



Monitoring Microsoft Exchange Server in the Context of the Entire Network

Abstract:

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 mitigated 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 Exchange Monitor, a plug-in for WhatsUp Gold, provides real-time information regarding the state and health of Exchange servers in the context of the overall network. Ipswitch WhatsUp Exchange Monitor offers companies a cost-effective way to keep their Exchange Servers – and in turn their business – operating efficiently.

IPSWITCH™

Keeping an Eye on Microsoft Exchange Server

It is difficult to overstate the importance of messaging applications in the corporate environment. From email 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. Email, 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 email 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 email flowing is followed closely behind by the need to access data from the server, including email 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.”¹ As an example, if a spammer is accessing a company’s mail server to send thousands of unsolicited email messages, the performance of the Exchange Server will likely be compromised, although it will still be functioning. Much like a complete email failure, unknowingly facilitating spam can be a source of embarrassment for many organizations. If the IT staff is effectively monitoring the server’s queue size, however, they will be alerted to the situation quickly and can take action to correct it.

By monitoring parameters of the Exchange Server, such as the number of messages in the mail queue, and utilization of memory, processors, and disk space, the IT staff can head off problems before they have a significant impact on the user base. With this capability, a phone call from a frustrated user is no longer the first sign of trouble. In fact, if monitoring is done effectively, such phone calls can be eliminated altogether. As an additional benefit, the information gathered by monitoring system and network resources over time can be used to ensure optimal use of existing resources and to guide decisions on future hardware and software needs.

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

¹ “Application Management Systems and Software: Overview”, 2003 Gartner, Inc.

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: WhatsUp Gold with Ipswitch WhatsUp Exchange Monitor

Comprehensive network and Exchange Server monitoring

Ipswitch's WhatsUp Gold 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. When used together with Ipswitch WhatsUp Gold, the WhatsUp Exchange Monitor plug-in delivers comprehensive and up-to-date information on the state and health of Exchange² 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 staffers can more easily analyze the root cause of Exchange Server problems. For example, if Ipswitch WhatsUp Gold 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.

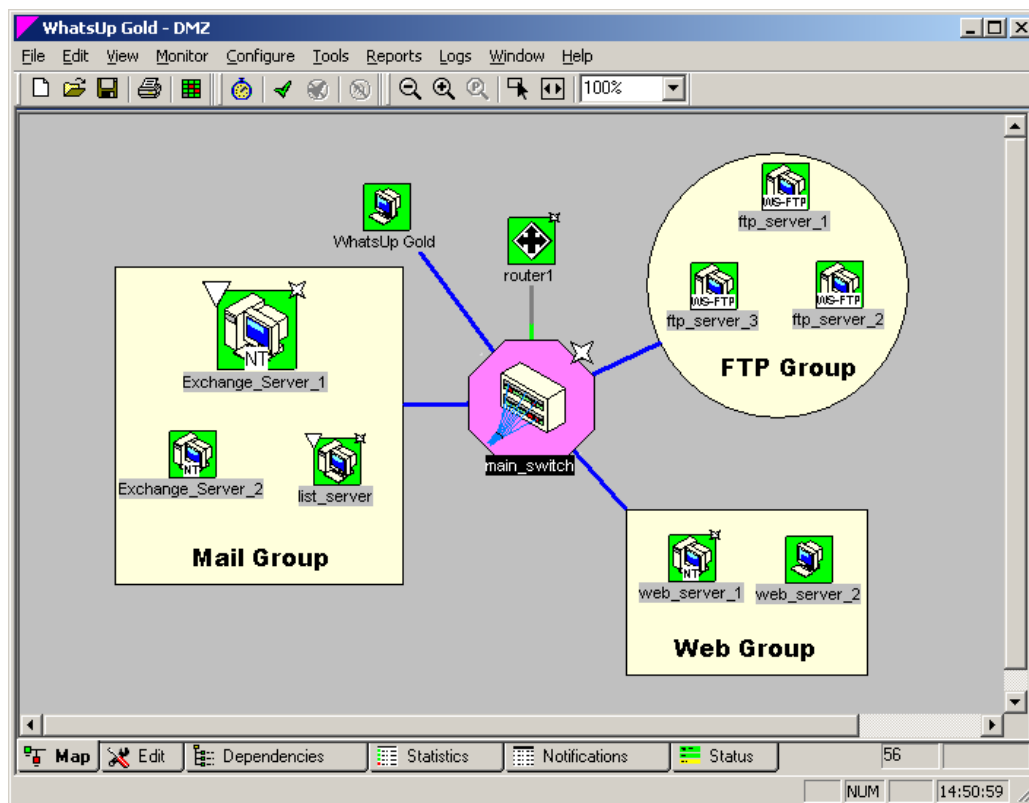


Figure 1: Ipswitch WhatsUp Gold and WhatsUp Exchange Monitor display Exchange Server status in the context of the entire network

² [Version 2000 and higher.](#)

Detailed system status assessment

Ipswitch WhatsUp Exchange Monitor uses WMI (Microsoft's Windows Management Instrumentation) to obtain relevant data on the status of Exchange Server. WhatsUp Exchange Monitor 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 Exchange Monitor'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.

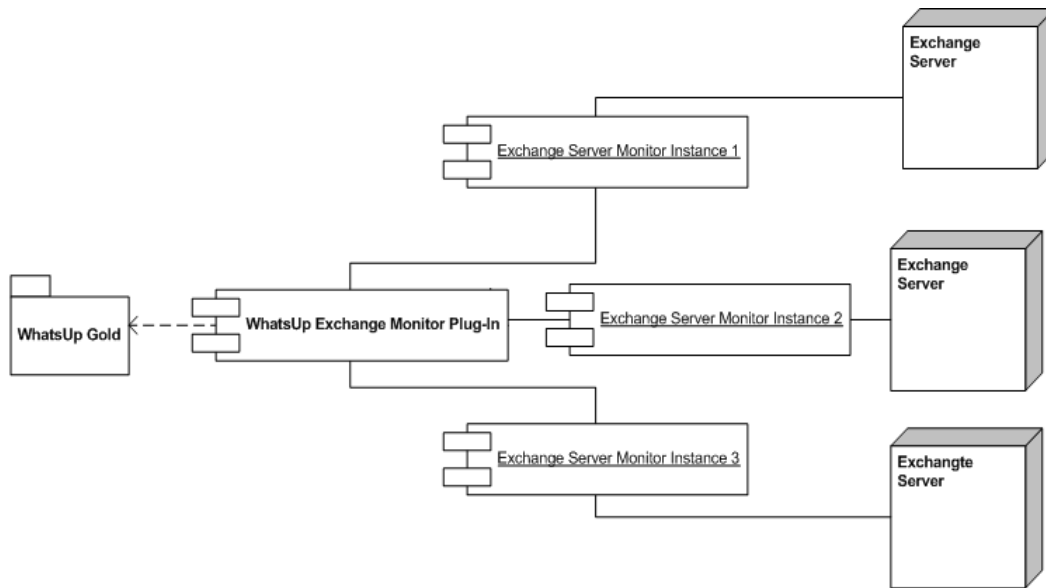


Figure 2: With Ipswitch WhatsUp Exchange Monitor, WhatsUp Gold can monitor multiple Exchange Servers along with a wide range of other network resources and applications

Real-time notification

Ipswitch WhatsUp Exchange Monitor is seamlessly integrated with WhatsUp Gold and can make full use of WhatsUp Gold's extensive alert capabilities, including email, 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 supports customized program notifications to initiate automatic corrective actions such as rebooting a server or restarting an NT service. In the event that email notification is not possible because the Exchange Server is down, WhatsUp Gold can be configured to use a free or low-cost email server such as Ipswitch's IMail Express.

Trend analysis and reporting

In addition to graphical network maps and alarms, Ipswitch WhatsUp Gold 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. Ipswitch

WhatsUp Exchange Monitor and WhatsUp Gold provide an exceptionally cost-effective alternative that is reliable, easy to install, and easy to use.

For more information on Ipswitch WhatsUp Gold and WhatsUp Exchange Monitor, visit <http://www.ipswitch.com/Products/whatsup/>.

About Ipswitch

Founded in 1991, Ipswitch, Inc. develops easy-to-use, affordable, software products that extend mission-critical IT resources for businesses and improve efficiency for consumers.

Its product family includes WS_FTP Pro, the world's most popular FTP client; WS_FTP Server with 128-bit SSL encryption, the first industrial-strength, full-featured FTP server for Windows NT/2000/XP; WhatsUp Gold, a leading network mapping, monitoring, notification and reporting tool; IMail Server, a leading Internet messaging server with 53 million users; IMail Anti-Virus, an add-on product powered by Symantec's CarrierScan™ and fully integrated with IMail Server; and Ipswitch Instant Messaging, a secure Instant Messaging solution specifically designed for businesses.