

DATE: September 13, 2010

SUBJECT: NSG ODAR Working Group Minutes

LOCATION: Teleconference

ATTENDANCE:

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INTRODUCTION

Dr. Norman Kluksdahl convened the September 13, 2010, Human Space Flight (HSF) Network Support Group (NSG) Obsolescence-Driven Avionics Redesign (ODAR) Working Group (WG) meeting to discuss ODAR requirements, project status, and schedules (no formal presentation was provided).

MEETING ITEMS

- A. Overview. Dr. Kluksdahl provided a brief ODAR project overview. ODAR is a project to use advanced technology versus building spares for the International Space Station (ISS) to advance technology on the ISS with the goal of improving the high rate data handling system. ODAR seeks to implement a 300-Mbps downlink and 25-Mbps uplink. There will be no Orbiter Communications Adapter (OCA) router. ODAR will provide additional capability including video. Unlike previous projects such as the ISS Downlink Enhancement Architecture (IDEA) and Front End Processors Replacement (FEPR), the ODAR project needs to be synchronized with ISS onboard upgrades. Work is being coordinated with the NASA Integrated Services Network (NISN) and White Sands Complex (WSC). Mr. Chris Neman is project lead with assistance from Ms. Aldora Louw.
- B. Status
 1. Johnson Space Center (JSC). Mr. Chris Neman reported that the Ground Segment (GS) Critical Design Review (CDR) was held in July. The majority of the Review Item Disposition (RIDs) have been Closed. There were some design items to be resolved, but approval to implement was granted. There are two procurement items in work. The engineering instructions for the network equipment have been started. JSC is working with WSC and the Marshall Space Flight Center (MSFC) on installations and Small Conversion Device (SCD) transitions.
 2. NISN. Ms. Angela Culley provided a NISN status (refer to the presentation, *NISN IIGOR Implementation Status*). NISN will provide the bandwidth for Layer-2 Ethernet services. NISN will provide two 300-Mbps Layer-2 Ethernet services between JSC and WSC and MSFC and WSC and one 150-Mbps Layer-2 Ethernet service between MSFC and JSC through the Goddard Space Flight Center (GSFC)/WSC. NISN has upgraded the Juniper router software. MSFC services have been moved. The OC-12 between GSFC and MSFC was activated August 31, 2010. The AT&T configuration for the ISS Ethernet bundles has been reserved. Pending NISN activities include the DNEM 502299 implementation, carrier activation of the WSC OC-12s, and NISN testing and acceptance of the services. (Editor's Note: It was later reported that the WSC OC-12 activation did not take place as scheduled. NISN was assigned an action item to provide a status on the WSC OC-12s by September 17. A status and forward plan were provided and the action item **CLOSED**.) The eFDP installation at WSC is scheduled for October 1 – 3. NISN operations has begun to participate in the ODAR bi-weekly meetings. Existing IDEA circuits cost has been provided to Space Communications Integration Office (SCIO) should those circuits remain operational after June 2011. Mr. Joe Aquino stated that he has not heard from Dr. Kluksdahl or Ms. Penny Roberts in regards to the cost information.

3. HSF Team. Ms. Cheryl Smith reported that WSC is on schedule with the Engineering Changes (EC) and a software plan has been started. The return service is ready and awaiting NISN cutover. An EC change is required for the SCD-FEPR cabling. Ms. Diane Mooney will cover the costs on Task Order (TO) 15. Ms. Melissa Blizzard will contact Ms. Mooney regarding the cabling.
 4. MSFC. Mr. Ray Sparks reported that the WSC equipment work is being completed. The equipment will be broken down and shipped to WSC on September 14. There will be two different racks. Tests were run on the 300-Mbps and data types. Mr. Bangerter asked if a test summary will be distributed. Mr. Sparks replied that he will write a test report. Mr. Robbie Frazier asked how long the 50-Mbps test link will be retained. Mr. Sparks stated that he would like to retain the link up until the time that Sunny Carter brings up the 300-Mbps link. He reported that there is an eFDP down with a bad card. Once this is resolved, with Operational Readiness Tests (ORT), etc. the link will be good. He stated that he is confident that all is working well. There has been no difference between the operations of the FDPs and eFDPs. He stated that he can provide an answer to the 50-Mbps link question in the near future. Mr. Ray Sparks accepted an action item for MSFC to provide performance assessment of IIGoR configurations (action item 0910-NSG ODAR-02).
- C. WSC Work. October 1 is the scheduled start date. Four hours of network time has been requested for Friday and 8 hours Saturday and Sunday. The Ethernet will be up to do the router installation. EC data has been provided. The EC approval board meets the week of September 25. Cabling will be completed ahead of time. The SCDs will be tested on the new IDEA cabling and one set will be moved at each terminal at a time. One set will remain on FEPR switches. The second set of SCDs will be moved the next week.
- D. CDR RID Status. Ms. Louw provided a RID status.
1. RID 03. WSC and the Space Network (SN) have responded. The port is not available. Concurrence is required from MSFC. Mr. Sparks concurred. He will send an email to Ms. Louw. The RID is **CLOSED**.
 2. RID 04. The work to define the SMEX header contents continues. A solution has been proposed. Messrs. Tom Wickline and Jeff Boxell have agreed to a format. Ms. Louw will get a copy of the header and RID will be **CLOSED**.
 3. RID 06. This is a duplicate of item 03 and is **CLOSED**.
 4. RID 07. This is a duplicate of item 04 and is pending closure.
 5. RID 08. This item is on MSFC (VLAN loading analysis). Mr. Sparks stated that an analysis was conducted and results provided. The analysis needs to be updated. He stated that he will try to close this the week of September 20 and will send Ms. Louw an email. He is working this in the test bed. Mr. Sparks stated that he needs the OCA testing message for latency. Dr. Kluksdahl stated that MSFC has testing latency in the lab. This is a low risk item.
 6. RID 46. This item pertains to training video. The JSC and MSFC Network and Communications Analysis and Integration Teams (NACAIT) recommend closing this RID. Mr. Sparks stated that MSFC has some possible plans will provide data to Dr. Kluksdahl. Dr. Kluksdahl stated that this is a NACAIT and not an ODAR item. Mr. Aquino stated that this is a JSC/MSFC requirement. Tell the NACAIT that you want an extra channel and it will be provided. Mr. Frazier stated that it will be handled

procedurally. Mr. Aquino stated that a change is needed in the NPRD and Mr. Blum has to work this. This is a regular operations item. Mr. Sparks stated that he wanted to make sure this was handled as a real-time link is being taken down; there will be operations, and the link needs to be available as to not impact real-time operations. Mr. Aquino concurred, stating that he is not arguing the need. The RID was **CLOSED** and the resolution is in work with the JSC and MSFC NACAITs.

E. CDR Action Item Status. Ms. Louw provided an action item status.

1. Action Item 01. Ms. Louw stated that she will contact Ms. Anita Truitt on this item.
2. Action Item 02. This item pertains to the Tracking and Data Relay Satellite (TDRS) Codes.
3. Action Item 05. This item is being evaluated by Mr. Richard VonWolff. Mr. Sparks stated that the project will move forward with what was presented at the CDR. The options are being reviewed. Changes can be made when going final.
4. Action Item 11. This item is the SDIL item. There is a plan for the Integrated Communications Unit (ICU) in the SDIL to receive the 25 Mbps. Mr. John Royal is working on this item.
5. Green Action Items. Work is continuing with the Ground Controllers (GC) and Communication and Tracking Officers (CATO) on a default set of VCID channels. The numbers will not be locked down as they are for the S-band; VCID numbers are configurable for ODAR.

F. Schedule. Ms. Louw discussed the schedule. The GS team has working to create an integrated schedule. Each organization has been submitting milestone and dependency data. The schedule has each facility (e.g., Mission Control Center [MCC], MSFC, NISN, and the Electronic Systems Test Laboratory [ESTL]). The organizations review the schedule and provide input to Ms. Louw and Mr. Mallik Putch. The schedule only covers integrated testing touch points for each facility. Each facility should develop its own detailed test schedule. This is not a complete project schedule.

G. Testing. Ms. Louw discussed testing. She reviewed several major tests dates (e.g., system testing at the MCC the end of September 2011; simulations at JSC in December of 2011; and ORTs in December of 2011).

H. Other

1. Ms. Louw stated that the Operational Readiness Review (ORR) is scheduled for March 2012.
2. Mr. Neman stated that he continues to work with Boeing to better link the onboard delivery process and GS dependencies.
3. Ms. Louw stated that two major simulation dependencies are being worked (MCC baseline deliveries and sim training).
4. Dr. Kluksdahl stated that the End-to-end (ETE) test is a major item to be worked. Will the K-band out for the entire test or will we do a 150-Mbps test with special circumstances?
5. Dr. Kluksdahl stated that the turndown of IDEA needs to be worked. The original plan was for turndown in mid-2011.

ACTION ITEM REVIEW

The following action items were assigned at the September 13, 2010, HSF NSG ODAR WG meeting:

0910-NSG ODAR-01

ACTION:

TBD

NISN to provide status and forward plans for the OC-12 work at WSC by COB 9/17.

RESPONSE:

An update has been provided.

STATUS:

CLOSED

0910-NSG ODAR-02

ACTION:

Ray Sparks/MSFC

MSFC to provide performance assessment of IIGoR configurations.

NEXT MEETING

The next meeting of the ODAR WG will be September 29, 2010, at 2:00 p.m. ET.

(Original approved by)

Dr. Norman Kluksdahl/JSC/NASA