IBM

IBM Software Group

TPF Users Group Spring 2006

Workload License Charging (WLC) through Subcapacity Reporting

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Venue : SCP Subcommittee

AIM Enterprise Platform Software

IBM z/Transaction Processing Facility Enterprise Edition 1.1.0

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Agenda

- Subcapacity Reporting Tool

- Subcapacity Reporting Process

- Collecting LPAR utilization data

- Data Collection/Reduction and Continuous data collection

- Creating/Using Subcapacity Data Files
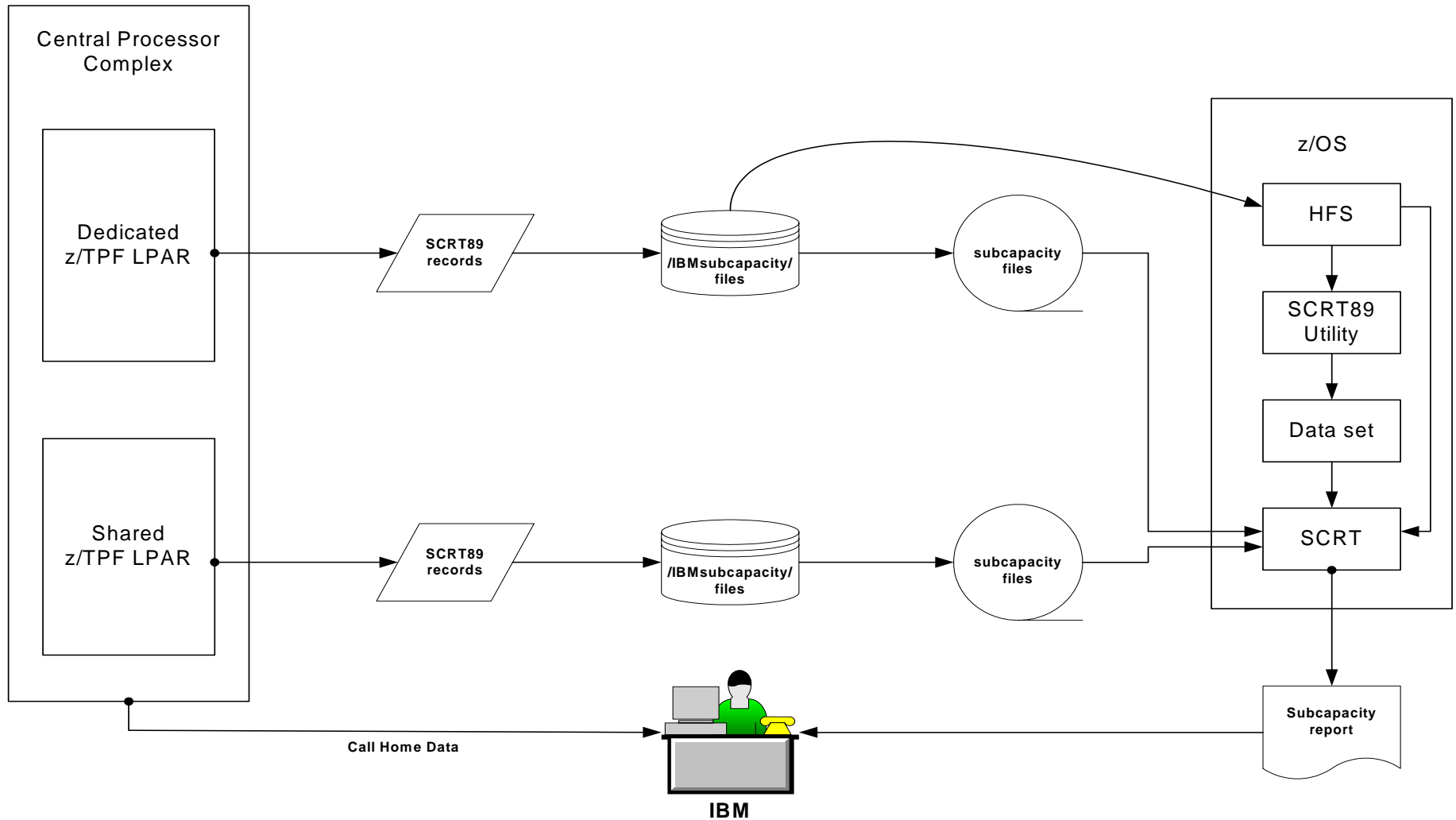
- Generating the SCRT report

Subcapacity Reporting Tool (SCRT)

- Is an IBM tool that reports required license capacity for subcapacity-eligible systems running on IBM System z products.

- The z/TPF system collects subcapacity data, which is used by the SCRT to generate subcapacity reports.

- The SCRT analyzes one month of data and produces a subcapacity report.

  ► The report indicates the required license capacity in millions of service units (MSUs) consumed.

  ► Products are charged based on the rolling four-hour average utilization of the LPARs in which the products run.

- These reports are sent by e-mail or over the web, to IBM to indicate the required license capacity for the z/TPF system.

Subcapacity Reporting Process

- Prerequisites for the SCRT

  - ► Install or update the SCRT for the IBM System z product

  - ► Configure the System to send weekly transmit system availability data (TSAD; also known as *call home data*)

- Collect subcapacity data for the reporting period (the standard reporting period is one month)

- Copy the subcapacity files from the z/TPF file system to a HFS

- Run the SCRT, use JCL to generate a subcapacity report

- Send the subcapacity report to IBM each month

Subcapacity Reporting Process

Central Processor Complex

Dedicated z/TPF LPAR

Shared z/TPF LPAR

SCRT89 records

SCRT89 records

/IBMsubcapacity/files

/IBMsubcapacity/files

subcapacity files

subcapacity files

z/OS

HFS

SCRT89 Utility

Data set

SCRT

Subcapacity report

Call Home Data

IBM

Requirements for creating the subcapacity data files

- z/TPF LPARs must conform to a naming standard

    - Test LPARs must be named TPFT*nnnn*

    - Production LPARs must be named TPFP*nnnn*

- The z/TPF system must be running under the Processor Resourse/System Manager (PR/SM) facility

- The z/TPF image must not be in test mode

- The z/TPF subcapacity internal structures are initialized

- The z/TPF file system is initialized

Collecting LPAR Utilization Data

- The z/TPF system collects the LPAR utilization data

- Utilization data is collected every second and every 10 seconds

- The data is used to calculate the 4-hour rolling average

- The data is used to generate new Data Collection/Reduction and CDC reports

- Some of the data is available to users in a new table

  - ► Processor Utilization Data table

  - ► Accessed via CMMPUD

New Data Collection/Reduction LPAR Utilization Report

```
LPAR UTILIZATION REPORT
        79 OBSERVATIONS


# of virtual CPUs        230
# of real CPUs            24
V/R =       9.58
```

LPAR	# CPUs	Utilization, %	Util vs CAP	% of machine
CF1	1	99.66	N/A	4.15
MVSESA2	5	6.13	N/A	1.27
TPFP1	16	0.21	N/A	0.14
TPFP8	4	99.65	N/A	16.60
VM1	5	59.80	N/A	12.45
XA1	8	41.39	N/A	13.79
TPFP11	1	99.67	N/A	4.15
TPFT15	1	99.66	N/A	4.15

```
(note:  Report shortened to fit into presentation)
```

New Continuous data collection panel

Collecting Subcapacity Data

- Once per minute the utilization data is used to calculate a 4-hour rolling average of MSUs consumed

- Every hour on the hour processor utilization data and the 4-hour rolling average of MSUs is stored into SCRT89 records

- SCRT89 records are only updated in norm state

Creating the Subcapacity Data Files

- Initialize and format the data in the internal structures and write it to the z/TPF file system
  Enter: ZSUBC INITIALIZE TARGET-BSS REPLACE-YES

- Enable subcapacity data file creation
  Enter: ZSUBC KEEP days

- Subcapacity data files are created daily (one per LPAR)

  - ► z/TPF file system directory name is /IBMsubcapacity
    /IBMsubcapacity/2084_02_3153f_TPFP1_03272006.scr

  - ► Updated at the beginning of each hour with an SCRT89 record and when the system cycles down to 1052 state

Making Data Files Available to the SCRT

■ Define where the data files will reside

  ► Enter: ZDSMG DEFINE ddname TAPE-name

  ► Enter: ZDSMG DEFINE ddname PATH-'/mydir/myfile.scr'

■ Copy the subcapacity data files to the data definition
Enter: ZSUBC COPY BEGIN-bdate END-edate DD-ddname

In the following example, all subcapacity data files from April 1, 2006 to MAY 2, 2006 are copied to a tape called NAM.

ZDSMG DEF MYTAPE TAPE-NAM
ZSUBC COPY BEGIN-04012006 END-05022006 DD-MYTAPE

References

- SCRT documentation:
  http://www.ibm.com/servers/eserver/zseries/swprice/scrt

- SCRT download instructions:
  http://www.ibm.com/software/htp/tpf/pages/maint.htm

- Web interface for submitting SCRT reports:
  http://www.ibm.com/sortware/lms

- Latest version (Version 1.4.2) of the CDC client:
  http://www.ibm.com/software/htp/tpf/download/tools.htm

- APAR URL:
  http://www.ibm.com/software/htp/tpf/ztpfmaint/put/PJ30885.htm

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