



Mailscape[®] 

◀ Mailscape for Blackberry Enterprise Server

Technical Overview



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Mailscape manages BES and Exchange in a single dashboard

Introduction

This white paper provides an in-depth description of each monitoring feature of the Mailscape for BlackBerry monitoring solution, and highlights how Mailscape's multi-faceted approach to monitoring via a centralized dashboard can help to quickly determine the root cause when a problem occurs.

Mailscape for BlackBerry

Mailscape for BlackBerry uses a scalable agent-based distributed architecture to proactively monitor all BlackBerry Enterprise Servers (BES) in an organization.

Each of the monitoring features described below is highly configurable in terms of test interval and what threshold values to use to determine whether to trigger an indicator or send an alert. Mailscape's hierarchical policy model allows intervals and thresholds to be applied universally, per server, or per policy with the ability to assign each server to a shared policy.



Exchange Link

Exchange Link monitors User Datagram Protocol (UDP) notifications from each Exchange server to each BES and verifies the ability to connect from the BES to the Exchange server using MAPI.

Normally the BES expects to receive a UDP notification whenever a new message arrives in a user's inbox. Every few minutes the BES scans each user's inbox for new messages for which no UDP notification was received. If it finds any such messages, it flags the message as a delayed notification.



BlackBerry Service Info

Exchange Link monitors delayed notifications per BES, and compares the level of delayed messages to configurable warning and critical thresholds.

If the number of delayed messages exceeds a configured threshold, the appropriate indicator will display in the Mailscape Dashboard, and an e-mail or SMS alert will be sent to a configured list of alert recipients.

Each BES uses MAPI to communicate with Exchange to perform mail operations. Exchange link periodically verifies the MAPI connection from the BES to the Exchange server. If any errors occur, an indicator will trigger in the Mailscape Dashboard, and an e-mail or SMS alert will be sent to a configured list of alert recipients.



BlackBerry Service Status

BES Queue

BES Queue monitors the number of pending messages waiting to be sent to each user's BlackBerry device. Pending messages are messages that the BES has been

unable to forward to the user's device due to various causes, such as a carrier outage, an SRP link outage, or a problem with the device.

BES Queue monitors pending messages per user, and compares the level of pending messages to configurable warning and critical thresholds.

If the number of pending messages exceeds a configured threshold, the appropriate indicator will display in the Mailscape Dashboard, and an e-mail or SMS alert will be sent to a configured list of alert recipients.

BES Queue works in conjunction with other Mailscape monitoring features to help the administrator quickly determine the root cause of the problem.

If the BES Queue and RIM Link indicators and alerts both trigger, the administrator can quickly drill down in the Mailscape Dashboard to determine if the problem is caused by the SRP link and which users are affected. Although technically an SRP link issue affects all BlackBerry users in an organization, as far as mail delivery is concerned, a brief SRP outage will only affect users who receive new e-mail during the outage, and the BES Queue feature helps determine exactly who those users are.



BlackBerry Service Overview

If the BES Queue and Carrier Link indicators both trigger, the problem is likely with a particular wireless provider, and the Mailscape Dashboard can be used to determine the extent of the problem and which users are affected.

Since Mailscape for BlackBerry also monitors BES services, CPU usage, memory utilization, disk space utilization, and network health, when a BES Queue indicator trips, there are many possible ways in which Mailscape can help determine the root cause of the problem.

RIM Link

RIM Link continuously monitors the SRP link from each BES to RIM's Network Operations Center, according to a configured test interval. If a RIM Link goes down, the Mailscape Dashboard will show which BES servers have lost their SRP connection, which can help to quickly isolate the problem to a particular server, a certain portion of the network, or to external causes.

RIM Link in conjunction with BES Queue helps determine who is not receiving mail due to the issues. RIM Link in conjunction with the Mailscape network health tests can help determine, for example, if the problem is due to a DNS outage.

Carrier Link

Carrier Link analyzes pending messages counts across all BES servers to determine if there is a correlation between particular wireless providers and high pending message counts. Carrier Link allows the administrator to see if messages are backing up for users of a particular carrier, making it possible to proactively contact the carrier to resolve the issue or find out the status before users even realize that there is an outage.

BES Status

BES Status checks BES worker threads to see if any threads have entered a non-responsive state. Non-responsive threads can accumulate gradually over time, leading to a situation where the BES needs to be restarted. BES Status allows the administrator to proactively monitor non-responsive threads and to schedule a BES restart during a scheduled maintenance window instead of on an emergency basis.

BES Status monitors pending non-responsive threads, and compares the level of non-responsive threads to configurable warning and critical thresholds.

If the number of non-responsive threads exceeds a configured threshold, the appropriate indicator will display in the Mailscape Dashboard, and an e-mail or SMS alert will be sent to a configured list of alert recipients.

Service Monitor

Service Monitor will monitor the state of all BlackBerry services on each BES. If any monitored service enters a non-running state, the appropriate service indicator will

turn red on the Mailscape Dashboard, and an e-mail or SMS alert will be sent to a configured list of alert recipients.

The Service Monitor can be configured to monitor any service on the machine, and can also be configured to ignore any BlackBerry services that are not relevant to an organization's needs.

The Service Monitor can help determine the root cause when multiple indicators show that a problem is occurring.



Resource Monitor

The Resource Monitor monitors CPU and memory utilization on each BES. If the CPU or memory utilization exceeds a configured warning or critical threshold, the appropriate indicator will be triggered in the Mailscape Dashboard and an e-mail or SMS alert will be sent to a configured list of alert recipients.

The Resource Monitor can be used to identify load balancing issues or resource utilization problems that may need to be diagnosed with tools such as xperf and ProcDump.

Disk Monitor

The Disk Monitor will monitor the disk space usage on all local drives on each BES. If the disk space on a drive drops below a configured warning or critical threshold, the appropriate indicator will be triggered in the Mailscape Dashboard and an e-mail or SMS alert will be sent to a



configured list of alert recipients. The administrator can drill down and see which specific drive is running out of space.

The Disk Monitor can be used, for example, to alert the administrator when the drive containing the BES log files is running out of space. Also, some third-party BlackBerry solutions have a high degree of disk space usage that needs to be monitored.

Network Monitor

On BES servers, the Network Monitor periodically pings each DNS from the BES and measures the response time. If the ping test fails, it could indicate either a general network problem or a DNS problem, both of which would likely affect proper BES operation.

If the ping test fails or if the response time exceeds a configured warning or critical threshold, the appropriate indicator will be triggered in the Mailscape Dashboard and an e-mail or SMS alert will be sent to a configured list of alert recipients.

Scalability

The Mailscape architecture allows monitoring of any number of BES servers, by allowing the BES servers to be segmented into logical groups. Mailscape provides two options for monitoring server groups—using either a single Mailscape Web Server or one Mailscape Web Server per server group.

When monitoring server groups with a single instance of Mailscape Web, the main monitoring page shows one line for each server group with an array of indicators per server group. The operator can click on an indicator to drill

down and see the list of servers in the group with an array of indicators per server, and the operator can drill down on each of those indicators, and so on.

In some cases it makes more sense to monitor server groups using multiple instances of Mailscape Web, due to hardware or geographical considerations. When monitoring server groups using multiple instances of Mailscape Web, each Mailscape Web instance reports into a central Mailscape Dashboard called the Global Monitor, which provides a continuously updated snapshot of the entire organization, with the ability to drill down from the Global Monitor to a specific Mailscape Dashboard, with the ability to drill down further from there.

Redundancy

The Mailscape Dashboard provides for fault-tolerance by allowing primary and secondary instances of the Mailscape Dashboard. The primary instance monitors the health of the BES servers that report into it, while the secondary instance monitors the health of the first instance. If the primary instance goes down, an alert will be sent by the secondary instance.

Performance

Mailscape is designed to minimize use of server and network resources. The agent-based architecture allows information to be distilled on the BES servers so that a minimal of information is sent over the network to the Mailscape Dashboard.

The Mailscape Agent throttles its own CPU usage so that it does not attempt to monopolize a CPU.