
Rule DAS250: QUEUING IN IOS WAS A MAJOR CAUSE OF I/O DELAY

Finding: Queuing in the I/O Supervisor (IOSQ) was a major cause of the I/O delay with the volume.

Impact: This finding may have a MEDIUM IMPACT or HIGH IMPACT on the performance of the device.

Logic flow: The following rules cause this rule to be invoked:
DAS200: Volume with the worst overall performance

Discussion: IOSQ time is the time from the issuance of a STARTIO macro until the Start SubChannel (SSCH) instruction is issued. After the STARTIO macro is issued, the software determines whether the device is busy with the system on which the STARTIO macro was issued (that is, whether there is an available Unit Control Block (UCB) for the device). If the device is not busy with this system, the SSCH instruction is issued. However, if the device is busy with this system (a UCB is available), the I/O request is queued. Thus, IOSQ time always means that the device is unable to handle additional requests from this system.

This discussion of IOSQ time does not always apply to Parallel Access Volumes (PAVs)¹. With PAV devices, MVS creates multiple UCBs for each device, depending on how many “alias devices” have been defined. The multiple UCBs allow multiple active concurrent I/Os on a given device when the I/O requests originate from the same system². Using PAVs can dramatically improve I/O performance by nearly eliminating IOSQ.

Rule DAS250 is produced if the average IOSQ time accounted for a significant percent of the device response time.

Please refer to Rule DAS150 for additional information regarding IOSQ delay.

¹PAV devices are available with Enterprise Storage Server (ESS). With PAV devices, a “base device” address is defined, and a UCB is associated with this base address. “Alias device” addresses can be defined and UCBs are associated with the alias device addresses.

²Multiple Allegiance allows multiple active concurrent I/O operations on a given device when the I/O requests originate from different systems. The Multiple Allegiance feature is available with Enterprise Storage Server (ESS).