RFI Questions and Answers (August 26, 2014)

Question: RFI Question 2 refers to "disincentives" for use time. We did not see any disincentives, only requirements. What do you mean by disincentives?

Answer: Development Use Time (DUT) and Operational Use Time (OUT) are critical components to ensure the WCOSS program meets all user requirements for responsiveness. As a result additional disincentives language was developed and placed into the prior contracts under Section F to ensure heightened contractor focus on delivering products with minimal interruption or downtime. Below is the Section F language concerning the "disincentives":

F.1 CONSIDERATION

The integrated components of the High Performance Computing Systems (HPCS) and facilities shall meet the performance requirements cited in Section C.3 and additional requirements identified at the task order level. If the Contractor does not meet the performance requirements, then consideration is owed to the Government. Consideration is applied to all hardware, software, facilities and services that the Contractor delivers and/or supports, and may be applied across task and delivery orders as applicable. The Government may, at its discretion, choose new equipment as consideration at no additional cost to the Government; reduce invoice payment(s) by the amount of consideration owed, or both.

F.1.1 Operational Use Time

Operational Use Time requirement is defined in Section C.3.2.1 and Section C Appendix A (glossary). Operational Use Time is determined monthly.

During any month, Operational Use Time is determined by considering all primary and backup WCOSS resources in which a subset of this total resource is necessary to execute the entire NCEP Production Suite (NPS). The NPS executes on either the primary or backup WCOSS.

The 30-month periodic expansions/refreshes/upgrades are defined in Section C.3.5.1. Within each 30-month lifecycle NPS consumes approximately 30% of the resources of one WCOSS (either primary or backup) during the start of the lifecycle and approximately 90% of the resources during the end of the lifecycle.

F.1.2 Development Use Time

Development Use Time requirement is defined in Section C.3.2.3 and Section C, Appendix H (glossary). Development Use Time is determined monthly.

During any month, Development Use Time is determined by considering all primary and backup WCOSS resources minus the resources necessary to execute the entire NCEP Production Suite (NPS). The Transition to Operations (T2O) executes within the Development Use Time and the T2O will execute on the primary and/or backup WCOSS.

F.1.3 Consideration for Not Meeting Performance Requirements

If the primary and backup WCOSS components, including facilities, are inoperable or unavailable and results in performance below the Operational Use Time and Development Use Time requirements defined in Section C.3.2, and any additional requirements identified at the task order level, through no fault of the Government, then the Government is entitled to consideration.

Consideration shall be calculated based on the total monthly invoice amount as described in the table below. Consideration shall be based on root cause analysis.

Performance Requirement	Disincentives
Contractor shall achieve 99.9% or greater Operational Use Time	99.8% = Government pays 95% total invoice for the month 99.7% = Government pays 90% total invoice for the month 99.6% = Government pays 85% total invoice for the month 99.5% = Government pays 80% total invoice for the month Less than 99.5% = Government pays 75% total invoice for the month.
Contractor shall achieve 99% or greater Development Use Time	Less than 99% = Government pays total invoice minus one half percentage(s) missed for the Development Use Time. For example, if the Contractor achieved 95% Development Use Time, the Government pays 98% total invoice for the month: 98% = 100% – ((99% – 95%) / 2).

Question: Can you describe what TP1, TD1, TMV, GP1, GD1, and TMV are?

Answer:

TP1 = Tide system production file system

TD1 = Tide system development file system

TMV = Tide system data flow file system

GP1 = Gyre system production file system

GD1 = Gyre system development file system

GMV = Gyre system data flow file system

Question: There are no legends or labels on the graphs in RFI Appendix C and D. What metric are these charts referring to?

Answer:

Appendix C: Shows the workload on the production system for a single day in July 2014. The vertical axis contains the number of nodes used for the production suite. The horizontal axis shows the time increments over a 24 hour period.

Appendix D: Shows the workload on the T2O (development) system for a single day in July 2014. The vertical axis contains the number of nodes used for the T2O workloads. The horizontal axis shows the time increments over a 24 hour period.

The slides for Appendix C and D will be posted on the WCOSS RFI website. The different color segments will provide more data when the observer places the screen cursor directly over the color segment. The spreadsheet used to generate the graphics for Appendix G CPU and Memory utilizations will also be posted to the WCOSS RFI website.

Question: Could you please provide more clarification on the purpose of the Shared Storage System? Is HPS scratch space and SSS persistent storage? Is it only for T2O (SOW 3.8.1.4)? Is it just for replicating input and output data? Is it just to support failover? Is it for interfacing with external systems?

Answer:

HPS and SSS are both persistent storage. Most of the storage is in HPS and a small fraction of the HPS is considered scratch and scrubbed of old (day to few days old) files. Most of the performance is also in the HPS, with /SSS performance expected to be about 10% of HPS performance. /SSS defines the subset of user data expected to be shared or replicated between WCOSS systems without user action.

SSS is intended to enable a user on one WCOSS system to view his data, metadata and changes to either on the other system without a user initiated transfer, copy, rsync or similar step. This is currently only used for T2O and applied research purposes. Production currently replicates its data with rdist and rsync but security and performance concerns prevent these actions for most users and root. Therefore another way must be found to propagate user data and changes to it to the other WCOSS to support seamless failover which is its primary purpose. It is intended to replicate or share all types of user data but a subset of that data, not every byte. NFS functionality at first appears sufficient but performance, particularly transaction performance is fundamentally and unambiguously too slow to be functional. Rsync presents security issues and also does not scale to this size problem across a high latency WAN. Significant (few hours) lag in propagation of both data and metadata changes is tolerable as stated in the RFI and the compromises the Government will take and accept to limit this lag to a few hours are stated there.

SSS is not expected to interface with external systems for security reasons and data is only shared between WCOSS clusters. Data on /SSS would be transferred to/from external systems using security accepted actions such as scp or sftp and the performance and functionality stated in the RFI is expected to be sufficient for that use. For this purpose /SSS would behave as any other moderate performance parallel filesystem did.