



WINDOWS SERVER MONITORING

Safeguarding Your Network

- **APPLICATIONS AND O/S**
Windows, UNIX, MS Exchange, Citrix, Blackberry, Veritas Backup Exec.
- **VOIP AND IP TELEPHONY**
Cisco IP Telephony, Cisco IPCC, Nortel, Voicemail, Endpoints.
- **VIRTUALIZATION**
VMWare ESX and Virtual Center, MS Cluster Server, MS Network Load Balancer.
- **NETWORKS**
WAN/LAN Device and Performance Metrics, Device Management.
- **SYSTEMS**
Servers, Processes, Performance Metrics, Backups, Databases, SANs, NAS Metrics.
- **ENVIRONMENT**
UPS, Air (Temperature, Humidity), Motion, Liquid.

Server uptime, all of the time

CNS Windows Server Monitoring provides organizations with the ability to monitor the health and availability of their Windows server infrastructure. Through agent-based monitoring, the CNS Network Operations Center receives notification of degradation or failure of the following items:

- **Overall availability (ping requests)**
High-level reporting to senior management showing overall uptime for the environment. Shows IT staffs are meeting service levels for uptime and stability of the environment.
- **CPU usage and queue length, alerts based on threshold as well as individual CPU performance**
Ability to track and detect performance issues at the individual CPU level.
- **Physical and virtual memory usage monitoring and usage-based alerts**
Allows for a proactive approach. Detects memory usage issues prior to system running out of memory.

- **Physical disk activity, queue length alerts, and reads/writes per second**
Detect failing hard drives or issues with disk arrays.
- **Server disk space usage, logical and physical, as well as events based on percentage used and free space**
Allows for trending analysis to determine upgrade intervals, proactive approach to ensuring disk space availability prior to a system crash.
- **Key Windows Server services for up/down—custom services can be added**
Ability to detect service-based application failures. Automatically restart critical services.

In addition to monitoring the server at the OS level, CNS can tie into major manufacturers' hardware monitoring tools such as HP Insight Manager and Dell Open Manage.





WINDOWS ACTIVE DIRECTORY MONITORING

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Monitor Active Directory System Performance

CNS Active Directory Monitoring is an effective way for organizations to proactively monitor the overall health and performance of their Active Directory Servers. As most IT managers know, Active Directory is the heart of any organization's Windows infrastructure.

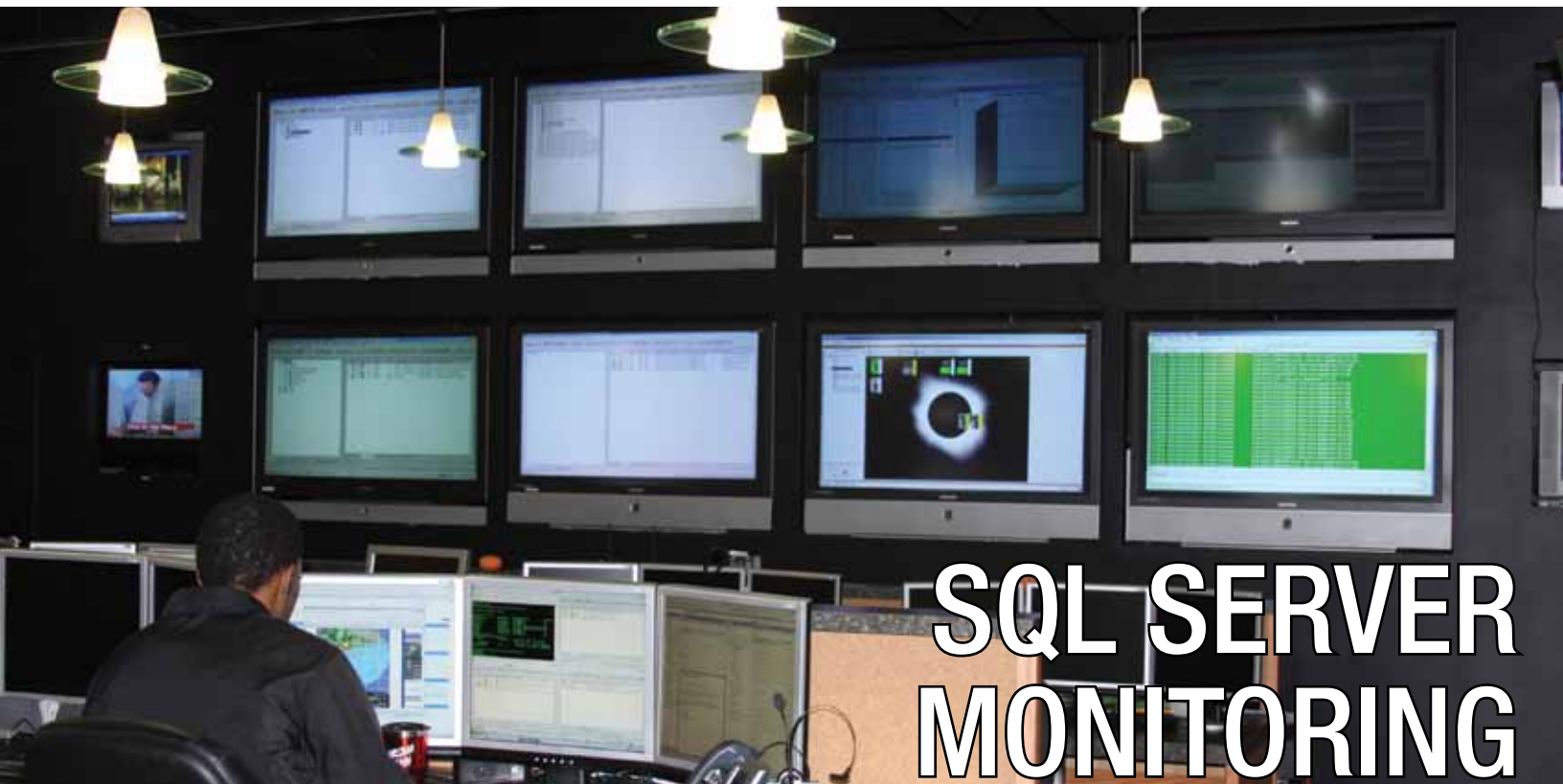
Some of the key areas CNS can monitor and issue alerts on are:

- **Identify and alert changes to the bridgehead server role** – Troubleshoot replication issues between domain controllers spread across a wide area network.
- **Monitor the number of AD sessions from different clients** – Aids in troubleshooting performance issues and login times on the domain controllers.
- **Monitor access for global catalog servers defined in the forest as well as global catalog change.**
- **Inbound and outbound replication traffic to other AD sites and verifies successful replication to other**

domain controllers – Identify replication issues between AD sites.

- **Monitor the logical disk space usage of the AD database and alert based on predefined growth levels** – An early detector of excessive database growth both by physical size and percentage.
- **Checks whether an AD domain controller is being advertised** – Avoid client login issues due to an unavailable domain controller.
- **Access to the domain controllers serving in Flexible Single Master Operation (FSMO) roles also monitors for FSMO change in role.**
- **Trust relationship errors and events** – By monitoring trust relationships, clients can ensure that AD sites are replicating properly, further avoiding domain login problems.





SQL SERVER MONITORING

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SQL Server system performance monitoring

CNS Microsoft SQL Server monitoring takes a proactive approach to logging and identifying database performance issues prior to impacting end users. CNS monitoring detects trending in database sizing and many other key metrics that can impact the database.

- **Immediate alerts if the SQL Server or any specified database within the server is not accessible** – In addition to performance monitoring, we also report on availability of all databases. Also provides management with Service level reports.
- **Detect when processes are blocked** – Troubleshooting tool for database availability and errors with SQL jobs.
- **Track databases growth rate** – Trending analysis as well as ability to determine upgrade requirements.
- **SQL Server log space, with an option to automatically truncate the transaction log file.** – Alerts customers to log file space prior to the database running

out of disk.

- **Number of available connections** – Terminate rogue processes or failed disconnects prior to connections being denied.
- **Monitor number of SQL Server locks**
- **Measures key I/O statistics, such as transactions per second** - Troubleshoot application or connection problems. Can also be an early detection of hardware issues related to disk I/O.
- **Track time required to process a user-defined SQL statement** - Used to determine poorly written statements as well as reporting for performance analysis.
- **SQL Server buffer cache, alerting you if you need to increase the memory allocated to SQL Server** – Used for trending analysis in determining growth of the SQL memory usage, both physical and allocated.



CNS VMWARE MONITORING

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VMWare performance, capacity, availability

As many organizations push to virtualize servers in an effort to reduce data center requirements, many challenges come up in knowing the health of their virtual environment.

Listed below are some of the high-level items the CNS Network Operations Center (NOC) can monitor and issue alerts on in a virtual environment.

- **Changes in the connection status of hosts to the Virtual Center** – Provides alerts for fail over of hosts between ESX servers.
- **Monitor host, virtual machine and VirtualCenter resource utilization, such as DataStore usage, disk I/O, memory usage and host network I/O** – Provides key performance metrics of both the physical and virtual servers.
- **Monitor host and virtual machine CPU usage, ready time, wait time and percentage used** – Used to deter-

mine if an additional host or hardware upgrade is required based on usage.

- **Monitor Resource Pool and cluster CPU usage, memory usage, memory swap used, and memory ballooning** – Identify whether additional hosts are required to support the virtual machines or if a physical hardware upgrade is necessary.
- **Monitor HW level of the ESX/ESXi physical host server** – Determine proper hardware sizing for the host servers and track trending of hardware utilization.
- **Monitor virtual machines that are added, removed, renamed, or migrated within VirtualCenter** – Get full visibility into any changes within the virtual environment.
- **Changes in the power status of virtual machines** – Immediate alerts if VM is shut down or crashes.



CNS VMWARE VIRTUAL ENVIRONMENTS



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CNS VMWare virtualized environments

Astoria Federal Savings Bank

60 Servers

CNS designed and implemented the VMWare virtualized environment and sold VMWare including VSphere, HA and ESX licenses.

The Conference Board

40 servers

CNS designed and deployed a Global solution for VSphere, HA, ESX and VMotion with a SAN solution.

Fordham Law School

CNS converted 20 servers to 2 physical blade servers.

Bank NY Mellon

Not only did CNS design the virtualization effort in 2008, but we had 6 of our Server Specialists involved in support of the server migration from physical to virtual. Once we completed the first phase of servers and transferred knowledge, BNYMellon completed the effort.

Clever Devices

ESX server and View Desktop virtualization project for Clever Devices' test and production sites for applications development in India and remote offices.

PLD

CNS built a new, 3-node ESX cluster to support an implementation of Oracle running on RedHat Linux.



CITRIX SERVER MONITORING

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Monitor Citrix Server System Performance

The CNS Network Operations Center (NOC) provides customers with the ability to proactively monitor all critical aspects of Citrix® server environments with CNS Citrix Server Monitoring.

Items monitored by CNS include, but are not limited to:

- **Memory and CPU of the users accessing a MetaFrame server** – Troubleshoot performance issues at the user level.
- **Total number of sessions on a MetaFrame server** – Determine failed logoff or other issues causing high number of sessions.
- **Memory and CPU levels of processes on the MetaFrame server** – Aid in determining processes that are hung or causing performance issues.
- **Monitor the health of Citrix MetaFrame server services in a server farm** – Proactive alerts on potential performance problems or failures.

- **Monitor the percentage of licenses in use in Presentation Server** – Assists customers in managing software licensing requirements for Presentation Server.
- **ICA latency of MetaFrame Server sessions** – Assists in troubleshooting application performance.
- **Monitor the number of users using an application across all MetaFrame sessions** – Assists customers in managing application licensing requirements.

The CNS NOC continuously monitors every layer of every tier of your Citrix infrastructure and proactively alerts you to any issues, giving you valuable time to fix any problems before users notice that something is wrong!





MICROSOFT EXCHANGE SERVER MONITORING

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Comprehensive performance reporting

CNS Microsoft Exchange Monitoring provides customers with a proactive approach to monitoring and maintaining the health of their e-mail environment. As e-mail has grown into a primary means of communication for most organizations, downtime is no longer acceptable.

Listed below are just some of the high-level items on which the CNS Network Operations Center (NOC) can monitor and issue alerts.

- **Inbound and outbound message queue status including the number, size and elapsed time that messages reside in the message queue** – Provides response time for messages and can be an early warning of performance issues with sending and receiving.
- **Monitor the status of database stores** – Issue an alert if a database store goes offline or if a failed component causes communication problems.

- **HTTP, NNTP, POP3, IMAP4, and SMTP server status** – Ensure all supported mail transport protocols are functioning properly.
- **Monitor disk space used by any mailbox store** - Aids in detecting excessive growth in a mailbox store. Also used for trend analysis on percentage of growth.
- **Monitor the rate of requests per second submitted to the information store to open mailboxes** - Aid in detecting client issues, e-mail viruses, and tracking individual performance issues.
- **Link queue status** – Troubleshoot response time of the queues and mail transport problems.
- **Monitor and scan event logs for service events that match filtering criteria** – Pinpoint event log errors specific to Exchange. Receive alerts instead of having to manually scan event logs.





NETWORK DEVICE MONITORING

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Place your network in capable hands

CNS Network Operations Center (NOC) provides tried and true network monitoring and remediation services. CNS provides much more than just overall availability.

Some of the key performance metrics CNS monitors are listed below.

- **Chassis backplane, power supplies, fans and temperature and voltage sensors** – Alerts customers to hardware failures and/or environmental conditions such as heat that can cause failures.
- **CPU utilization, memory, flash memory, and memory buffer errors** – Trend device usage and growth. Utilization is threshold based and can be customized at customer's request.
- **Traffic class utilization per interface, queue depths, and QoS policy issues** – An early warning sign of faulty components or wiring. By monitoring at the interface level CNS can be more granu-

lar in identifying issues.

- **General availability and interface up/down status for critical network infrastructure components** – Report on availability of critical connection both LAN and WAN.
- **Bandwidth capacity and utilization of physical interfaces, LAN/WAN link packet rates, and percentage of packet errors through key network equipment** – Aid in troubleshooting performance issues between sites or carrier related problems. Bandwidth utilization can be customized to accommodate for link speed.
- **Monitor the physical interface for change in status** – Provides immediate alerts if an interface changes state.