DATE: September 10, 2012

LOCATION: Regents Park III

SUBJECT: HSF NSG MCC-21 Splinter Minutes

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INTRODUCTION

Dr. Norman Kluksdahl convened the September 10, 2012, Network Support Group (NSG) Human Spaceflight (HSF) Mission Control Center (MCC)-21 splinter meeting to provide an MCC-21 overview (refer to the presentation, *MCC-21*).

MEETING

A. The primary goals of MCC-21 are to lower the Johnson Space Center (JSC) Mission Operations Directorate (MOD) operating costs, revolutionize data mobility by bringing data to the user instead of bringing the user to the data, and enable easy and rapid integration of new customers and missions. MCC-21 will rebuild the MCC and its capabilities.

B. The former MCC was a closed control center. The user had to go to the data. This control center will take the data to the user. This control center will enable remote operations. A new customer has to be integrated cheaply and quickly.

C. Previously, everything was located in Building 30 and it could be difficult to get data out. MCC-21 will provide new interfaces. The new interface will allow seamless transfer of data between locations. For security, if a user is not authorized to send commands, the user will not be able to access that set of tools.

D. By 2015, MCC-21 will enable a 50 percent reduction in control center operations and sustaining costs. MCC-21 will re-factor MCC hardware and software, reduce the size of the MCC Operations Support Team, leverage Center and Agency IT resources, and minimize the hardware footprint. Commercial-Off-The-Shelf (COTS) will be used to minimize custom solutions. Duplication of similar functions will be eliminated. Security will be a core capability. Security sits at the center of the design and all data goes through before leaving the center. Legacy code is being evaluated to reduce sustaining costs. A more standard set of services will be offered. Applications and user interaction will be simplified. The architecture will move to a 'string' approach. The cost of hardware today is less expensive and a fail-over string of equipment can be installed. Engineering support will not be required immediately. The architecture is being sized to run 3 – 4 days without calling in engineering support. Currently the contractor owns the IT infrastructure. MCC-21 will leverage off the Directorate's resources. The campus IT resources for network communications, storage, and remote access. Procurements will be performed in bulk. The number of environments will be reduced. The high-dollar, high-security, high-reliability environment will be shrunk. It will be possible to use standard office equipment outside the MCC. This approach constitutes a fundamental paradigm change for MCC operations.

E. The new FCRs will have an open design and finish. The consoles will cost considerably less than the previous consoles. There will be large spaces and improved ergonomics. Console maintenance will be quicker and easier as will console reconfiguration. It will be possible to adapt to a new user quicker. The new FCRs will be powered by virtualization. Standard office PCs will be used with remote desktop applications. The computation capability will not reside on the office PC.

F. MCC-21 will improve the end-client architecture. The impact of reduced network and environment infrastructure yields 60 percent life-cycle reduction in MCC operations and sustaining costs.

G. MCC-21 will provide a rapidly reconfigurable infrastructure to meet customer needs. Each operations suite will be a miniature operations control room. Standard services will be offered. Customers will not be able to see each other's data. There will be a logical method for partitioning control centers into zones of activity.
H. MCC-21 will provide several key capabilities. MCC-21 will provide enhanced security and data protection. Unlike previous operations areas, security will not be accomplished via isolation. MCC-21 will allow more data needs to cross the boundaries without compromising mission security. Security will be transparent to the users and their applications. MCC-21 will provide increased control center access. MCC-21 will provide increased remote access capability, coupled with scalability, as needed. The use of the virtual environment will allow the system to grow easily. Customers will be able to command from their facilities. Remote access and operations is viewed as a mandatory capability. MCC-21 will provide standardized interfaces and services. Space Communications and Navigation (SCaN) is mandating SLE as the protocol for communicating with ground terminals. JSC is working the tracking data interface to eliminate the 4800 Bit Block, while understanding the need to support legacy interfaces. No extra testing will be required for standard interfaces. A standard mechanism will be used for data storage. MCC-21 will provide a new approach to data management. The new approach will allow for the recoding of all data received and generated. Data will be tagged and labeled unambiguously. All data can be replayed. When there is a restart, the user will not lose their history. History will be used to reconstruct displays. MCC-21 will provide new operations suites.
I. Dr. Kluksdahl reviewed the MCC-21 project schedule. There is a 9-month development cycle with a 3-month overlap. JSC is planning for cycle 4. Development is done rapidly in software sprints. Parallel approaches will be tried. JSC is in release 3 with 3 more to go.
J. The MOC is being decommissioned and keeping it is being discussed.
K. The question was raises as to the impact if Exploration Flight Test (EFT)-1 slides. Dr. Kluksdahl stated that this is being looked at. If EFT-1 slides into the blackout period, it would be an issue.
L. The question was raised as to how OS-COMET impacts MCC-21. OS-COMET is a mature client application. MCC-21 is staying backwards compatible. It is necessary to ensure that ISP does not include security protection.
M. Dr. Kluksdahl reviewed the Fiscal Year (FY) 12 MCC-21 room and environment build up plan and the software schedule.
N. Dr. Kluksdahl concluded by stating that MCC-21 has moved into the implementation phase. International Space Station (ISS) transition will being in FY14 and be complete in the first half of FY15. MCC-21 is on target to reach its goals.

ACTION ITEM REVIEW

No formal action items were assigned at the September 10, 2012, HSF NSG MCC-21 overview splinter meeting.

(Original Approved By)
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