



 EVALUATION GUIDE

# Virtualization Manager

*The purpose of this document is to explain the value proposition of SolarWinds® Virtualization Manager (VMAN). This detailed document will help you understand the key features of VMAN and how these features will benefit you in running your virtual infrastructure more efficiently.*

## WHAT IS SOLARWINDS VIRTUALIZATION MANAGER?

SolarWinds Virtualization Manager provides multi-hypervisor alerting and remediation in a single pane of glass. Built-in management actions allows you to instantly remediate virtualization issues from within VMAN. Using the AppStack™ dashboard, you can automatically map relationships between applications, servers, hosts, and data stores, and isolate real hotspots.

### PROBLEMS VMAN CAN HELP YOU SOLVE

If you are facing any of these pain points, you will need VMAN:

- » Do you need complete visibility of your virtual environment (VMware® and Hyper-V®) to troubleshoot issues faster?
- » When troubleshooting virtual applications, do you wish to exactly pinpoint where the issue stems from—application, virtual server, host, or data store?
- » Do you suspect most of your VM resources are under-utilized or over-utilized, and want to put a control check?
- » Do you want to remediate VMware or Hyper-V issues from the monitoring tool without actually logging into vCenter™?
- » Do you wish to receive timely alerts that will help you prevent performance issues before they impact applications?

### HOW IS SOLARWINDS VMAN UNIQUE?

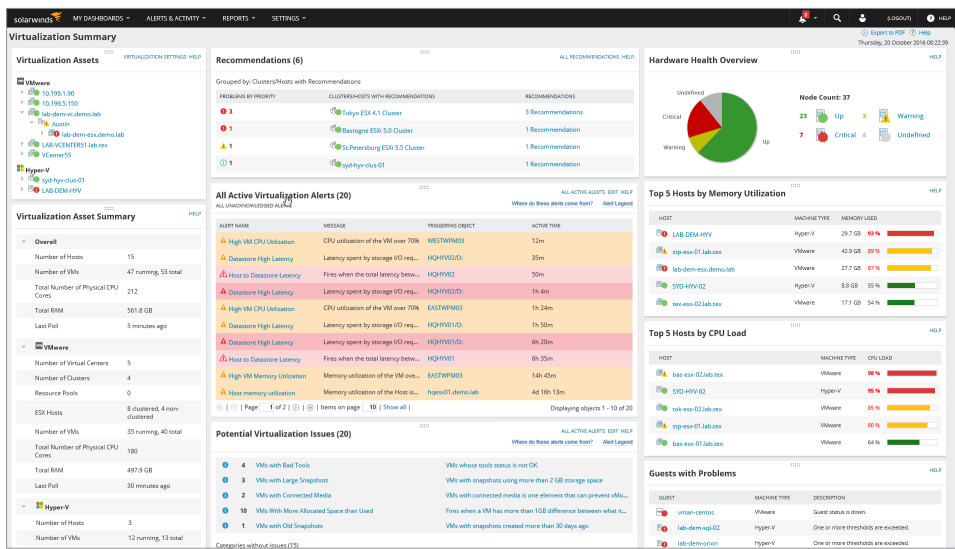
- » **Multi-Hypervisor Monitoring:** Monitor and remediate both VMware and Microsoft® Hyper-V environments from a single pane of glass.
- » **Analytics-Based Recommendations:** Predictive and active recommendations with built-in remediation actions and steps to quickly fix active issues and prevent new ones.
- » **Resource Savings:** Virtual resources can be saved through VM sprawl and rightsizing.
- » **Make informed Decisions:** VMAN offers hundreds of out-of-the-box reports helping to eliminate assumption-driven decisions.
- » **End-to-End IT Monitoring:** VMAN seamlessly integrates with other SolarWinds products to provide a comprehensive picture of overall IT health. The Application Stack dashboard gives instant visibility across the infrastructure, from application to storage.

## OPTIMIZE YOUR VIRTUAL ENVIRONMENT USING VMAN

SolarWinds Virtualization Manager provides multi-hypervisor alerting and remediation in a single pane of glass. Troubleshoot virtual issues faster with intuitive dashboards for performance, capacity, storage, and configuration. Save virtual resources and cut down hardware costs with VM Sprawl and VM rightsizing. VMAN also provides configuration management, and alert remediation. All these features are combined into one product that is easy to download, deploy, and use.

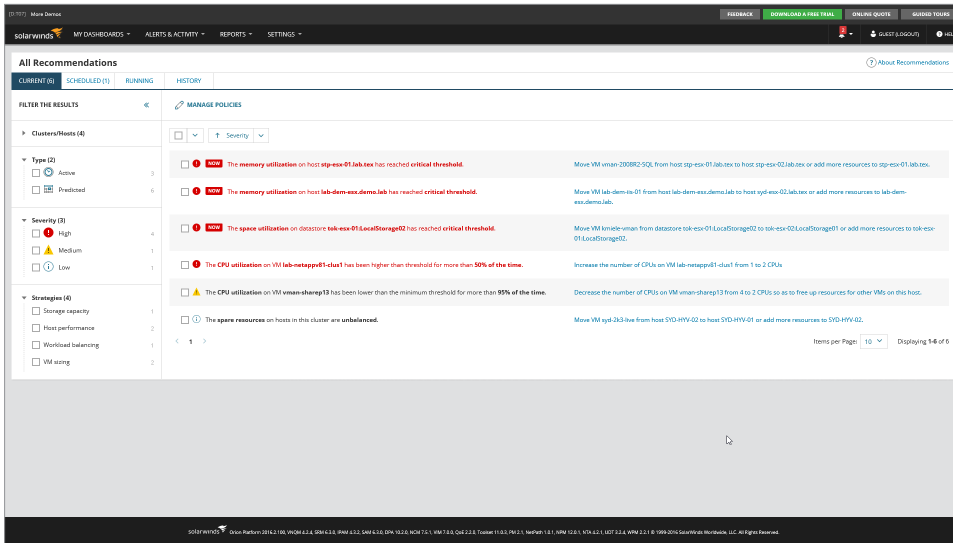
### VMAN SUMMARY DASHBOARD

Managing different monitoring tools for your virtual environment can be very tedious. SolarWinds Virtualization Manager provides a single view to monitor both VMware and Hyper-V environments. The summary dashboard enables you to get a quick view of all key virtualization metrics in your environment. The hypervisor and virtual issues are categorized into “All Active Alerts” and “Potential Issues,” so you can act faster.



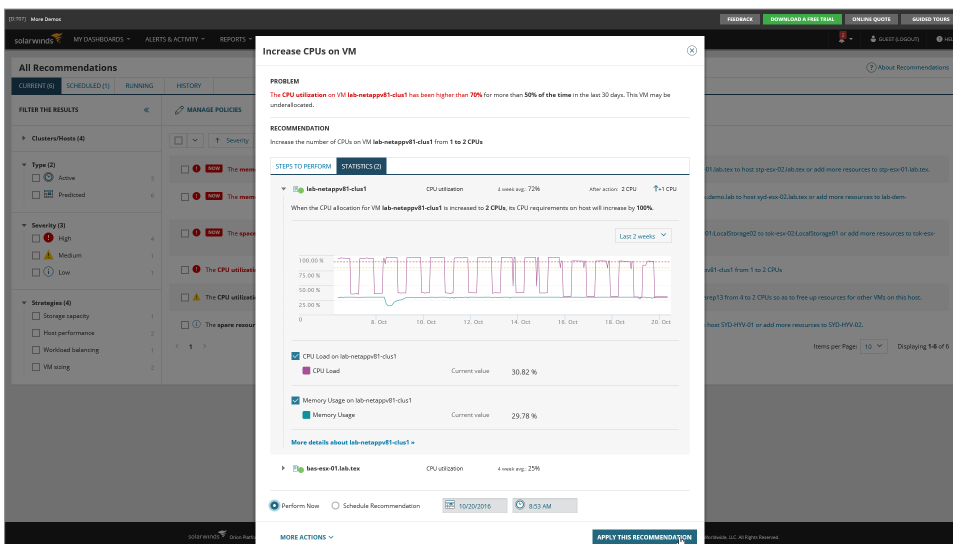
## VMAN RECOMMENDATIONS

Predicted and active recommendations are calculated to optimize VM performance and placement. VMANs analytics engine uses four strategies— storage capacity, host performance, workload balancing, and VM Sizing—to calculate its recommendations. These recommendations can then be sorted by their type or severity to allow for quick resolution to active problems and to proactively prevent new ones.



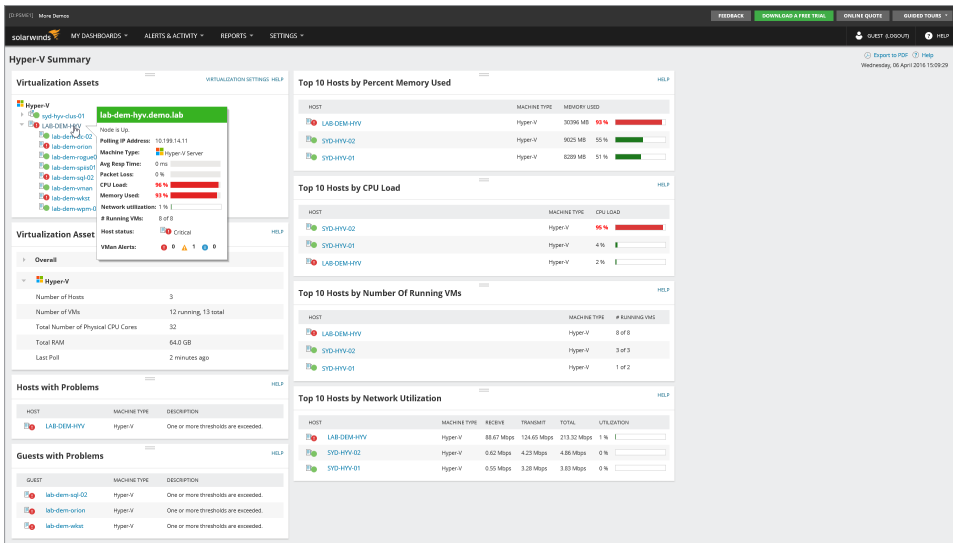
## VMAN RECOMMENDATION DETAIL

Recommendation Detail shows you the steps to perform, and the statistics of the VM or host with the issue and its related infrastructure. Recommendations and remediation steps can be performed now or scheduled for a later date and time.



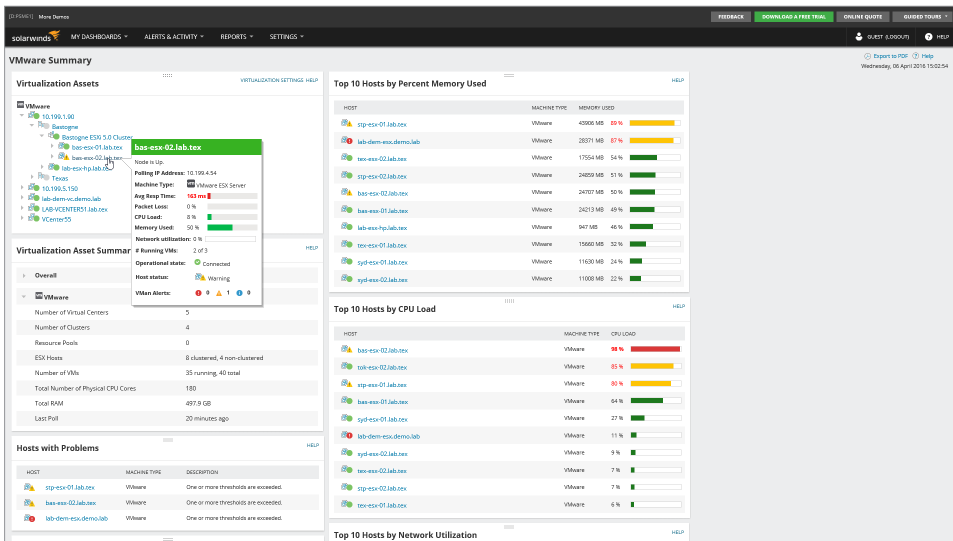
## VMAN HYPER-V DASHBOARD

VMAN provides a separate dashboard for the Hyper-V environment, if you want monitor it alone.



## VMAN VMWARE DASHBOARD

VMAN provides a separate dashboard for the VMware environment, if you want monitor it alone.



## CLOUD SUMMARY DASHBOARD

Monitor and manage your Amazon AWS (EC2® and EBS) and Microsoft Azure cloud instances from the same console as your on-premises virtualization environment.

The screenshot displays the SolarWinds Cloud Summary Dashboard. It is divided into several sections:

- Cloud Instances Status Summary:** A table listing various cloud instances with columns for Name, CPU usage, Memory, Storage, and Network. One instance, 'ORON-DEMO-0066-V1-SQL-0', is highlighted in red, indicating a warning or critical state.
- Cloud Server Infrastructure:** A tree view showing the hierarchy of cloud resources, including 'Asia Pacific (Sydney)', 'EU West (Frankfurt)', and 'Personal Lab'.
- Active Cloud Alerts (2):** A list of alerts with columns for Alert Name, Message, Resolving Impact, Active Time, and Related Items. Alerts include 'Alert me when a Cloud Instance is in a Warning or Critical State'.
- Last 25 Cloud Events:** A log of recent events, such as 'Cloud Instance ORON-DEMO-0048-V1-ORON-0-0-EU West (Frankfurt) is currently in a Warning state'.
- Cloud Applications with Problems:** A section for identifying application-level issues.
- Cloud Volumes Performance:** A table showing performance metrics for various cloud volumes, including Read Latency, Write Latency, Read IOPS, Write IOPS, and Size.
- Cloud Asset Summary:** A summary of overall cloud assets, including Total Instances, Total Storage Capacity, and CPU Load.

## VMAN STORAGE SUMMARY DASHBOARD

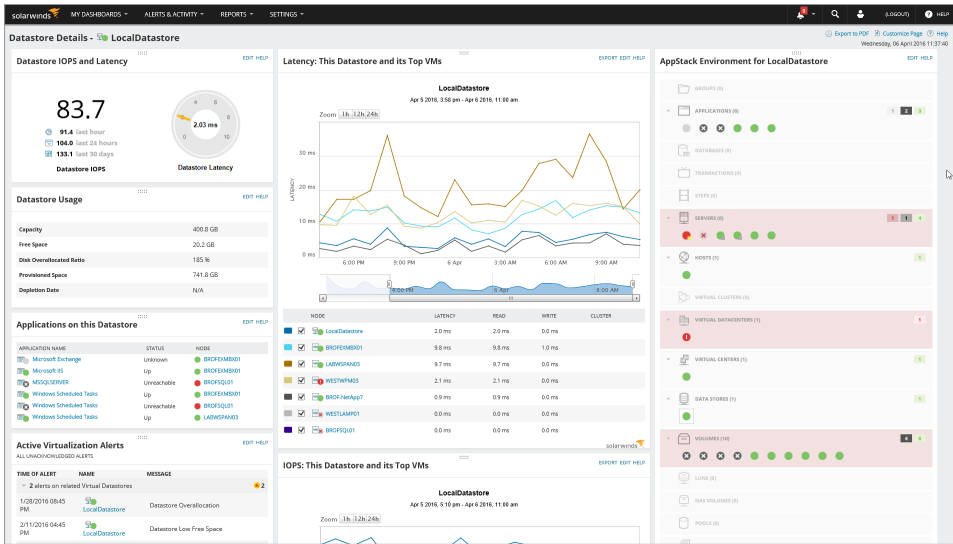
In virtual environments, quite a few bottlenecks stem from the underlying storage layer. As such, it is essential to keep a close eye on storage as well as virtual metrics. The storage summary dashboard in VMAN provides key storage metrics across entire virtual infrastructure. The dashboard displays datastore and CSV performance metrics, as well as information on dependent VMs. Using the capacity dashboard, you can track resource consumption in real-time and more accurately predict when you would need additional resources.

The screenshot displays the SolarWinds VMAN Storage Summary Dashboard. It features several key components:

- Virtualization Storage Summary:** A summary card showing 8 datastores and 41 virtual machines. Key metrics include 3.4 TB total space, 1.2 TB free space, and 4.8 TB over-subscribed space.
- Top 10 Datastores by Low Free Space:** A table listing datastores with their free space and capacity. 'lab-dem-esx-localStorage' is shown with 400.8 GB free space out of 451.3 GB capacity.
- Predicted Datastore Space Depletion:** A table showing the predicted time until storage is full for various datastores.
- Top VMs by Storage Consumed:** A table listing the top VMs consuming storage, such as 'sp-eqaqlgc-01-lab-dem-esx-lun01'.
- Top Datastore I/O Latency:** A line chart showing I/O latency over time for various datastores. A tooltip indicates a latency of 50.59 ms for 'lab-dem-esx-localStorage'.
- Top Datastore IOPS:** A line chart showing IOPS over time for various datastores.
- Top VM Latency:** A line chart showing VM latency over time.
- Top VM IOPS:** A line chart showing VM IOPS over time.

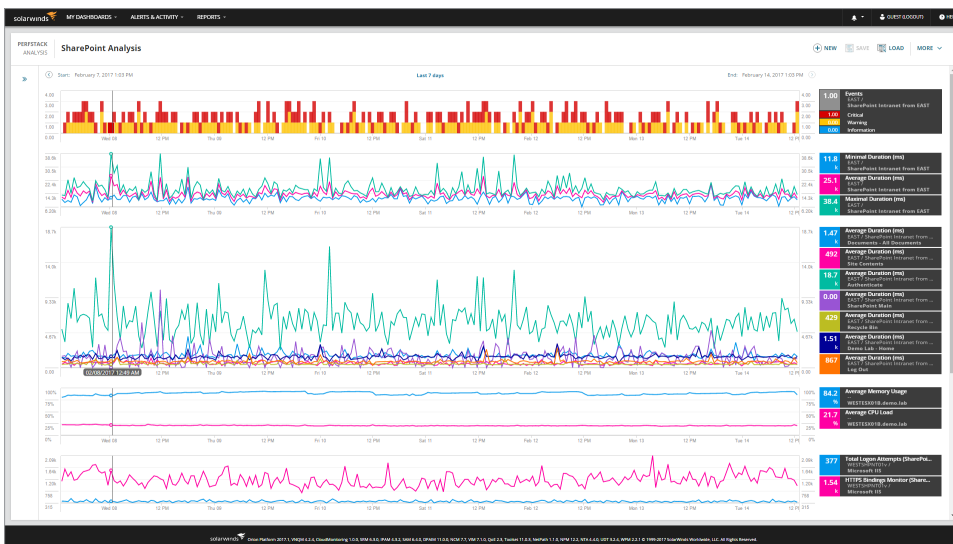
## DATASTORE DETAILS VIEW

From Storage Summary view, drill deeper into datastore details view to get all the relevant contextual information that will help you diagnose and troubleshoot storage performance and capacity issues.



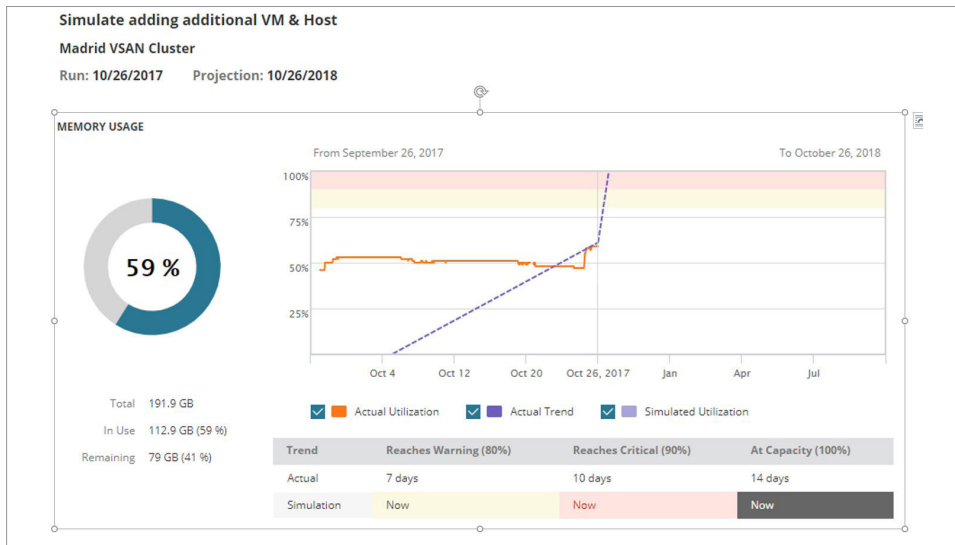
## PERFSTACK DASHBOARD

Using the PerfStack™ dashboard, you can cross-stack performance data and metrics across your virtualization, storage, applications, systems, and networks systems, allowing for quicker problem identification.



## VMAN CAPACITY PLANNING DASHBOARD

SolarWinds VMAN Capacity Planning feature helps you predict CPU, memory, network, and storage needs for both Microsoft Hyper-V and VMware vSphere® environments. The built-in what-if analysis model provides upfront answers to key questions, such as “what if I add more VMs, hosts, or storage?” In addition, you will be able to analyze virtual machine placement within or across clusters to optimize which cluster would deploy VMs most efficiently.



## VMAN VM SPRAWL DASHBOARD

VM sprawl is the most common problem in any virtual environment. Using this dashboard, you can view oversubscribed and undersubscribed resources, idle and powered-off VMs, and orphaned VMDK files. Implementing these changes will free up VM resources, allowing you to proactively avoid virtual bottlenecks in your infrastructure.

**Virtualization Sprawl**

**Top 10 VMs by Underallocated vCPUs**

NODE	CPU%	CPU RECOMMENDATION	ACTION
ibae-268-01	100.0%	Increase 1 to 2	Change CPU/Memory Resources
ibae-ws7-01-linkedsone	100.0%	Increase 1 to 2	Change CPU/Memory Resources
ibae-vcstg04-e2-cst1	99.2%	Increase 2 to 4	Change CPU/Memory Resources
ibae-wfs-01	99.1%	Increase 1 to 2	Change CPU/Memory Resources

**Top 10 VMs by Overallocated vCPUs**

NODE	CPU%	CPU RECOMMENDATION	ACTION
VM_LV_adminActions_Jane	-61.1%	Reduce 2 to 1	Change CPU/Memory Resources
UI_VM	0.4%	Reduce 4 to 1	Change CPU/Memory Resources
ibuy_vmam_tamp	2.8%	Reduce 4 to 1	Change CPU/Memory Resources
REC_VMamStorageEnergy_01	3.9%	Reduce 4 to 1	Change CPU/Memory Resources
TS_VMAMC2	3.2%	Reduce 4 to 1	Change CPU/Memory Resources
ibae-wfs-01	40.6%	Reduce 2 to 1	Change CPU/Memory Resources
REC_VMamStorageEnergy_02	40.4%	Reduce 2 to 1	Change CPU/Memory Resources
REC_VMamStorageEnergy_03	40.6%	Reduce 2 to 1	Change CPU/Memory Resources
ibae-svc010	41.1%	Reduce 4 to 1	Change CPU/Memory Resources
JPL_VMam_RK	42.3%	Reduce 2 to 1	Change CPU/Memory Resources

**VMs that might benefit from decreasing vCPUs**

NODE	CPU LOAD	4 GB CURRENT vCPU	4 GB OPTIMAL vCPU	ACTION
VMAN_LONG_RUN_VMAM_AF_SyncRecon_02	3%	2	624	Change CPU/Memory Resources
VMAN_LONG_RUN_VMAM_AF_SyncRecon_04	3.07%	2	477	Change CPU/Memory Resources
VMAN_LONG_RUN_VMAM_AF_SyncRecon_01	13.3%	1	1	Change CPU/Memory Resources

**Top 10 VMs by Underallocated Memory**

NODE	MEM%	MEM RECOMMENDATION	ACTION
ibae-wfs-01	100.0%	Increase 1.0 GB to 2.0 GB	Change CPU/Memory Resources

**Top 10 VMs by Overallocated Memory**

NODE	MEM%	MEM RECOMMENDATION	ACTION
REC_VMamProvisioning	-61.1%	Reduce 16.0 GB to 256.0 MB	Change CPU/Memory Resources
ibae-wfs-01	0.3%	Reduce 2.0 GB to 256.0 MB	Change CPU/Memory Resources
ibae-wfs-01	0.3%	Reduce 2.0 GB to 256.0 MB	Change CPU/Memory Resources
ibae-wfs-01	2.7%	Reduce 6.0 GB to 256.0 MB	Change CPU/Memory Resources
ibae-wfs-01	12.8%	Reduce 6.0 GB to 1.2 GB	Change CPU/Memory Resources
ibae-wfs-01	18.8%	Reduce 4.0 GB to 1.2 GB	Change CPU/Memory Resources
ibae-wfs-01	19.3%	Reduce 4.0 GB to 1.2 GB	Change CPU/Memory Resources
ibae-wfs-01	21.7%	Reduce 4.0 GB to 1.2 GB	Change CPU/Memory Resources

**VMs Idle for the Last Week**

NODE	MEM AWD CPU	MEM AWD OPS	MEM AWD NET	ACTION
ibae-wfs-01	0.07%	0.00%	0.00 Mbps	Power off VM
ibae-wfs-01	0.08%	0.00%	0.00 Mbps	Power off VM
ibae-wfs-01	0.08%	0.00%	0.00 Mbps	Power off VM
ibae-wfs-01	0.08%	0.00%	0.00 Mbps	Power off VM
ibae-wfs-01	0.10%	0.00%	0.00 Mbps	Power off VM
ibae-wfs-01	0.10%	0.00%	0.00 Mbps	Power off VM
ibae-wfs-01	0.11%	0.00%	0.00 Mbps	Power off VM
ibae-wfs-01	0.11%	0.00%	0.00 Mbps	Power off VM
ibae-wfs-01	0.12%	0.00%	0.00 Mbps	Power off VM

**Orphaned VMDKs**

FILE NAME	DATASTORE	SIZE	ACTION
rio-vcserver-01_A-RiteLumds	Rio-vcserver-01_LocalStorage02	100.00 GB	Delete Orphaned File
rio-vcserver-01-000001-deltaLumds	Rio-vcserver-01_LocalStorage01	50.55 GB	Delete Orphaned File
mad-2612-2-rcs1-RiteLumds	emc_vmam_Registry01	40.00 GB	Delete Orphaned File
mad-2612-2-rcs1-RiteLumds	emc_vmam_Registry01	40.00 GB	Delete Orphaned File
mad-2612-2-rcs1-RiteLumds	emc_vmam_Registry01	40.00 GB	Delete Orphaned File
mad-2612-2-rcs1-RiteLumds	emc_vmam_Registry01	40.00 GB	Delete Orphaned File

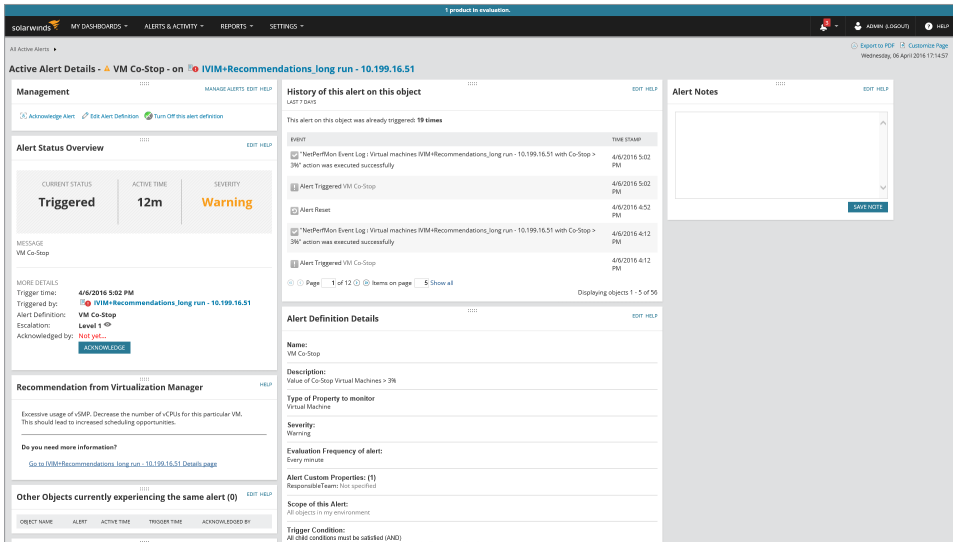
**Top 10 VMs by Snapshot Disk Usage**

NODE	DISK USAGE	CLUSTER	DATASTORE	ACTION
ibae-wfs-01	782 GB	SolarWinds ESX 5.5 Cluster	ibae-wfs-01_LocalStorage01	Delete Snapshots
ibae-wfs-01	474 GB	SolarWinds ESX 5.5 Cluster	ibae-wfs-01_LocalStorage01	Delete Snapshots
ibae-wfs-01	424 GB	VMware Hyper-V Cluster 01	VMAN-VMAM-01-01	Delete Snapshots
ibae-wfs-01	189 GB	SolarWinds ESX 5.5 Cluster	ibae-wfs-01_LocalStorage01	Delete Snapshots
ibae-wfs-01	184 GB	SolarWinds ESX 5.5 Cluster	ibae-wfs-01_LocalStorage01	Delete Snapshots
ibae-wfs-01	137 GB	SolarWinds ESX 5.5 Cluster	ibae-wfs-01_LocalStorage01	Delete Snapshots
ibae-wfs-01	130 GB	SolarWinds ESX 5.5 Cluster	ibae-wfs-01_LocalStorage01	Delete Snapshots
ibae-wfs-01	126 GB	SolarWinds ESX 5.5 Cluster	ibae-wfs-01_LocalStorage01	Delete Snapshots



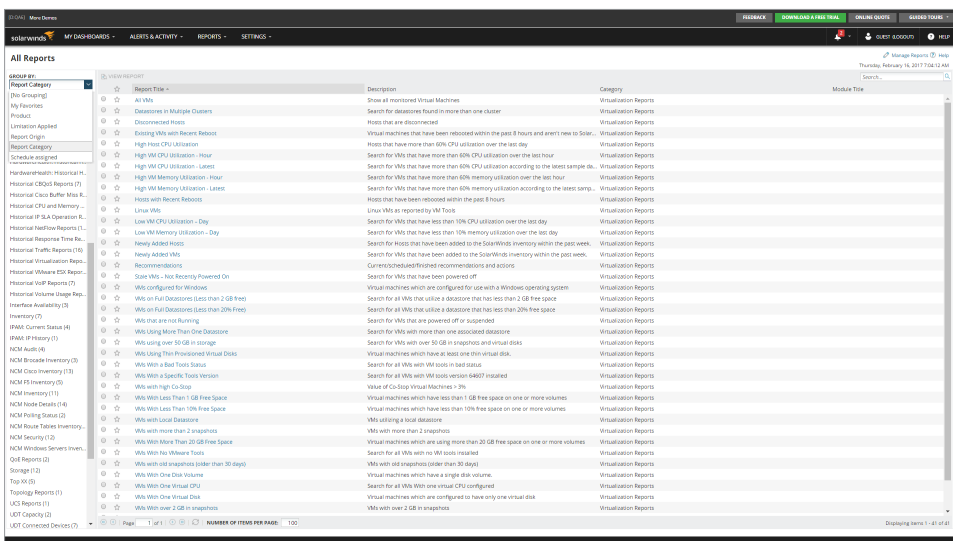
## VMAN ALL ALERTS

All Alerts will list down all possible alerts in your entire virtual environment that need your attention. Using these alerts, you can investigate virtual issues and take necessary actions instantly. The Alert Detail screen gives you compressive information about the alert—its history, definition, etc. This screen also provides recommended actions.



## VMAN REPORTS

VMAN provides numerous out-of-the-box reports. Usually, generating a report from the VMware or Hyper-V console is not only time consuming, but cumbersome. VMAN eliminates this long-winded process with quick report generation. You can also go back in time, collect past data, and generate reports out of it for root cause analysis.



## EASY-TO-USE AND CUSTOMIZABLE DASHBOARDS

SolarWinds VMAN offers a sleek UI and a completely customizable dashboard. All the dashboards—Virtualization Summary, VMware, Hyper-V, Storage, Sprawl, and Reporting—are completely customizable. The drag-and-drop widgets allow you to design your dashboards to suit to your needs.

## MONITOR ENTIRE IT SEAMLESSLY WITH SOLARWINDS ORION PLATFORM

The Orion® platform is a flagship proprietary platform on which SolarWinds network and systems management software products are built. The platform provides a singular base that allows seamless integration between different products. The main objective of this platform is to facilitate end-to-end IT monitoring with absolute ease. Virtualization Manager (VMAN) is part of the SolarWinds Orion platform.

Being part of the Orion platform lets you easily integrate VMAN with other IT management software from SolarWinds such as [Network Performance Monitor](#), [Storage Resource Monitor](#), [Server & Application Monitor](#), [Web Performance Monitor](#), and more.

### BENEFITS OF ORION PLATFORM

End-to-end monitoring of IT infrastructure

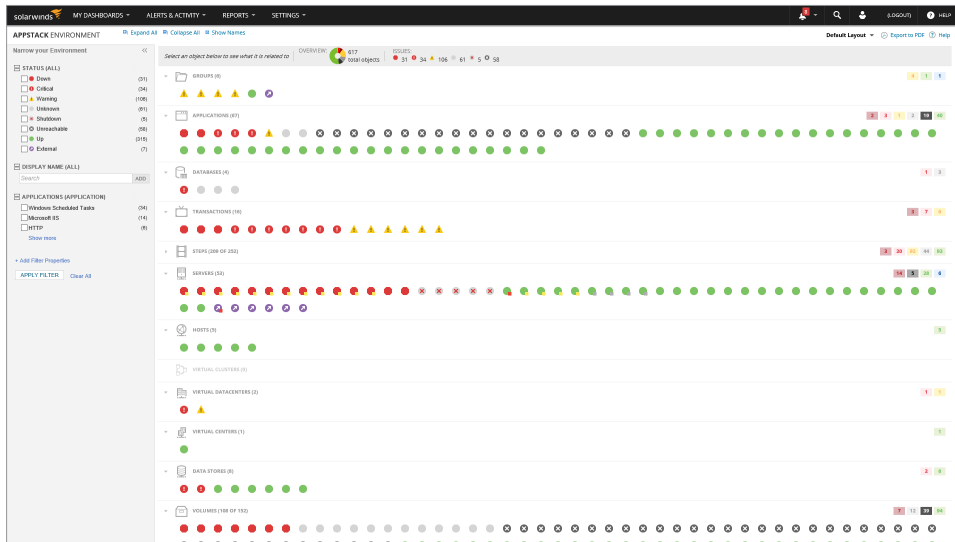
Single platform supporting varied needs of multiple IT teams (network, systems, virtualization, etc.)

Centralized management and administration

Consolidated monitoring data and context across various IT layers Drag-and-discover network performance charts

## APPSTACK DASHBOARD

The AppStack Dashboard in the Orion platform dashboard gives you complete visibility of storage across all layers, as well as extended visibility into virtualization and application layers. With AppStack in place, you will be able to drill down deeper across layers and instantly identify the problem root cause and take remedial actions.



## HOW IS VMAN LICENSED?

SolarWinds Virtualization Manager is licensed by the **number of processor sockets on your physical hardware.**

If you want to learn more about licensing, please reach out to us.

- » Email us at [sales@solarwinds.com](mailto:sales@solarwinds.com)
- » Call us at (+1) 866.530.8100
- » Generate an [online quote](#)

## WHAT OUR CUSTOMERS ARE SAYING ABOUT VMAN (BY TECHVALIDATE)

"It's one of the best tool out there to monitor virtual environment."

– Sr.IT Manager, Confie Seguros

"We use Virtualization Manager to measure the health of our environment; reclaiming unused resources and capacity planning. Virtualization manager has saved us on doing costly upgrades"

– Systems Administrator, Medium Enterprise Food Company

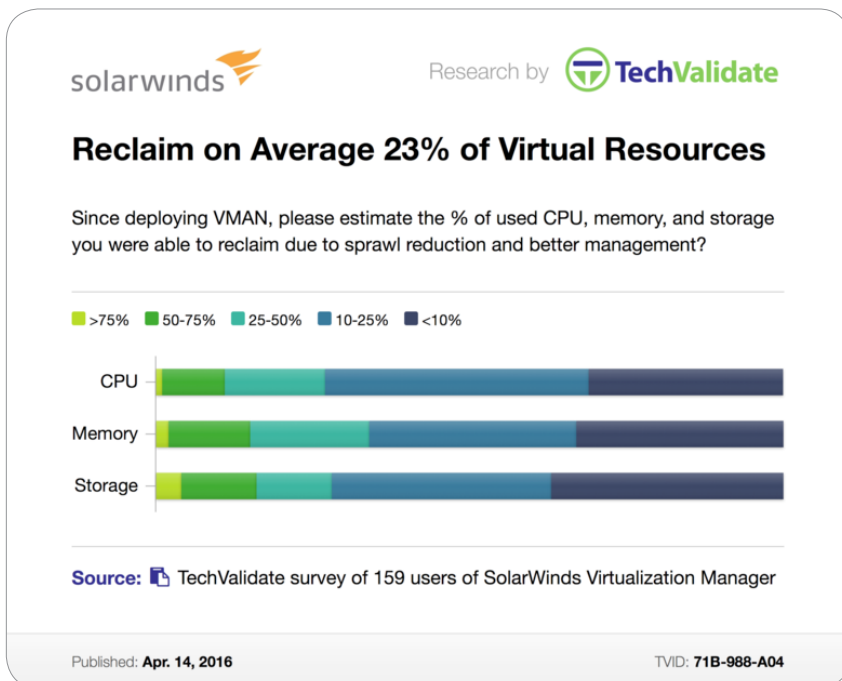
"We use VMAN to monitor every aspect of our VMware virtual environment. We monitor everything from resource usage to hardware issues. We depend so heavily on our virtual environment that things like sprawl and resource management are key. Because of VMAN, we have been able to move VMs around to maximize efficiency on every level."

– Austin Bynum, Vice President Information Technology, TexasBank

## THE VALUE VMAN DELIVERS TO CUSTOMERS

### REDUCE YOUR CAPEX

As an IT pro, you need to keep a tab on your IT budgets. It's not always easy to shrink budgets, especially given the rising cost of hardware, so you have to look for ways to minimize your capital expenses. With VMAN, you'll be able to save CAPEX with hardware reclamation. On an average, VMAN customers are able reclaim 23% of resources (CPU, memory, and storage).

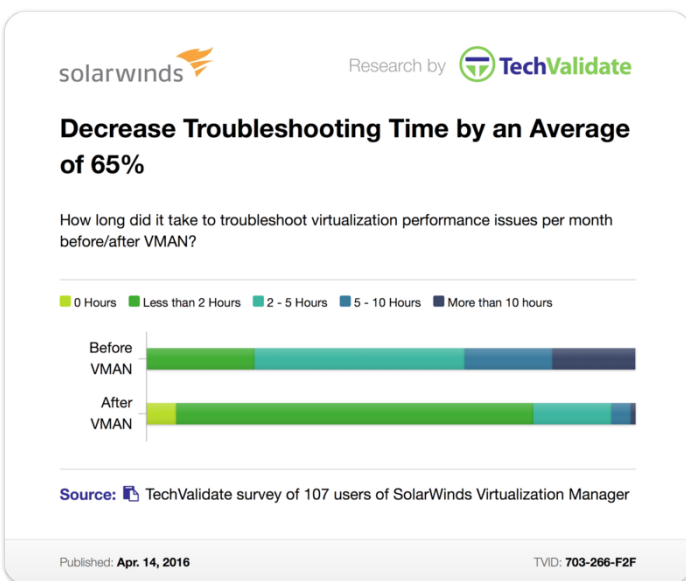
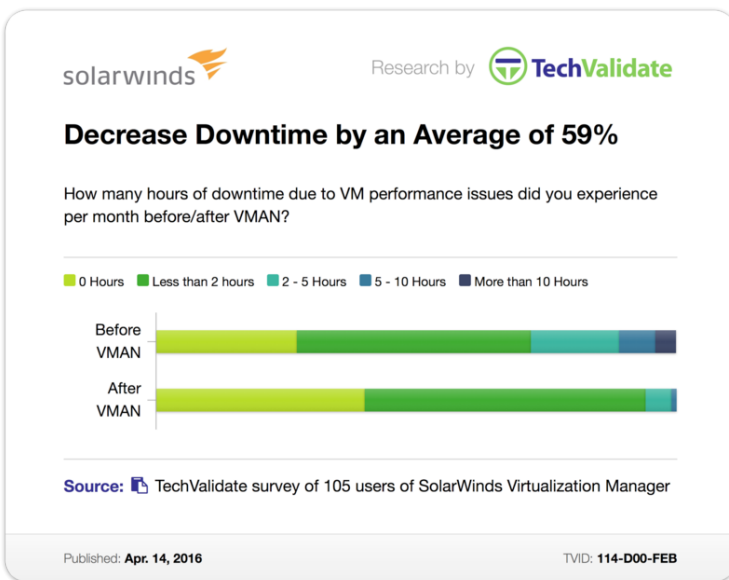


## REDUCE YOUR OPEX

Downtime due to VM performance issues is a nightmare for IT pros and Virtual Admins, as these issues hamper the performance of dependent end-user business applications. This leads to business loss in terms of incurring high OPEX.

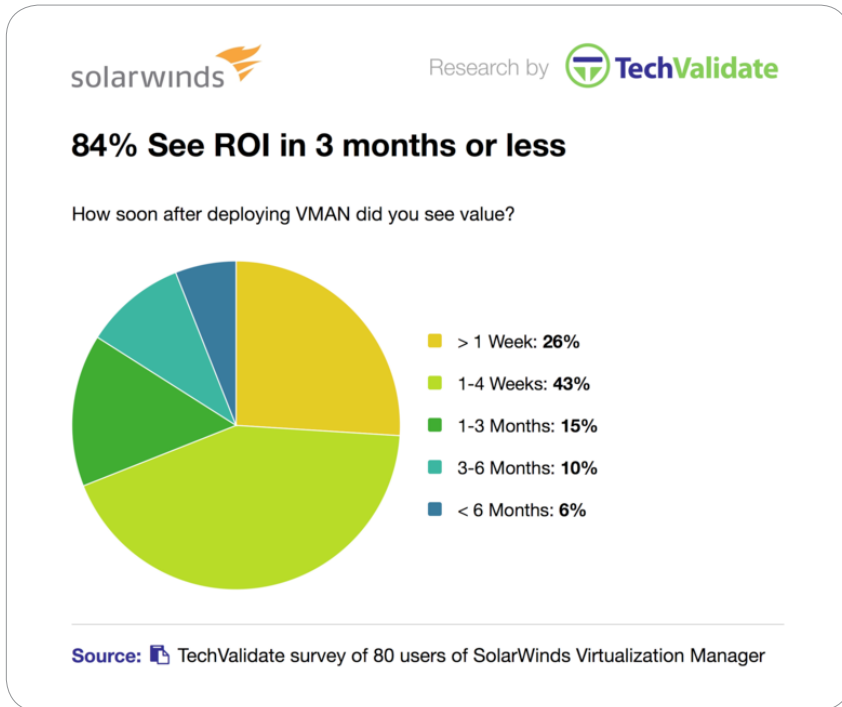
Similarly, the rate at which an IT team can troubleshoot VM performance issues matters more in a virtual environment. The longer the troubleshooting time, the higher the financial loss. The IT organization also needs to incur high fees associated with troubleshooting, especially if the VM issues are complex.

VMAN helps its customers reduce downtime by an average of 59% and decrease troubleshooting time by an average of 65%.



### QUICKER RETURN ON INVESTMENT (ROI)

One of the key points to consider when investing in any IT tool is how quickly you'll be able to realize the return of investment (ROI). 84% of VMAN customers are able to see ROI in three months or less.



### SOLARWINDS VMAN AWARDS AND RECOGNITION



## ADDITIONAL RESOURCES

- » [Product Page](#)
- » [Datasheet](#)
- » [Product Guide](#)

## ABOUT SOLARWINDS

SolarWinds provides powerful and affordable IT management software to customers worldwide, from Fortune 500® enterprises to small businesses, managed service providers (MSPs), government agencies, and educational institutions. We are committed to focusing exclusively on IT, MSP, and DevOps professionals, and strive to eliminate the complexity that our customers have been forced to accept from traditional enterprise software vendors. Regardless of where the IT asset or user sits, SolarWinds delivers products that are easy to find, buy, use, maintain, and scale while providing the power to address key areas of the infrastructure from on-premises to the cloud. This focus and commitment to excellence in end-to-end hybrid IT performance management has established SolarWinds as the worldwide leader in both network management software and MSP solutions, and is driving similar growth across the full spectrum of IT management software. Our solutions are rooted in our deep connection to our user base, which interacts in our [THWACK®](#) online community to solve problems, share technology and best practices, and directly participate in our product development process. Learn more today at [www.solarwinds.com](http://www.solarwinds.com).