Jet Propulsion Laboratory
California Institute of Technology
4800 Oak Grove Drive
Pasadena CA 91109-8099

October 1, 2012

COMPANY

COMPANY ADDRESS

COMPANY ADDRESS

Attn: XXXXX

Subject: Follow-Up to RFI Dated May 24, 2012

The JPL OCIO would like to thank the nearly 50 companies that responded to the May 24, 2012, Request for Information (RFI). Your responses have assisted us in developing a Draft Request for Proposal that will foster adequate competition and that will ensure that our requirements and the subcontract statement of work and exhibits are aligned. The attached package will provide updated information that will assist you in considering your actions regarding the forthcoming formal Request for Proposal.

After review of the responses to the RFI, JPL has determined this procurement will be a "Small Business Set Aside" under NAICS Code 54513 "Computer Facilities Management Services." It is likely that JPL will issue an RFI for a second, smaller subcontract under NAICS Code 541511, "Custom Computer Programming Services," to support Application Development tasks.

We asked for specific comments around companies' experience with providing IT as a fixed price or managed service. We have learned that while companies have experience in providing IT as a service, it would not be practical to start a subcontract with fixed price service offerings on "day one." Many companies suggested a period of due diligence performed on a *time and material* or *cost type* basis to allow for an accurate capture of requirements prior to executing any fixed price subcontract for services.

In reviewing our requirements with our own staff, we have concluded that while there is a good portion of work that could be considered commodity IT that can transition to fixed price subcontractor managed, there is also a significant portion of work that JPL will want to continue to provide with JPL technical leads and staff support from the subcontractor.

At this point, we are contemplating starting with a subcontract that is completely level of effort support and setting targets of those services that the successful subcontractor would convert to fixed price services. We are considering a phasing from level of effort to fixed price service over a period starting as early as six months into the new subcontract and substantially converted by the third year of the subcontract. As part of the proposal process, JPL will identify those services that will remain level of effort and those that would be expected to be converted to fixed price services in the first three years.

Proposers will be asked to prioritize and set schedule goals for conversion from level of effort to service. Work that is successfully converted to a fixed price service will be retained by the Subcontractor. Work that is not successfully converted to a fixed–price service will be transferred back to and performed by JPL.

Your company is welcomed to provide comments (limited to four pages) regarding this material. Please be aware that JPL is not expecting a response; instead, this material is provided for information only. Note that JPL reserves the right to continue to refine the requirements. Please also note that JPL will host an Industry Day on Monday, November 12, 2012, for the specific purpose of discussing the JPL operational environment.

This follow-up information will be posted on both the JPL Acquisition web site and the FEDBIZOPS web site, as follows:

http://acquisition.jpl.nasa.gov/bizops/

https://www.fbo.gov/?s=opportunity&mode=list&tab=list

Should you have any questions, please address them to the undersigned by phone or e mail.

Very truly yours,

Joel Esparza
Subcontracts Manager
Phone No.: (818) 354-5828
E-mail: Joel.Esparza@jpl.nasa.gov

MANAGEMENT/TECHNICAL PROPOSAL

Management Approach

1. Provide a complete resume for the proposed Program Manager.
2. Provide a 2-4 page white paper authored by the proposed Program Manager describing his/her experience in managing corporate IT Operations.
3. Provide a description of the processes by which the Proposing Company will support the Program Manager to ensure a successful engagement at JPL. If the proposing Company is partnering with one or more other companies describe the process the Proposer will use to support the Program Manager both in determining opportunities and in solving problems between the companies.
4. Provide an organization chart depicting the structure of your proposed organization that will support this effort, including teaming arrangements with sub-tiers.
5. Discuss your approach to communication within your company, with partners, and with JPL as a customer.
6. Discuss your approach to evaluating the operational efforts at JPL to determine which of those efforts can be provided at a lower cost by the proposer providing the effort as a service.
7. Discuss your process for determining and documenting a services requirements, service levels, key performance indicators, metrics, rewards and penalties.
8. Describe your experience with Project Life Cycle Development in designing and delivering services to a customer. Discuss your process for adapting Project Life Cycle Development to your other customers' corresponding processes.
9. Describe your experience providing the same or similar services to multiple customers. In particular discuss synergies, re-use and best practices for reducing cost to all of the customers taking advantage of the service.
10. Describe your processes and culture for providing optimum-level IT support and services to your customers.
11. Demonstrate that your company has:
    a. The financial maturity to meet payroll and acquire key resources.
    b. Mature internal business process to handle large quantities of invoices on time.
    c. Mature senior leadership and management processes that recognize potential problems and implement solutions before they can do harm.

Transition Approach

1. Provide a detailed Transition Plan that describes your proposed approach, from subcontract award through full implementation of steady-state support and services.
2. Discuss your approach to maintaining a secure environment that meets the JPL Information Technology Security Requirements (Exhibit 5 to the Specimen Subcontract).
3. Discuss your approach for communicating and coordinating with the JPL community and the incumbent subcontractor during the transition period, including transferring existing SWO work.
4. Describe any specialized personnel, second-tier subcontractor, or facilities that will be utilized during the transition process.
5. Describe your approach to recruiting, hiring, and/or transferring incumbent subcontractor personnel to this effort.

Sample Subcontract Work Orders (SWO)

This sample would apply to a systems application and network operations effort.

For SWO 1:

1. Provide a description of the role statement your company envisions the Lead Operations person to work to.
2. For each position listed in the sample SWO, provide a representative resume from one of your current employees or your partners' employees that depicts the appropriate experience and skill levels, that would create a team that will successfully perform the institutional IT operations and network operations as described in Exhibit 1, Expanded Work Statement.

   NOTE: Providing resumes of your current employees will help JPL determine your company's understanding of the work effort and skills required. Note that, while it is possible that incumbent

subcontractor employees may fill these positions at the start of the subcontract period, JPL welcomes other solutions.

3. Discuss your process and resources for recruiting and hiring appropriate personnel to fill positions similar to those depicted in the SWO.

For SWO 2:

1. Provide a sample Firm Fixed Price proposal to provide the Service(s) described in SWO 2. In your proposal describe the processes your company would utilize to create a statement of work or a performance work statement, the service level to be provided (either the SLA stated in the SWO or the SLA your company feels is more appropriate, with explanation), the process your company would follow to transition from the current level of effort to a fixed price service and the fixed unit price. Your proposal should be inclusive of all labor, licenses, and "hardware" (physical or virtual).

Related Experience

Describe up to five of your recent and relevant engagements that are most similar to the work described by JPL for ITISS, including the number of bone fide employees, their positions or job duties, and whether your company is the prime or a sub-tier contractor.

1. Describe your experience using the ITIL framework for successful operations.
2. Describe the IT management tools that you use and recommend. Describe tools you utilize on behalf of your customers and the differences and similarities between those and the tools you recommend.
3. Describe the services that you provide for customers on a fixed price basis along with a description of those services and the SLAs associated with the services.
4. Describe lessons learned in transitioning services from level of effort to fixed price.
5. Describe your experience with hiring incumbent workforce from another subcontractor.

TIME & MATERIAL
and FIRM FIXED PRICE
SUBCONTRACT

SPECIMEN SUBCONTRACT
Subcontract No. TBD

BETWEEN
CALIFORNIA INSTITUTE OF TECHNOLOGY
JET PROPULSION LABORATORY
(The "Institute" or "JPL")
4800 OAK GROVE DRIVE
PASADENA, CALIFORNIA 91109-8099

AND

TBD
TBD
TBD, TBD TBD

THIS SUBCONTRACT FOR
INFORMATION TECHNOLOGY INFRASTRUCTURE SUPPORT SERVICES (ITISS)

IS A
SUBCONTRACT UNDER JPL's NASA PRIME CONTRACT

TASK ORDER NO. TBD

A DO - C9 Rating is assigned to this Subcontract under DMS Regulation 1

CONTENTS

The following documents are incorporated into and made a material part of this Subcontract, and can be found on: http://acquisition.jpl.nasa.gov/tc/

GENERAL PROVISIONS (GPs): Labor-Hour/Time-and-Material Subcontract, R 10/10.
Fixed Price, Non-Research and Development Subcontract, R 10/10

- Minimum Timekeeping Requirements for Time-and-Material or Labor-Hour Type Procurements to be Performed at Off-Lab Facilities, Form JPL 1725 (12/11)
- Release of Information, Form JPL 1737 (12/11)
- Self Disclosure, Form JPL 1943 (12/11)
- Notification to Prospective Subcontractors of JPL's Ethics Policies and Anti-Kickback Hotline, Form JPL 2385 (12/11)
- Certifications, Form JPL 2892 (3/12)
- Asbestos Notification, Form JPL 2895 (12/11)
- Notice of Potential Tax Withholding, Form 7258 (12/11)

ADDITIONAL GENERAL PROVISIONS (AGPs):

- Continuity of Services (9/04)
- Designation of New Technology Representative and Patent Representative (9/04)
- Drug and Alcohol Free Workforce (9/04)
- IEEE 1680 Standard for the Environmental Assessment of Personal Computer Products
- Major Breach of Safety and Security (11/07)
- Patent Rights - Retention by the Subcontractor (Short Form) (3/08)

- Personal Identity Verification (11/06)
- Prime Contract Expiration - Fixed Price (3/12)
- Privacy Act (9/04)
- Privacy Act Notification (9/04)
- Security Requirements for Unclassified Information Technology Resources and Access to JPL's Controlled Facilities (5/08)

PREAMBLE

This Subcontract, entered into on by and between the CALIFORNIA INSTITUTE OF TECHNOLOGY (hereinafter called the "Institute" or "JPL"), a corporation organized and existing under the laws of the State of California, and TBD (hereinafter called the "Subcontractor"), a corporation organized and existing under the laws of the State of TBD and constituting a subcontract under Prime Contract NAS7-03001 between the Institute and the Government;

WITNESSETH THAT:

The Subcontractor agrees to furnish and deliver the supplies and perform the services set forth in this Subcontract for the consideration stated herein

ARTICLE 1. STATEMENT OF WORK AND DELIVERY/MILESTONE SCHEDULE

1.0 In accordance with the Subcontract Work Order (SWO) procedure (Exhibit 2), dated TBD, the Subcontractor shall provide a broad range of Information Technology (IT) infrastructure support and services to JPL. This includes, but is not limited to, infrastructure that supports IT services, end-user services and network operations, telecommunications operations, and IT Security. Specific services are listed in Exhibit 1, Expanded Work Statement (EWS). In the performance of this effort, the Subcontractor shall:

1.1 Infrastructure and End User Services Operations and Network Operations:
Provide IT infrastructure support and JPL end user services that are operational 24 × 365 to the service levels specified for each service.

1.2 Telecommunication Administration and Cable Plant Administration:
Provide telecommunication services that are operational 24 × 365 to the service levels specified for each service.

1.3 System Administration:
Perform system administration on Flight and Mission Systems as requested by customers of the OCIO.

1.4 Cyber Security Services:
Perform functions necessary to ensure that the JPL is in timely and actionable receipt of cyber security threats, preventative and remedial actions, and support, as needed, to the JPL IT Security team.

1.5 Provide a Program Manager with overall responsibility for the successful provision of support and services.

1.X Shipment Destination:

1.X.1 Alternative Fridays JPL will be closed except for time-critical project activities and for receiving special shipments (e.g., FED-Ex, UPS, etc.). If such shipments cannot be avoided to JPL on Friday closures, they must be scheduled in advance with JPL Receiving (8:00 AM - 3:30 PM PT) at 818-354-2375 or 818-354-8511. There will be no JPL outgoing shipments.

1.X.2 Except as otherwise provided in this Subcontract, the place of performance under this Subcontract shall be the Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, California 91109. [NOTE: Change address if work is not performed at JPL; DELETE THIS NOTE]

1.X.3 Except as otherwise provided in this Subcontract, the place of performance under this Subcontract shall be the Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, California 91109. [NOTE: Change address if work is not performed at JPL; DELETE THIS NOTE]

1.X.5 NOTE: If subcontract deliverables will be shipped to locations other than JPL, see JPL Rules, "Shipments of Deliverable Hardware," Document I.D. No. 64352 at the following link: http://rules.jpl.nasa.gov/cgi/doc-gw.pl?DocID=64352 and tailor this clause accordingly. DELETE THIS NOTE.

1.Y Delivery Requirements

1.Y.1 Time is of the essence in the performance of this Subcontract.

1.Y.2 The term of this Subcontract shall commence as of the date of this Subcontract and shall continue through xxxxxxxxxxxxx.

1.Y.4 The Subcontractor shall provide the Patent Representative as set forth in the Additional General Provision entitled "Designation of New Technology Representative and Patent Representative" with the annual and final reports of reportable items (or certification that there were no such reportable items) described in the Additional General Provision entitled "Patent Rights - Retention by the Contractor (Short Form)." A copy of transmittal letters shall also be sent to the Subcontracts Manager.	Interim Report: every 12 months commencing on Date of Subcontract. Due within 30 days after reporting period. Final Report: 90 days after work completion.
1.Y.8 Contractor-Held Asset Tracking System (CHATS) Report (http://acquisition.jpl.nasa.gov/CHATS_Report.xls)	Monthly, 3 business days after month reported.
1.Y.9 NASA Form 1018 (or equivalent), "NASA Property in the Custody of Contractors"	First Report: From date of Subcontract thru Sept. 30th; Subsequent Reports: Oct. 1st thru Sept. 30th. Due within 30 days after reporting period.

2.0 JPL will:

2.1 Issue Subcontract Work Orders to authorize work efforts under this subcontract. SWOs will be either Time and Material Level of Effort or Fixed Unit Priced Managed Service in accordance with Exhibit 3, Subcontract Work Order Procedure.

2.2 Designate a Contract Technical Manager (CTM) who will monitor technical performance of the Subcontractor for compliance with the requirements of this subcontract and related subcontract work orders (SWOs).

2.3 Provide the contractor with Interface Control Documents (ICDs).

2.4 Provide reasonable parking arrangements.

2.5 Provide badging approval.

3.0 Exhibits:

The following exhibits are hereby incorporated into and made a material part of this Subcontract:
Exhibit 1: Expanded Work Statement (EWS), Dated XX/XX/XXXX
Exhibit 2: Subcontract Work Orders, Dated XX/XX/XXXX
Exhibit 3: Subcontract Data Requirements List (SDRL), Dated XX/XX/XXXX
Exhibit 4: JPL Unified Methodology Process (JUMP), Dated XX/XX/XXXX
Exhibit 5: JPL Information Technology Security Requirements, Dated XX/XX/XXXX
Exhibit 6: Job Classifications
Exhibit 7: Government Furnished Property (GFE) Descriptions, Dated XX/XX/XXX

ARTICLE 2. PAYMENT PROVISIONS

1.0 Pricing and Funding Issues:

1.1 The ceiling price is: $TBD

1.2 Amount allotted is $N/A

1.3 The minimum amount payable to the Subcontractor by the Institute under this Subcontract is $TBD

1.4 Subcontractor Labor Category (SLC) applicable to this Subcontract: A

2.0 Billing Instructions:

2.1 Billing Instructions:
Detailed billing instructions, including sample invoices, can be found at the following link: http://invoice.jpl.nasa.gov/IMS-Forms.cfm.

[If wire transfer is required for payment add:]

2.2 Additional Requirements for Wire Transfers: Please provide the following information directly on the invoice for wire transfer: beneficiary, remit to, account number, swift, and address. [DELETE IF INAPPLICABLE]

3.0 Subject to the provisions of the General Provision of this Subcontract entitled "Timekeeping and Payments,' the Institute shall pay the Subcontractor for each hour of work directly performed for JPL at the rate or rates listed below. Except as otherwise specifically provided for in this Subcontract, these rates include any and all direct cost, burden, overhead, general and administrative expense, and profit chargeable by the Subcontractor to the Institute under this Subcontract.

		Hourly Rate		
	Classification	**Straight Time**	**Overtime**	**On Cal**
Subcontractor Company Name				
		$	$	$
		$	$	$
		$	$	$
		$	$	$
		$	$	$
Lower-Tier Subcontractor Co. Name (delete if none)				
		$	$	$
		$	$	$
		$	$	$
		$	$	$
		$	$	$

Subcontractor's Division/Subsidiaries/Affiliates Co. Name (delete if none)				
		$	$	$
		$	$	$
		$	$	$
		$	$	$
		$	$	$

4.0 Tax Reporting and Withholding:

5.0 Reserved.

6.0 Wage Determination

Pursuant to paragraph (b) of the Additional General Provision of this Subcontract entitled "Service Contract Act of 1965, as Amended (Long Form)," Wage Determination No. [insert number] dated [insert date], is attached hereto and made a part of this Subcontract, effective [insert date].

[AND/OR]
Pursuant to the Additional General Provision of this Subcontract entitled "Service Contract Act of 1965, as Amended (Long Form), a Wage Determination will be incorporated into this Subcontract and made effective as of [insert date].

[ADD IF NECESSARY]
The labor rates specified in this Subcontract are subject to an equitable adjustment to reflect out of pocket additional costs resulting from the new Wage Determination.

7.0 Subcontractor Travel, Subsistence and Per Diem

The Subcontractor shall be reimbursed for authorized travel, subsistence and per diem in accordance with Exhibit No. {insert number}, entitled "Subcontractor Travel Expensive Report Instructions," dated ({insert Exhibit date}), which is hereby incorporated into and made a part of this Subcontract. The Exhibit incorporates the limitations of Federal Acquisition Regulation (FAR) 31.205-46.

Upon completion of travel, the Subcontractor shall provide, with any invoice for travel, a copy of a "Subcontractor Travel Expense Report" in accordance with the above-referenced "Instructions." Payment of travel costs based on the "Higher Actual Cost Method" requires that a copy of the written justification, as required by FAR, approved by an officer of the subcontractor's organization or designee, be provided with any invoice for such travel.

ARTICLE X. SPECIAL PROVISIONS

1.0 Supportive Invoice Information

To facilitate the prompt payment of costs incurred by the Subcontractor in the performance of work associated with the SWOs issued against this Subcontract, each invoice shall be submitted cross-referencing individual authorizing account codes to SWO-specific costs incurred. The account codes and allocation guidelines will be provided on the SWOs. In addition, the final invoice on each SWO shall be marked "FINAL."

2.0 Conduct and Separation

All Subcontractor personnel working in-residence at a JPL facility will be expected to conduct themselves in accordance with JPL standards of conduct, as described in Standards of Conduct and Procedures for Handling Subcontractor Personnel Problems, Discipline, and Separation, Form JPL 4412, which is incorporated into this Subcontract. The Subcontractor shall be responsible for ensuring that its personnel perform their JPL work assignments and conduct themselves in a manner acceptable to JPL. JPL may require the Subcontractor to separate any Subcontractor personnel from a JPL work assignment at any time for any lawful reason. In the event of such separation, the Subcontractor shall have the responsibility for reassigning or terminating such Subcontractor personnel.

3.0 Personnel Processing

Subcontractor personnel shall report to the JPL Security Group Office for:

1. Check-in processing before commencing work, and

2. Check-out processing when terminating.

Separation check-out will include the return of all Government property and badges, documents, and tools that may have been provided by JPL during each individual's performance under this Subcontract.

4.0 Unescorted Access to JPL:

(a) **JPL Security Requirement**

JPL as a Government Prime Contractor and a Federally Funded Research and Development Center requires that access by subcontractor personnel be controlled at all times. Subcontractor personnel requiring unescorted access to JPL shall adhere to the procedures set forth in this provision.

(b) **Definitions**

(i) "Intermittent" - A period equal to or greater than fifteen days during a one year period
(ii) "Temporary" - A period less than fifteen days during a one year period

(iii) "Unescorted" - Unaccompanied by a JPL employee or JPL Affiliate with a NASA Badge photo identification issued by JPL

(c) **Intermittent and unescorted access to JPL** All subcontractor personnel requiring intermittent and unescorted access to JPL shall enroll in the RAPIDGate program by EID Passport. The RAPIDGate program enrollment information may be obtained from http://acquisition.jpl.nasa.gov/docs.htm. If access to JPL is required prior to receipt of the RAPIDGate badge, see paragraph (d) below.

(d) **Temporary and unescorted access to JPL.** All subcontractor personnel requiring temporary unescorted access to JPL shall complete JPL Form 1915, titled "Service and Construction Roster." Form 1915 may be obtained from the JPL Subcontracts Manager or http://acquisition.jpl.nasa.gov/docs.htm. Form 1915 shall be submitted to the JPL Subcontracts Manager and approved by JPL 72 hours prior to temporary unescorted access by subcontractor personnel.

(e) **Foreign Nationals (FNs) and Legal Permanent Residents (LPRs).** FNs and LPRs requiring intermittent unescorted access or temporary unescorted access shall first contact JPL at (818) 393-3534 before enrolling in the RAPIDGate program.

(f) **Notice of Potential National Agency Check and Inquiry (NACI).** Subcontractor personnel may be subject to a NACI, which is an in depth background inquiry. If the subcontractor personnel has physical access to JPL in excess of 180 days or subcontractor personnel has access to a federal information system (regardless of duration), JPL, subject to law, rules or guidance issued by the Federal Government, may make a determination that NACI applies.

5.0 Security or Privacy Safeguards

The Subcontractor shall not publish or disclose in any manner, without the Subcontracts Manager's written consent, the details of any safeguards either designed or developed by the Subcontractor under this Subcontract or otherwise provided by JPL.

To the extent required to carry out a program of inspection to safeguard against threats and hazards to the security, integrity, and confidentiality of JPL data, the Subcontractor shall afford JPL access to the Subcontractor's facilities, installations, technical capabilities, operations, documentation, records, and databases.

If new or unanticipated threats or hazards are discovered by either JPL or the Subcontractor, or if existing safeguards have ceased to function, the discoverer shall immediately bring the situation to the attention of the other party.

6.0 Reimbursable Hours

Subcontractors are reimbursed only for the specific hours worked by their personnel, which have been authorized by JPL in accordance with corresponding Subcontract terms. Subcontractors are not reimbursed for any scheduled time not worked due to their personnel being directed by JPL to leave, or not report to, their JPL workstations when JPL deems it to be unsafe or useless to work at their JPL workstations due to earthquake, fire, civil disturbance, hazardous materials (HAZMAT)

incident, power outage, or other situations. SHOULD WE HAVE PROVISION TO ALLOW TELEWORKING IN LIEU OF REPORTING TO JPL UNDER THESE CIRCUMSTANCES.

7.0 Subcontract Work Order Conversion

Over the course of this Subcontract term, JPL will request proposal to change SWO from level of effort to firm fixed price. JPL will determine which SWO will be candidates for this conversion effort.

8.0 The requirements identified herein are not exclusive. JPL reserves the right to self perform any or all subcontract requirements at any time during the period of performance of this subcontract effort.

ARTICLE X. ALTERATION PROVISIONS

ARTICLE X. OPTION PROVISIONS

JPL shall have the option to modify this Subcontract to extend the subcontract end date and increase the subcontract value. The option(s) may be exercised at any time prior to the scheduled end-date of the subcontract by JPL issuing a Subcontract Unilateral Modification. Except for the below modifications, all terms and conditions of this Subcontract shall remain the same.
Base period = 3 or 5?
Option Periods = TBD

SIGNATURE PAGE

IN WITNESS WHEREOF, the parties hereto have executed this Subcontract as of the day and year first above written.

CALIFORNIA INSTITUTE OF TECHNOLOGY

Signature _____

Name _____

Title _____

SUBCONTRACTOR NAME

Signature _____

Name _____

Title _____

Instructions to Subcontractor: Do not insert date on Preamble page.

EXPANDED WORK STATEMENT (EWS)

Information Technology
Infrastructure Support and Services (ITISS)

September 14, 2012

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Expanded Work Statement (EWS)

Information Technology
Infrastructure Support and Services (ITISS)

September 14, 2012

Robert C. Sadler
ITISS Contract Technical Manager

Thomas F. Lynch
JPL Subcontracts Manager

Gordon Campbell
Program Manager, Vendor Management
JPL OCIO

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Table of Contents

1. Introduction

The Information Technology Infrastructure Support and Services (ITISS) Subcontractor in accordance with the ITISS contract shall provide Information Technology (IT) infrastructure services to the Jet Propulsion Laboratory (JPL). The ITISS Contract provides JPL the continuity, flexibility, and responsiveness that are required to meet JPL's computing and operational needs. The requirements of the ITISS are generically grouped into functions. There are several major functional areas, including:

- Institutional and Mission Network and IT Operations
- IT Engineering
- Telecommunications Services
- Mission Support Services
- IT Solutions
- System Administration
- Cyber Security
- Data Center Management, including Cloud

This Subcontract will support computing systems and users located at the main JPL site at Oak Grove Drive, Subcontractor facilities, and remote JPL installations, including the Cloud. These computers and users are other than those supported by the Desktop and Institutional Computing Environment (DICE) Subcontractor who provides and maintains "subscribed" PCs and Macs across JPL.

The functional areas listed above (and as described by this EWS) may be viewed as a baseline activities to be performed in support of JPL's IT infrastructure. In order to meet commitments to JPL organizations, a combination of JPL and Subcontractor talent may work in the elements of this EWS.

A general description is presented for each functional area, and immediately followed with a detailed description of the requirements. All JPL documentation and Standards cited herein will be made available to the Subcontractor upon request. Note that the categories of "Inputs," "Processes," "Outputs," and "Performance Metrics" in each task or subtask description are intended to be indicative of the work to be performed and not an exhaustive description of the work.

1.1 Common Terms Used in This Document

The following terms are defined as used throughout this document. They may be slightly different from definitions used elsewhere at JPL.

1.1.1 Workstations

The term workstation refers to computers used for scientific research, engineering development, or operations. Workstations generally use a UNIX/Linux operating system and are most commonly provided by Sun or Hewlett-Packard.

1.1.2 AMMOS Workstations

In this context, Advanced Multimission Operations System (AMMOS) workstations are computer hardware that utilize Deep Space Mission System (DSMS) software and are used to support mission operations inside the DSMS network operations security firewall. This definition applies without regard to who purchased and/or operates the equipment.

1.1.3 Flight Project Specific Workstations

In this context, Flight Project specific workstations are unique computer hardware that support Flight Project mission operations and do not use AMMOS provided software, even if they are located within the DSMS network operations security firewall.

1.1.4 Flight System

The Flight System consists of the components of any mission flown in space. It includes the hardware and software integrated on or as part of the spacecraft.

1.1.5 Institutional

In the ITISS context, "institutional" refers to the hardware, software, and systems Lab-wide that support the business, engineering, mission, and science activities of JPL.

1.1.6 Maintenance

Maintenance is defined as those activities where resources are applied toward repairing failed equipment or subsystems, or keeping equipment or subsystems in operational condition. Examples are:

- Replacement of assemblies/boards with spares
- Routine calibration

1.1.7 Operations

Operations deliver a given set of capabilities to customers with well-defined procedures and service commitments.

1.1.8 Sustaining

Sustaining is defined as those activities for which the primary purpose is to provide the necessary engineering resources to support existing capabilities on an operational system.

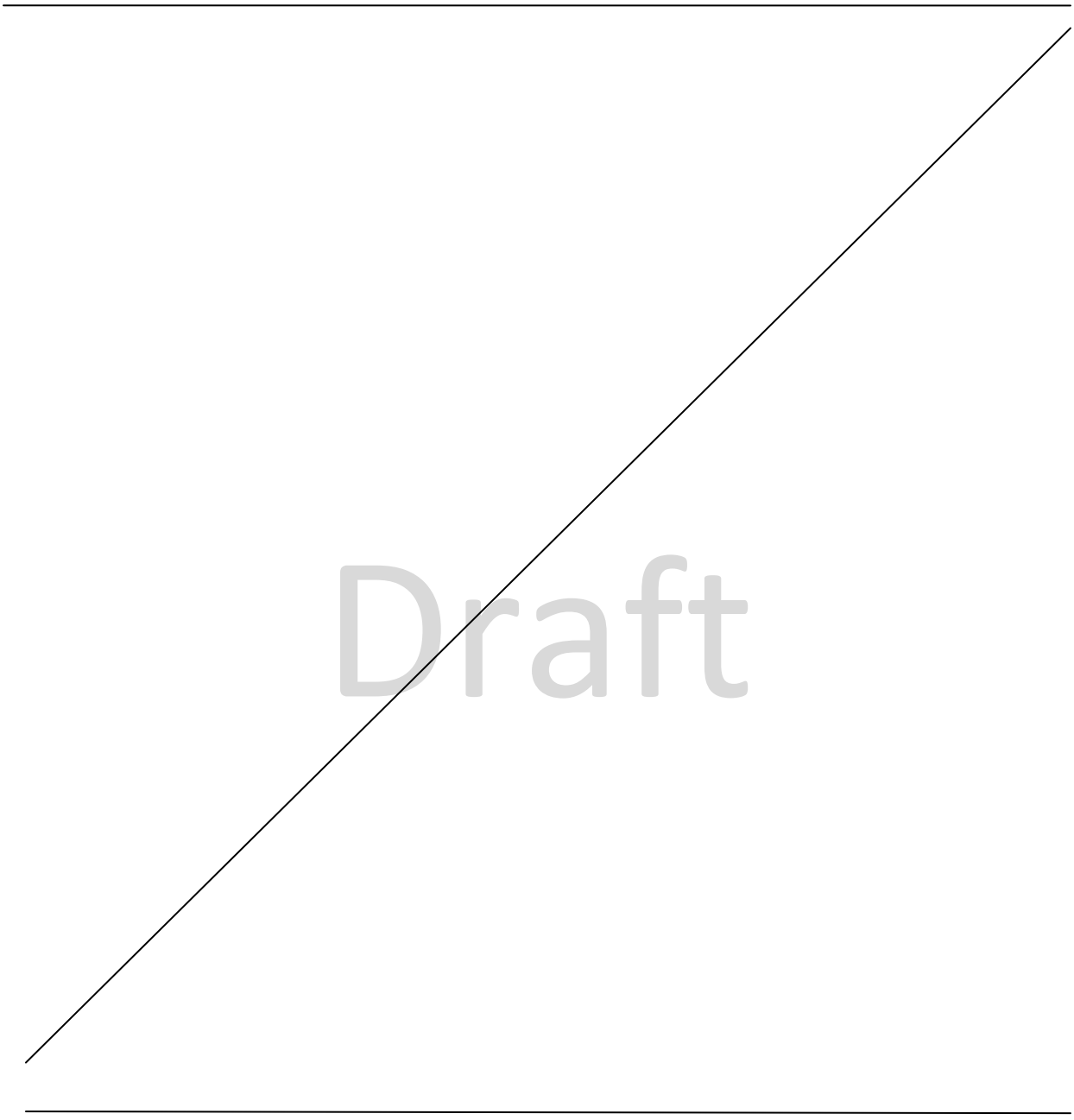
1.1.9 Development

Development is defined as those activities for which the primary purpose is to provide the necessary engineering resources to deploy new capabilities that will be delivered to Operations.

1.1.10 Performance Metrics

JPL will track and assess performance against the types of metrics shown in this EWS. Where specific values are shown, they should be considered minimums to be met at

contract inception. These same metrics are critical to contract performance and continuous improvement in these areas is expected. Unless otherwise specified, the review period for all metrics will be the JPL fiscal month.



2. Institutional and Mission Network and IT Operations

2.1 Overview

The Subcontractor shall provide resources to monitor, maintain, and sustain delivered operational services and products for current and future JPL IT Network and Information Services. IT Operations provides end-to-end customer support, and 24×365 monitoring and response, in accordance with delivered guidelines and procedures. User-level support is provided during normal business hours. Service-level response and maintenance is provided on-site during normal business hours, and on-call for after-hours support.

Operations personnel assist in the definition and documentation of support-level functional requirements for delivery of IT services to ensure system reliability, maintainability and compatibility with existing services. Operations plays a significant role in the enhancement of IT products and services as well as the development of products and tools used to provide operations support. Operations shall be included in system, procedure, and support-level testing prior to any product delivery. Operations personnel shall participate in group meetings and delivery of services to Operations.

Operations shall work with Engineering to establish Service Level Agreements (SLA) for every operational service, including: what constitutes an outage, adequate response time, escalation procedures, and return-to-service metrics. Operations and Engineering shall establish expectations of sustaining engineering for preventative maintenance, upgrades and enhancements to each service.

Services in the production environment are supported with two levels of response in Operations before escalation to JPL IT Engineering. Operations shall have sufficient authority to engage the services of Systems Administration or Engineering Support.

2.2 JPL Institutional and MissionNetwork

The JPL Institutional and Mission Network provides network connectivity within JPL and to external sites for all JPL users. It is comprised of more than 17,000 user devices on approximately 250 subnets, and 1000+ managed network communications components, monitored and supported 24x365. Network services supported on the JPL Institutional and Mission Network include:

- High speed multigigabit network backbone and electronics directly supporting user equipment, such as:
  - Routers
  - Switches
  - UPSs
  - Wireless Access Points
- Remote Access Subsystem (Dial Up, Virtual Private Network [VPN], BrowserRAS)
- Domain Name System (DNS)
- Dynamic Host configuration Protocol Service
- Wireless Access including Guest and Authenticated Wireless

- Perimeter Security
- System Monitoring and Notification
- Telecommunications Closet/Hubroom Physical Security

2.2.1 JPL Network Engineering

Subcontractor personnel shall provide engineering, development, testing and sustaining support for current and future JPL Institutional and Mission network services. Technical experience, engineering and writing skills are needed to define and document service specifications including: requirements, governing standards, architecture, design, and operations procedures. The type and level of support by the Subcontractor may differ for each service, and additional services may be added in the future.

Technical development and implementation skills are needed to build, test and provide test results for the systems comprising each service. Scheduling and time-management skills are needed to create schedules for work being performed, and to adhere to these schedules. Presentation skills are needed to create and present product reviews and deliveries. The product lifecycle reviews include Requirements Document Reviews (RDRs), Preliminary Design Reviews (PDRs), Critical Design Reviews (CDRs), and Operations Readiness Reviews (ORRs).

The formality of the review process is dependent on the nature of the change. New services, replacements of existing systems, and major enhancements to existing systems generally follow the formal review process. Sustaining modifications and operational modifications generally follow a less formal peer review or configuration management process.

2.2.2 Network Maintenance and Sustaining

Subcontractor personnel shall, with technical direction from JPL, perform the day-to-day functions required to enable, restore, and maintain JPL Institutional and Mission Network service to all JPL users per defined service goals, metrics, policies and procedures. This includes upgrades and additions to the existing networks, as well as deployment of new network solutions, that may require new vendor hardware and software.

Inputs:

- Service requests or incidents escalated from Operations Analysts or the JPL Unified Service Desk
- Approved requests for change (RFCs)
- System monitoring and notification
- Connection audit information
- Documented policy, procedures and guidelines for JPL IT operations

Processes:

- Network Administration of routers, hubs, switches, concentrators, local-area networks (LANs), and wide-area networks (WANs), primarily on Cisco equipment.
- Network Administration of the JPL Flight Network Testbed and testing specific configuration requirements.

- Perform work required to enable, disable or restore service via Network Connection Requests to activate or deactivate network drops
- Respond to failed or anomalous network components as reported to Operations or as identified by monitoring systems and alarms
- Perform upgrades and deployment of equipment per specifications defined by Engineering
- Maintain minimum defined inventory levels
- Audit network connections, and disconnect unused connections
- Hub room(s) regular inspection and maintenance
- Update network connection and IP address management databases
- Follow Configuration Management procedures where applicable

Output

- Timely resolution of problems
- Timely documentation of problem resolution
- Accurate CM for all operational equipment
- Hub room(s) quality control audits
- Inventory data
- Scanner data
- Timely and accurate availability of database information

Performance Metrics

- Time to complete service requests
- Percentage of Network Connection Requests completed within 24-hour SLA
- Percentage of failed network components returned to service within 2-hour SLA
- Responsiveness to special requests
- Hubroom audit results

2.2.3 Applicable / Reference Documents

The following documents provide applicable background, descriptions, policies and procedures pertaining to Network Operations:

Document	Published Location	Information Available
JPLNet Operations Policy and Procedure Handbook	https://bravo-lib.jpl.nasa.gov/docushare/dsweb/Get/Document-110732/JPLNetOPSHandbookv3r3.doc	Document describing JPLNet Policy and Procedures v3.0 r1(Word)
Daily Operations Handbook	https://bravo-lib.jpl.nasa.gov/docushare/dsweb/Get/Document-110596/JPLNet+NOC+Handbook2v1.doc	Overview of the Daily procedures of the JPL Network Operations Group
JPL Network Service DITISSter Recovery Plan	https://bravo-lib.jpl.nasa.gov/docushare/dsweb/Get/Document-110285/JPLNetDITISSterRecoveryPlan-v1Rev2.doc	D-14399 JPL Network Service DITISSter Recovery Plan (Word) v1.0 Revision 2

NOTE: The links to the url in the above table will be made available at the appropriate time.

2.3 Institutional IT Services Operations

Subcontractor personnel shall perform the day-to-day functions required to enable, restore, and maintain IT Services to all JPL users and secondary services per defined service goals, metrics, policies, and procedures. JPL IT Services are monitored and supported 24x365. The type and level of support by the Subcontractor may differ for each service, and additional services may be added in the future. IT Services include:

- Application Hosting Service
- Backup and Recovery Service
- Data Access Service
- Directory and Authentication Service
- Electronic Library Service
- Enterprise Tool Service
- File Service
- IT Security Service
- Portal Service
- Remedy Service
- Storage Service
- System Monitoring and Notification Service
- Two-Factor Authentication Service
- Unified Charging Service
- Web Hosting Service

2.3.1 Operations - User Administration

Operations Analysts, comprised of Subcontractor personnel are the escalation point for the JPL Unified Service Desk during normal business hours. Operations personnel receive incident or service requests escalated from the JPL Unified Service Desk,

requesting service or reporting problems. Support analysts provide in-depth troubleshooting and work to resolve issues that cannot be quickly resolved at the JPL Unified Service Desk. Support analysts shall provide detailed documentation regarding troubleshooting steps, test results, and problem resolution in customer incident and problem tickets. Depending on the scope and complexity of the request, Operations personnel shall engage the support of service engineers or systems administrators where appropriate.

Inputs:

- Service requests incidents or problems escalated from the JPL Unified Service Desk
- System monitoring and notification
- Documented policy, procedures and guidelines for JPL IT Operations

Processes:

- Provide high quality customer service through courteous, prompt and accuratecommunication and documentation
- Triage and resolve incoming requests sent to Operations for support.
- Monitor and communicate service outages
- Escalate problems and requests as appropriate
- Participate in group meetings, peer reviews, product and procedure testing, and delivery of services to Operations

Outputs:

- Timely resolution of problems
- Timely escalation of problems as appropriate
- Timely and accurate documentation of problem resolution
- Communication and status to customers, team members, engineers and management
- Feedback to development and engineering teams for adding or improving services or operations tools

Performance Metrics

- Time to complete service requests
- Operating Level Agreements and Service Level Agreements
- Percentage of positive Customer Satisfaction Survey responses

2.3.2 Operations – System Monitoring and Response

System Analysts, comprised of Subcontractor personnel, are the escalation point for the JPL Unified Service Desk during normal business hours. The System Monitoring team monitors, evaluates, and responds to service alerts and events, and communicates service outages, 24x365. The team provides proactive in-depth analysis of alerts, traps, log entries and other events that indicate a change or Service anomaly. The analysts will monitor, analyze, validate, promote and maintain proper system baseline configurations. This team will be engaged in incident, problem and change management activities, verifying change requests, and ensuring appropriate testing, rollback, and implementation plans have been identified.

System analysts will respond to incidents, determine problems, and work to restore normal service as quickly as possible. System analysts shall provide detailed documentation regarding troubleshooting steps, test results, and problem resolution in incident and problem tickets. System Analysts are responsible for providing root cause analysis and corrective action details. The team will ensure corrective action has been implemented once identified. Depending on the scope and complexity of the request, System Analysts shall engage the support of service engineers or systems administrators where appropriate.

Inputs:

- System monitoring and notification
- Incidents escalated from Operations Analysts, or the JPL Unified Service Desk
- Documented policy, procedures and guidelines for JPL IT Operations

Processes:

- Provide high quality service through courteous, prompt and accurate communication and documentation
- In-depth troubleshooting and expeditious problem resolution
- Monitor and communicate service outages
- On-call and overtime support as required
- Escalate problems and requests as appropriate
- Communication and status to customers, team members, engineers and management
- Attend training and engineering services meetings to gain in-depth knowledge and stay current with relevant methodologies, protocols, tools and system enhancements
- Participate in group meetings, peer reviews, product and procedure testing, and delivery of services to Operations

Outputs:

- Timely resolution of problems
- Timely escalation of problems to engineering or system administration as appropriate
- Timely and accurate documentation of problem resolution
- Communication and status to customers, team members, engineers and management
- Root Cause Analysis
- Corrective Action/Change Requests
- Feedback to development and engineering teams for adding or improving services or operations tools

Performance Metrics:

- Return-to-service metrics
- Successful Change Implementation

2.4 System Administration

Subcontractor personnel shall, with technical direction from JPL, provide development and sustaining system administration support for the JPL IT network and current/future JPL IT information services, including Level 2 operational support. High levels of

UNIX/Linux and Windows variants system administration skills and experience are needed to maintain the hardware and operating systems for all production, integration and test, and development equipment. In addition, system administrators need to learn and support service applications, especially in their interaction with the underlying operating systems and hardware configurations. Technical writing skills are needed to document Level 2 procedures. Ongoing training is especially important for system administrators, as they need to stay current and knowledgeable on a fairly broad range of platforms, operating systems and service applications.

Inputs:

- Operations procedures for delivered services
- Incident and Service requests
- Functional requirements including JPL security policies
- Notice of configuration control for mission critical events

Processes:

- On-call and overtime support as required
- Response to alerts escalated by System Monitoring and Response Team
- Tuning of applications, servers, and peripherals
- Server maintenance, configuration control, and data security
- Incident response as needed
- Server room(s) regular inspection, maintenance and consolidation
- Attend conferences and training to gain in-depth knowledge of relevant methodologies, protocols, tools, and operating systems enhancements
- Provisioning/ deprovisioning of compute, backup/restore and storage capacity
- Government Procured Software (GPS) or Subcontractor Procured Software (CPS) license management

Output:

- Timely resolution of problems
- Timely documentation of problem resolution
- Server room(s) under quality control

Performance Metrics:

- Average time to complete Incident and Problem tickets
- Number of successful and unsuccessful audits

3. IT Engineering

3.1 Overview

The Subcontractor shall provide engineering resources to support engineering, development, testing and sustaining tasks for JPL IT services. Enhancements to both the JPL IT network and information services follow a product lifecycle marked by milestones, and the Subcontractor shall provide support in all phases of the lifecycle.

3.2 Engineering

Subcontractor personnel shall, with technical direction from JPL, provide development and sustaining engineering support the JPL Institutional and Mission networks and sustaining engineering for JPL IT information services, including Level 3 operational support. Technical writing skills are needed to document Level 1 and 2 procedures. Ongoing training is especially important for engineers in order to stay current and knowledgeable with the service applications.

Inputs:

- Technical management and direction
- Technical specification documentation requirements and examples
- End user documentation requirements and examples
- Product testing requirements and examples
- Operational procedure format guidelines and examples
- Milestone review requirements and examples
- Other functional requirements, including JPL security policies
- Service requests (trouble tickets)
- Third-party technical consultation and/or professional services as needed
- System engineering input from JPL

Processes:

- Engineering, development and implementation of services
- Gather functional requirements
- Documentation including technical specs, operations procedures and end user web pages
- Documentation checked into configuration management system
- Support for procurement needs
- Testing
- Training
- Scheduling
- Support for operations and users
- After hours on-call and overtime
- Response to alerts escalated by Level 1 support staff
- Incidence response

- Attend service-related conferences and training to gain in-depth knowledge of relevant methodologies, protocols, software offerings, and product enhancements.

Outputs:

- Delivered systems
- Schedules
- Technical specifications documents
- End user documents
- Test results reports
- Operational procedures
- All work under configuration management
- Lifecycle review presentations
- Recommendations for hardware and software procurements
- Recommendations for future development

Performance Metrics:

- Meets scheduled milestones
- Meets operational performance and availability requirements
- Resolves Level 3 problems in a timely manner
- Generates required documentation on time
- Maintains expertise in IT infrastructure fields

3.3 JPL IT Services

Subcontractor personnel shall provide engineering, development, testing and sustaining support for current and future services. Technical experience, engineering and writing skills are needed to define and document technical service specifications including: requirements, governing standards, architecture, design, interfaces, and operations procedures. These skills are also needed to create documentation for end users, generally in the form of web pages that describe each service, facilitate sign ups, and provide troubleshooting tips, etc. Technical development and implementation skills are needed to build, test and provide test results for the systems comprising each service and its sub-services. Scheduling and time-management skills are needed to create schedules for work being performed, and to adhere to these schedules. Presentation skills are needed to create and present product reviews and deliveries. The product lifecycle reviews include Requirements Reviews (RRs), Preliminary Design Reviews (PDRs), Critical Design Reviews (CDRs), Test Readiness Reviews (TRRs), and Delivery Reviews (DLRs).

Three environments for each service shall be maintained: development, integration and test, and production. Service enhancements and modifications shall be developed and tested by JPL IT Engineering personnel/Subcontractors before being turned over to JPL IT Operations personnel/Subcontractors for deployment in the production environment.

Services in the production environment are supported with three levels of response. The operations analysts comprise Level 1, and are the first to respond to an issue. They are backed up by the system administrators at Level 2. If the first two levels of support cannot resolve the issue, Level 3 service engineering personnel are called to assist.

The type and level of support by the Subcontractor may differ for each service, and additional services may be added in the future. The services include:

- Application Hosting Service
- Data Access Service
- Directory and Authentication Service
- Electronic Library Service
- Enterprise Tool Service
- File Service
- Portal Service
- Storage Service
- System Monitoring and Notification Service
- Unified Charging Service
- Web Hosting Service

4. Telecommunications Services

4.1 Overview

JPL Telecommunications Services provides support for all aspects of the JPL telephony related services: voice, telephony applications such as voicemail and collaboration, data circuits, as well as legacy and specialty mobile device services such as pagers and some satellite phone services. Standard JPL mobile phone services and satellite phone services are provided under a contract that is not part of this task. Telecommunications Services is **not** responsible spacecraft communications support.

JPL Telecommunications Services provides telecommunications support for JPL's main campus and Woodbury facilities, as well as for JPL-designated satellite locations in the greater Los Angeles area.

JPL uses Cisco's Voice over IP (VoIP) Unified Communications Manager, Unity Voice Mail and MeetingPlace audio, web and video conferencing. Some standard AT&T telephone services such as Centrex and data circuits are also deployed. In addition, JPL procures some services from other carriers as well as the National Aeronautics and Space Administration's (NASA) Communications Service Office (CSO).

JPL Telecommunications Services is responsible for providing:

- Telephone administrative support
- Cable installation and maintenance
- Telecommunications engineering

Telephone administrative support consists the following functions:

- Telecommunications Coordination and Provisioning
- Telecommunications Repair
- Telecommunications Equipment Procurement and Distribution
- Telecommunications Bill Processing and User Chargeback

Telecommunications Services is responsible for the installation and maintenance of virtually all communications cabling at JPL. Cabling includes telephone, network, video, and other types of cabling within and between buildings. Cable installation and maintenance as related to this task is primarily a coordination and oversight function. The actual installation and maintenance work is typically performed under contracts with AT&T. However, occasionally, it may be necessary to use other Subcontractors. During the course of this task the primary cabling Subcontractor could change to a different vendor.

Telecommunications Services is also responsible for engineering and implementing new telecommunications services and sustaining engineering for the deployed services. These efforts may be led or supported under this task.

4.2 Telephone Coordination and Provisioning

The task shall support telephone coordination and provisioning activities.

Telephone coordination and provisioning enables telecommunications services per user's requests and in compliance with JPL policy. This function consists of assisting users to determine their requirements and either provisioning the appropriate services to meet those requirements or ordering the appropriate services from telecommunications service providers. User requests may be as simple as installing a single telephone or as complex as providing telephone service for an entire building or meeting special requirements such as high speed data circuits, secure telephone service, Automatic Call Directors and public address applications.

The task shall provide or arrange for end-user training on telephone equipment and training on the telephone ordering process. The task shall receive and review various telephone activity reports and provide summary information to JPL management.

Inputs:

- On-line Communications Service Requests
- On-line Communications Equipment Service Requests
- Direct user input
- Management requests
- Vendor provided activity reports

Processes:

- Assist users to design and order telephone services to meet their requirements
- Provision Cisco Unified Communications Manager, Unity Voicemail, MeetingPlace, WebEx services and other telecommunications services designated by JPL
- Install telephone equipment, including VoIP phones, conference units and headsets.
- Coordinate Centrex telephone and data circuit add, move, and change activity with JPL telephone service providers and verify that orders are completed correctly and on time
- Provide training to JPL Administrators on telephone services ordering procedures
- Coordinate and/or provide end user training on available telephone services
- Maintain Telecommunications Services and Unified Charging System databases to insure that all information accurately reflects the JPL telecommunications environment
- Update service provider E-911 database(s) to accurately reflect telephone number location information on a daily basis (business days only)
- Reconcile service provider E-911 database with JPL telephone number records
- Review vendor provided activity reports and verify their accuracy
- Respond to user inquiries regarding service capabilities
- Provide Level 2 Help Desk support for provided services
- [Provide ACD capabilities that will end when the DICE contract ends?]

Outputs:

- Designs to meet special user requirements
- New service requests
- Completed Communications Service Requests

- Completed Communications Equipment Service Requests
- Internal and vendor provided activity reports
- Updates to Telecommunications Services and Unified Charging System databases
- Daily E-911 location change files

Performance Metrics:

- Respond to user requests within one business day
- Provision new VoIP services and install equipment within 3 business days
- Completed requested changes to VoIP accounts within 2 business days
- Provision Unity Voicemail, MeetingPlace and WebEx accounts and make requested changes to those accounts within 2 business days
- Update service provider E-911 database daily
- Other TBD

4.3 Telephone Repair

The task shall support the telephone repair function.

Telephone repair personnel respond to reports of telephone and data circuit problems and perform initial problem analysis. The telephone repair personnel resolve problems with local equipment or escalate issues as necessary to the JPL Network Operations team. Problems with vendor-provided equipment and services shall be referred to the appropriate vendor for resolution. Telephone repair personnel shall manage the supply of spare telephone equipment.

Inputs:

- On-line trouble tickets
- Direct user input
- Management requests

Processes:

- Respond to user requests for telephone repair
- Create trouble tickets for reported telephone problems when necessary
- Repair or replace failing equipment
- Coordinate repair activities with JPL telephone service providers
- Manage the inventory of telephone equipment spares
- Update Telecommunications Services and Unified Chargeback System databases to accurately reflect any changes made to the telephone system in the course of completing repairs
- Provide after hours on-site or on-call support during periods of critical activity

Outputs:

- Open trouble tickets with vendors and service providers
- Closed trouble tickets
- Database updates
- Inventory reports

Performance Metrics:

- Respond to reported trouble within 4 business hours
- Complete repairs with JPL provided equipment in 24 business hours
- Complete database updates with 48 business hours

4.4 Telecommunications Equipment Procurement and Distribution

The task shall procure, receive/ship, and distribute telecommunications equipment.

The task will process telecommunications equipment orders for approval by JPL managers and update JPL databases to track received equipment consistent with JPL Property Accountability and JPL Telecommunications Services policies and procedures. The equipment to be procured includes but is not be limited to:

- VoIP and Centrex telephone sets
- Headsets
- Facsimile machines
- Telephone infrastructure equipment including cable, connecters and associated parts necessary to install and repair telecommunications equipment

JPL will determine the type, make and model of equipment to be procured.

The task shall configure equipment, activate service, and distribute equipment to end users as required.

Inputs:

- On-line Communications Service Requests
- On-line Communications Equipment Service Requests
- Direct user input
- Management requests

Processes:

- Procure, receive/ship and distribute telephone equipment as necessary to satisfy user requests
- Configure equipment and activate service as necessary prior to delivery to user
- Procure equipment to support telephone infrastructure
- Maintain equipment inventory levels as determined by JPL
- Maintain records of equipment ordered, received and distributed
- Enter required information into JPL Telecommunications Services databases and the JPL financial system to allow end users, organizations, and projects to be charged for telephone equipment, service activation, and recurring service costs
- Prepare equipment reconciliation reports
- Perform physical inventories as required to meet JPL management reporting and audit requirements
- Respond to audit requests as necessary

Outputs:

- Delivered equipment
- Completed service requests
- Procurement requisitions
- Inventory reconciliation reports
- Audit responses

Performance Metrics:

- Respond to user requests within 1 business day
- Provide requested in stock equipment within 2 business days
- Provide requested equipment that must be ordered with 3 business days of receiving the requested equipment
- Maintain accurate inventory information

4.5 Telephone Invoice Processing and User Chargeback

The task shall process telecommunications equipment and service invoices for submission to JPL Invoice Management (accounts payable). The task shall charge the appropriate users for the equipment and services identified on those invoices as well as for other telecommunications services requested by users that may not appear on invoices.

Monthly, JPL receives over 100 invoices from equipment vendors and service providers (support for educational and corporate partners throughout the country). The invoices are delivered on CD or paper or may be downloaded from vendor's websites. They must be verified, approved, logged, and sent to JPL Invoice Management for payment.

Information from the invoices must be loaded into the JPL Unified Charging System (UCS) to be charged to individuals or JPL organizational entities. Invoices that are delivered in a machine readable format such as on CD or downloaded from a vendor's website are uploaded into UCS. Invoices that are delivered on paper require information to be manually entered into a spreadsheet that is then uploaded into UCS. For most of the paper invoices the chargeback information that is entered only the total for the entire invoice. For some invoices it may be necessary to enter chargeback information for the individual components such as telephone numbers or circuit IDs.

In addition to telephone invoices, charges for equipment are also charged back to users and organizations through UCS. These charges are generally processed through the JPL work order system based on the Remedy Action Request System.

There are some telecommunications user charges that are not the result of an invoice such as the monthly VoIP telephone line access charge. These charges are managed through the Telecommunications Services databases and charged through UCS. The task is responsible to insure that users are accurately charged for these services.

Inputs:

- Communications Service Requests
- Telephone invoices
- Calling card billing files

- Pager invoices
- Paper/electronic invoices from cabling contractors
- Equipment invoices

Processes:

- Receive and log invoices
- Review invoices for discrepancies
- Work with vendors to correct inaccurate invoices
- Have invoices approved by JPL management for payment
- Forward approved invoices to JPL Invoice Management (accounts payable) for payment
- Maintain copies of invoices
- Enter appropriate information into the Telecommunications Services Communications Service Request System (CSR) and the JPL Unified Charging System as necessary in order to properly charge users for their telecommunications costs
- Respond to user queries for explanations of telephone charges

Outputs:

- Approved invoices
- Updates to CSR and UCS systems
- User chargeback files
- Closed service requests

Performance Metrics:

- JPL-approved monthly bills sent to JPL Invoice Management in time to be included in current fiscal month-end processing
- Monthly billing information entered into JPL Telecommunications Services chargeback database in time to be included in current fiscal month-end processing
- Respond to JPL user billing inquiries within 1 business day

4.6 Cable Installation and Maintenance

Telecommunications Services is responsible for all JPL communications cable installation and maintenance. Telecommunication Services is not responsible for any electrical cable installation and maintenance.

Telecommunications Services provides cabling services to JPL and locations associated with JPL throughout Southern California. The main focus of cabling services are the main JPL campus and the Woodbury building complex approximately 2 miles from the main campus. In addition, some cabling support is provided to the Goldstone Deep Space Network antenna site in the Mojave Desert, the Table Mountain Facility in Wrightwood, the NASA Office of Inspector General in Long Beach and the JPL Child Care Center in La Canada.

Cable types supported include but are not limited to:

- unshielded twisted pair copper cable installed within buildings
- shielded twisted pair copper cable installed between buildings
- single-mode and multi-mode fiber optic cable installed within and between buildings
- coax cables of various types installed within and between buildings
- specialized cable that may be required for non-standard communications services installed within and between buildings

The task is responsible for:

- interfacing with JPL personnel to determine cabling requirements
- coordinating with the JPL Facilities when facilities work is necessary to support cable installation and maintenance activities
- providing oversight to the JPL cabling contractors to insure the customer's requirements are met according to JPL policy, procedures and standards

Task personnel are generally not responsible for the actual cable installation and maintenance but occasionally may be required to participate in cable installation activities when JPL determines that it is advantageous.

JPL uses multiple cabling contractors. AT&T Centrex phone and data circuit cabling is performed by AT&T personnel. All network cabling is performed by a ComScope certified Systimax cabling contractor. Most other cabling is currently performed by the network cabling contractor. In special situations, cabling may be contracted out to other cabling contractors.

4.6.1 Inputs

- On-line Service Requests
- Trouble Tickets
- Direct user input
- Management requests
- Vendor bills

4.6.2 Processes

- Consult with users to determine cabling requirements
- Schedule and monitor progress of cabling moves, adds, changes and repairs
- Coordinate required facilities work
- Perform quality assurance checks to ensure cable has been installed per specification
- Ensure appropriate testing has been performed and the cabling has passed all required tests
- Update building floor plans to reflect location of network and telecommunications connections and equipment
- Update Configuration Management databases with appropriate information
- Diagnose reported cable problems and refer to cabling contractor for repair as required
- Review cabling contractor billing for accuracy and submit to JPL for approval and payment

- Produce management reports

4.6.3 Outputs

- Closed Service Requests
- Closed Trouble Tickets
- Cable test results
- User chargeback file updates
- Configuration Management updates
- Management reports

4.6.4 Performance Metrics

- Complete cabling projects on-time
- Respond to Trouble Tickets within 4 hours
- Respond to user requests within 1 business day
- Deliver recurring management reports on time

4.7 Telecommunications Engineering

At the direction of JPL, the Subcontractor shall provide personnel to augment the Telecommunications Engineering staff. It is not the intent to replace existing engineering staff with Subcontractor ITISS personnel, only to augment the existing staff. JPL, at its discretion, may also hire personnel or use other contract vehicles to obtain personnel to augment the existing engineering staff.

Telecommunications Services Engineering is responsible for the engineering and deployment of several telephony based services including:

- the Cisco Voice over IP telephone system
- Cisco Unity Voice Mail
- Cisco MeetingPlace voice, web and video collaboration system

Engineering is also responsible for the sustaining engineering activities on these systems as well as developing solutions for Telecommunications Administration to meet user telecommunications requirements that have not been previously requested.

Engineering also provides support to Telecommunications Administration to resolve problems that require expertise beyond the capabilities of the Administration staff.

4.7.1 Inputs

- Service Requests
- Trouble Tickets
- Management Requests

4.7.2 Processes

- Standard engineering functions

4.7.3 Outputs

- Closed Service Requests
- Closed Trouble Tickets
- Engineering documents
- Review presentations
- Implemented systems
- Management reports

4.7.4 Performance Metrics

- Completion of tasks on-time
- Completion of tasks within budget
- Quality and completeness of written documents

4.8 VOCA/MOVE Telephones in Buildings 230 , 264 and 321

Detailed information will be supplied at a later time.

5. Mission Support Services/System Administration

5.1 Overview

JPL provides system administration as an institutional service to non-DICE workstation users. These workstations may be used for engineering development, scientific investigations, or mission operations.

The Subcontractor shall provide system administrators to support this service as required by paragraph 5.2.

5.2 System Administration

The Subcontractor shall provide System Administration for non-DICE institutional and flight-project-specific computers.

5.2.1 Inputs

- Various work assignments via email. Some may identify long-term support of specific JPL project customers while other assignments may indicate support for multiple JPL customers.
- JPL account numbers to cover workforce associated with system administration.

5.2.2 Processes

- Make adjustments for compatibility of operating systems and application programs, using the following: C/C++ programming, shell scripts (e.g., Perl), system performance analysis, data analysis, TCP wrappers, AFS, sendmail, tripwire, syslog, anti-virus software, and some knowledge of local area networks
- Perform System Administration of the following Unix hardware/software systems; Sun/SolarisRedHat or other Linux variant, HP
- Perform System Administration of multiple variants of Linux (e.g., Red Hat, SUSE, Caldera, Mandrake, and VALinux)
- Perform System Administration of multiple variants of Microsoft Windows (e.g., Windows 95, 98, NT, 2000, Millennium, XP, Windows Server 2003, 2008)

5.2.3 Outputs

- System administration of Unix workstations
- Documentation of problem resolution
- Work order summary and history reports

5.2.4 Performance metrics

- Resolution of problems in a timely manner
- Responsiveness to special requests
- Number of services performed and user requests

6. Cyber Security

The Subcontractor shall provide qualified staffing for the purpose of investigating, designing, developing, integrating, and testing a broad range of cyber security solutions. These efforts may include creation of IT infrastructure and tools to facilitate a project's needs (such as software development environments and operational rooms). These efforts will be in addition to those major functional areas described elsewhere in this EWS, and may require one or more individual per task.

Inputs

- A description of task effort or support requested

Processes

- Standard engineering or operations functions
- Knowledge Management support
- Computer graphics
- IT Security
- Technical Documentation
- Configuration Management
- Distinct SW Development (SharePoint, MS Workflow, JAVA Spring (IBIS), Oracle
- Mobile platforms development and support
- CAD system support
- IT Consulting (reach-back)
- Projectized work/ temp technical tasks

Outputs

- Engineering documents
- Implemented systems
- Management reports

Performance Metrics

- Completion of tasks on-time
- Completion of tasks within budget
- Quality and completeness of written documents

7. Reserved

8. Data Center Management, Including Cloud

The Subcontractor shall provide cloud computing services to JPL, serving as a cloud broker or orchestrator of cloud services. Support under this task includes consulting/research support as well as procurement of cloud computing resources, including but not limited to Infrastructure as a Service (IaaS), High Performance Computing as a Service (HPCaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

8.1 Cloud Consulting/Research Support

The Subcontractor shall provide cloud computing consulting and research support to assist JPL in developing and implementing an integrated enterprise data center strategy/solution involving cloud computing. Cloud broker or orchestrator services shall include but not be limited to:

- Researching cloud products and services offered by industry and providing recommendations to JPL.
- Support and participation in JPL sponsored cloud evaluations and usage.
- System administration support including environment setup and data/VM migration.
- Monitoring and reporting.
- Performance analysis and remediation.
- Developing services to enable JPL to shift usage between multiple cloud providers.
- Developing service extensions to enable existing enterprise services to utilize cloud computing resources.
- Provide support for issues and concerns that arise as part of an integrated solution, including security, privacy, vendor lock-in, reliability, availability, software licensing, and governance in the cloud.

8.2 Procurement of Cloud Computing Resources

The Subcontractor shall procure cloud computing services on behalf of JPL from one or more third party vendors or other organizations on a pay-as-you-go basis. The Subcontractor shall provide the capability to order, provision, and access cloud computing resources, and provide consolidated billing in the regular ITISS contract invoices to JPL.

As part of this service, the Subcontractor shall provide pre-engagement information (web site content) that describes:

- How to prepare an application for use in the specified cloud including physical-to-virtual (P2V) and virtual-to-virtual (V2V).
- The prescribed method for transferring data files to the specified cloud and any inherent limitations
- The prescribed network and DNS configuration for applications to run in the specified cloud.

- The prescribed firewall settings and constraints for applications to run in the specified cloud.

The Subcontractor shall also provide:

- A secure management console web site for the purpose of managing (provisioning, resource allocation, system administration, network and firewall management, deprovisioning) and monitoring the JPL applications hosted within the cloud.
- A cloud environment supporting JPL IT-supported operating systems (e.g. Windows Server in 32 & 64-bit and Red Hat Linux in 32 and 64-bit) with templates that can be used at JPL's discretion.
- Facilitation for private network integration at the direction of JPL.
- Compliance with the applicable provisions of Exhibit VII, "JPL Information Technology Security Requirements, Rev 12" effective December 17, 2009.
- Reporting to JPL IT Ops of cloud environment conditions or incidents that have a direct effect or may have a direct effect on JPL's applications running within the environment.
- Technical support (incident response) on a 24x7x365 basis for provided cloud services, as directed by JPL.
- Professional services directly related to the cloud environment, as directed by JPL.
- Units of computing resources and associated pricing for each cloud offering.

Appendix A. Acronyms

ACD	Automated Call Director
AFS	(distributed file system product based on the Andrew File System)
AMMOS	Advanced Multimission Operations System
AT&T	AT&T Communications, Inc.
CDR	Critical Design Review
CM	Configuration Management
CPS	Contractor Procured Sofware
DBMS	Database management system
DLR	Delivery Review
DMIE	Design and Maintain the Institutional Environment
DNS	Domain Name Service or Desktop and Network Services
DSMS	Deep Space Mission System
EWS	Expanded Work Statement
GFE	Government-furnished equipment
GPS	Government Procured Software
HP	Hewlett-Packard
HR	Human Resources
HTTP	HyperText Transfer Protocol
HTTPS	HyperText Transfer Protocol (secure)
IMAP	Internet Message Access Protocol
IOS	(Cisco) Internetwork Operating System
IP	Internet Protocol
IRIX	(Silicon Graphics International) Operating System
ITISS	Information Technology Infrastructure Support and Services (ITISS)
ISDN	Integrated Services Digital Network
IT	Information technology
JPLNet	JPL Network
LAN	Local-area network
LDAP	Lightweight Directory Access Protocol
MOVE	Mission Operations Voice Enhancement (is a VoIP solution and the legacy VOCA system replacement)
MTBF	Mean time before failure
NetOps	Network Operations
NetIQ	Device Monitoring Software (TSM) replacement
NOC	Network Operations Center
NR	Network Service Request
NT	Network Trouble Ticket
ORR	Operational Readiness Review
PDR	Preliminary Design Review
POC	Point of contact
POP	Post Office Protocol
SDSIO	Science Data Systems Implementation & Operations
SSL	Secure Sockets Layer

SUSE	(Linux Operating System)
TCP/IP	Transmission Control Protocol/Internet Protocol
TSM	Tivoli Management System
UCS	Unified Chargeback System
VoIP	Voice over Internet Protocol
WAN	Wide-area network
XML	eXtensible Markup Language

DRAFT SUBCONTRACT WORK ORDER (SWO) 1

Jet Propulsion Laboratory
California Institute of Technology
4000 Oak Grove Drive
Pasadena, California 91109

SWO INFORMATION				
Subcontract Number:	1234567		Labor Type:	Category A
SWO Number - Mod Number	001	Basic		
SWO Type:	Time and Material			
			Proj/Task #:	IMCCBBS 112345

SUBCONTRACTOR INFORMATION	
Subcontractor Name:	XYZ Company
Subcontractor Address:	1234 Any Street

WORK DESCRIPTION			
Work Title:	IT and Network Operations		
Start Date:	October 1, 2013	End Date: October 1, 2016	
Refer To:	☒ Below Description	☐ Attachment(s)	☐ Service Level Agreement
Service Name: N/A	Service Level: N/A	Uptime: N/A	MTBF: N/A
MTTR: N/A	Security: N/A	Coverage: N/A	Maintenance: N/A

Service Description: Perform Institutional IT Services Operations in accordance with Exhibit 1, Expanded Work Statement, paragraph 2, Institutional and Mission Network and IT Operations.

Service Detail:

Classification	Hourly Rate	Authorized Hours	Overtime Rate	Authorized Hours
Cabling Technician	$	6000	$	20
DBA	$	6000	$	N/A
IT Operations Manager	$	6000	$	N/A
Network Administrator	$	6000	$	??
Network Technicians	$	6000	$	100
Operations Analyst	$	6000	$	50
Senior Operations Analyst	$	6000	$	N/A
Senior System Administrator	$	6000	$	N/A
Software Quality Assurance	$	6000	$	N/A
Sr. DBA	$	6000	$	N/A
Sr. Network Administrator	$	6000	$	N/A
Sr. System Administrator	$	6000	$	N/A
System Administrator	$	6000	$	100
Telcom Support	$	6000	$	100

FINANCIAL SUMMARY			
Financial Categories:	Previous Amount	Change Amount	New Amount
Ceiling Cost	$0	$6M	$6M
Total Amount Allotted	$0	$2M	$2M

SIGNATURE BLOCKS		
JPL Subcontracts Manager's Name	JPL Subcontracts Manager's Signature	Signature Date
Tom Lynch		
JPL Contract Technical Manager's Name	JPL Contract Technical Manager's Signature	Signature Date
Robert Sadler		
Authorized Subcontractor's Name	Authorized Subcontractor's Signature	Signature Date

DRAFT SUBCONTRACT WORK ORDER (SWO) 2

Jet Propulsion Laboratory
California Institute of Technology
4000 Oak Grove Drive
Pasadena, California 91109

SWO INFORMATION				
Subcontract Number:	1234567		Labor Type:	Category X
SWO Number - Mod Number	002	Basic	Proj/Task #:	IMCCBBS 112345
SWO Type:	Firm Fixed Price			

SUBCONTRACTOR INFORMATION	
Subcontractor Name:	XYZ Company
Subcontractor Address:	1234 Any Street

WORK DESCRIPTION			
Work Title:	Large Scale (TB/PB) Storage		
Start Date:	October 1, 2013	End Date: October 1, 2016	
Refer To:	☒ Below Description	☐ Attachment(s)	☐ Service Level Agreement
Service Name: STO	Service Level: Tier 1	Uptime: 0.**99977** availability (measured on an annual basis). That is, there can only be two hours of downtime (combined planned and unplanned) in any one fiscal year. An outage involving a subset of customers is considered a service outage.	MTBF: 366 days
MTTR: 1 hour	Security: This service fully complies with JPL IT Security Requirements	Coverage: 24×7	Maintenance: Planned maintenance shall be incorporated into the JPL RFC process/system and authorized by JPL IT Ops. Planned maintenance time resulting in any unavailability is included in the uptime (availability) requirement.

Service Description: Subcontractor shall provide a Tier 1 storage service offering that may be purchased in Gigabyte (GB) increments.

Service Detail:

Tier 1 Planned Use:

Tier 1 storage will be offered to customers with the most demanding availability and performance requirements such as but not limited to databases, image/data processing, flight/mission systems. The reasonable expectation is that as the use increases neither net realized throughput (performance) nor availability decreases. The subcontractor is required to adjust resources to maintain the service baseline.

Baseline Performance:

1. The subcontractor shall provide a measured net realized throughput baseline for Tier 1 storage below which it shall not go.
2. This baseline/benchmark will be measured with industry-standard software including not limited to SPECsfs2008, TPC-C, TCP-H and TCP-W.

Connectivity:

(1) JPL SAN (currently 8 Gbps)
(2) JPL Ethernet Network (currently Gigabit and 10 Gigabit)

Protocols:

1. NFS
2. FC SAN
3. CIFS

4. iSCSI

Metrics:

1. JPL user-accessible web portal providing detailed metrics including but not limited to
   a. Net realized throughput (performance)
   b. Availability
   c. Baseline conformance
   d. Usage per customer and total
   e. Margin (net usable free space available for customers)
   f. Data quality sampling

Monitoring/Alerting:

Aside from the subcontractor's own monitoring and alerting, the Tier 1 service shall subscribe to the JPL monitoring/Alerting Service.

Snapshots

The subcontractor shall provide a local snapshot service for Tier 1 storage that the customer may optionally subscribe to.

Replication

1. The subcontractor shall provide a local replication service for Tier 1 storage that the customer may optionally subscribe to.
2. The subcontractor shall provide a distance replication service with the distance repository being not in California for Tier 1 storage that the customer may optionally subscribe to.

Backup/Recovery:

The Tier 1 Storage shall be accessible to the JPL Backup/Recovery Service.

Provisioning:

1. The subcontractor shall provision storage to a customer within 4 JPL business hours of receiving the request for amounts of 10 TB usable or less.
2. The subcontractor shall provision storage to a customer within 3 JPL work days of receiving the request for greater than 10 TB usable.

De-provisioning:

The subcontractor shall de-provision storage within 4 business hours of receiving the request from the customer.

Technology Refresh and Currency

The subcontractor shall present an annual review to JPL of currently available storage technology. Based on JPL's analysis and findings, JPL may/will direct the subcontractor to implement specific storage technology as part of the service offering. When such new technology is implemented, a new Baseline Performance metric will be produced by the subcontractor.

FINANCIAL SUMMARY			
Financial Categories:	Previous Amount	Change Amount	New Amount
Ceiling Cost	$0	$M	$M
	$/GB/Month<1 TB	$/TB/Month<100 TB	$/TB/Month>100 TB
Fixed Unit Cost	$	$	$

SIGNATURE BLOCKS		
JPL Subcontracts Manager's Name	JPL Subcontracts Manager's Signature	Signature Date
Tom Lynch		
JPL Contract Technical Manager's Name	JPL Contract Technical Manager's Signature	Signature Date
Robert Sadler		
Authorized Subcontractor's Name	Authorized Subcontractor's Signature	Signature Date

Office of the CIO

JUMP Process Overview

Initial Release

JPL D-51434

5/29/2012

Prepared by:

Darryl Hahn

Jet Propulsion Laboratory California Institute of Technology Pasadena, California

DOCUMENT CHANGE LOG

Document Revision	*Date*	*Changes / Notes*
Initial Release	05/17/2010	Initial Release
Revision	2/29/2012	Process Refined
Revision	5/29/2012	Process Refined

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1 Defining JUMP

1.1 What is JUMP?

- JUMP is a tailored version of Rational Unified Process (RUP) with elements of the classical Iterative Process
- JUMP is used as a foundation on which content can be added or tailored as common sense indicates
- JUMP provides a framework for Good Practices, but does not define a Best Practice as each project is different

1.2 Value of JUMP

The JUMP process adds value to project development

- The Process is **Flexible** – You can modify the framework to meet the needs of the project while still preserving the process
- The Process is **Scalable** – It is easily adapted for both small and large projects
- The Process is **Manageable** – Multiple JUMP projects can be managed in a common way

JUMP is also an effort to establish a common frame of reference across OCIO and Ebiz. The iterative approach to project management is more powerful and efficient, enables better reviews, and incurs lower overhead costs. Less effort documenting allows for more time for building solutions.

1.3 Reasons to use JUMP

There are many reasons to use the JUMP process:

- JUMP is required for all development projects
- There is an easy to follow framework
- Checklists help keep your bases covered
- Using a standardized process means easier hand-offs and sharing of work
- There is very straight-forward documentation, with templates and guidelines for meeting milestones
- JUMP ensures agreement between customers and service providers

Development is defined as: Any change to Requirements (what the system is supposed to do) or Specifications (how a system does it).

1.4 JUMP Waivers

Projects can waive some of the JUMP Process if they are

- Short Term (10 days or less) and
- Low Cost ($15K or less) and

- Use Standard Technologies, and Standard Architectures

All JUMP Waivers are managed by and must be approved by the Development Process Manager. *See section 10 for more details on Waivers.*

1.5 JUMP and ITIL

The Information Technology Infrastructure Library (ITIL) is a set of concepts and policies for managing IT infrastructure, development and operations. ITIL does not define a specific Software Development Process. Some of the JUMP's inputs and outputs flow from the ITIL Lifecycle, but JUMP is independent of ITIL. JUMP sits within the ITIL Service Design Lifecycle. All JUMP artifacts, collected together, constitute the Service Design Package (SDP) ITIL artifact.

1.6 JUMP and PMI

JUMP uses the Project Management standards as defined in the PEMBOK.

1.7 JUMP IT Buckets

The type of project that is being implemented could be categorized as follows.

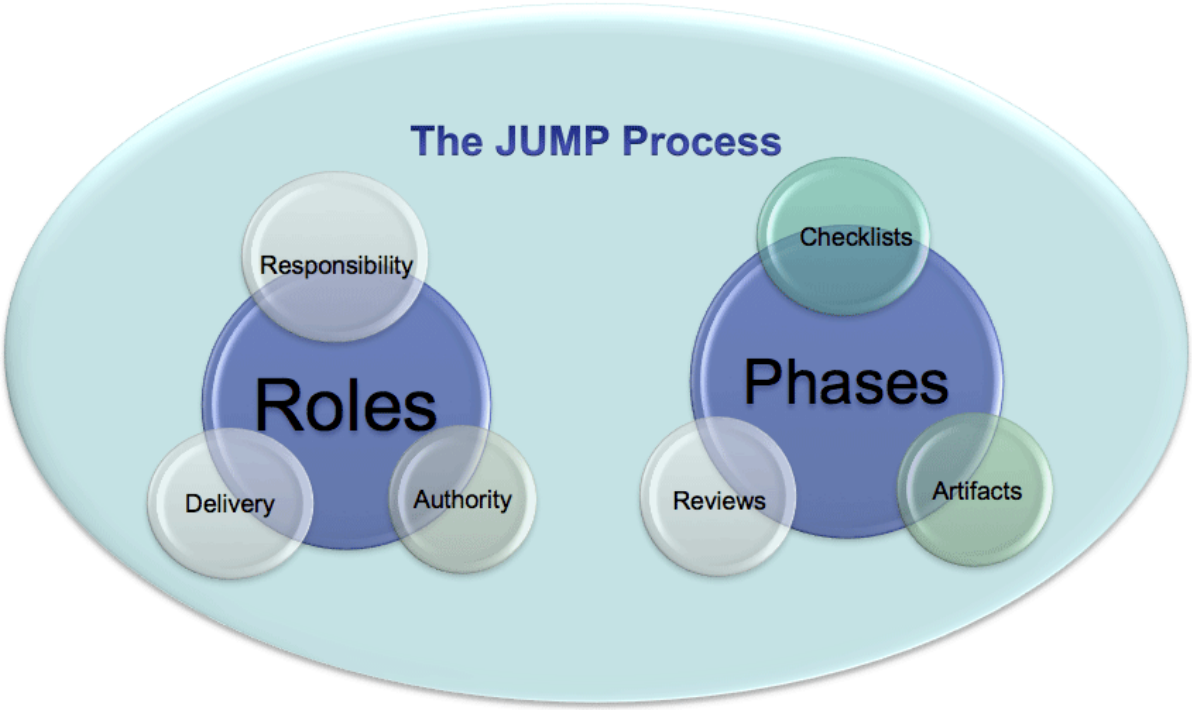
Table 1. JUMP IT Buckets

Bucket	***Definitions***
Prototype	System that is developed but not intended to go live into production
Pilot	Fully functioning system to a limited audience. Intended to go into wider release
Proof of Concept	A system of limited functionality to demonstrate its feasibility
Consulting	No software development
COTS/Procurement	Consumer of the shelf. May need configuration but no major development
Production	Enterprise system for deployment to the lab
External to OCIO	System that is developed but not operated within the OCIO
Upgrade, Migration, Fix	System that currently has new functionality or is moving to a new product version. Data that is migrating from one system to another system. Implementation of bug fixes for a system
Process / Other	System that does not fall into one of the above IT project buckets or is done by another process

2 Roles

Every role in JUMP has specific responsibilities, deliverables and authority in each phase.

Figure 1. The JUMP Process



2.1 Role Definitions

Table 2. Role Definitions

Role	***Responsibility***	***Authority***
Project Manager	Single person responsible for all aspects of the project	• Review Board Member • Document Approval
Sponsor	Single named individual that represents the Stakeholders, Customers, and Users	• Review Board Member • Document Approval
Responsible Developer	Responsible for the design and quality of the software developed	• Review Board Member • Document Approval
OCIO Architect Rep	Ensures that the architectures selected are approved by the organization	• Review Board Member • Checklist Approval • Document Approval
OCIO Line Rep	Validates resource estimates, allocates resources, and commits the section to the completion of the project	• Review Board Member • Document Approval
OCIO Technologist Rep	Ensures that the technologies used are approved by the organization	• Review Board Member • Document Approval

Role	*Responsibility*	*Authority*
OCIO UX Rep	Ensure a common, reliable, intuitive, and maintainable user experience across all IT Applications	• Checklist Approval • Document Approval
Software Quality Assurance (SQA)	Works with the Responsible Developer to provide a test plan and executes the tests	• Review Board Member • Document Approval
Development Services	Coordinates configuration, testing, and documentation tasks with the Operations Manager, Quality Assurance Tester, and Operations Support Team	• Review Board Member • Checklist Approval • Document Approval
Operations	Provides transition and operations support for the solution	• Review Board Member • Checklist Approval • Document Approval
IT Security	Ensures that all applications are adhering to JPL IT Security policies	• Review Board Member • Checklist Approval
Communications	Responsible for communications and outreach	• Review Board Member
Systems Engineer	Responsible for all technical aspect of the designed solution	• Document Approval
Business Product Lead	Works with the Project Manager to transition the solution to production	• Document Approval
Customers	Pays for the service to be developed/maintained	• Consulting
Users	Consumer of the service	• Consulting
Stakeholders	Anyone that can be effected positively or negativity by the service	• Consulting

3 Overview of the JUMP Phases

There are four Phases in the JUMP process

1. Inception Phase
2. Elaboration Phase
3. Construction Phase
4. Transition Phase

Each phase has a list of Major Requirements (and minor requirements), Artifacts that are produced, and a Review before proceeding to the next Phase.

3.1 Iterative Development

The critical idea in JUMP is Iterative Development. Iterative Development is successively adding to and refining a system through multiple iterations, using feedback and adaptation. Iterations

can be within a Phase, across Phases, or across the whole process. Iterations after completion of Elaboration should be time-boxed and kept within scope. Time and resources are fixed, while functionalities vary (opposite to traditional development). This is more in line with agile development cycles.

Iterate Within a Phase

- Refine concepts and deliverables
- Deliver partial functionality or products for review and/or testing
- When changes do not affect other Phases
- Traditional agile sprints

Iterate Across Phases

- Update important changes to vision or scope
- Use only when basic concepts are changing or
  When likelihood of miscommunication is high
- Provides much more formalized change control and review and acceptance process
- Traditional iterative development

Iterate the Whole Process

- When delivering software in Phases
- When delivering pieces of functionality at a time
- More traditional waterfall phased approach

3.2 Using Task Plans to Iterate

Sometimes it's more efficient to take a larger development effort and break down the deliveries into multiple smaller iterative deployments. By breaking larger projects down into deployments, management gets a clearer picture of the details (scheduling and resource allocation) of your effort. This aids in status tracking within the pipeline. In order to do this you'll need an overarching parent plan that details out the overall vision and scope for the project. This parent plan will need to be accompanied by smaller, less detailed, task plans that describe the individual deployment efforts and their deployment dates. These smaller plans are typically no more then a few paragraphs filled out on the task template. If you would like to utilize the task plan to iterate see the development pipeline manager for more details.

4 Inception Phase Details

4.1 Goals

Create Excitement for Implementing this Project. The Inception Phase is not very formal, and creates a proposal. You need to announce your project. Get the major parties on the same page and create management awareness. You need to ensure that the objectives of the project are stated clearly, so that the needs of every stakeholder are considered. This establishes scope

and boundary conditions, acceptance criteria, and some requirements. This is also the point where the responsible line manager validates the plan and ensures that the OCIO can commit resources to the project.

4.2 Activities

The following take place in this phase:

1. Register Project in the development pipeline
2. Create your vision statement for the project
3. List out your features
4. Define your scope
5. Identify your success criteria
6. Identify your Sponsor
7. Build your cost and schedule estimates
8. Build a glossary if needed

4.3 Artifacts and Checklists

Required Artifacts

- Inception Plan
- IT Security Checklist
- Architecture Checklist

Optional Artifacts

- Work Agreements

4.4 Review

The objective is to present a problem you have identified and a vision as to how to solve that problem. All parties are brought into alignment on the scope, goal and vision. Pending a funding commitment the project can move onto the next phase.

4.5 Inception Phase Success

The Inception Phase is Successful if:

1. The items on the checklist are completed
2. Successful Inception Review - Board members pass the Scorecards

Note: Completion of Inception Phase does not necessarily guarantee Funding.

5 Elaboration Phase Details

5.1 Goals

Flesh out the details. Build upon the fundamental vision, features, and scope identified in the Inception Phase. The Elaboration Phase is the most comprehensive of all JUMP phases. This is where organizations, sponsors, and other parties define, discuss, decide, and document the key points related to the realization of the vision. An analysis is done to determine what it will take to achieve the vision and meet the success criteria of the Inception Phase. The risks, details of vision, choice of architecture, and expenditure of resources are also determined.

Elaboration has the longest checklist and the most representation at its review.

5.2 Activities

The following take place in this phase:

1. Functional and non-functional requirements are established
2. Identification of what development services will be needed
3. Concept of Operations is established
4. System Interface Mock-ups are created
5. High-level Solution Architecture is created
6. Architecture Concepts Reuse needs to be considered
7. Architectures will get approved
8. Technologies will get approved
9. Solution options are presented
10. Chosen solution is described and justified
11. Project Schedule, Budgets and Risks are refined
12. Compliance with all applicable policies and IT Security are established
13. General project feasibility is considered

5.3 Artifacts and Checklists

Required Artifacts

- Project Plan
- SRD
- Mockup
- IT Security Checklist
- UX Checklist
- Architecture Checklist

- Operations Checklist

Optional Artifacts

- Policy Approvals
- Tech positions
- Proof of Concept
- Lessons Learned
- Architecture Artifacts
- SRS
- Waivers

5.4 Review

The objective is to expand upon and execute the vision detailed out in the Inception phase. If the ideas presented here are viable, the Construction phase will begin. This is typically the most elaborate review of all the phases. This review ensures that the core stakeholders all understand the details of the project. The Project Team will discuss refined scope, schedule, resources and budget.

5.5 Elaboration Phase Success

The Elaboration Phase is successful if:

1. All parties agree on a Final Mockup
2. Sign off on a set of requirements
3. Agree on a Project Plan including scope, schedule, resources and budget
4. The items on the checklist are completed
5. Successful Elaboration Review - Board members pass the Scorecards

6 Construction Phase Details

6.1 Goals

Build and test what you designed and planned. The Construction Phase is a manufacturing process. It emphasizes managing resources and controlling operations to optimize costs, schedules, and quality. The components necessary for the delivery of a complete, functional, and sustainable solution will be procured, configured, developed and integrated.

JUMP (and RUP / OpenUP) changes the basic assumptions for the amount of time that a project will spend in construction. Construction should take less than 50% and hopefully closer to 35% of the overall project time. Typically, a minimum of 30% to 50% of the total time in Construction should be in testing (includes integration and unit tests). For some systems, like embedded systems or systems with new technologies or architectures, this number could exceed 50%.

Projects should look to smaller construction numbers while increasing the amount of time for design and testing. All work on Plans and Training Materials should be done in parallel with software development activities. If these tasks cannot be done in parallel, it is an indication of insufficient planning or design preparation.

6.2 Activities

The following take place in this phase:

1. Task Plan is created
2. SQA Plan is created
3. Transition Plan is created
4. Training Materials are created
5. Meet organizational procedural requirements
6. Final Disposition of Defects and/or Issues takes place
7. Design changes must be explained
8. Sponsor acceptance
9. Deployable Solution (if applicable) is created

6.3 Artifacts and Checklists

Required Artifacts

- Implementation Plan
- Deployable Solution (Code)
- Training Materials
- Transition Plan
- Release Notes
- Test Plan & Results
- IT Security Checklist
- UX Checklist
- Operations Checklist
- Concept of Operations

Optional Artifacts

- Change Requests
- Impact Assessments

6.4 Review

The objective is to present a technical solution or other products described in the Elaboration phase. The construction review is focused on validating that the product is accepted, meets

requirements, and that Operations is prepared to accept and support the solution. It is important to understand: Use-Cases, Environments (Development, Test, UAT and Production), Testing methodology, Operations and Developers Guides and Rollout Plans. Upon passing this review the solution will be deployed to production.

6.5 Construction Phase Success

The Construction Phase is successful if:

1. Delivers the functionality described in the use-cases, meets all essential requirements
2. Meets the organization's minimum procedural requirements, such as IT security policy or User Experience Standards
3. Releases all required documentation
4. Has been accepted by the Sponsor
5. Completes the items on the checklist
6. Successful Construction Review (ORR – Operational Readiness Review) - Board members pass the Scorecards

7 Transition Phase Details

7.1 Goals

This is where rollout occurs and is formal hand off to Operations. Development Team gives product to the users and the Operations Team. The Operations and Support groups are heavily involved in this phase.

Transition is where you will execute the rollout plan and user training. The first 30-60 days should be watched very closely to ensure that your system is doing all the things it was supposed to. During this time, hopefully, you'll be able to catch all the bugs that creep up post deployment. This is also the point in the development lifecycle where you can also showcase your new system and build moral/excitement around it. The operations and support documentation should be reviewed/approved prior to "Go Live". Validate that risks are mitigated, OLAs and SLAs are in compliance, and success criteria have been met. Transition Phase is time-boxed and under configuration management.

7.2 Activities

The following take place in this phase:

1. Timing of product release
2. Deliverables must be place under configuration management
3. All critical issues must be resolved
4. All documentation must be disseminated

5. Product lead/primary POC must be established for customers
6. Sponsor accepts final solution
7. Formal hand off to Operations
8. Success metrics are created
9. Lessons Learned are created and presented
10. Close out project in the development pipeline

7.3 Artifacts and Checklists

Required Artifacts

- Lessons Learned

Optional Artifacts

- Tech or Pilot Evaluation Report

7.4 Reviews

There are two main goals for the Transition Review. 1) To get sponsor approval that the final delivered product is what they expected. 2) To complete the formal hand off to Operations. This is the last opportunity for either the sponsor or the operations team to say that more work needs to be done prior to closing out the development effort.

7.5 Transition Phase Success

The Transition Phase is successful if:

1. The solution is working as designed in the production environment
2. The solution is supported as expected
3. Success metrics are met

7.6 Transition Phase Outcomes

The Transition Phase is successful if:

1. All parties agree the solution is functioning as expected
2. The solution is not 100% successful, but remains in production and continues to be tested
3. The solution is rolled-back out of production
4. The project is closed out as complete

8 Reviews

8.1 What is a JUMP Review?

All JUMP reviews are compliance/commitment reviews. They are there to ensure that the project is following the JUMP process and that the OCIO and Sponsor will committed to the scope, resource, budget and scheduling parameters identified.

JUMP reviews will focus on the completion of JUMP Gate Products. There are four mandatory reviews in a standard JUMP development lifecycle. One at the end of each of the Inception, Elaboration, Construction and Transition Phases. All the Board Members will meet physically or via conference call to discuss the project. Each Review Board Member is required to fill out a scorecard stating the health of the project related to their role. Those scorecards are then collected at the end of the review and evaluated by the Development Pipeline Manager to determine if the project passed the review. If necessary, RFAs (Request for Actions) are captured at the reviews. Basically, all parties agree:

1. That the Checklists are complete
2. That the plans for scope, schedule, budget and resources are reasonable
3. That all required artifacts have been completed
4. That the over all solution is acceptable and will meet the stated need

8.1.1 Delta Reviews

If a review board member is unsatisfied with the information presented in any of the reviews they can recommend a delta review. Recommending a delta review means that the project failed to pass the review and that the Project Manager must address the board members concerns, either privately or via a delta review, prior to being allowed to move on to the next phase of development.

8.1.1 Design Reviews

JUMP does not call out Design Reviews. Each organization addresses design reviews in their procedures and guidelines.

8.1.2 Management Reviews and Progress Reports

JUMP does not specifically call out the requirement for Monthly Management Reviews (MMRs). JUMP does require weekly project status updates, but not any specific project status reporting. These are addressed by each organization's procedures and guidelines.

8.1.1 Board Member Proxies

Occasionally, board members may not be available for a scheduled review. In the event of an absentee board member, the responsible line manager can serve as a proxy for the missing

board member. By becoming a proxy, the responsible line manager will approve or disapprove a review (via scorecard). The responsible line manager accepts responsibility for making the call on whether or not the project has successfully addressed the concerns for the missing board member.

The only exception to proxies is for the Sponsor and Operations Manager at the Transition review. Their input is necessary to verify that the delivered product functions as expected and to complete the handoff to the operations team.

8.1.2 Role Definitions

Table 3. Role Descriptions in Reviews

Role	*Description*
Review Presenter	Usually the Project Manager
Review Board Members	Responsible Project Members, Organizational Policy Representatives, or other people representing dependencies selected by the Project Manager
Review Board Chair	Person who will insure that the review remains focused, within the allocated time and collect artifacts during and after the review
Observers	Anyone attending the review who does not have a designated role

8.1.3 Recommendation for Action (RFAs)

Recommendation For Action (RFA) forms are one of the two official feedback mechanisms for a JUMP review. These are very simple forms that capture issues, comments, or suggestions. Each RFA should contain only one input. RFAs may be submitted on-line via the project's JUMP site or via paper form. Paper RFAs should be entered onto the JUMP site by the Development Pipeline Manager as soon as possible, to provide for easy tracking of open issues. RFAs can be submitted for the project at any time, not only during reviews

8.1.4 Impacts of RFAs

- RFAs will not cause a project to fail a Review. Review Failure can only happen via the Board Member's scorecards
- Board Members may deny approval to a Review due to an RFA.
- Issues, comments, and suggestions identified though RFAs may be incorporated into the next Phase Iteration (if there is one) or in future versions of the project
- Each RFA must be addressed and feedback responses returned to the submitter, even if the project has passed its review. After an RFA has been dispositioned, the Project Manager is responsible for gaining approval from the RFA submitter that the concern has been addressed.

- All RFAs must be closed before the next review (or before the end of the project in the case of RFAs gathered in Transition Phase)

8.1.5 Setting up for Your Reviews

Review PowerPoint templates are available, for each phase. They address each of the major deliveries needed to prove compliance with the JUMP process. They provide a simple and effective communication mechanism to describe your project. Project Managers can tailor them to fit your specific project.

The development pipeline manager will assist in setting up the review. Reviews should have one dedicated person to keep minutes and attendance. All documents must be signed-off and released through the development pipeline manager prior to your Review.

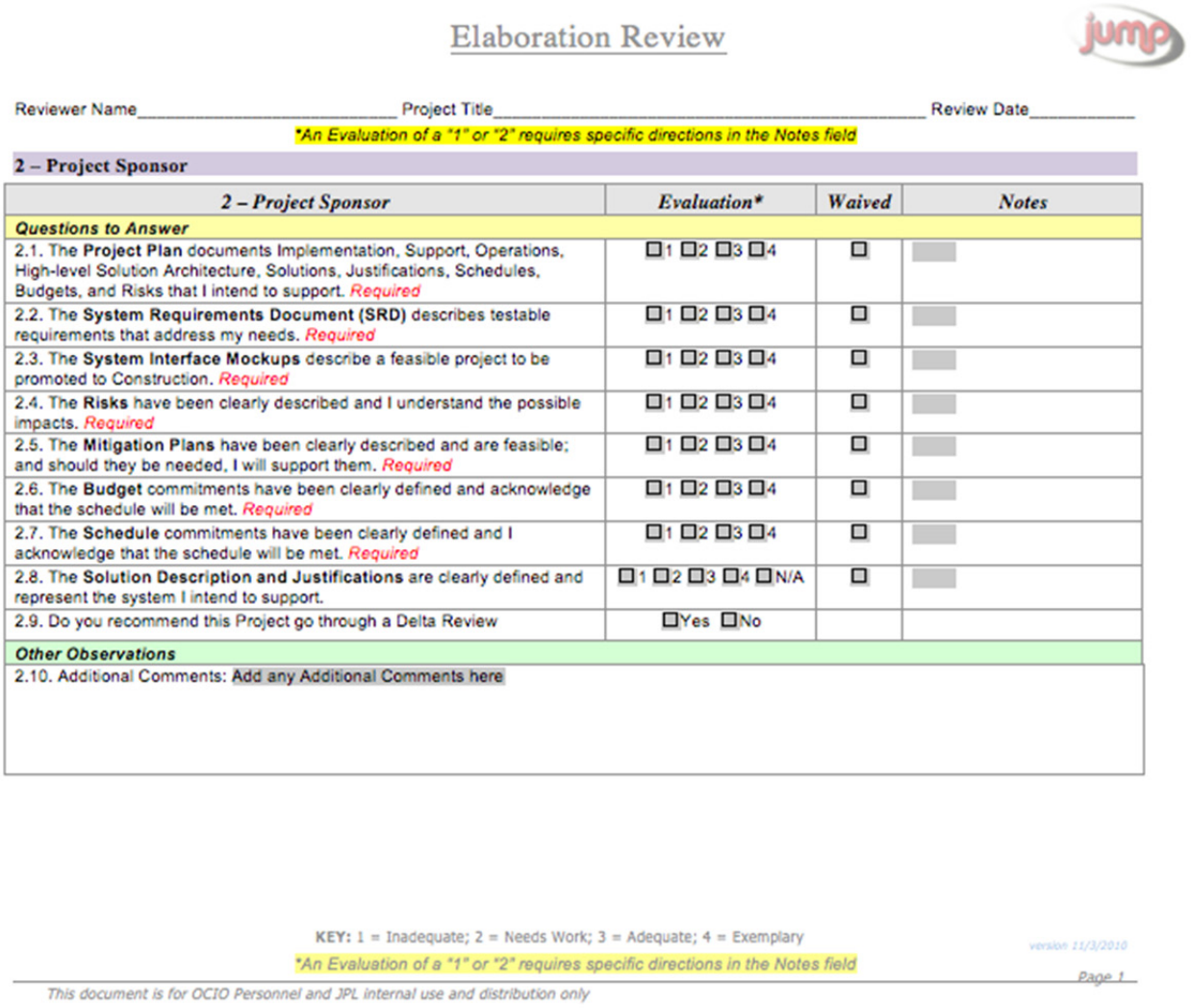
8.1.6 Scorecards

Discipline-specific scorecards are issued to the Board Members to:

- Ensure that different Board Members within a discipline are addressing the same key concerns
- Ensure consistency from review to review
- Keep focus on relevant areas and commitments for a discipline

Scorecard questions were developed after interviews with Subject Matter Experts. Scorecards allow Board Members to rate the project's presentation against a number of areas. Board Members can recommend a delta review if they feel that the information provided during the review did not address their concerns. A score on any individual item of 2 or less signifies a failure of the review. The Project Manager must then address the failed area either individually with the specific Review Board Member or with all Review Board Members in a delta review. Every item in the scorecard needs to be properly explained and justified.

Figure 2. Sample JUMP Scorecard



Elaboration Review

Reviewer Name_____ Project Title_____ Review Date_____

*An Evaluation of a "1" or "2" requires specific directions in the Notes field

2 – Project Sponsor

2 – Project Sponsor	*Evaluation**	*Waived*	*Notes*
Questions to Answer			
2.1. The **Project Plan** documents Implementation, Support, Operations, High-level Solution Architecture, Solutions, Justifications, Schedules, Budgets, and Risks that I intend to support. *Required*	☐1 ☐2 ☐3 ☐4	☐	
2.2. The **System Requirements Document (SRD)** describes testable requirements that address my needs. *Required*	☐1 ☐2 ☐3 ☐4	☐	
2.3. The **System Interface Mockups** describe a feasible project to be promoted to Construction. *Required*	☐1 ☐2 ☐3 ☐4	☐	
2.4. The **Risks** have been clearly described and I understand the possible impacts. *Required*	☐1 ☐2 ☐3 ☐4	☐	
2.5. The **Mitigation Plans** have been clearly described and are feasible; and should they be needed, I will support them. *Required*	☐1 ☐2 ☐3 ☐4	☐	
2.6. The **Budget** commitments have been clearly defined and acknowledge that the schedule will be met. *Required*	☐1 ☐2 ☐3 ☐4	☐	
2.7. The **Schedule** commitments have been clearly defined and I acknowledge that the schedule will be met. *Required*	☐1 ☐2 ☐3 ☐4	☐	
2.8. The **Solution Description and Justifications** are clearly defined and represent the system I intend to support.	☐1 ☐2 ☐3 ☐4 ☐N/A	☐	
2.9. Do you recommend this Project go through a Delta Review	☐Yes ☐No		
Other Observations			
2.10. Additional Comments: Add any Additional Comments here			

KEY: 1 = Inadequate; 2 = Needs Work; 3 = Adequate; 4 = Exemplary

*An Evaluation of a "1" or "2" requires specific directions in the Notes field

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9 JUMP Fast Track (task)

Certain types of projects may be eligible for Fast Track. Fast Tracks remove some of the checklist artifacts and requirements. Types of Fast Track projects can include (but are not limited to):

- Small development efforts
    a. Short timeframe
    b. Limited funding
    c. Low impact
- Larger development efforts broken down into several iterative deployment phases
- Proof of Concepts
- Procurements
- Nominal maintenance activities *(Nominal maintenance is defined as changes to a production system that does not effect architecture or core system capabilities. IE minor updates and bug fixes).*

9.1 General criteria for Fast Track

- Less than $20k
- Low technical risk (easy to do, and/or easy to fix, and/or easy to roll back)
- Low rollout risk (limited audience and/or not mission critical)

9.2 Process

- Fill out the task form
    - Combines subset of Inception, Elaboration & Project Plan information
    - Identifies testing approach
    - Identifies rollout approach
    - Identifies required approvals
        - Architecture review
        - UX evaluation
        - IT Security review
        - Ops checklist
        - Help Desk Training
- Get approval from Project Sponsor and Line Manager
- Task is entered into JUMP Pipeline at Construction Phase
- (Simplified) ORR prior to deployment
- Rollout
- Lessons Learned/Demo to management (Project Status Update meeting)

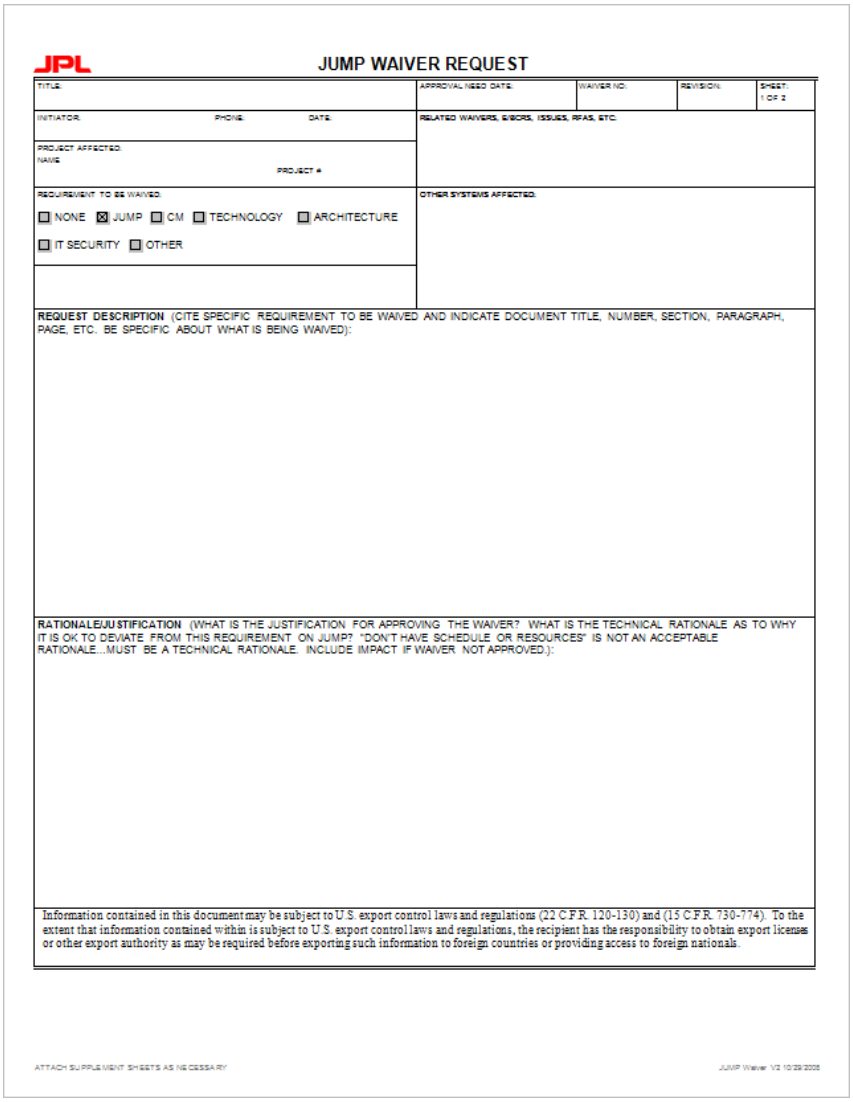
10 Waivers from the JUMP Process

The JUMP Process is mandatory for all projects that come out of Division 172. If a project cannot follow the JUMP process and needs to have JUMP waived, a JUMP waiver needs to be filled out and submitted to the Development Process Manager.

10.1 Process

Fill out the waiver and submit to the Development Process Manager to kick off the approval lifecycle. The Development Process Manager will validate the request and notify all the relevant parties about the waiver and secure approvals. If approved the project is waived from JUMP and will not need to follow the process.

Figure 3. JUMP Waiver Request



JPL

JUMP WAIVER REQUEST

TITLE:	APPROVAL NEED DATE:	WAIVER NO:	REVISION:	SHEET: 1 OF 2
INITIATOR: PHONE: DATE:	RELATED WAIVERS, ExWCRS, ISSUES, RFAS, ETC.			
PROJECT AFFECTED: NAME: PROJECT #				
REQUIREMENT TO BE WAIVED: ☐ NONE ☒ JUMP ☐ CM ☐ TECHNOLOGY ☐ ARCHITECTURE ☐ IT SECURITY ☐ OTHER	OTHER SYSTEMS AFFECTED:			

REQUEST DESCRIPTION (CITE SPECIFIC REQUIREMENT TO BE WAIVED AND INDICATE DOCUMENT TITLE, NUMBER, SECTION, PARAGRAPH, PAGE, ETC. BE SPECIFIC ABOUT WHAT IS BEING WAIVED):

RATIONALE/JUSTIFICATION (WHAT IS THE JUSTIFICATION FOR APPROVING THE WAIVER? WHAT IS THE TECHNICAL RATIONALE AS TO WHY IT IS OK TO DEVIATE FROM THIS REQUIREMENT ON JUMP? "DON'T HAVE SCHEDULE OR RESOURCES" IS NOT AN ACCEPTABLE RATIONALE...MUST BE A TECHNICAL RATIONALE. INCLUDE IMPACT IF WAIVER NOT APPROVED.):

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ATTACH SUPPLEMENT SHEETS AS NECESSARY

JUMP Waiver V2 10/29/2008

11 Checklists, Artifacts, Board Members and Signatories by Phase

Table 4. Checklists, Artifacts, Board Members and Signatories by Phase

	Project Manager	Product Sponsor	Responsible Developer	OCIO Architecture Rep	OCIO Line Rep	OCIO Technologist	OCIO UX Rep	Software Quality Assurance (SQA)	Development Services	Operations	IT Security	Communications	Systems Engineer	Product Lead
Inception Phase														
Review Board Member	x	x		x	x			x						
Required Artifacts														
Inception Plan	x	x		x	x								x	
IT Security Checklist	x										x			
Architecture Checklist	x			x										
Optional Artifacts														
Work Agreements	x	x			x									
Elaboration Phase														
Review Board Member	x	x	x	x	x	x		x	x	x	x	x		
Required Artifacts														
Project Plan	x	x	x	x	x	~		x	x	x				
SRD	x	x	x					x					x	
Mockup	x	x	x				x						x	
IT Security Checklist	x										x			
UX Checklist	x						x							
Architecture Checklist	x			x										
Operations Checklist	x								o	x				
Optional Artifacts														

Policy Approvals	x	x												
Tech positions			x			~								
Proof of Concept	x	x				~								
Lessons Learned	x	x												
Architecture Artifacts	x			x										
SRS	x	x	x					x					x	
Waivers														
Construction Phase														
Review Board Member	x	x	x		x	x		x	x	x	x	x		
Required Artifacts														
Implementation Plan	x		x					x	x	x		x		x
Deployable Solution (Code)	x		x				x	x						
Training Materials	x									x		x	x	x
Transition Plan	x								o	x				x
Release Notes	x		x									x		
Test Plan & Results	x	x	x		x			x					x	
IT Security Checklist	x										x			
UX Checklist	x						x							
Operations Checklist	x								o	x				
Concept of Operations	x								o	x				
Optional Artifacts														
Change Requests	x	x												
Impact Assessments			x										x	
Transition Phase														
Review Board Member	x	x			x				x	x	x	x		
Required Artifacts														
Lessons Learned	x	x	x							x			x	
Optional Artifacts														
Tech or Pilot Eval Report	x	x	x			~								

Key	
x	Required Signature
o	Required Signature if 172 is Responsible
~	Required Signature if New Technology