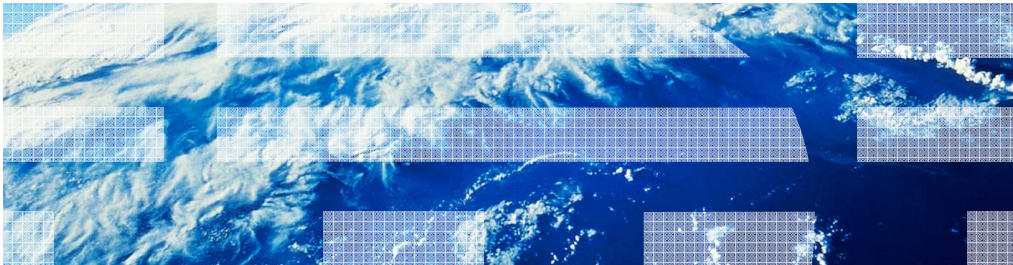


z/OS V1R13

RMF: Support for response time distribution for execution velocity goals



Session objectives

- Explain RMF support for new response time distribution for execution velocity goals

Overview

- Need Addressed
 - Today, WLM provides response time distributions for workloads with a response time goal in IWMWRCAA answer area of IWMRCOLL interface
 - Starting with z/OS V1.13, WLM reporting is enhanced to provide response time distributions also for workloads with an execution velocity goal
- Solution
 - RMF Monitor I data gatherer collects new response time information in SMF 72 subtype 3 record
 - RMF Postprocessor Workload Activity report displays
 - Response time distribution for response time and execution velocity goals
 - One merged distribution for workloads with response time goals per sysplex
 - One distribution for workloads with execution velocity goals per system in sysplex
- Customer Value
 - Helps customers to obtain better analysis data and to migrate their goal definitions to a meaningful response time goal



Usage – SMF Record Type 72 Subtype 3 (1 of 2)

- New fields in Service/Report Class Period Data section

SMF record type 72 subtype 3 (Workload Activity) – Service/Report Class Period Data section				
Offset	Name	Length	Format	Description
608 x260	R723RTDM	4	Binary	Midpoint of all response times that were collected in the response time distribution buckets in milliseconds. For response time goals, the midpoint is always the response time goal. For execution velocity goals, it is the average of all response times that were collected in the response time distribution buckets.
612 x264	R723RTDC	4	Binary	Number of midpoint changes that occurred during interval. The field equals zero for response time goals.
616 x268	R723RTDT	4	Binary	Timestamp in STCK format, showing the last point in time when a midpoint change occurred in R723RTDM.

Usage – SMF Record Type 72 Subtype 3 (2 of 2)

- Response Time Distribution section contains arrays with 14 response time distribution buckets each
 - One array per service class period
 - For workloads with response time goals
 - Distribution is built around response time goal as defined in WLM service definition
 - Midpoint R723RTDM equals the response time goal
 - For workloads with execution velocity goals
 - Distribution is built around midpoint provided by WLM
 - Midpoint R723RTDM is the average of all response times that were collected in the response time distribution buckets
 - Response time buckets are split into
 - Bucket 1 - covers the gap from 0 to half the midpoint
 - Bucket 2 to 11 - cover the gap between half the midpoint to 1.5 times the midpoint evenly divided
 - Bucket 12 - covers the gap from 1.5 to two times the midpoint
 - Bucket 13 - covers the gap between two to four times the midpoint
 - Bucket 14 - covers the gap from four times the midpoint to infinity

Usage – Postprocessor workload activity Report (execution vel goal)

```

WORKLOAD ACTIVITY

z/OS VIR13          SYSPLX TESTPLEX          DATE 10/26/2010          INTERVAL 30.00.212  MODE = GOAL
RPT VERSION VIR13 RMF          TIME 10.28.11
POLICY ACTIVATION DATE/TIME 10/26/2010 10.28.34
REPORT BY: POLICY=VICOM2      WORKLOAD=VICOM          SERVICE CLASS=VEL9012  RESOURCE GROUP=*NONE  PERIOD=1 IMPORTANCE=2
                               CRITICAL          =NONE
-----
GOAL: EXECUTION VELOCITY 90.0%  VELOCITY MIGRATION:  I/O MGMT 96.0%  INIT MGMT 44.9%
SYSTEM  RESPONSE TIME EX  PERF
        VEL%  INDX
*ALL    --N/A--  96.0  0.9
TST1    95.3  0.9
TST2    96.7  0.9

-----RESPONSE TIME DISTRIBUTIONS-----
SYSTEM: TST1 -----INTERVAL: 15.49.248 -----MRT CHANGES: 1 --- SYSTEM: TST2 -----INTERVAL: 17.01.121 -----MRT CHANGES: 1 ---
---TIME---  -NUMBER OF TRANSACTIONS-  -----PERCENT-----  ---TIME---  -NUMBER OF TRANSACTIONS-  -----PERCENT-----
HH.MM.SS.TTT  CUM TOTAL  IN BUCKET  CUM TOTAL  IN BUCKET  HH.MM.SS.TTT  CUM TOTAL  IN BUCKET  CUM TOTAL  IN BUCKET
< 00.00.05.308      9          9      5.9      5.9  < 00.00.03.871      0          0      0.0      0.0
<= 00.00.06.370     45         36     29.4     23.5  <= 00.00.04.645     0          0      0.0      0.0
<= 00.00.07.431     72         27     47.1     17.6  <= 00.00.05.419     8          8      4.4      4.4
<= 00.00.08.493     83         11     54.2     7.2   <= 00.00.06.193    48         40     26.2     21.9
<= 00.00.09.555     90          7     58.8     4.6   <= 00.00.06.967    70         22     38.3     12.0
<= 00.00.10.617    117         27     76.5     17.6  <= 00.00.07.742    87         17     47.5     9.3
<= 00.00.11.678    153         36     100      23.5  <= 00.00.08.516   101        14     55.2     7.7
<= 00.00.12.740    153          0     100      0.0   <= 00.00.09.290   113         12     61.7     6.6
<= 00.00.13.802    153          0     100      0.0   <= 00.00.10.064   119          6     65.0     3.3
<= 00.00.14.863    153          0     100      0.0   <= 00.00.10.838   160         41     87.4     22.4
<= 00.00.15.925    153          0     100      0.0   <= 00.00.11.613   183         23     100      12.6
<= 00.00.21.234    153          0     100      0.0   <= 00.00.15.484   183          0     100      0.0
<= 00.00.42.468    153          0     100      0.0   <= 00.00.30.968   183          0     100      0.0
> 00.00.42.468     153          0     100      0.0  > 00.00.30.968    183          0     100      0.0

```

Usage – Postprocessor workload activity report

Field Heading	Meaning
RESPONSE TIME DISTRIBUTIONS (for service/report class periods with an execution velocity goal only)	<p>WLM maintains counts of how many transactions were completed within a particular time. The <i>average of all response times (midpoint)</i> measured for each service/report class period is split into 14 response time buckets where:</p> <ul style="list-style-type: none"> • bucket 1 covers the gap from 0 to half the midpoint • buckets 2 to 11 cover the gap between half to 1.5 times the midpoint evenly divided • bucket 12 covers two times the midpoint • bucket 13 covers four times the midpoint • bucket 14 covers the gap from four times the midpoint to infinity <p>For each system in the Sysplex, the chart presents a tabular representation on the</p> <ul style="list-style-type: none"> • number of total (ended) transactions, • response time, • and the number of total (ended) transactions in percent.
SYSTEM	System Name
INTERVAL	Measurement interval (Time since last midpoint change)
MRT CHANGES	Number of midpoint changes during SMF interval
TIME	Response time associated to this bucket.
NUMBER OF TRANSACTIONS	Number of transactions that completed for this period
CUM TOTAL	Cumulative number of transactions so far
IN BUCKET	Number of transactions in this bucket
PERCENT	Percentage
CUM TOTAL	Cumulative percentage of transactions so far
IN BUCKET	Percentage of transactions associated to the bucket

Interactions and dependencies

- Software Dependencies
 - None
- Hardware Dependencies
 - None
- Exploiters
 - None

Migration and coexistence considerations

- SMF record type 72 subtype 3 is handled consistently within RMF.
 - New fields are appended to the end of the respective data sections
 - Or reserved fields are replaced by new fields

Installation

- No changes for z/OS V1.13.
- This support is included in the GA shipment of z/OS V1.13 RMF (HRM7780)

Session summary

- RMF extends SMF record 72 subtype 3 with the response time distribution information for workloads with execution velocity goals
 - Response Time Distribution data is provided in Postprocessor Workload Activity report

Appendix - References

- RMF homepage: <http://www.ibm.com/servers/eserver/zseries/zos/rmf/>
 - Product information, newsletters, presentations, ...
 - Downloads
 - Spreadsheet Reporter
 - RMF PM Java Edition
- Documentation and news
 - RMF Report Analysis, SC33-7991
 - RMF User's Guide, SC33-7990
 - Latest version of PDF files can be downloaded from:
 - <http://www-03.ibm.com/systems/z/os/zos/bkserv>



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