NonStop NET/MASTER Tips and Techniques

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Introduction

This is an ongoing column with NonStop NET/MASTER tips and techniques. Each column is also accessible from http://www.greshamsoftwarelabs.com.au/ (Gresham Software Labs). Please send all comments and suggestions to John New at jnew@greshamsoftwarelabs.com.au.

Biography

John New is a technical writer. He has written and updated various Tandem manuals. He currently writes hard-copy, online, and web documents for a variety of software products.

Easy Startup Configuration: Part 1 – The Default Configuration

This article is written for NonStop NET/MASTER system managers. It briefly describes some aspects of the NonStop NET/MASTER processing environment, then discusses some considerations when starting NonStop NET/MASTER with its default configuration.

The NonStop NET/MASTER Processing Environment

The NonStop NET/MASTER processing environment is made up of two groups of cooperating processes: NonStop NET/MASTER processes and Distributed Systems Network Management (DSNM) processes.

NonStop NET/MASTER processes include the NonStop NET/MASTER control process (NCP), global memory manager (GMM) processes, security exit processes, and application processes. The NCP is the first process started from TACL. It starts and stops all other processes, including application processes.

NonStop NET/MASTER Application Processes

NonStop NET/MASTER application processes handle most NonStop NET/MASTER functions. There are five classes of application processes, each of which is identified by a two-letter abbreviation:

BK class – supports the background users BMON, BLOG, BSYS, and LOGP, and NCL processes controlled by these background users

EM class – supports the interface to Event Management Service (EMS), the background user EMSP, and NCL processes controlled by EMSP

IS class – supports communications with remote systems

MS class – supports interactive users (users who log on to NonStop NET/MASTER) and their NCL processes

NC class – supports the BK, EM, IS, and MS functions combined (functionally equivalent to one BK + one EM + one IS + one MS process)

NonStop NET/MASTER is distributed with one application program object file (called NMNC0001). All application processes, regardless of class, are started from this file or from a copy of this file.

Application Processes, Performance, and Resources

NonStop NET/MASTER will not start if it is unable to support all the functions collectively handled by application processes. The simplest way of ensuring this is to ensure that at least one NC process starts. But many valid combinations of application processes are possible.

Some valid combinations are:

One NC process

Two or more NC processes

One or more NC processes + one or more BK, EM, IS, or MS processes

One BK, EM, IS, and MS process

One BK, EM, IS, and MS process + additional BK, EM, IS, or MS processes

Some invalid combinations are:

One BK, EM, and IS process – invalid because interactive users and their NCL processes are not supported – the solution is to start NonStop NET/MASTER with one or more MS or NC processes

One BK, IS, and MS process – invalid because no EMS functions are supported – the solution is to start NonStop NET/MASTER with one or more EM or NC processes

One BK, EM, and MS process + additional BK, EM, and MS processes – invalid because communications with remote systems are not supported – the solution is to start NonStop NET/MASTER with one or more IS or NC processes

It is possible for systems managers to configure NonStop NET/MASTER for less than optimal performance by configuring the wrong mix of application processes or more application processes than required. If so, NonStop NET/MASTER may start up slower than you would like or use excessive resources (virtual memory, physical memory, disk space, process resources, and so on).

But even if you inadvertently configure NonStop NET/MASTER to use resources inefficiently, NonStop NET/MASTER will nevertheless function as designed.

Understanding the Default Configuration

When you start NonStop NET/MASTER with its default configuration, it uses the minimum possible resources but also caters for possible increases in workload. To start NonStop NET/MASTER with its default configuration means to start it with one dynamic NC process. Running NonStop NET/MASTER with one NC process is called basic mode.

Starting with one NC process provides the minimum functionality for NonStop NET/MASTER to function. One NC process allows up to ten users to log on and supports one link to a remote system. The process handles all NCL processing, all background operations, and all EMS activity.

Using a dynamic process allows for possible increases and decreases in the work that NonStop NET/MASTER is required to handle, often more interactive users logging on or more links to remote systems being established.

This is because a dynamic application process is designed to be present as needed in the NonStop NET/MASTER processing environment. The process is cloned if the available work exceeds the resources of the current process, stopped if it is not doing any work, and is not necessarily restarted if it fails.

In other words, if NonStop NET/MASTER has more work than one NC process can handle, another NC process will be started. Using NonStop NET/MASTER's default configuration, there will always be at least one NC process running (except in the case of process failure, in which case it will be restarted).

The dynamic NC process is automatically created from the file called NMNC0001 (created during NonStop NET/MASTER installation in the $isv.ZNNM subvolume) using the following embedded process creation hints in the file name:

NM – the 1st and 2nd characters tell the NCP that this is a NonStop NET/MASTER file

NC – the 3rd and 4th characters tell NCP that this is an NC process

00 – the 5th and 6th characters tell NCP to start zero static processes

01 – the 7th and 8th characters tell NCP to start one dynamic process

A Variation On the Default Configuration

A static application process is designed to be always present in the NonStop NET/MASTER processing environment. The process is not cloned if the available work exceeds its resources, not stopped if it is not doing any work, and is restarted if it fails.

A variation on the default configuration is to start NonStop NET/MASTER with one static NC process. This is easy to achieve by simply renaming NMNC0001 to NMNC0100. However this is suitable only for very small NonStop NET/MASTER installations with little possibility of expansion. Otherwise, the static NC process will not have the resources to handle extra work.

Sometimes system managers who want to start NonStop NET/MASTER with one static NC process make the mistake of copying NMNC0001 to NMNC0100. However this means that two files are present not one (NMNC0001 and NMNC0100). NonStop NET/MASTER then starts with one dynamic NC process and one static NC process. NonStop NET/MASTER takes longer to start and requires more resources until the dynamic NC process is no longer required and is stopped.

Starting NonStop NET/MASTER

To start NonStop NET/MASTER with its default configuration, start the NCP by using a TACL command such as the following:

```
RUN NCP /NAME $ZNNM, NOWAIT, TERM $OSP, CPU 0/1
```

To log on to NonStop NET/MASTER from TACL after the NCP starts all processes, type:

```
NNM $ZNNM
```

If the NCP process name is $ZNNM (the default), you can also log on to NonStop NET/MASTER from TACL by omitting the process name:

```
NNM
```

Conclusion

This article briefly described some aspects of the NonStop NET/MASTER processing environment, then discussed some considerations when starting NonStop NET/MASTER with its default configuration.

The next article in this series will discuss how to go beyond the default configuration and start NonStop NET/MASTER using embedded process creation hints in the file names used to create NonStop NET/MASTER application processes. Going beyond the default configuration means to start NonStop NET/MASTER with more functionality than one NC process or to start NonStop NET/MASTER without an NC process.

A later article will describe advanced configuration techniques using a configuration file.