WHITE PAPER | June 2014

CA Nimsoft Monitor

Delivering a Unified Monitoring Architecture

ca technologies

Table of Contents

Executive Summary	3
Introduction	3
The CA Nimsoft Monitor Architecture	4
CA Nimsoft Monitor: Key Features	7
How are Customers Using CA Nimsoft Monitor?	12

Executive Summary

CA Nimsoft Monitor equips service providers and enterprise IT organizations with the capabilities they need to dramatically improve service quality and reduce the costs of IT service delivery. The solution features a single, unified architecture that supports both traditional data centers and newer virtualization and cloud environments. This white paper offers a detailed look at the solution's architecture, and some of the key features that make it stand apart from the competition.

Introduction

CA Nimsoft Monitor is an IT management platform that provides scalable, resilient and reliable monitoring capabilities, allowing organizations to proactively manage critical IT resources. CA Nimsoft Monitor enables monitoring of on-premise and cloud-based infrastructure—all on a single code base. CA Nimsoft Monitor offers the speed and ease of use associated with point solutions, featuring a unique architecture with a lightweight footprint. At the same time, the solution delivers enterprise scalability and multi-tenancy.

CA Nimsoft Monitor is built on a unified architecture that enables organizations to monitor servers, applications, databases, networking services, network devices and private and public clouds. This unified architecture allows for extremely efficient monitoring capabilities, and may be deployed on premise or via a hosted/SaaS service from one of our hundreds of service provider partners. CA Nimsoft Monitor provides end-to-end performance and availability monitoring and delivers an unrivaled combination of deep monitoring metrics, extensive infrastructure coverage, sophisticated reporting and ease of use.

CA Nimsoft Monitor offers the following monitoring configuration capabilities:

- **Local monitoring**. By utilizing efficient software agents installed locally on the managed device, CA Nimsoft Monitor provides a high level of management functionality, while imposing little to no stress on the devices themselves. This local monitoring also allows the managed device to be monitored even when the device becomes temporarily disconnected from the rest of the management system, for example, in the event of a network outage.

CA Nimsoft Monitor Advantages

- Lightweight data collection
- Scalability to tens of thousands of devices with one instance
- Out-of-the-box-support for more than 140 device types—including servers, databases, applications, network devices and cloud services
- Single, multi-tenant portal view
- Customizable dashboards and reporting

- **Remote monitoring**. CA Nimsoft Monitor can also remotely monitor devices and applications. For example, CA Nimsoft Monitor can act as a remote client in client-server environments. This is effective when attempting to manage transaction-based applications—for example a customer logging into a central database or similar online service—and accurately measure transaction response times.
- **SNMP monitoring**. CA Nimsoft Monitor can communicate with network devices via SNMP for performance reporting. In addition, it can receive and process SNMP traps—making CA Nimsoft Monitor a powerful event management system for all data center and cloud-based systems.

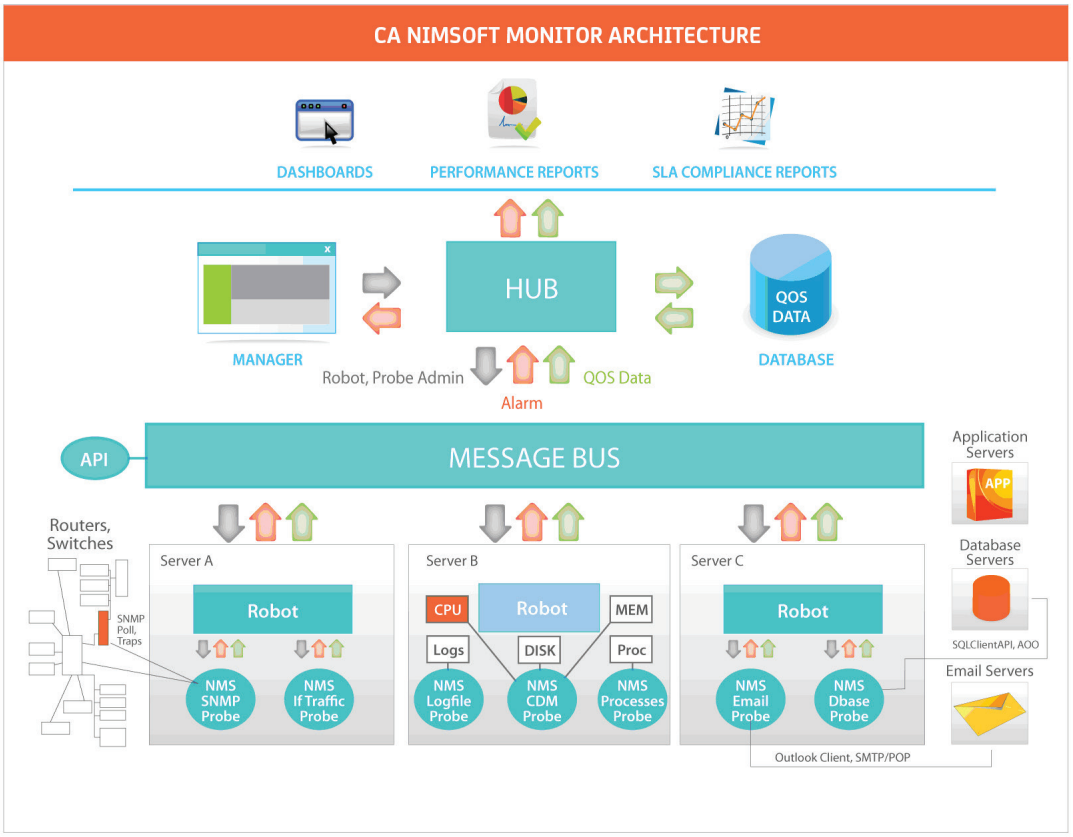
The CA Nimsoft Monitor Architecture

Message Bus

Applications within the CA Nimsoft Monitor domain communicate by exchanging messages. The CA Nimsoft Monitor message bus provides the capabilities required to communicate across an entire enterprise infrastructure.

Figure A.

CA Nimsoft Monitor is comprised of several components. Each of these components communicates with one another via a message bus.



When a system within a CA Nimsoft Monitor domain has new data, it automatically publishes it via the message bus. All applications that subscribe to receiving updates for that system will automatically receive that update. Traditional point-to-point client-server systems require the sending of multiple copies of messages, one to each application, which is far less efficient.

The CA Nimsoft Monitor architecture enables administrators to configure all publications and subscriptions via a single, native management console. All monitoring configurations can also be controlled programmatically via robust APIs—allowing cloud providers to completely automate the monitoring of their critical applications.

Hub

A hub is a vital component within any CA Nimsoft Monitor deployment. A hub is basically a software component within a CA Nimsoft Monitor domain that enables components to connect to the message bus. A hub receives all messages posted by any client and distributes these messages to a set of subscribers of the publishing subject. A hub also keeps track of the addresses in the hub's domain, as well as information about each of the systems being monitored via CA Nimsoft Monitor robots (agents). A CA Nimsoft Monitor domain can have multiple hubs, which enables fail-over in the case of a communication disruption. Multiple hubs are also used to connect managed networks together across the Internet via SSL tunnels between the hubs—allowing service providers to connect remote customers to their operations center.

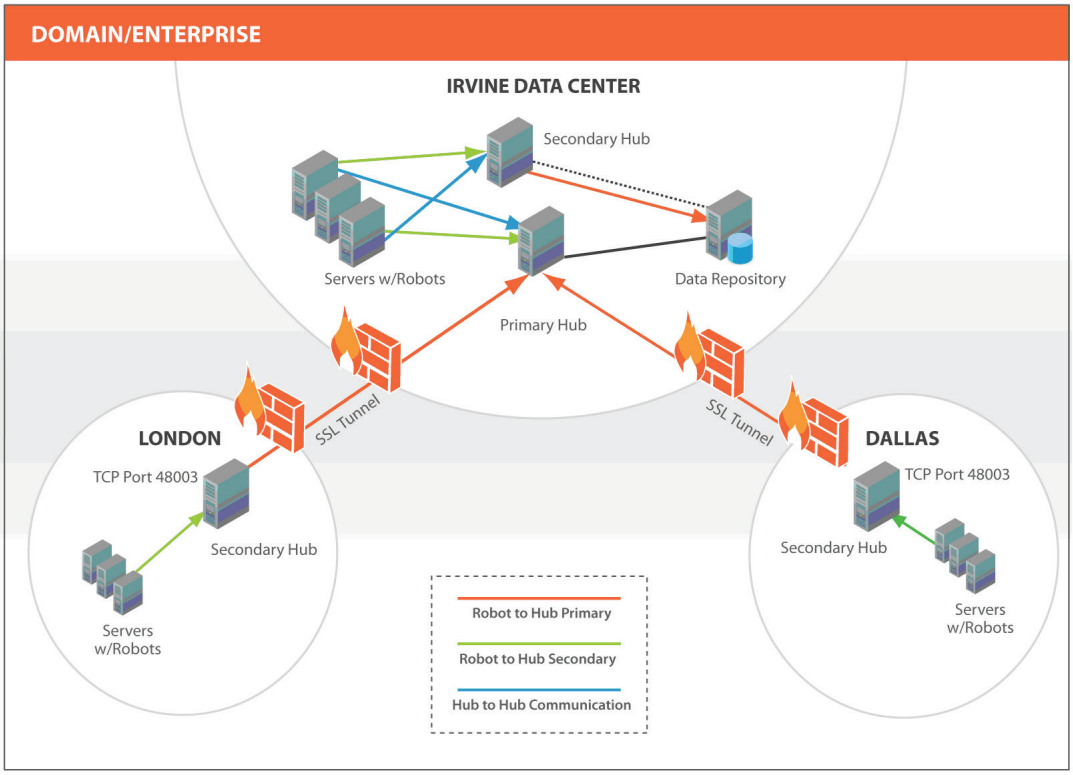


Figure B.

CA Nimsoft Monitor hubs enable multiple networks to be managed together, and connected via SSL.

Robots

A CA Nimsoft Monitor robot collects and disseminates information about the managed device. Customers that want to leverage on-board monitoring configurations install a lightweight robot on each managed device. These robots provide the communication functionality required for a system to be monitored in a CA Nimsoft Monitor domain. A robot also contains these important subcomponents:

- **Controller**. The controller is the contact point of a robot as seen by other CA Nimsoft Monitor components. It maintains a set of monitoring plug-ins—called probes—that it starts and stops according to a configuration. The probes may be started in a timed fashion or in a standalone or daemon mode.
- **Spooler**. The spooler receives messages published by the probes (clients) and delivers these messages to the hub, unless it's configured to spool (hold) the message until a certain criteria is met. The spooler provides the ability to maintain and deliver messages in case network connectivity with a hub is lost.

Probes

CA Nimsoft Monitor probes provide the intelligence to manage specific components on a managed device. For example, one common probe, the CDM probe, is responsible for monitoring CPU, disk and memory utilization on target hosts. Over 140 probes are available, allowing users to manage the entire IT infrastructure, including servers, network devices, applications and databases as well as usage metering and data center power consumption. Probes can be easily deployed across an entire network via a simple drag-and-drop interface—or programmatically in an automated fashion. In addition, with CA Nimsoft Monitor toolkits (SDKs), customers can write custom probes for managing homegrown applications.

Alarm Server

CA Nimsoft Monitor features an alarm server that is responsible for receiving and managing incoming alarm messages. The alarm server also supports message suppression and provides clients with such services as event updates, message filtering, automated actions and mirroring capabilities. The alarm server also allows customers to enable advanced event correlation capabilities.

Visibility

CA Nimsoft Monitor provides intuitive, up-to-date portal views of monitoring data. The solution features a monitoring portal that provides a complete view of the systems and services that underpin vital business services, whether those are based on any combination of virtualized infrastructures, SaaS offerings, cloud-based services, or outsourced environments. In addition, the solution offers multi-tenant capabilities that enable services providers to monitor and manage the infrastructures of multiple clients.

Configurable dashboards offer end-users and service provider customers real-time, immediate access to the monitoring data that matters to them. CA Nimsoft Monitor reports provide snapshots and historical context for quality of service, performance and SLA compliance monitoring.

CA Nimsoft Monitor: Key Features

Compared to other solutions on the market, the CA Nimsoft Monitor architecture offers a range of technological advantages:

Guaranteed Message Transfer Using Spooling Mechanisms

When CA Nimsoft Monitor robots are installed on managed devices, management data can continue to be collected and safely stored, regardless of network connectivity to a central management console. This spooling ability guarantees that, even in the event of a network outage, data will continue to be collected, and delivered when connectivity is restored.

Adaptable and Extensible Monitoring Deployments

As the managed environment grows and changes over time, CA Nimsoft Monitor can quickly adapt to managing new elements—without disrupting the existing monitoring environment. With an extremely flexible distribution engine, new monitoring profiles can quickly be deployed to any number of management hubs.

Minimal Bandwidth Requirements

CA Nimsoft Monitor was designed to provide an efficient management interface with very small bandwidth requirements. This is achieved via the message bus architecture, in which small messages are transferred as needed to the management system for other CA Nimsoft Monitor components to leverage for operational purposes.

Message Suppression and Event Correlation

CA Nimsoft Monitor features message suppression technology that verifies and notifies network management staff of problematic issues as they occur. Residual alarms or alarms that result due to a parent cause are suppressed to allow staff to focus on the real issue. Additionally, CA Nimsoft Monitor includes a powerful correlation engine and language that allows IT administrators to “train” the system on alarm conditions that are specific to their business and technical environments.

Multi-platform Support

CA Nimsoft Monitor provides monitoring capabilities for most major operating systems, databases, networking services, traditional network management protocols, SaaS applications and public IaaS and PaaS deployments. Gateways to traditional IT frameworks enable CA Nimsoft Monitor customers to leverage existing investments.

Agent Based and Agentless Server Monitoring Options

CA Nimsoft Monitor is a hybrid solution in that it offers both agent-based and agentless options to monitor devices and servers. Customers can go with the approach they prefer—including a hybrid deployment in which agents/robots are run on some systems, and agentless monitoring is used for other systems.

Based on TCP/IP

All alarm and performance data that is collected via CA Nimsoft Monitor is transferred between solution components via TCP/IP. This is a powerful feature in that messages transferred over TCP/IP are guaranteed to reach their destination because of the nature of the TCP/IP protocol—in which the receiving system acknowledges receipt of the message. TCP/IP also offers a great deal of flexibility in managing remote devices and applications. Customizable socket transmission enables operability in environments secured by firewalls.

The other critical benefit of the message bus architecture is scalability and deployment flexibility. Because CA Nimsoft Monitor is able to handle and route hundreds of thousands of messages throughout the solution—it can monitor very large and complex IT environments.

Flexible Delivery and Deployment Options

CA Nimsoft Monitor can be deployed on premise or via a hosted/SaaS service from one of our hundreds of service provider partners. Customers can also choose whether to run CA Nimsoft Monitor on Windows or Linux, as well as which back-end database server they would like to use—including Microsoft SQL Server, Oracle or MySQL.

Comprehensive Coverage

CA Nimsoft Monitor is an efficient, scalable platform that you can use to monitor and manage the following systems and services:

- **Networks**, including routers, switches, firewalls and VoIP
- **Servers**, such as Windows, Linux, UNIX, Cisco UCS, Novell Open Enterprise Server and IBM Power Systems

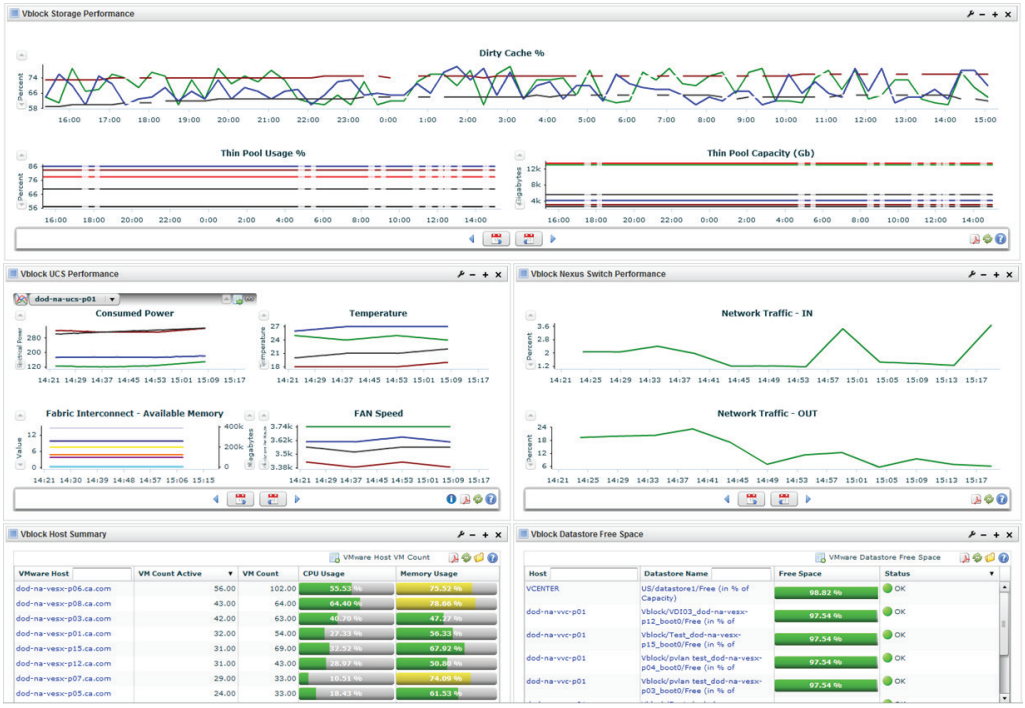


Figure C.

CA Nimsoft Monitor tracks all elements within the Vblock infrastructure as well as the applications and services associated with these environments.

ca technologies

- **Databases**, such as Oracle, Sybase, Microsoft SQL Server, IBM Informix and IBM DB2
- **Applications** like Microsoft Exchange, Microsoft IIS, Active Directory, Citrix, WebSphere, JBoss, home-grown applications and much more
- **Virtualization platforms**, such as VMware and vCloud Monitor, Microsoft Hyper-V, Solaris Zones, IBM PowerVM, Citrix XenServer and XenDesktop and Red Hat Enterprise Virtualization
- **Public and private cloud environments**, such as Amazon Web Services, Rackspace, Google Apps, Salesforce.com, Vblock and FlexPod
- **End user experience**, including the measurement of end-to-end performance of applications, such as Web-based and client/server applications, through synthetic transaction monitoring

Alarm Management

CA Nimsoft Monitor alarm management helps IT operations personnel manage the flood of events that come in from the IT infrastructure by eliminating duplicate event signals and filtering events according to operational or business priorities. The goals are to improve the mean time to isolate and repair problems and to prioritize IT support efforts according to business process value. Through the solution's custom filters, customers can set alerts only when an exception occurs, such as an outage, failure, or threshold breach. CA Nimsoft Monitor alarm management helps IT organizations reduce the time it takes to troubleshoot problems by consolidating events from various devices, servers and applications and providing the ability to assign alarms to the right IT staff.

Monitoring Portal

CA Nimsoft Monitor features a monitoring portal that offers a single role-based, intuitive view of all monitoring data. This portal extends the multi-tenant capabilities of CA Nimsoft Monitor, enabling service providers to effectively report service level agreement (SLA) status and monitoring information to clients, while offering clear, executive-ready dashboards to display SLA status for in-house stake holders. Out-of-the-box portlets and end user level customization allow CA Nimsoft Monitor users to adjust and optimize their monitoring views.

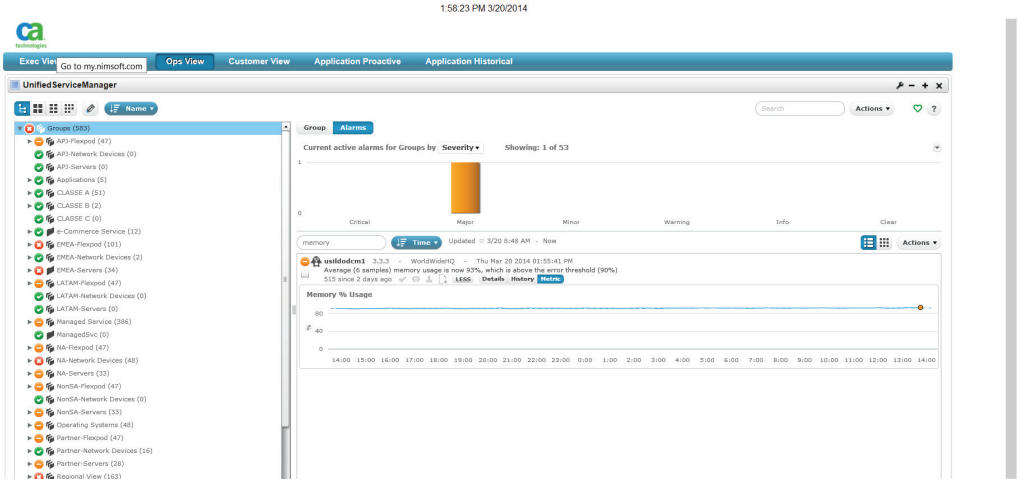


Figure D.

CA Nimsoft Monitor features sophisticated alarm management capabilities that help speed the identification and resolution of issues.

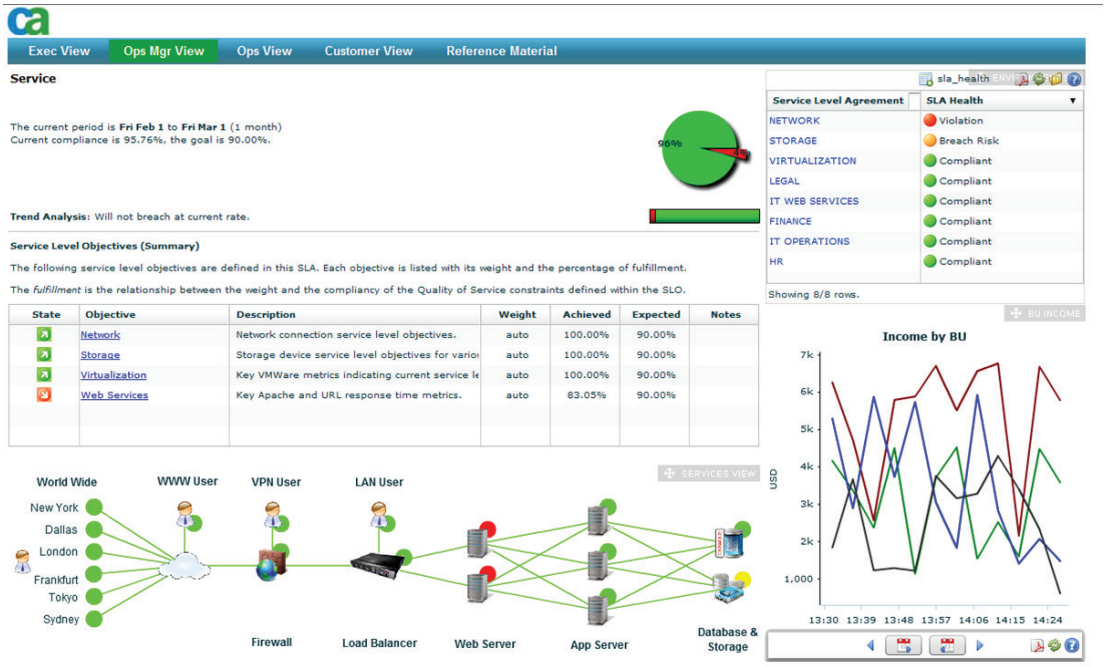


Figure E.

CA Nimsoft Monitor features a monitoring portal that offers graphical, intuitive insights, multi-tenant capabilities and pre-developed portlets.

CA Nimsoft Monitor offers service level management capabilities that enable administrators to manage historical quality-of-service data that has been collected. This data can be aggregated and analyzed for SLA reports that provide a view into whether the IT environment is supporting business and customer objectives at required levels.

Dashboards

CA Nimsoft Monitor dashboards provide real-time views of IT and business services. Dashboards can be tailored to specific users, groups and roles, enabling users to see practically any type of data in a single view—including help desk call statistics, application performance metrics, IT resource utilization and much more. Service providers can brand dashboards and customize them for each end user.

CA Nimsoft Monitor offers out-of-the-box dashboards for VMware health and performance, power consumption, Amazon Web Services and data center performance. The solution's unified service dashboards enable service providers to create reusable and zero maintenance dashboards matching their service offerings. Dashboards can consist of one or more elastic portlets that present data based on pre-defined selection criteria. Portlets automatically present key monitoring data via auto-discovery of the IT infrastructure. As the deployed infrastructure expands and contracts, these portlets auto-adapt to reflect those updates.

Dashboards are Web-enabled for remote accessibility and have control features to make sure dashboards are only accessed by authorized users.

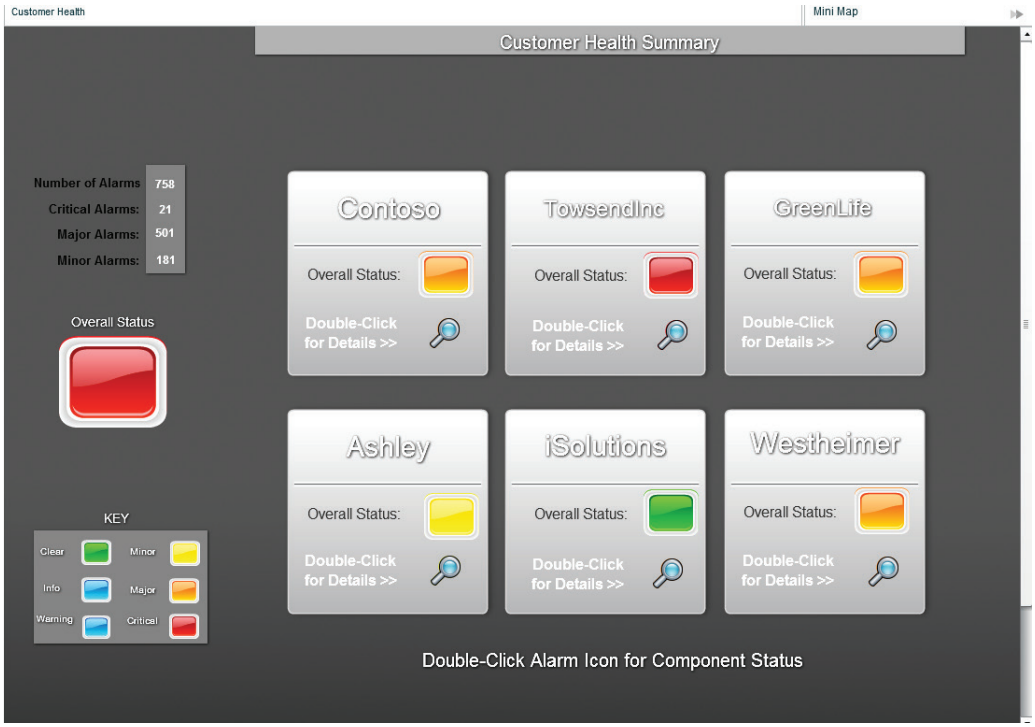


Figure F.

CA Nimsoft Monitor dashboards can be tailored to specific users, groups and roles.

Reporting

CA Nimsoft Monitor provides the robust reporting capabilities organizations need to fully leverage all of the monitoring data generated. With the solution, organizations can easily develop reports based on any monitoring data captured by the solution—including internal servers and networking equipment, virtualized infrastructures, SaaS offerings, cloud-based services or outsourced environments.

With 75 out-of-the-box reports and full report creation and customization capabilities, CA Nimsoft Monitor provides relevant, timely monitoring data, both on a scheduled and ad hoc basis.

Figure G.

Sample CA Nimsoft Monitor reports.

How are Customers Using CA Nimsoft Monitor?

Enterprises

Delivering internal services that are highly available and responsive are critical elements to any IT organization. CA Nimsoft Monitor allows enterprises to leverage physical, virtual and cloud-based environments—and use a single monitoring portal to monitor them all. CA Nimsoft Monitor provides alarm dashboards showing where potential problems exist as well as quality of service information and end-user response times. Armed with this data, IT organizations can identify and address issues before they cause service outages.

Service Providers

Service providers value how CA Nimsoft Monitor provides them with a "single pane of glass" to monitor all of their client's heterogeneous infrastructures, and more efficiently and effectively maximize compliance with SLAs. With its multi-tenant capabilities, CA Nimsoft Monitor enables service providers to manage hundreds to thousands of customers from one instance. Continuous network, application and server monitoring allows service providers to deliver high availability and optimize end-user response times.

Through its portal capabilities, CA Nimsoft Monitor provides a customizable view of each customer's service catalogue that can be shared with customers who want to have a real-time view of their services. Configurable dashboards allow service providers to create custom views for business and technical end users. Service providers use the solution's reporting capabilities to keep customers up to date on a periodic basis with historical monitoring information and quality of service statistics.

CA Nimsoft Monitor provides the capabilities service providers need to deliver new value-added services and gain increased differentiation in their markets.

Connect with CA Technologies at ca.com

The CA Technologies Advantage

CA Technologies (NASDAQ: CA) provides IT management solutions that help customers manage and secure complex IT environments to support agile business services. Organizations leverage CA Technologies software and SaaS solutions to accelerate innovation, transform infrastructure and secure data and identities, from the data center to the cloud. CA Technologies is committed to ensuring our customers achieve their desired outcomes and expected business value through the use of our technology. To learn more about our customer success programs, visit **ca.com/customer-success**. For more information about CA Technologies go to **ca.com**.

CS200-26614