

# Online Analysis and Telemetry WG

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# End in Mind

- Optimization of one's system environment to safer, faster
  - Online analysis of the Telemetry data to make decisions
- Gain significant insights into the usage of the computing resources
- Keeping all of the cumulative telemetry frameworks from adding overhead
  - Prioritization of the frameworks
  - Very little perturbation
  - Maintaining QoS guarantees
  - Do not add any system instabilities with the collection
  - Ensure that multiple frameworks not collecting same information
- Security information
  - Make sure that the data goes to where it is supposed to go
  - Is data being transferred before or after a thorough review that has been occurring
  - Isolation becomes critical so that one VM cannot infer information about another VM
- Deal well with prioritizing limited resources to ensure they are shared (where possible) or prioritized
- Granular capabilities of what is being collected

# Discussion

- Infrastructure for bounding overhead of telemetry
  - Bound CPU, bandwidth, File I/O, Network I/O, etc of the telemetry
  - CAT for minimizing cache footprint, memory bandwidth
- Set a QoS and ensure telemetry is disabled if that is missed
- Telemetry is becoming so common want a capability to tag time/resources to Telemetry
  - Almost want a separate ring/tagging for Telemetry so we can isolate resources
  - Allow to track telemetry overhead (and telemetry to throttle itself as well)
  - Require telemetry to report out their own overhead
- HW PerfMon
  - Need capability for free running counters but isolated with VMs (offsets?)
  - Need a capability to grab performance monitoring in a prioritized way
- Telemetry as a service is a great idea
  - Sharing has some legal hurdles
- Escalation frameworks and how they minimize cost was discussed
  - Only dig deeper with triggers

# Side Discussions: Important so Captured

- Delayed issues (need last 1 second)
  - Mentioned circular buffer being used for processor trace
- SMIs
  - Want a methodology to capture SMIs since they continually get more expensive and spoil the party on real-time systems
  - Wall Street and real-time are running into these
  - Micro-cores to run just SMIs instead of taking time on the CPU
- In-Band vs. Out-of-Band
  - Agreement that not everything needed to be out-of-band
  - Put together arguments for OOB and determine it on a case-by-case basis
  - Boot-up, security, stability etc sometimes needs to OOB due to usage
- Ensure data is secure and going to only the right places
- Security