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Improve Performance of SNA•ps 5250 & DAL For AS/400 (7/93)

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TOPIC -----

This article covers two items which can be done to the configuration of an AS/400 which will improve the performance of SNA•ps 5250 and DAL For The AS/400.

DISCUSSION -----

AS/400 Process Overview

To understand these configuration changes, it is helpful to review how these products are connected externally and internally with the AS/400. Both SNA•ps 5250 and DAL use APPC sessions which are Prebound-Contention Winners that are provided through a SNA•ps Gateway connection. The physical connection to the AS/400 is via a Token Ring or SDLC line attachment. Since this is an APPC connection and the SNA•ps gateway is in a Peer-to-Peer relationship, the Macintosh client applications make a call to a transaction program which is available on the AS/400. SNA•ps 5250 calls the Display-Station Passthru program while DAL for the AS/400 calls the DALSERVER.

The AS/400 is divided up into subsystems which receive and manage work for the system and users. The major subsystems are QBATCH, QINTER and QCMN. QBATCH manages all batch processing jobs running in the AS/400. The QINTER subsystem is used by all interactive jobs such as terminal emulation and print emulation. When SNA•ps 5250 is logged onto the AS/400, an interactive job is running in the QINTER subsystem. The QCMN subsystem is used by the APPC connections to the AS/400. These include DAL for the AS/400, SNA•ps 5250, and PC Support (for IBM PCs). Any client application which makes a program call via an APPC link, has to first be managed by QCMN and have a job assigned to the process.

When SNA•ps 5250 requests the Display Station Passthru request to the AS/400, QCMN deals with the request. Once the user logs on the AS/400, a second job is started in the QINTER subsystem which manages that part of the user process. So with SNA•ps 5250, there are two AS/400 jobs running, one in QCMN for APPC and one in QINTER for the interactive terminal process.

When DAL for the AS/400 requests a connection to the AS/400, a call to the DALSERVER is made and the QCMN subsystem manages the entire job. The DAL client user logs on to the DALSERVER using AS/400 security for validation but a DAL session is always an APPC session on the AS/400 and does not create a second interactive job to support the process like SNA•ps 5250.

So you can see the QCMN subsystem is very important to the operation and performance of both DAL and SNA•ps 5250. There are two entries in the QCMN subsystem which can be altered to better optimize performance: routing entries and prestart job entries.

Based on how QCMN is configured for routing entries, a Class gets assigned to the process. A class contains parameters that control the running of a routing step. The Class defines the overall Run Priority of the job in the AS/400. The rating for Run Priority ranges from 1 (very high availability of the AS/400 resources to the job) to 99 (very low availability of AS/400 resources to the job). The Class also defines the Time Slice of the AS/400 that is assigned to the job. Time Slice is defined as a maximum amount of processor time, in milliseconds, given to the job before other jobs are given the opportunity to run. The time slice establishes the amount of time needed by the job to accomplish a meaningful amount of processing. At the end of the time slice, the job might be put in an inactive condition so that other jobs can become active. The larger that Time Slice value, the more processor time can be assigned to the job before other jobs step in. The range of Time Slice is 1000 to 10,000 milliseconds.

The Prestart job entries allow the QCMN subsystem to be prepared to run a large program, such as, the DALSERVER. A Prestart job can have a Class with a higher Run Priority than the default values given the routing entries in the Subsystem.

Changing Routing Entries Details For SNA•ps 5250

QCMN Routing Entries

If a DSPSBSD AS/400 command is done for the QCMN subsystem, the following screen appears:

```
Subsystem description:  QCMN           Library:  QSYS
Status:  ACTIVE
```

Select one of the following:

1. Operational attributes
2. Pool definitions
3. Autostart job entries
4. Work station name entries
5. Work station type entries

Compare start position : 29

The Class for this entry is QBATCH which is IBM supplied and has a Run Priority of 50. The Time Slice is 5000 milliseconds. This is lower than any PC Support process which runs with Priority 20.

Now lets look at the Sequence number 180 entry:

Routing entry sequence number : 180
Program : *RTGDTA
Library :
Class : QWCPCSUP
Library : QGPL
Maximum active routing steps : *NOMAX
Pool identifier : 1
Compare value : 'QPAPAS'

Compare start position : 37

The Class for this entry is QWCPCSUP which is IBM supplied and has a Run Priority of 20. This is the same as that of any PC Support process and places the SNA•ps 5250 workstation function at the same performance threshold as PC Support. The Time Slice is 500 milliseconds which is adequate for interactive sessions like SNA•ps 5250.

If the SNA•ps 5250 program call is made to a standard set of entries in QCMN, the results would be to use the QBATCH Class which would perform slower than a PC Support WorkStation Function emulation.

If the user logs on to the AS/400, then a job starts in the Interactive Subsystem or QINTER. All jobs managed by the QINTER subsystem use the QINTER Class. This Class has a Run Priority of 20 and a Time Slice of 2000 milliseconds. From this we can see that a SNA•ps 5250 connection will be running with priority 20 in the QINTER subsystem but then have to wait, on a busy machine, for time to complete the data transfer through the QCMN subsystem since it has a priority of 50 there. PC Support 5250 sessions do not have this delay since both jobs running on their behalf have priority of 20. (Remember 20 is better than 50.)

How to add the Routing entry to QCMN subsystem for SNA•ps 5250:

In order to configure the QCMN routing entries to improve performance on heavily loaded machines do the following steps. Log on as QSYSOPR or QSECOFR. Be sure all users on the QCMN subsystem have been warned with a broadcast message that the subsystem will be going down and all passthru sessions will be terminated. Stop the QCMN subsystem at the AS/400 console. Enter the following command on the command line:

```
ADDRTGE SBSDB(QCMN) SEQNBR(180) CMPVAL(QPAPAS 37) PGM(*RTGDTA) CLS(QWCPCSUP)
```

The Sequence number has to be a number which is not currently in use by the subsystem. The compare value is the name QPAPAS which is the name of the Passthru program in the PGMEVOKE call. The class QWCPCSUP is an IBM

