
Rule WLM390: UNKNOWN Delay was not accounted for by above analysis

Finding: The service class which missed its performance goal was delayed for an UNKNOWN delay reason. CPExpert attempted to identify the components of the UNKNOWN delay, but a significant amount of UNKNOWN delay remained after the estimated values were subtracted from the UNKNOWN delay reported by SMF.

Impact: This finding has NO IMPACT. The finding is produced for information purposes to explain that not all UNKNOWN delay was estimated.

Logic flow: The following rules cause this rule to be invoked:

Rule WLM300: Service Class was delayed for UNKNOWN delay

Rule WLM301: Server Service Class was delayed for UNKNOWN delay

Discussion: As described in the above rules, the UNKNOWN category of workload delay means that the Workload Manager was unable to identify the cause of the delay. The UNKNOWN delay normally is caused by something over which the System Resources Manager has no control. The IBM documentation explains that this delay category potentially "includes I/O delay, ENQ delay, etc." No information is available about other causes of UNKNOWN delay; the UNKNOWN delay is simply a category of delay which the SRM cannot identify.

In many environments, the UNKNOWN delay will consist of I/O delays. Consequently, CPExpert estimates potential I/O delays, as described in Rule WLM350, Rule WLM351, and Rule WLM352. The result from these rules is subtracted from the UNKNOWN category of delay reported in SMF Type 72 records.

CPExpert produces Rule WLM390 when the remaining UNKNOWN delay accounts for a significant amount of the delay to the service class. The purpose of Rule WLM390 is simply to alert you to the fact that CPExpert's estimated delays did not account for all of the UNKNOWN delay category.

In early execution of the WLM Component of CPExpert, the UNKNOWN delay category often accounted for a significant amount of total delay, and Rule WLM390 was regularly produced. Perhaps with increased user experience with executing MVS/ESA SP5(Goal Mode) and increased experience executing the CPExpert WLM Component, additional information will become available about the UNKNOWN category of delay.

We should be able to further identify the components of UNKNOWN delay as more information becomes available.

The following example illustrates the output from Rule WLM390:

RULE WLM390: UNKNOWN DELAY WAS NOT ACCOUNTED FOR BY ABOVE ANALYSIS			
The UNKNOWN delay causing Service Class ST_USER (Period 1) to miss its performance goal was not accounted for by CPEXpert's analysis. The UNKNOWN delay could have been caused by address spaces waiting for action by another service class, by enqueues, by waiting for I/O operations not reflected by the DASD analysis, etc. There is not enough information to identify the cause of the UNKNOWN delay to ST_USER in the following measurement intervals:			
MEASUREMENT INTERVAL	AVERAGE RESPONSE	AVERAGE UNKNOWN DELAY PER TRANS	UNKNOWN DELAY UNACCOUNTED FOR
14:00-14:15,01MAR1994	10.770	7.314	6.991
14:15-14:30,01MAR1994	14.992	10.777	7.127
14:30-14:45,01MAR1994	19.445	14.419	6.248
14:45-15:00,01MAR1994	3.849	2.708	1.618
15:00-15:16,01MAR1994	18.112	11.882	11.882

Suggestion: This finding is produced simply for information purposes, to let you know that a substantial amount of the service class delay was not accounted for by CPEXpert's analysis.