Monitoring Microsoft Exchange Server in the Context of the Entire Network

Virtually every business process and function relies in some way on messaging applications. Microsoft® Exchange is one of the most widely deployed enterprise messaging servers and Exchange users rely on it to get their jobs done; any failure is unacceptable and must be addressed quickly and efficiently. Passively monitoring logs or relying on phone calls from irate users when the server is down is not an adequate plan for most organizations. Nor is it sufficient to monitor Exchange in isolation, as an entity separated from the network. Network administrators need the ability to proactively monitor Exchange in the same context as the rest of the devices and applications on the network. Ipswitch WhatsUp® Gold Premium provides real-time information regarding the state and health of Exchange servers in the context of the overall network. Ipswitch WhatsUp Gold Premium offers companies a cost-effective way to keep their Exchange Servers - and in turn their business - operating efficiently.

Keeping an Eye on Microsoft Exchange Server

It is difficult to overstate the importance of messaging applications in the corporate environment. From e-mail and instant messaging, to knowledge management, collaboration and information publishing, messaging applications touch all aspects of the business. When functions like calendaring and scheduling are thrown in the mix, as is the case with Microsoft Exchange Server, it is no surprise that a service outage causes a great deal of anxiety among many users very quickly. When a Microsoft Exchange Server goes down - or even significantly slows down - a wave of inefficiency sweeps through the organization. E-mail, the lifeblood of business communication, stops flowing. If access to day-to-day business activities such as calendaring and scheduling are affected, the drain on productivity is compounded. With so much at stake, many IT managers recognize the need to monitor their Microsoft Exchange servers closely.

Primary Exchange Server Performance Concerns

From a high level perspective, deciding what aspects of Microsoft Exchange Server to monitor is dictated by the primary concerns of the organization. In most cases the single most alarming aspect of an Exchange Server outage is the inability to transport messages to other mail servers and outside recipients. This not only closes a key communications channel, it is also an event visible to customers and clients outside the company. For some organizations, especially technology-oriented businesses, losing e-mail service can be an embarrassment that erodes customer and employee confidence. As a result, the Exchange Server's Mail Transport Agent (MTA) and Routing Engine - which together determine the manner in which messages are successfully delivered - are often at the top of the watch list for IT staff. The need to keep e-mail flowing is followed closely behind by the need to access data from the server, including e-mail messages, calendar appointments, and other documents. This is particularly important in organizations that use their mail servers as de facto document management systems, storing a significant amount of mission-critical data in them. While a failure in this area may be hidden to users outside the organization, it is immediately apparent to internal users. Therefore IT staff must also keep a close eye on the availability of the information store to ensure that messages and information can be accessed by users when they need it. Another principal concern of Exchange administrators relates to the performance of the server. Barring an outright failure of the Exchange Server, the IT staff needs to know that the system is operating smoothly. A recent report by Gartner notes, "As technology evolves, monitoring applications have moved from "let me know if something is not working" to "let me know if performance falls below a certain level." This means application managers need to perform baselines to know what a normal "certain level" is. Once this is done, the managers (and possibly network administrators) can act more proactively in cases of application problems on the network." As an example, if a spammer is accessing a company's mail server to send thousands of unsolicited e-mail messages, the performance of the Exchange Server will likely be compromised, although it will still be functioning. Much like a complete e-mail failure, unknowingly facilitating spam can be a source of embarrassment for many organiza-

Monitoring In A Vacuum vs. Holistic Monitoring

Most organizations find the question of what aspects of an Exchange server to monitor fairly straightforward - check that mail is flowing, that the information store is accessible, and that system performance parameters are within reasonable limits. Answering the question of how to monitor an Exchange Server is the key to consistent, reliable operation of the server. Microsoft Exchange Server is a complex product that can be difficult to manage. Many organizations find that the Exchange Server management tools are no easier to use than Exchange Server itself. A second drawback of using these tools to monitor Exchange servers is that they provide no means of notifying an administrator if a problem arises. Perhaps most importantly, the tools are limited in scope; they can provide information only on Exchange and offer no insight into the environment that it is operating in. The ultimate goal of application monitoring is not merely to know if something has gone wrong, but to fix any problems as they arise. To fix a problem, an administrator requires some information about why something has gone wrong. And this question is very difficult to answer without knowledge of the overall network status. An analogous example would be a driver who notices his car is slowing down. If he only has his speedometer to look at, it would be impossible to find and repair the problem. But if when he can view the entire system, and notices that the car has a flat tire, the problem is easily remedied. Note also that the driver likely did not become aware of the problem by looking at the speedometer. He was alerted to the situation by another means, perhaps by the car becoming more difficult to steer. This example illustrates two core features of an effective Exchange server monitoring solution. First, the solution must provide relevant information about not only the Exchange server, but also its operating environment. Second, the solution must proactively notify a responsible party when a problem arises - preferably sending the alert even before the situation escalates into a full-blown outage.

The Solution: Ipswitch WhatsUp Gold Premium

Comprehensive network and Exchange Server monitoring

Ipswitch's WhatsUp Gold Premium combines network mapping and monitoring with real-time notification to provide a detailed view of the entire network and help IT departments better understand and manage network resources. In addition, WhatsUp Gold Premium delivers comprehensive and up-to-date information on the state and health of Exchange® servers in the same context as other devices in the WhatsUp Gold network map. Armed with a broad overview and the ability to drill down for detailed information, IT staffs can more easily analyze the root cause of Exchange Server problems. For example, if Ipswitch WhatsUp Gold Premium indicates that the Exchange Server outbound queue has grown past acceptable levels and at the same time a network switch is malfunctioning, the administrator will have not only a clear picture of the problem, but also the likely cause of the problem.

Detailed system status assessment

Ipswitch WhatsUp Gold Premium uses WMI (Microsoft’s Windows Management Instrumentation) to obtain relevant data on the status of Exchange Server. Ipswitch WhatsUp Gold Premium can collect and track a wide range of system parameters including:

- Queue length

This includes not only the number of messages that are waiting in the queue, but also the total size of all messages in the queue, as well as the amount of time that the number of messages waiting in the queue has been increasing.
The status of links between mail servers

Link status includes the number of messages that are waiting for transmission across the link, the total size of the messages in the link, the amount of time that the number of messages waiting to be transferred by the link has been increasing, and the elapsed time since the oldest message that is still waiting to be transmitted was received into the link.

Operating system performance factors

These factors include the rate of context switches from one thread to another, the number of threads in the processor queue, and the rate of system calls by all processes running on the system.

The number of SMTP, MAPI, POP3/IMAP4, MTA and Web access connections

Sharp rises in the number of connections can indicate a potential denial-of-service attack or other problems.

I/O performance and response time

Disk, CPU and memory utilization

Ipswitch WhatsUp Exchange Monitor also checks the real-time status of critical services, such as the Exchange Server Mail Transport Agent and Routing Engine. In addition, administrators can supplement WhatsUp Gold Premium’s default parameters by creating a set of customizable parameters. For example, to monitor the size and utilization of the Exchange Server information store, an administrator can connect to the remote Exchange Server’s performance monitor through a WMI browser and select those information store characteristics from a broad range of available parameters.

Real-time notification

Ipswitch WhatsUp Gold Premium delivers extensive alert capabilities, including e-mail, pager, desktop alarm, desktop text-to-speech alarm, network message, and custom applications. Alerts can be configured to trigger on failure, performance degradation, or when a monitored parameter exceeds a specified threshold. In addition, WhatsUp Gold Premium supports customized program notifications to initiate automatic corrective actions such as rebooting a server or restarting an NT service. In the event that e-mail notification is not possible because the Exchange Server is down, WhatsUp Gold Premium can be configured to use an outside SMTP server to deliver notifications.
Trend analysis and reporting
In addition to graphical network maps and alarms, Ipswitch WhatsUp Gold Premium provides extensive reporting and analysis capabilities to track historical device availability and performance. By reviewing trends -- for example the times of day of heaviest network traffic or server downtime -- businesses can better anticipate the need for additional hardware or Exchange servers while making efficient use of existing resources.

A cost-effective, easy-to-use and reliable solution
In large organizations, there are often individuals dedicated to the management of Exchange servers. In small and mid-size companies however, this complex task often falls to a person or small team that have multiple responsibilities. An Exchange monitoring solution makes it possible for a smaller staff to handle this task, but many application monitoring tools are prohibitively expensive to purchase and difficult to use in their own right. Ipswich WhatsUp Gold Premium provides an exceptionally valuable alternative that is reliable, easy to install, and easy to use. For more information on Ipswitch WhatsUp Gold Premium visit http://www.ipswitch.com.

About Ipswitch
Ipswitch develops and markets software that works for small and medium businesses worldwide. More than 100 million people use Ipswitch software every day to collaborate via Ipswitch Collaboration Suite, monitor their networks with Ipswitch WhatsUp, and transfer files over the Internet using the market leading Ipswitch WS_FTP Professional client and Ipswitch WS_FTP Server. Ipswitch values community involvement. Visit icare.ipswitch.com to find out how to become involved. For product and sales information, write to info@ipswitch.com or visit http://www.ipswitch.com.

Figure 2: With Ipswitch WhatsUp Gold Premium, administrators can monitor multiple Exchange Servers along with a wide range of other network resources and applications