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Predictive Failure Analysis and Runtime Diagnostics Roundtable

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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.