Human Spaceflight (HSF)
Network Support Group (NSG)
Meeting

September 16, 2010

STS-133 crew portrait. STS-133 will carry Robonuat 2 to the ISS in the Permanent Multipurpose Module in Discovery's payload bay.

Once in place inside the ISS, Robonaut 2 is expected to perform some of the repetitive or more mundane functions inside the orbiting laboratory to free astronauts for more complicated tasks and experiments.

Human Spaceflight (HSF)
Network Support Group (NSG)
Meeting

September 16, 2010

Johnson Space Center (JSC), TX
Gilruth Center

James A. Bangerter
Human Spaceflight Network Director
Goddard Space Flight Center

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Network Support Group Attendance

The attendees listed below attended all or part of the September 13 – September 16, 2010 NSG (splinter sessions and/or main forum).

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Network Support Group Minutes

INTRODUCTION

Mr. Jim Bangerter convened the September 16, 2010, Human Spaceflight (HSF) Network Support Group (NSG) meeting to discuss requirements, planning, and issues in support of the Space Shuttle, International Space Station (ISS), and Visiting Vehicles (VV). Mr. Bangerter welcomed the attendees and thanked them for their attendance at the NSG.

Mr. Bangerter stated that Mr. Seaton Norman, Goddard Space Flight Center (GSFC), National Aeronautics and Space Administration (NASA) Integrated Services Network (NISN) has retired after many long years of service to NASA. He thanked Mr. Norman for his service to NASA and the Space Shuttle and Space Station programs.

Mr. Bangerter thanked Mr. Earl Baum for his support in coordinating logistics for the meeting.

September 2010 NSG splinter session and main forum presentations and minutes can be accessed at the following URL: http://scp.gsfc.nasa.gov/hsfnsg/nsg/0510/nsg.htm

HSF RAIL REVIEW

Mr. Steven Testoff provided a review of the HSF Rolling Action Item List (RAIL) (refer to the presentation, *Human Spaceflight [HSF] Action Item Status*). Mr. Testoff reported that there were 19 meetings with open Action Items (AI) for a total of 8 open items, 5 over due items, and 4 meetings with overdue items. Mr. Testoff reviewed the open action items which will be updated in the next RAIL. From the discussion, it was possible to close 6 AIs.

HSF DOCUMENTATION STATUS

Ms. Jennifer May provided an HSF documentation status (refer to the presentation, *Human Space Flight Documentation Status/Plan*).

A. Ms. May stated that HSF documentation goes through several levels of review; local team review, general review, and GSFC Configuration Control Board (CCB) review.
B. Ms. May reviewed the documents updated/published since the last NSG. Five documents were updated including the *Tracking and Data Relay Satellite System Network Operations Support Plan (TNOSP) for the Space Shuttle*, 450-TNOSP-Space Shuttle; *Network Operations Support Plan for the Space Shuttle Program*, 450-NOSP-Space Shuttle; *Network Verification Manual for the Space Shuttle Program*, 450-VTR-Space Shuttle/Networks; and the *TNOSP for the ISS, SpaceX Dragon Annex*, 450-TNOSP-ISS Dragon Annex.
C. Ms. May reported that one document will be submitted for CCB review.
D. Ms. May reported that one document is in General review.
E. Ms. May reported that three documents are in Local/Team review.
F. Ms. May discussed the document updates scheduled for the next Fiscal Year (FY). She reviewed the Documentation Plan table which provides the document, edition, review start date, date due back from review, planned completion date, remarks, and book manager name.

Network Support Group Minutes

NSG SPLINTER SESSION SUMMARIES

Each splinter Chairperson or designee was asked to provide a brief summary of the splinter session activities.

A. Obsolescence Driven Avionics Redesign (ODAR) Status (refer to the presentation, *ODAR Project Splinter Summary*). Mr. Chris Neman reported the ODAR Working Group (WG) meets bi-weekly and the NSG splinter was its regular session. The Critical Design Review (CDR) was held in July and was successful. Most of the Review Item Dispositions (RID) are closed. Each organization provided a high-level status. The Mission Control Center (MCC) has received Approval to Implement based on the CDR. The Marshall Space Flight Center (MSFC) is preparing for upcoming installations at the White Sands Complex (WSC). The NISN Service Request (NSR) for ODAR Wide Area Network (WAN) service is in work. WSC is continuing to work the software specifications and design. Small Conversion Device (SCD) transition work is being accommodated. The ISS IP Ground Router Network (IIGoR) performance RID is the remaining RID to be worked. The WG continues to work AIs. An integrated schedule is being compiled. The onboard items are being worked with Boeing. Mr. Neman reported that there are no major issues.

B. Tracking and Data Relay Satellite System (TDRSS) Eccentricity (refer to the presentation, *Ku-band Open Loop Performance Assessment at Higher TDRS Eccentricities*). Mr. Dan Jackson reported that testing and analysis shoes that the International Space Station (ISS) Ku-band can support Tracking and Data Relay Satellite (TDRS) eccentricities of up to .0035 at 150 Mbps in Open Loop mode. ISS Ku-band autotrack mode is not impacted by TDRS eccentricity changes due to its 2 degree spiral search. The Communications and Tracking Group coordinated this result with ADCO. TDRS eccentricity results are still pending for ISS at 300 Mbps. The results of the 25-Mbps forward link testing are also pending. The Software Change Request (SCR) for updating the Guidance, Navigation, and Controls (GNC) Multiplexer/Demultiplexer (MDM) to accept non-zero eccentricities has been submitted. Some concerns have been expressed with the SCR ranking/delay of the software fix. Delay of the software fix could result in non-acquisition in Open Loop at 300 Mbps and downgrade of the SNs level of support for Open Loop at 300 Mbps to Best Effort. It is possible to go back to 150-Mbps operations. The full report will be available in 6 weeks.

C. Range Contract Splinter (refer to the presentation, *WFF Range Contract/NENS Status*). Mr. Mark Harris reported that the meeting was held to provide an overview of the contract change at the Wallops Flight Facility (WFF) and the impact to operations. The Wallops Range transitioned from the Near Earth Networks Services (NENS) contract to the Range Operations Contract (ROC) on August 27, 2010. There is a full complement of personnel. The new contract operations will be in place for STS-133 operations. Two action items were assigned.

D. Very High Frequency (VHF) Status (refer to the presentation, *ISS/SOYUZ VHF Support Team*). Mr. Kevin Riley reviewed the splinter session agenda. The splinter session presentation was a combination of the presentations provided at several past NSGs and provided an overall status. A second tower is needed at WSC if you want to guarantee

good communications. There was a recent pass at WSC and the communications was degraded. During the splinter, Mr Riley reviewed a list of available and obsolete equipment. With the spares available, the network is good through 2020. VHF-2 testing approval is still in process. NASA can radiate in an emergency. The TNOSP VHF annex is being updated. The VHF pass report summaries are in good shape. Dual Soyuz support was discussed, but a request to support is not expected. Mr. Gary Morse asked if there are changes at WSC. Mr. Riley stated that during the last pass, the ISS Flight Director (FD) reported bad communications. A Discrepancy Report (DR) has been written. The upgrade at WSC would require more than equipment, a pad would need to be poured, etc. Mr. Morse asked if a cost has been provided to the program and Mr. Bangerter replied that a cost has been provided.

E. Soyuz-24/25 Support (refer to the presentation, *Soyuz-24/Expedition-25/Increment-25 and Soyuz-25/Expedition-26/Increment-26*). Mr. Riley provided a definition of expedition and increment. The 6-crew Expedition crew is a complement of Expedition crewmembers which maintain the same ISS Commander (CDR) and Flight Engineers (FE) for a period of time. An Increment is a specific time period on the ISS which combines different operations such as assembly, scientific research, maintenance and other ISS system and utilization operations. The duration of an Increment is the time period from the undocking of a Soyuz to the undocking of the next Soyuz. Expedition 25/Increment-25 begins with the Soyuz-22 undocking in September 2010. Three new crew members will arrive shortly thereafter on Soyuz-24. Expedition 26 begins with the Soyuz-23 undocking in November 2010. Three new crew members will arrive shortly thereafter on Soyuz-25.

F. GSFC - Mission Operations Voice Enhancement (MOVE). Ms. Michele Mascari provided a summary (no presentation). GSFC – MOVE 1 is complete. All keysets for the Voice Distribution System (VDS) have been removed. The VDS/Voice Switching System (VSS) is not operational. GSFC – MOVE 2 is the GSFC MOVE test bed. Work is underway for the Authorization to Proceed (ATP) and funding. A discussion was held regarding NISN operations conducting a survey of all HSF sites to determine the status of the voice systems and level of risk. The site representatives will be contacted and asked to return the surveys.

G. STS-133/134 Mission Planning (refer to the presentation, *STS-133/134 Mission Planning*). Mr. Erik Richards provided a summary. Items discussed during the splinter included contract changes since STS-132, dual TDRSS assent support, proficiency testing since STS-132, and mission overviews for STS-133 and STS-134. No action items were assigned.

H. Automated Transfer Vehicle (ATV)-2 Status (refer to the presentation, *ATV-2 Mission Status*). Mr. Erik Richards reported that the topics of discussion included the mission status, flight profile, expected TDRSS communications coverage, and the status of the SCD at MSFC/Huntsville Operations Support Center (HOSC)-Backup Control Center (BCC). Mr. Richards reported that the there have been some issues with the SCD checkout at MSFC. The SVT-2 testing is scheduled for October 29-30, 2010. The

TDRSS antenna calibration test is scheduled for the week of October 20. Four action items were assigned.

I. H-II Transfer Vehicle (HTV)-2 (refer to the presentation, *HTV-2 Mission Status*). Mr. Erik Richards reported that the topics of discussion included the mission status and End-to-End (ETE) testing. A TRR was scheduled for the evening of September 16 to discuss testing. The Briefing Message (BM) is complete and TDRSS time has been scheduled. One action item was assigned.

J. C-band Requirements (no presentation). Ms. Carolyn Propst provided a summary. The recommendation was made that Soyuz, ATV, and HTV C-band support is no longer required. This recommendation will be taken to the program office. The requirements for support for demonstration flights remain. There is no response date at this time for the program response. With the exception of not having the ANT radar, the next Soyuz will have C-band support as provided for previous flights. A benchmark will be established for the Soyuz Russian solution times. Mr. Warren Mitchell stated that the Flight Dynamics Facility (FDF) has the data. The Eastern Range (ER) is expecting our VV requirements. Feedback is needed for FY 11/12 missions. Mr. Mike Gawel stated that the range comprises the Merritt Island Launch Annex (MILA), JD, and Wallops. ANT will no longer be available and support for orbits 4 and 5 will be lost. The time required for an emergency call up of the ER needs to be determined. What the ER can provided needs to be agreed to.

K. Launch and Landing (L&L) Program Requirements Document (PRD) Scrub Schedule (refer to the presentation, *Launch & Landing PRD Scrub Schedule SSP Fly-out Splinter Summary*). Mr. Eric Barcon provided the summary. The mission requirements are in 'good shape'. No formal scrub is needed. A L&L PRD review will be conducted instead of a scrub. Potential requirements for Transition and Retirement (T&R) will be flagged. Comments are due February 1, 2011. T&R begins 30 days after Orbiter de-servicing at the Orbiter Processing Facility (OPF). If required, a separate PRD volume for T&R support may be opened. The Kennedy Space Center (KSC) has internal requirements. Intercenter needs have to be determined. Mr. Morse had raised a question pertaining to T&R funding. T&R is a separate budget and KSC server transition funded post transition by T&R funding. Mr. Gawel asked if T&R will fund the PRD review and Mr. Barcon stated that the review is part of normal PRD support. T&R requirements are being identified.

L. Nortel Router Replacement Project (NRRP) (no presentation). Mr. Chris Spinolo reported that there were no formal actions from the meeting. The meeting helped NISN to emphasize the upcoming CDR the need to work with the site more vigorously.

M. Host Center Support for NRRP (no presentation). Mr. Chris Spinolo reported that an action was assigned to MSFC to respond to the NISN data call. The centers were asked to respond to provide additional details to NISN. The Johnson Space Center (JSC) will provide data by October 22, 2010.

N. Activity and Outage Notification System (AOPNS) Splinter (refer to the presentation, *Content of Impact Statements in AOPNS Notices [Release Messages]*). Mr. Paul Hill reported that the purpose of the meeting was to determine if additional information can be

added to Release Messages to determine the service(s) that are impacted. Mr. Tom Boggs provided a presentation that reflected that additional information is now being added to Release Messages. The presentation was well received and will reduce the time involved in reviewing Release Messages by both the Ground Controller (GC) Office and Houston Comm Control. No action items were assigned. Mr. Bob Culbertson stated that the driver for the meeting was to discuss the content of the messages via open dialogue and NISN exceeded JSCs expectations.

O. HSF Comm (HSFC) WG. Ms. Angela Culley provided a summary (refer to the presentation, *Human Spaceflight Comm Working Group*). Ms. Angela Culley reported that this meeting was a continuation of the weekly meetings. The IIGoR network software upgrades are complete. The OC-12 migration at WSC was not successful. NISN is working with the carrier. An update from NISN is due by COB on September 17, 2010. There is a new GSFC ISS video customer, the Space Servicing Center (two payloads). Two action items were assigned.

P. User Planning System (UPS)/Stat Mux Status (refer to the presentation, *UPS/Stat Mux Status Splinter Summary*). Mr. Fred Pifer reported that the purpose of the meeting was to review extension of UPS and Stat Mux support to the end of the extended Space Shuttle flight schedule (potentially 06/2011). There are no issues with extending the Stat Mux. UPS operational support is expected to be continued to the end of the program. There were some funding questions raised and Mr. Joe Aquino stated that funding has been wrapped into the extension of the program. Messrs. Aquino and Bangerter will discuss funding issues at a later date.

Q. Space Shuttle Program (SSP) Knowledge Capture (refer to the presentation, *Network Operations Integration Team Shuttle Knowledge Capture Splinter Meeting Summary*). Mr. Mike Marsh provided a SSP Knowledge Capture splinter summary that included new information from a meeting held the morning of the main forum. Mr. Marsh provided a review of the items discussed at the splinter session. Mr. Bangerter and Ms. Blizzard will review the intended activities and decide what type of support the Integrated Network (IN) personnel can provide. IN data will be provided via the GSFC HSF Team. It was decided at the morning meeting, that tool for archiving will be available in the next week. Abstract information for the data being loaded is very important. File types were agreed to (e.g., Portable Document Format [PDF] files that are searchable, Moving Picture Experts Group [MPEG] vs. Windows Media Video [WMV], and audio files in MP3 or 4). Management will be provided status reports on a quarterly basis. Discussion of the types of data to be collected continued and several new ideas were suggested.

SN STATUS

Mr. Johnny Chavez presented a Space Network (SN) status (refer to the presentations, *TDRS Constellation Status WSC Software & Hardware Activities*).

A. Mr. Chavez reviewed the current TDRS fleet status/configuration
   1. TDRS-1 has been decommissioned.
   2. The TDRS-3 Space-to-Ground Link (SGL) dedicated downlink Traveling Wave Tube Amplifier (TWTA) #2 helix current is rising.

3. TDRS-4 K-band Single Access (KSA)-2 forward power is below specification. A spare is available for the service.
4. TDRS-4 is experiencing telemetry errors. SGL Terminal (SGLT) 1 is experiencing the errors, but they would occur on any SGLT. A spare TWTA is available.
5. TDRS-4 is experiencing intermittent Multiple Access (MA) errors. The system is designed to meet specifications with 20 of 30 elements operational.
6. TDRS-4 has experienced power system degradation. Battery 1 has failed and battery 2 has shown signs of a soft short in at least one cell. The summer eclipse season runs through September 25, 2010. A Network Advisory Message (NAM) was releases. No problems have been observed during this season.
7. WSC is managing TDRS eccentricity. Based on potential issues with the ISS, the action to relax the TDRS eccentricity requirements was suspended. Testing has been conducted and reports from JSC are positive.

B. Mr. Chavez provided a WSC hardware status. MOVE will replace the current Multi-Conference Digital Switch (MDS). Cabling and keyset installation is ongoing at the Second TDRSS Ground Terminal (STGT) and will be complete at the end of September. White Sands Ground Terminal (WSGT) cabling and keyset installation is scheduled to begin in early 2011. The Guam Remote Ground Terminal (GRGT) installation is scheduled to begin in the early second quarter. The Guam Data Interface System Replacement (GDIS-R) will replace the GDIS due to obsolescence issues. This activity is in Phase 3. This should be complete by the end of September 2010. The TDRSS Operations Control Center (TOCC) is being upgraded; all controller positions will be relocated to STGT. This should be complete by the end of September 2010 and WSGT consoles will be available for fallback. The antenna Subsystem Controllers (SSC) replacement will replace obsolete equipment and there will be no changes to the TT&C Automatic Data processing Equipment (ADPE). Units are being tested in the Software Maintenance and Test Facility (SMTF). The STGT SGLT is scheduled to be complete by March 2011.

C. Mr. Chavez provided a WSC software status. Software delivery 10001 was a general maintenance delivery. Software delivery 10001-02 was a TDRS-K delivery. Software delivery 10001-04 provided an MA range zero set fix.

MILA/PDL STATUS

Mr. Ray Boatwright presented a MILA/Ponce deLeon (PDL) status (refer to the presentation, *MILA/PDL Status*). Mr. Boatwright discussed changes since STS-132. The PDL Generator Remote Control (RCI) screen update was installed in August. The 9M-1 antenna has intermittent servo/hydraulics problems. Troubleshooting has occurred and the problem has likely been isolated to a certain cable. The PDL T-1 CSUs will be replaced. The QUAD Helix servo amplifier enclosure was replaced. The PDL strip chart recorder was upgraded to a new digital model. Annual Preventive Maintenance (PM) inspections were completed. Mr. Boatwright reported that MILA has been conducting a lot of training. Five MILA techs completed the GN-101 training course. Two weeks of launch and landing simulations have been completed. The Station Manager has retired and a replacement is being sought. The Shuttle Training Aircraft

(STA) with Portable Spacecraft Simulator (PSS) is schedule to be at MILA during the week of September 20. MILA is ready to support STS-133.

WALLOPS GROUND STATION STATUS

Mr. Mark Harris presented a Wallops Ground Station (WGS) status (refer to the presentation, *Wallops 11M Status*). Mr. Mark Harris provided a status since the last NSG. The Network Command Processing System (NCPS) has been removed and sent to MILA. The 11M antenna feed has been replaced. An integrated uplink amplification unit was installed. The 11M antenna slave software version 1.7 was installed. The transition to the upgraded Windows XP version of the Wallops Orbital Tracking Resource Scheduler (WOTRS) version 9.3.6 running on Mac operating system has been delayed to post STS-133. The Antenna Control Unit (ACU) operating system security patch installation is scheduled for September 22. There is an open DR due to some crashes. The patch is needed. The station configuration is as usual. The 7.3M antenna is now under the ROC. There have been no changes to the VHF-1/2 systems since the VHF-1 azimuth motor was changed in August. Wallops supported three VHF-1 ISS passes and all were good. There was an Operator Error (OE) which resulted in the carrier being brought up late. Wallops has updated its Local Operating Procedures (LOP). Wallops supported eight VHF-2 Soyuz 22 tracks in April and there were no problems. Wallops will be upgrading its recording capabilities. Mr. Kevin Riley accepted an action item to determine the status of the hardware order for the VHF recording upgrade and provide a delivery date to Mr. Jim Bangerter (action item 0910-NSG-01). There are two open DRs. Open work includes MOVE equipment installation which will take place post STS-133 and physical relocation of the Shuttle Return Link which will take place post STS-133 as well. Facilities are Green. Staffing is sufficient to meet all requirements.

DFRC STATUS

Mr. Mike Yettaw provided a Dryden Flight Research Facility (DFRC) status (refer to the presentation, *DFRC Range Status*). The Aeronautical Tracking Facility (ATF)-1 is prime and ATF-2 is backup. ATF-3 is backup on landing only. Normal support hours are 7 a.m. to 4 p.m. (off-shift support has to be scheduled). The communications facility assets are real-time selectable and more redundancy is available. The Long Range Optics (LRO) tower has two assets. The PRD requirement is met with the use of video vans. There are video assets at the radars as well. The video is transmitted out via three IP video paths. Mr. Yettaw reviewed the open work. ATF-1 and 2 are operational. ATF-3 has a DR open on the control system. The FRCC overhaul is complete. The FDRC overhaul is in process, but almost complete. There is a DR on FRCC on the azimuth bias issue. A defective cable was found and replaced. DFRC would like more orbits prior to closing this item. A DR is open on the LRO. The vendor cannot repair the optics and the optics will be replaced. This work will not be complete by STS-133, but the support is not needed to meet the PRD. The CTP/Dryden Apple Replacement System (DARS) upgrades are complete. The Comm 3 reflector dish will be replaced due to mesh degradation. Mr. Scott Greatorex asked why ATF-3 is not identical to ATF-1 and 2. Mr. Yettaw replied that ATF-3 was built for local requirements and has a smaller dish. Space Shuttle capabilities were added to provide an additional Space Shuttle support asset.

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WALLOPS ROC STATUS

Mr. Scott Underwood provided a ROC status (refer to the presentation, *Wallops Range Operation Contract Status*). There have been no hardware or software changes since May 2010. The 7.3M antenna will provide backup support for launch only. Ultra High Frequency (UHF) Air-to-Ground (A/G) is ready to support. MOVE activity will take place after STS-133. There are no DRs. Facilities are Green and staffing levels are sufficient to meet requirements. Mr. Underwood provided a new POCs list. Mr. Bangerter stated that a C-band radar splinter was held and an action item was levied on Mr. Rob Hurly to provide PIN rates for NASA and non-NASA customers.

STS-133 MISSION OVERVIEW

Mr. Aaron Frith provided an STS-133 overview (refer to the presentation, *STS-133/ULF5 Mission Overview*). The scheduled launch date is November 1, 2010. The launch window is 10 minutes. It is an 11+1+2 day mission. This is the 39th and final flight of Discovery. Discovery will deliver the EXPRESS Logistics Carrier 4 (ELC4); deliver and install the Permanent Multi-Purpose Module (PMM); and deliver Robonaut 2. Mr. Frith reviewed the STS-133 mission timeline. Two Extra Vehicular Activities (EVA) are planned.

STS-134 MISSION OVERVIEW

Mr. Luke Greer provided an STS-134 overview (refer to the presentation, *STS-134/ULF6 Mission Overview*). The scheduled launch date is February 26, 2011. The launch window is 10 minutes. It is a 12+1+2 day mission. Discovery will deliver ELC3 and the Alpha Magnetic Spectrometer (AMS). Three EVAs are planned. A test of the Sensor Test for Orion Rel-Nav Risk Mitigation (STORRM) will be conducted. STORRM is upgraded rendezvous and docking hardware. The Orbiter will move to within no closer than 600 feet of ISS.

ISS EXPEDITION 25/26

Ms. Dot Wert provided an Expedition 25/26 overview (refer to the presentation, *Expedition 25/26*). The expedition time frame starts from when the crew arrives in October and ends in March. There will be a lot of activity during this expedition. The ISS will be visited by one Soyuz, two Progress re-supply vehicles, an ATV, an HTV, and the Space Shuttle. Ms. Wert reviewed the crew. Ms. Wert provided details on the design for the Increment 25 and 26 mission patches. Mr. Wert reviewed a high-level timeline of significant events for the expedition.

NISN MISSION OPERATIONS STATUS

Mr. Paul Hill provided a NISN mission operations status (refer to the presentation, *NISN Communications Mission Critical Network*). The U.S. General Services Administration (GSA) FTS-2001 contract has ended and services are transitioning to the Networx contract. The Networx contract was awarded to AT&T. The majority of the NISN mission network is already provided by AT&T. Most of the transition is contractual. Mr. Hill reviewed HSF services that will require a change in AT&Ts equipment for routing enhancement and monitoring and existing HSF services that will require a change from the current carrier. Mr. Hill reviewed the New

NASA Communications Mission Critical Network Major Sites diagram. He noted that the OC-12s were not in place yet. Mr. Hill stated that the NASA Chief Information Officer (CIO) has initiated an IT Infrastructure Integration Program (I3P) to revamp IT across the Agency. The NASA Integrated Communications Services (NICS) contract is one of the contracts that is part of the program. NICS combines the networking portion of the existing Unified NASA Information Technology Services (UNITeS) contract, Local Area Network (LAN) portion of the Outsourcing Desktop Initiative for NASA (ODIN) contract, and TO 16 of the Mission Operations/Mission Services (MOMS) contract. The date of award is to be determined. GSFC has transitioned all voce services to MOVE. All VDS keysets have been removed. The existing Digital Matrix Switch (DMS) will be replaced the current switch has reached its end of life. The goal is to transition to the new switch by March 2011. A new northern route from GSFC to Wallops has been implemented. A 1 Gb-service has been installed. This service is mostly administrative, LAN, and phone services. This service will provide a diverse path for the transmission of External Tank (ET) TV from Wallops to GSFC. Mr. Hill provided an overview of the NASCOM Emergency Control Center (NECC). NISN has the capability to manage the network from Building 32 if needed. NISN operates from the NECC at least twice a year. Due to back-to-back snow storms in February 2010, at which NISN discovered it was unprepared for such a scenario, NISN has implemented a Shelter-in-place capability. NISN has procured and has in place food, bedding, and toiletries to support 44 persons for three days.

MOVE

Mr. Dan Duffy provided a MOVE status (refer to the presentation, *Mission Operations Voice Enhancement*). GSFC has transitioned and the old switch is no longer available. MSFC has transitioned and the old switch is no longer available. The remaining sites are in transition. JSC and Wallops are using MOVE in facility with the old switch as prime. NASA HQ has gone to MOVE, but PAO has not. KSC is just starting the process. Mr. Duffy provided the KSC review dates. Poker Flat has been added as a recent MOVE option. Mr. Duffy reviewed the four trouble ticket severity levels. Currently there are no Level 1 and two Level 2 tickets. Mr. Duffy provided an overview of the system upgrades (1.5.6 and 1.6.0). He discussed the new and upcoming features and provided a list of contacts.

SNAS

Mr. Dave Warren provided a Space Network Access System (SNAS) status (refer to the presentation, *SNAS, Human Space flight Network Support Group, Main Forum Status*). Release 10.1 (Rel. 3) has been operational at WSC since March 2010. Two patches were delivered. A total of 40 DRs were opened against Rel. 10.1. Seventeen are open; 12 are closed, and 11 are fixed and will be delivered with Rel. 4. Rel. 4 has been delivered to the GSFC I&T and WSC Engineering Interface (EIF) servers for Beta and acceptance testing. This release contains 16 wish list enhancements, 22 operational discrepancies, 4 Internal Discrepancy Reports (IDR) from Rel. 3 and 63 bugs. Reporting is via the Comprehensive Discrepancy System (CDS). Release 4 testing will continue through October 2010. Additional Release 3 DRs need to be resolved. Release 5 is sustaining engineering. The releases will not be as frequent under the sustaining engineering task and are expected annually.

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NACAIT

Mr. Mike Fanders gave a Network and Communications Analysis and Integration Team (NACAIT) status (refer to the presentation, *NACAIT Status*). The Canadian Space Agency (CSA) is in full-up Space Station Remote Manipulator System (SSRMS) support. Four channel ISS video is operational; however, freezing video issues are being tracked. The Japan Aerospace Exploration Agency (JAXA) gateway upgrades are scheduled for October/November 2010. There are no Japanese Experiment Module (JEM) Operations Control System (OCS) operations issues. HTV launch is no earlier than January. The European Space Agency (ESA) is working voice issues experienced since installing the Drake switch. The Columbus lab is in full operation. ATV-2 launch is scheduled for December. RTFEE issues are being tracked and may be a CoFR issue. RTFEE is ESA equipment. The SCDs are MSFC equipment. It was stated that NISN will upgrade the SCDs and provide four new network switches. The 3 comm hubs need to be replaced as well. Mr. Aquino asked if the SCDs can be in place by the end of the month. Mr. Aquino stated that equipment sent to MSFC should match the JSC equipment. Ms. Vicki Stewart stated that she has provided a list of the equipment to Mr. Aquino. Mr. Doug Solomon stated that the SCD equipment is the same, but JSC does not have the upgraded switches. Upgraded switches are needed at MSFC. He stated that he has discussed this with MSFC and Mr. Jay Lipford. The Agenzia Spaziale Italiana (ASI) gateway is prime path for SWIFT command and telemetry. Gateway upgrade discussions are underway with the NuSTAR program. The Russian Space Agency (RSA) Houston Support Room (HSR) restructuring is complete.

NSG ACTION ITEM WRAPUP

The following action item was assigned at the September 16, 2010, Main Forum of the NSG.

0910-NSG-01	Kevin Riley/GSFC/HSF
ACTION:	Determine the status of the hardware order for the VHF recording upgrade and provide a delivery date to Mr. Jim Bangerter.

CLOSING REMARKS

Mr. Bangerter thanked the attendees for their participation at the September 2010 NSG. The next NSG is tentatively scheduled for the April 2011 time frame.

Network Support Group Acronyms and Abbreviations

ACU	Antenna Control Unit
ADPE	Automatic Data Processing Equipment
A/G	Air-to-Ground
AI	Action Item
AMS	Alpha Magnetic Spectrometer
AOPNS	Activity and Outage Notification System
ASI	Agenzia Spaziale Italiana
ATF	Aeronautical Tracking Facility
ATV	Automated Transfer Vehicle
BCC	Backup Control Center
BM	Briefing Message
CCB	Configuration Control Board
CDR	Critical Design Review, Commander
CDS	Comprehensive Discrepancy System
CIO	Chief Information Officer
CSA	Canadian Space Agency
DARS	Dryden Apple Replacement System
DFRC	Dryden Flight Research Center
DMS	Digital Matrix Switch
DR	Discrepancy Report
EIF	Engineering Interface
ELC	ExPRESS Logistics Carrier
ER	Eastern Range
ESA	European Space Agency
ET	External Tank
ETE	End-to-end
EVA	Extra Vehicular Activity
FD	Flight Director
FDF	Flight Dynamics Facility
FE	Flight Engineers
FY	Fiscal Year
GC	Ground Controller
GDIS-R	Guam Data Interface System Replacement
GNC	Guidance, Navigation, and Controls
GRGT	Guam Remote Ground Terminal
GSA	General Services Administration
GSFC	Goddard Space Flight Center

Network Support Group Acronyms and Abbreviations

HOSC	Huntsville Operations Support Center
HSF	Human Spaceflight
HSFC	Human Spaceflight Comm
HSR	Houston Support Room
HTV	H-II Transfer Vehicle
IDR	Internal Discrepancy Reports
IIGoR	ISS IP Ground Routed Network
IN	Integrated Network
I3P	IT Infrastructure Integration Program
ISS	International Space Station
JAXA	Japan Aerospace Exploration Agency
JEM	Japanese Experiment Module
JSC	Johnson Space Center
KSA	K-band Single Access
KSC	Kennedy Space Center
LAN	Local Area Network
L&L	Launch and Landing
LOP	Local Operating Procedures
LRO	Long Range Optics
MA	Multiple Access
MCC	Mission Control Center
MDM	Multiplexer/Demultiplexer
MDS	Multi-conference Digital Switch
MILA	Merritt Island Launch Annex
MOMS	Mission Operations/Mission Services contract
MOVE	Mission Operations Voice Enhancement
MPEG	Moving Picture Experts Group
MSFC	Marshall Space Flight Center
NACAIT	Network and Communications Analysis and Integration Team
NAM	Network Advisory Message
NASA	National Aeronautics and Space Administration
NCPS	Network Command Processing System
NECC	NASCOM Emergency Control Center
NENS	Near Earth Networks Services
NICS	NASA Integrated Communications Services contract

Network Support Group Acronyms and Abbreviations

NISN	NASA Integrated Services Network
NOSP	Network Operations Support Plan
NRRP	Nortel Router Replacement Project
NSG	Network Support Group
NSR	NISN Service Request
OCS	Operations Control System
ODAR	Obsolescence-Driven Avionics Redesign
ODIN	Outsourcing Desktop Initiative for NASA
OE	Operator Error
OPF	Orbiter Processing Facility
OSC	Orbital Sciences Corporation
PDF	Portable Document Format
PDL	Ponce de Leon
PM	Preventive Maintenance
PMM	Permanent Multi-Purpose Module
PRD	Program Requirements Document
PSS	Portable Spacecraft Simulator
RAIL	Rolling Action Item List
RID	Review Item Disposition
ROC	Range Operations Contract
RSA	Russian Space Agency
SA	Single Access
SCD	Small Conversion Device
SCR	Software Change Request
SGL	Space-to-Ground Link
SGLT	Space-to-Ground Link Terminal
SMTF	Software Maintenance and Test Facility
SN	Space Network
SNAS	SN Access System
SSC	Subsystem Controller
SSP	Space Shuttle Program
SSRMS	Space Station Remote Manipulator System
STA	Shuttle Training Aircraft
STORRM	Sensor Test for Orion Rel-NAV Risk Mitigation
STGT	Second TDRSS Ground Terminal
TDRS	Tracking and Data Relay Satellite
TDRSS	Tracking and Data Relay Satellite System
TNOSP	TDRSS NOSP

Network Support Group Acronyms and Abbreviations

TOCC	TDRSS Operations Control Center
T&R	Transition and Retirement
TWTA	Traveling Wave Tube Amplifier
UHF	Ultra High Frequency
ULF	Utilization and Logistics Flight
UNITeS	Unified NASA Information Technology Services
UPS	User Planning System
VDS	Voice Distribution System
VHF	Very High Frequency
VSS	Voice Switching System
VV	Visiting Vehicle
WAN	Wide Area Network
WFF	Wallops Flight Facility
WG	Working Group
WGS	Wallops Ground Station
WMV	Windows Media Video
WOTRS	Wallops Orbital Tracking Resource Scheduler
WSC	White Sands Complex
WSGT	White Sands Ground Terminal