Predictive Failure Analysis and Runtime Diagnostics Roundtable

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Notes:

Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user’s job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

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Agenda

- It’s a roundtable! It’s up to you!

- PFA Discussion

- Runtime Diagnostics Discussion
PFA and Customers Working Together

• Working with several customers closely since SHARE Atlanta, March 2012

• PFA team received direct stakeholder feedback
  • Analyzed data for every check on every LPAR multiple times
  • Diverse workloads

• Created PTFs
  • Reduced false positives
  • Small enhancements
  • Primarily done for z/OS 1.13
PFA and Customers Working Together

• Common storage usage and LOGREC arrival rate = No problems

• Message arrival rate and SMF arrival rate checks
  • Not seeing any more false positives if all fixes applied

• Enqueue request rate check
  • Not seeing “too high” false positives if all fixes applied
  • “Too low” processing: OA40299

• JES spool usage check
  • One customer – increase STDDEV – after all fixes applied.

• Deleted frames and slots usage check
  • Poor substitute for desired check
  • Existing design cannot work in many cases
Discussion Items

• Have you used Runtime Diagnostics?
  • Did it help diagnose a problem? If so, what was the event?
  • What types of events would you like to see Runtime Diagnostics identify?
  • Other enhancements desired?

• Have you used PFA?
  • Do you have the latest PTFs?
  • What types of metrics would you like to see PFA predict on to detect soft failures?
  • Other enhancements desired?
PTFs

- **OA39232**
  - SMF Arrival Rate, Message Arrival Rate, and ENQ Request Rate false positives
  - Improved algorithms when not much data yet available yet and when data erratic
  - Improved “too low” algorithm in R13.

- **OA39526**
  - Corrupted data causing modeling to stop
  - Likely occurred when exhausted zFS space

- **OA39743**
  - Enqueue request rate false positive for last address space in file

- **OA39924**
  - Enqueue request rate false positive when not much CPU used
  - Applied to SMF arrival rate and Message arrival rate as well
PTFs

- **OA39076**
  - JES Spool Usage false positives
  - Improvements to better detect workload changes (i.e., “spike” detection)
  - Improvement when not much data available yet
  - Reduce the frequency of EXC_dirs to improve serviceability (R13 only)

- **OA39656**
  - JES Spool Usage false positives
  - More improvements to better detect workload changes (i.e., “spike” detection)
PTFs

- OA40065
  - Permanently deleted PFA_FRAMES_AND_SLOTS_USAGE

- OA38786
  - zFS space issue caused by PFA not cleaning up CSA and JSU files

- OA39991
  - Abend during cancel of PFA address space (non-study PTF)

- OA40471
  - JES spool usage false positives for restarted jobs

- OA40299
  - Enqueue request rate false positives and calling Runtime Diagnostics too often for “too low” exceptions with REALLY low numbers.