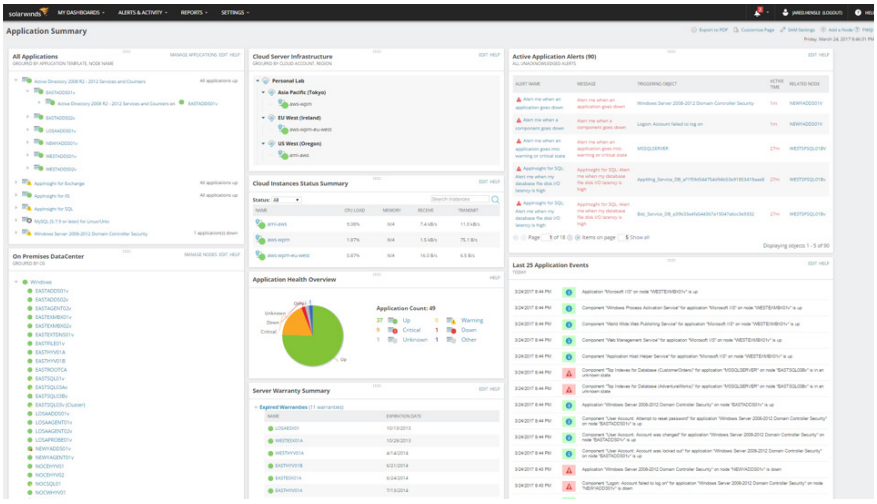
PERFSTACK-ENABLED PRODUCTS FROM SOLARWINDS

PerfStack is a feature of the Orion core, meaning it's accessible within each of the products built on the Orion Platform. When more than one Orion core product is installed, data and metrics are available to build PerfStack views.

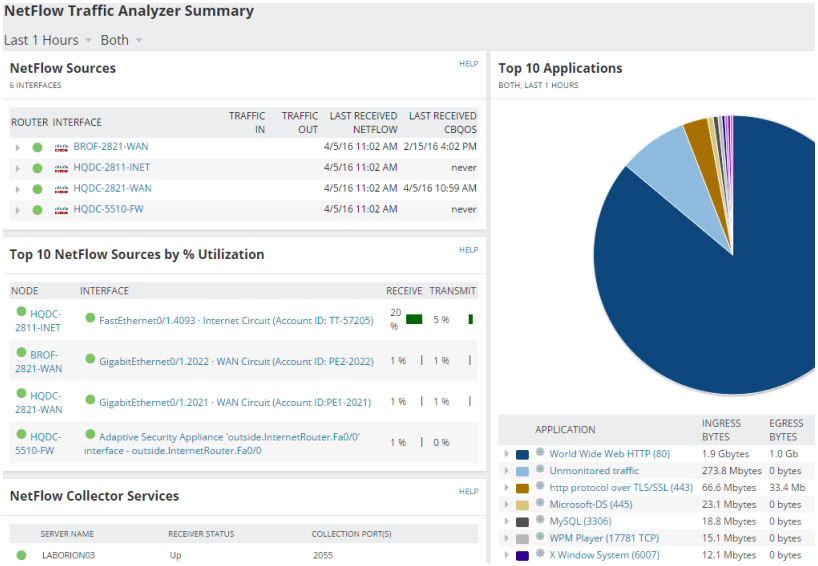
Network Performance Monitor is multi-vendor fault, performance, and availability network monitoring software that offers critical hop-by-hop analysis for on-premise, hybrid, and cloud services. It provides intelligent alerting, reporting, and forecasting. It is available for a free trial download here.



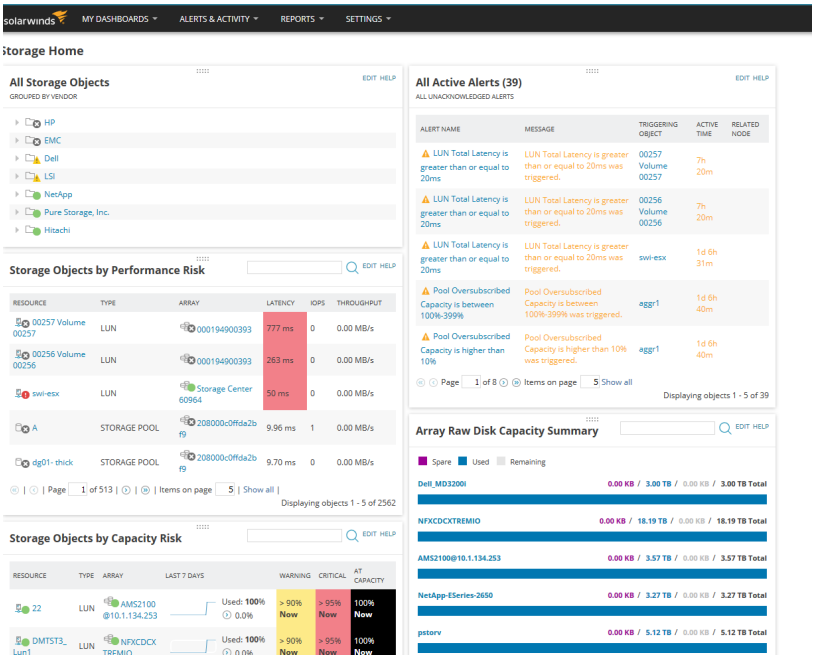
Server & Application Monitor is server performance, capacity, and hardware health monitoring software that allows you to monitor more the 1200+ applications from a single dashboard. It features automatic application discovery and dependency mapping. Download your free trial here.



NetFlow Traffic Analyzer is network traffic analysis and bandwidth monitoring software. You can use it to identify bandwidth use by user, application, protocol, and IP address group. It offers multi-vendor device and flow support, and a free trial can be downloaded here.



Storage Resource Monitor is multi-vendor storage performance and capacity monitoirng software. It gives users real-time storage visibility into NAS and SAN arrays, including EMC®, NetApp®, Dell®, Hitachi®, and many more. With SRM, you can see all storage layers, including virtualization and applications.



CONCLUSION

It's all about reliably delivering apps and services to your end-users. As a systems engineer, you need to quickly determine if an issue is within the scope of what you or one of your colleagues can handle. Having a suite of tools that provides cross-functional collaboration is critical to resolving problems as quickly as possible. The Orion Platform's modular architecture blends IT monitoring tools together into an easy-to-use, fully integrated gourmet fondue pot. With PerfStack, you can quickly and easily create an ad hoc analysis and performance dashboard, and then share it with your counterparts to troubleshoot, remediate, and optimize your entire environment.

ABOUT THE AUTHOR

Jared Hensle is Senior Production Marketing Manager in charge of the System Portfolio at SolarWinds. He has over 15 years of hands-on experience in the IT industry, including working for several Fortune 100® companies and running an MSP company managing the IT needs of SMBs. While managing the MSP company, he interfaced with customers, and was responsible for guiding their company's technical direction. In that capacity, he introduced many to cloud and hybrid IT environments.

ABOUT SOLARWINDS

SolarWinds is a leading provider of powerful and affordable IT infrastructure management software. Our products give organizations worldwide, regardless of type, size or IT infrastructure complexity, the power to monitor and manage the performance of their IT environments, whether on-premise, in the cloud, or in hybrid models. We continuously engage with all types of technology professionals – IT operations professionals, DevOps professionals and managed service providers (MSPs) – to understand the challenges they face maintaining high-performing and highly available IT infrastructures. The insights we gain from engaging with them, in places like our THWACK online community, allow us to build products that solve well-understood IT management challenges in ways that technology professionals want them solved. This focus on the user and commitment to excellence in end-to-end hybrid IT performance management has established SolarWinds as a worldwide leader in network management software and MSP solutions. Learn more today at www.solarwinds.com.