Novell NRM Statistics Captured by Uptime Infrastructure Monitor

Uptime Infrastructure Monitor captures the following Novell NRM system (version 6.5) statistics:

- Work To Do Response Time
- Allocated Service Processes
- Available Server Processes
- Abended Thread Count
- CPU Utilization
- Connection Usage
- Available Memory
- DS Thread Usage
- Packet Receive Buffers
- Available Event Control Blocks (ECBs)
- LAN Traffic
- Available Disk Space
- Disk Throughput

Each statistic returns one of the following status options:

- Good
  The statistic is well within the threshold suspect value.
- Suspect
  The statistic is between the threshold good and critical values.
- Bad
  The statistic is greater than the threshold critical value.

Work To Do Response Time

This statistic enables you to view how processes share the CPU. The response time is the amount of time that a Work To Do process requires to run.

If this statistic returns a value of Suspect, you can check the running threads to determine why there is a delay in the Work To Do threads. If the value is Bad, thread is probably running more than it should or it is hung. You should identify the parent NetWare Loadable Module and then unload and reload it if possible.

Allocated Service Processes

This statistic enables you to view, as a graph, how the service processes are allocated on your server.

If the service processes are approaching the maximum, increase the value of the Maximum Server Processes Set parameter. If you have only a few available server processes, increase the Minimum Server Processes Set parameter.

If the status is Bad, examine your server by doing the following:

1. In Novell NRM, click Profiling / Debugging.
2. Check the information for server process functions.
3. Change the Maximum Server Processes and the Minimum Server Process Set parameters.

Available Server Processes

This statistic enables you to view the number of available processes on your server as a graph. The graph charts the processes that are available every five seconds over a 50 second period.

If the status is Suspect or Bad, increase the Set parameters for Maximum Server Processes and the Minimum Server Processes settings. If the number of available server processes has not reached the maximum and is not increasing, add memory to your server.

Abended Thread Count

This statistic enables you to view the threads that have ended abnormally (abended) and are suspended.

If the status is Suspect or a Bad, your server has abended and has recovered automatically by suspending the offending thread while leaving the rest of the server processes running. As a result, some of the server's functions were compromised. You must determine which module, driver, or hardware the abended threads belong to, and then take the appropriate action.

CPU Utilization

This statistic enables you view, as a graph, how busy any given CPU is. Uptime Infrastructure Monitor tracks usage on a per CPU basis, collecting data every 30 seconds. The graph displays a 10 second history.

If the status is Suspect or Bad, determine which thread or module is causing the most CPU cycles and take appropriate action, including:

- Unloading and reloading the module.
- Reporting problems to the vendor of the module.

- Loading an updated module.

To determine which thread or module is using the most CPU cycles:

1. In Novell NRM, click Profile / Debug.
2. Do one of the following:
    - View the Execution Profile Data by Thread data.
    - Click Profile CPU Execution by NLM.

Connection Usage

Uptime Infrastructure Monitor monitors connections on a per-server basis. NRM displays only the following metrics:

- The number of connections that are being used.
- The peak number of connections used on this server.

Available Memory

This statistic enables you to view the amount of memory that is not allocated to any service. Most, if not all, of this memory is used by the file system cache. When available memory gets too low, modules might not be able to load or file system access might become sluggish.

DS Thread Usage

This statistic enables you view the number of server threads that Novell eDirectory uses. The server thread limit ensures that threads are available for other functions as needed – for example, when large number of users log in at the same time.

eDirectory uses multiple server threads. However, its thread requirements should not cause poor performance because eDirectory cannot use more than its allocated maximum number of threads.

If this statistic returns a Good status, eDirectory is using less than 25% of the available server threads. If it returns a Suspect status, eDirectory is using between 25% and 50% of the available server threads. If the status is Bad, eDirectory is using more than 50% of the available server threads.

Packet Receive Buffers

This statistic enables you to view the status of Packet Receive Buffers for the server. Packet Receive Buffers transmit and receive packets. You can set the maximum or minimum number of buffers to allocate using the Maximum Packet Receive Buffers or Minimum Packet Receive Buffers SET parameters. The minimum number of buffers is the number of packets that are allocated at when the system is initialized.

If the number of Packet Receive Buffers is increasing, the system will be sluggish. If the number of Packet Receive Buffers reaches the maximum, and no Event Control Blocks (ECBs) are available, the server will become very sluggish and will not recover.

Available Event Control Blocks (ECBs)

This statistic enables you to view the status of available Event Control Blocks (ECBs). Available ECBs are Packet Receive Buffers that have been created but which are not currently being used.

If the available ECB count is zero, the server will become sluggish until enough ECBs are created to fill the demand. The server will recover as long as the number of Packet Receive Buffers does not increase to the maximum that can be allocated.

LAN Traffic

This statistic shows whether or not your server can transmit and receive packets. If this statistic returns a Good status, the server is able to accept or transmit packets through the network board. If the status is Bad, the network board is not transmitting or receiving packets.

All servers should be able to transmit or receive packets. If your server is not transmitting, your LAN is not functioning properly. Check the drivers and protocol bindings for the network board on the server. If the drivers and protocol bindings are functioning properly, then the network board is probably faulty. If the network board is functioning, you should perform a diagnostic on your LAN.

Available Disk Space

This statistic enables you to view the status of the available disk space on all mounted volumes on a server. This statistic returns the following statuses:

Disk Throughput

This statistic enables you to view the status of amount of the data that is being read from and written to the storage media on this server.

If this statistic returns a Good status, then the storage system is experiencing reads or writes, and there are no pending disk I/Os. If the status is Suspect, the storage system has disk I/Os pending, no reads or writes have occurred, and less than four samples have been taken. If the status is Bad, the storage system has disk I/Os pending, no reads or writes have occurred, and four or more samples have been taken.