GENERAL SERVICES ADMINISTRATION
FEDERAL ACQUISITION SERVICE
AUTHORIZED FEDERAL SUPPLY SCHEDULE CATALOG/PRICE LIST

On-line access to contract ordering information, terms and conditions, up-to-date pricing, and the option to create an electronic delivery order is available through GSA Advantage!, a menu-driven database system. The INTERNET address for GSA Advantage! is http://www.gsaadvantage.gov

Company Name: RBR-TECHNOLOGIES, INC.
Duns Number : 968116322

Schedule Title: General Purpose Commercial Information Technology Equipment, Software and Services
FSC Group: D305, U012, D301, D306, D311
Contract Number: 47QTCA18D00CZ
Contract Period: May 24, 2018 through May 23, 2023
Service Disabled Veteran Owned Small Business

For more information on ordering from Federal Supply Schedules click on the GSA Schedules link at www.gsa.gov

Contractor: RBR-Technologies, Inc.
2288 Blue Water Blvd, Suite 322
Odenton, MD 21113
Phone number: 443-306-9250
Fax number: 443-569-7060
www.rbr-technologies.com

Contractor’s Administration Source: Bryan M. Harte
Business Size: Service Disabled Veteran Owned Small Business
**CUSTOMER INFORMATION:**

### 1a. TABLE OF AWARDED SPECIAL ITEM NUMBERS (SINs)

<table>
<thead>
<tr>
<th>SIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 40</td>
<td>Cloud Computing Services</td>
</tr>
<tr>
<td>132 50</td>
<td>Training Courses</td>
</tr>
<tr>
<td>132 51</td>
<td>Information Technology Professional Services</td>
</tr>
</tbody>
</table>

### 1b. LOWEST PRICED MODEL NUMBER AND PRICE FOR EACH SIN: See Submitted Price List

### 1c. HOURLY RATES:

<table>
<thead>
<tr>
<th>SIN(s)</th>
<th>SERVICE</th>
<th>UNIT OF ISSUE</th>
<th>GSA Price W/ IFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 51</td>
<td>Principal Systems Solution Engineer</td>
<td>Hourly</td>
<td>$194.81</td>
</tr>
<tr>
<td>132 51</td>
<td>Net Centric Enterprise Architect</td>
<td>Hourly</td>
<td>$154.84</td>
</tr>
<tr>
<td>132 51</td>
<td>Senior Information Technology Expert</td>
<td>Hourly</td>
<td>$118.80</td>
</tr>
<tr>
<td>132 51</td>
<td>Senior Collaboration Engineer</td>
<td>Hourly</td>
<td>$143.61</td>
</tr>
<tr>
<td>132 51</td>
<td>Unified Capabilities Subject Matter Expert Lead</td>
<td>Hourly</td>
<td>$190.99</td>
</tr>
<tr>
<td>132 51</td>
<td>Unified Capabilities Subject Matter Expert Associate</td>
<td>Hourly</td>
<td>$151.80</td>
</tr>
<tr>
<td>132 51</td>
<td>Cloud Engineering Development Consultant</td>
<td>Hourly</td>
<td>$187.65</td>
</tr>
<tr>
<td>132 51</td>
<td>Subject Matter Expert Lead</td>
<td>Hourly</td>
<td>$95.28</td>
</tr>
<tr>
<td>132 51</td>
<td>Cloud Data Scientist Development Consultant</td>
<td>Hourly</td>
<td>$218.92</td>
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<tr>
<td>132 51</td>
<td>Principal Systems Engineer Lead</td>
<td>Hourly</td>
<td>$184.47</td>
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<tr>
<td>132 51</td>
<td>Web Architect</td>
<td>Hourly</td>
<td>$151.69</td>
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<tr>
<td>132 51</td>
<td>Information Systems Security Specialist Intermediate</td>
<td>Hourly</td>
<td>$104.46</td>
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<tr>
<td>132 51</td>
<td>IT Security Analyst</td>
<td>Hourly</td>
<td>$123.85</td>
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<tr>
<td>132 51</td>
<td>Information Systems Security Specialist Associate</td>
<td>Hourly</td>
<td>$92.23</td>
</tr>
<tr>
<td>132 51</td>
<td>Collaboration Analyst</td>
<td>Hourly</td>
<td>$106.55</td>
</tr>
<tr>
<td>132 40</td>
<td>Cloud AMIs</td>
<td>Monthly</td>
<td>$1,170.68</td>
</tr>
</tbody>
</table>

**See Job Descriptions on page 26**

### Course Titles

<table>
<thead>
<tr>
<th>SIN(s)</th>
<th>Course Title</th>
<th>UNIT OF ISSUE</th>
<th>GSA Price W/ IFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 50</td>
<td>RBR-NO-001. NetOps Dashboard Setup</td>
<td>Per Course</td>
<td>$3,127.46</td>
</tr>
<tr>
<td>132 50</td>
<td>RBR-NO-002. ASI Grid and Calendar</td>
<td>Per Course</td>
<td>$6,254.91</td>
</tr>
<tr>
<td>132 50</td>
<td>RBR-NO-004. DEE Maps</td>
<td>Per Course</td>
<td>$1,563.73</td>
</tr>
<tr>
<td>132 50</td>
<td>RBR-NO-005. DEE Performance Indicator</td>
<td>Per Course</td>
<td>$1,563.73</td>
</tr>
<tr>
<td>132 50</td>
<td>RBR-NO-007. HBSS Performance Indicator</td>
<td>Per Course</td>
<td>$1,563.73</td>
</tr>
</tbody>
</table>

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2. **MAXIMUM ORDER***:
   - SINs 132 40 & 132 51- $500,000
   - SIN 132 50 - $25,000

   *Ordering activities may request a price reduction at any time before placing an order, establishing a BPA, or in conjunction with the annual BPA review. However, the ordering activity shall seek a price reduction when the order or BPA exceeds the simplified acquisition threshold. Schedule contractors are not required to pass on to all schedule users a price reduction extended only to an individual ordering activity for a specific order or BPA.

3. **MINIMUM ORDER**: $100

4. **GEOGRAPHIC COVERAGE**: 48 contiguous states, Alaska, Hawaii, Washington D.C., Puerto Rico, U.S. Territories, and to a port or consolidation point within the aforementioned locations for orders that are received from overseas activities.

5. **POINT(S) OF PRODUCTION**: Not Applicable

6. **DISCOUNT FROM LIST PRICES**: 3%

7. **QUANTITY DISCOUNT(S)**: Not Applicable

8. **PROMPT PAYMENT TERMS**: Net 30 Days

9a. Government Purchase Cards must be accepted at or below the micro-purchase threshold.

9b. Government Purchase Cards are accepted above the micro-purchase threshold.

10. **FOREIGN ITEMS**: Not Applicable

11a. **TIME OF DELIVERY**: Determined on task order level
11b. EXPEDITED DELIVERY: Contact contractor

11c. OVERNIGHT AND 2-DAY DELIVERY: Contact contractor

11d. URGENT REQUIREMENTS: Agencies can contact the Contractor’s representative to affect a faster delivery. Customers are encouraged to contact the contractor for the purpose of requesting accelerated delivery.

12. FOB POINT: Not Applicable

13a. ORDERING ADDRESS: 2288 Blue Water Blvd, Suite 322 Odenton, MD 21113

13b. ORDERING PROCEDURES: For supplies and services, the ordering procedures, information on Blanket Purchase Agreements (BPA’s) are found in Federal Acquisition Regulation (FAR) 8.405-3

14. PAYMENT ADDRESS: 2288 Blue Water Blvd, Suite 322 Odenton, MD 21113

15. WARRANTY PROVISION: Not Applicable

16. EXPORT PACKING CHARGES: N/A

17. TERMS AND CONDITIONS OF GOVERNMENT PURCHASE CARD ACCEPTANCE: N/A

18. TERMS AND CONDITIONS OF RENTAL, MAINTENANCE, AND REPAIR (IF APPLICABLE): N/A

19. TERMS AND CONDITIONS OF INSTALLATION (IF APPLICABLE): N/A

20. TERMS AND CONDITIONS OF REPAIR PARTS INDICATING DATE OF PARTS PRICE LISTS AND ANY DISCOUNTS FROM LIST PRICES (IF AVAILABLE): N/A

20a. TERMS AND CONDITIONS FOR ANY OTHER SERVICES (IF APPLICABLE): N/A

21. LIST OF SERVICE AND DISTRIBUTION POINTS (IF APPLICABLE): N/A

22. LIST OF PARTICIPATING DEALERS (IF APPLICABLE): N/A

23. PREVENTIVE MAINTENANCE (IF APPLICABLE): N/A

24a. SPECIAL ATTRIBUTES SUCH AS ENVIRONMENTAL ATTRIBUTES (e.g. recycled content, energy efficiency, and/or reduced pollutants): N/A
24b.  Section 508 Compliance for EIT: N/A

25.  DUNS NUMBER: 968116322

26.  Contractor has an active registration in the SAM database.
1. **SCOPE**
   a. The Contractor shall provide training courses normally available to commercial customers, which will permit ordering activity users to make full, efficient use of general purpose commercial IT products. Training is restricted to training courses for those products within the scope of this solicitation.
   b. The Contractor shall provide training at the Contractor's facility and/or at the ordering activity's location, as agreed to by the Contractor and the ordering activity.

2. **ORDER**
   Written orders, EDI orders (GSA Advantage! and FACNET), credit card orders, and orders placed under blanket purchase agreements (BPAs) shall be the basis for the purchase of training courses in accordance with the terms of this contract. Orders shall include the student's name, course title, course date and time, and contracted dollar amount of the course.

3. **TIME OF DELIVERY**
   The Contractor shall conduct training on the date (time, day, month, and year) agreed to by the Contractor and the ordering activity.

4. **CANCELLATION AND RESCHEDULING**
   a. The ordering activity will notify the Contractor at least seventy-two (72) hours before the scheduled training date, if a student will be unable to attend. The Contractor will then permit the ordering activity to either cancel the order or reschedule the training at no additional charge. In the event the training class is rescheduled, the ordering activity will modify its original training order to specify the time and date of the rescheduled training class.
   b. In the event the ordering activity fails to cancel or reschedule a training course within the time frame specified in paragraph a, above, the ordering activity will be liable for the contracted dollar amount of the training course. The Contractor agrees to permit the ordering activity to reschedule a student who fails to attend a training class within ninety (90) days from the original course date, at no additional charge.
   c. The ordering activity reserves the right to substitute one student for another up to the first day of class.
   d. In the event the Contractor is unable to conduct training on the date agreed to by the Contractor and the ordering activity, the Contractor must notify the ordering activity at least seventy-two (72) hours before the scheduled training date.

5. **FOLLOW-UP SUPPORT**
   The Contractor agrees to provide each student with unlimited telephone support or online support for a period of one (1) year from the completion of the training course. During this period, the student may contact the Contractor's instructors for refresher assistance and answers to related course curriculum questions.
6. **PRICE FOR TRAINING**

The price that the ordering activity will be charged will be the ordering activity training price in effect at the time of order placement, or the ordering activity price in effect at the time the training course is conducted, whichever is less.

7. **INVOICES AND PAYMENT**

Invoices for training shall be submitted by the Contractor after ordering activity completion of the training course. Charges for training must be paid in arrears (31 U.S.C. 3324). PROMPT PAYMENT DISCOUNT, IF APPLICABLE, SHALL BE SHOWN ON THE INVOICE.

8. **FORMAT AND CONTENT OF TRAINING**

a. The Contractor shall provide written materials (i.e., manuals, handbooks, texts, etc.) normally provided with course offerings. Such documentation will become the property of the student upon completion of the training class.

b. **If applicable** For hands-on training courses, there must be a one-to-one assignment of IT equipment to students.

c. The Contractor shall provide each student with a Certificate of Training at the completion of each training course.

d. The Contractor shall provide the following information for each training course offered:

   (1) The course title and a brief description of the course content, to include the course format (e.g., lecture, discussion, hands-on training);

   (2) The length of the course;

   (3) Mandatory and desirable prerequisites for student enrollment;

   (4) The minimum and maximum number of students per class;

   (5) The locations where the course is offered;

   (6) Class schedules; and

   (7) Price (per student, per class (if applicable)).

e. For those courses conducted at the ordering activity’s location, instructor travel charges (if applicable), including mileage and daily living expenses (e.g., per diem charges) are governed by Pub. L. 99-234 and FAR Part 31.205-46, and are reimbursable by the ordering activity on orders placed under the Multiple Award Schedule, as applicable, in effect on the date(s) the travel is performed. Contractors cannot use GSA city pair contracts. The Industrial Funding Fee does NOT apply to travel and per diem charges.

f. For Online Training Courses, a copy of all training material must be available for electronic download by the students.

9. **“NO CHARGE” TRAINING**

The Contractor shall describe any training provided with equipment and/or software provided under this contract, free of charge, in the space provided below.

N/A
1. SCOPE

   a. The prices, terms and conditions stated under Special Item Number 132-51 Information Technology Professional Services apply exclusively to IT Professional Services within the scope of this Information Technology Schedule.
   b. The Contractor shall provide services at the Contractor’s facility and/or at the ordering activity location, as agreed to by the Contractor and the ordering activity.

2. PERFORMANCE INCENTIVES I-FSS-60 Performance Incentives (April 2000)

   a. Performance incentives may be agreed upon between the Contractor and the ordering activity on individual fixed price orders or Blanket Purchase Agreements under this contract.
   b. The ordering activity must establish a maximum performance incentive price for these services and/or total solutions on individual orders or Blanket Purchase Agreements.
   c. Incentives should be designed to relate results achieved by the contractor to specified targets. To the maximum extent practicable, ordering activities shall consider establishing incentives where performance is critical to the ordering activity’s mission and incentives are likely to motivate the contractor. Incentives shall be based on objectively measurable tasks.

3. ORDER

   a. Agencies may use written orders, EDI orders, blanket purchase agreements, individual purchase orders, or task orders for ordering services under this contract. Blanket Purchase Agreements shall not extend beyond the end of the contract period; all services and delivery shall be made and the contract terms and conditions shall continue in effect until the completion of the order. Orders for tasks which extend beyond the fiscal year for which funds are available shall include FAR 52.232-19 (Deviation – May 2003) Availability of Funds for the Next Fiscal Year. The purchase order shall specify the availability of funds and the period for which funds are available.
   b. All task orders are subject to the terms and conditions of the contract. In the event of conflict between a task order and the contract, the contract will take precedence.

4. PERFORMANCE OF SERVICES

   a. The Contractor shall commence performance of services on the date agreed to by the Contractor and the ordering activity.
   b. The Contractor agrees to render services only during normal working hours, unless otherwise agreed to by the Contractor and the ordering activity.
   c. The ordering activity should include the criteria for satisfactory completion for each task in the Statement of Work or Delivery Order. Services shall be completed in a good and workmanlike manner.
   d. Any Contractor travel required in the performance of IT Services must comply with the Federal Travel Regulation or Joint Travel Regulations, as applicable, in effect on the date(s) the travel is performed. Established Federal Government per diem rates will apply to all Contractor travel. Contractors cannot use GSA city pair contracts.

5. STOP-WORK ORDER (FAR 52.242-15) (AUG 1989)
(a) The Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by this contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the parties may agree. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either-

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if-

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor asserts its right to the adjustment within 30 days after the end of the period of work stoppage; provided, that, if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon the claim submitted at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

6. INSPECTION OF SERVICES


7. RESPONSIBILITIES OF THE CONTRACTOR

The Contractor shall comply with all laws, ordinances, and regulations (Federal, State, City, or otherwise) covering work of this character. If the end product of a task order is software, then FAR 52.227-14 (Dec 2007) Rights in Data – General, may apply.

8. RESPONSIBILITIES OF THE ORDERING ACTIVITY

Subject to security regulations, the ordering activity shall permit Contractor access to all facilities necessary to perform the requisite IT Professional Services.

9. INDEPENDENT CONTRACTOR

All IT Professional Services performed by the Contractor under the terms of this contract shall be as an independent Contractor, and not as an agent or employee of the ordering activity.

10. ORGANIZATIONAL CONFLICTS OF INTEREST

a. Definitions.
“Contractor” means the person, firm, unincorporated association, joint venture, partnership, or corporation that is a party to this contract.
“Contractor and its affiliates” and “Contractor or its affiliates” refers to the Contractor, its chief executives, directors, officers, subsidiaries, affiliates, subcontractors at any tier, and consultants and any joint venture involving the Contractor, any entity into or with which the Contractor subsequently merges or affiliates, or any other successor or assignee of the Contractor.

An “Organizational conflict of interest” exists when the nature of the work to be performed under a proposed ordering activity contract, without some restriction on ordering activities by the Contractor and its affiliates, may either (i) result in an unfair competitive advantage to the Contractor or its affiliates or (ii) impair the Contractor’s or its affiliates’ objectivity in performing contract work.

b. To avoid an organizational or financial conflict of interest and to avoid prejudicing the best interests of the ordering activity, ordering activities may place restrictions on the Contractors, its affiliates, chief executives, directors, subsidiaries and subcontractors at any tier when placing orders against schedule contracts. Such restrictions shall be consistent with FAR 9.505 and shall be designed to avoid, neutralize, or mitigate organizational conflicts of interest that might otherwise exist in situations related to individual orders placed against the schedule contract. Examples of situations, which may require restrictions, are provided at FAR 9.508.

11. INVOICES

The Contractor, upon completion of the work ordered, shall submit invoices for IT Professional services. Progress payments may be authorized by the ordering activity on individual orders if appropriate. Progress payments shall be based upon completion of defined milestones or interim products. Invoices shall be submitted monthly for recurring services performed during the preceding month.

12. PAYMENTS

For firm-fixed price orders the ordering activity shall pay the Contractor, upon submission of proper invoices or vouchers, the prices stipulated in this contract for service rendered and accepted. Progress payments shall be made only when authorized by the order. For time-and-materials orders, the Payments under Time-and-Materials and Labor-Hour Contracts at FAR 52.212-4 (MAR 2009) (ALTERNATE I – OCT 2008) (DEVIATION I – FEB 2007) applies to time-and-materials orders placed under this contract. For labor-hour orders, the Payment under Time-and-Materials and Labor-Hour Contracts at FAR 52.212-4 (MAR 2009) (ALTERNATE I – OCT 2008) (DEVIATION I – FEB 2007) applies to labor-hour orders placed under this contract. 52.216-31(Feb 2007) Time-and-Materials/Labor-Hour Proposal Requirements—Commercial Item Acquisition As prescribed in 16.601(e)(3), insert the following provision:
(a) The Government contemplates award of a Time-and-Materials or Labor-Hour type of contract resulting from this solicitation.
(b) The offeror must specify fixed hourly rates in its offer that include wages, overhead, general and administrative expenses, and profit. The offeror must specify whether the fixed hourly rate for each labor category applies to labor performed by—
   (1) The offeror;
   (2) Subcontractors; and/or
   (3) Divisions, subsidiaries, or affiliates of the offeror under a common control.

13. RESUMES

Resumes shall be provided to the GSA Contracting Officer or the user ordering activity upon request.

14. INCIDENTAL SUPPORT COSTS

Incidental support costs are available outside the scope of this contract. The costs will be negotiated separately with the ordering activity in accordance with the guidelines set forth in the FAR.

15. APPROVAL OF SUBCONTRACTS
The ordering activity may require that the Contractor receive, from the ordering activity's Contracting Officer, written consent before placing any subcontract for furnishing any of the work called for in a task order.

16. DESCRIPTION OF IT PROFESSIONAL SERVICES AND PRICING.

a. The Contractor shall provide a description of each type of IT Service offered under Special Item Numbers 132-51 IT Professional Services should be presented in the same manner as the Contractor sells to its commercial and other ordering activity customers. If the Contractor is proposing hourly rates, a description of all corresponding commercial job titles (labor categories) for those individuals who will perform the service should be provided.

b. Pricing for all IT Professional Services shall be in accordance with the Contractor’s customary commercial practices; e.g., hourly rates, monthly rates, term rates, and/or fixed prices, minimum general experience and minimum education.

The following is an example of the manner in which the description of a commercial job title should be presented:

EXAMPLE:

Commercial Job Title: System Engineer
Minimum/General Experience: Three (3) years of technical experience which applies to systems analysis and design techniques for complex computer systems. Requires competence in all phases of systems analysis techniques, concepts and methods; also requires knowledge of available hardware, system software, input/output devices, structure and management practices.
Functional Responsibility: Guides users in formulating requirements, advises alternative approaches, conducts feasibility studies.
Minimum Education: Bachelor’s Degree in Computer Science
1. SCOPE
The prices, terms and conditions stated under Special Item Number (SIN) 132-40 Cloud Computing Services apply exclusively to Cloud Computing Services within the scope of this Information Technology Schedule.

This SIN provides ordering activities with access to technical services that run in cloud environments and meet the NIST Definition of Cloud Computing Essential Characteristics. Services relating to or impinging on cloud that do not meet all NIST essential characteristics should be listed in other SINs.

The scope of this SIN is limited to cloud capabilities provided entirely as a service. Hardware, software and other artifacts supporting the physical construction of a private or other cloud are out of scope for this SIN. Currently, an Ordering Activity can procure the hardware and software needed to build on premise cloud functionality, through combining different services on other IT Schedule 70 SINs (e.g. 132-51).

Sub-categories in scope for this SIN are the three NIST Service Models: Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). Offerors may optionally select a single sub-category that best fits a proposed cloud service offering. Only one sub-category may be selected per each proposed cloud service offering. Offerors may elect to submit multiple cloud service offerings, each with its own single sub-category. The selection of one of three sub-categories does not prevent Offerors from competing for orders under the other two sub-categories. See service model guidance for advice on sub-category selection.

Sub-category selection within this SIN is optional for any individual cloud service offering, and new cloud computing technologies that do not align with the aforementioned three sub-categories may be included without a sub-category selection so long as they comply with the essential characteristics of cloud computing as outlined by NIST. See Table 1 for a representation of the scope and sub-categories.

Table 1: Cloud Computing Services SIN

<table>
<thead>
<tr>
<th>SIN Description</th>
<th>Sub-Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Commercially available cloud computing services</td>
<td>1. <strong>Software as a Service</strong> (SaaS): Consumer uses provider’s applications on cloud infrastructure. Does not manage/control platform or infrastructure. Limited application level configuration may be available.</td>
</tr>
<tr>
<td>• Meets the National Institute for Standards and Technology (NIST) definition of Cloud Computing essential characteristics</td>
<td>2. <strong>Platform as a Service</strong> (PaaS): Consumer deploys applications onto cloud platform service using provider-supplied tools. Has control over deployed applications and some limited platform configuration but does not manage the platform or infrastructure.</td>
</tr>
<tr>
<td>• Open to all deployment models (private, public, community or hybrid), vendors specify deployment models</td>
<td>3. <strong>Infrastructure as a Service</strong> (IaaS): Consumer provisions computing resources. Has control over OS, storage, platform, deployed applications and some limited infrastructure configuration, but does not manage the infrastructure.</td>
</tr>
</tbody>
</table>

2. DESCRIPTION OF CLOUD COMPUTING SERVICES AND PRICING
**NOTE TO CONTRACTORS:** The information provided below is designed to assist Contractors in qualifying cloud computing services for this SIN and providing complete descriptions and pricing information. This language should NOT be printed as part of the Information Technology Schedule Pricelist; instead, Contractors should respond to each service requirement as it relates to each cloud computing service offered under the contract. There is guidance provided in subsequent sections of the Terms and Conditions to assist in determining how to meet these requirements. This section delineates requirements for submitting a proposal for the Cloud SIN, as well as requirements that apply to Task Orders**

a. Service Description Requirements for Listing Contractors

The description requirements below are in addition to the overall Schedule 70 evaluation criteria described in SCP-FSS-001-N Instructions Applicable to New Offerors (Alternate I – MAR 2016) or SCP-FSS-001-S Instructions Applicable to Successful FSS Program Contractors, as applicable, SCP-FSS-004 and other relevant publications.

Refer to overall Schedule 70 requirements for timelines related to description and other schedule updates, including but not limited to clauses 552.238-81 – section E and clause I-FSS-600.

Table 2 summarizes the additional Contractor-provided description requirements for services proposed under the Cloud Computing Services SIN. All mandatory description requirements must be complete, and adequate according to evaluation criteria.

In addition there is one “Optional” reporting descriptions which exists to provide convenient service selection by relevant criteria. Where provided, optional description requirements must be complete and adequate according to evaluation criteria:

- The NIST Service Model provides sub-categories for the Cloud SIN and is strongly encouraged, but not required. The Service Model based sub-categories provide this SIN with a structure to assist ordering activities in locating and comparing services of interest. Contractors may optionally select the single service model most closely corresponding to the specific service offering.
- If a sub-category is selected it will be evaluated with respect to the NIST Service Model definitions and guidelines in “Guidance for Contractors”.

**Table 2: Cloud Service Description Requirements**

<table>
<thead>
<tr>
<th>Description Requirement</th>
<th>Reporting Type</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Provide a brief written description of how the proposed cloud computing services satisfies each individual essential NIST Characteristic</td>
<td>Mandatory</td>
<td>The cloud service must be capable of satisfying each of the five NIST essential Characteristics as outlined in NIST Special Publication 800-145. See ‘GUIDANCE FOR CONTRACTORS: NIST Essential Characteristics’ below in this document for detailed overall direction, as well as guidance on inheriting essential characteristics.</td>
</tr>
<tr>
<td>2. Select NIST deployment models for the cloud computing service proposed.</td>
<td>Mandatory</td>
<td>Contractors must select at least one NIST deployment model as outlined in NIST Special Publication 800-145 describing how the proposed cloud computing service is deployed. Select multiple deployment models if the service is offered in more than one deployment model.</td>
</tr>
</tbody>
</table>
See ‘GUIDANCE FOR CONTRACTORS: NIST Deployment Model’ below in this document for detailed direction on how to best categorize a service for the NIST deployment models.

3. Optionally select the most appropriate NIST service model that will be the designated sub-category, or may select no sub-category

Optional

Contractor may select a single NIST Service model to sub-categorize the service as outlined in NIST Special Publication 800-145. Sub-category selection is optional but recommended. See ‘GUIDANCE FOR CONTRACTORS: NIST Service Model’ below in this document for detailed direction on how to best categorize a service for the NIST IaaS, PaaS, and SaaS service models.

b. Pricing of Cloud Computing Services

All current pricing requirements for Schedule 70, including provision SCP-FSS-001-N (Section III Price Proposal), SCP-FSS-001-S, SCP-FSS-004 (Section III Price Proposal), and clause I-FSS-600 Contract Price Lists, apply. At the current time there is no provision for reducing or eliminating standard price list posting requirements to accommodate rapid cloud price fluctuations.

In addition to standard pricing requirements, all pricing models must have the core capability to meet the NIST Essential Cloud Characteristics, particularly with respect to on-demand self-service, while allowing alternate variations at the task order level at agency discretion, pursuant to the guidance on NIST Essential Characteristics.

3. RESPONSIBILITIES OF THE CONTRACTOR

The Contractor shall comply with all laws, ordinances, and regulations (Federal, State, City, or otherwise) covering work of this character.

a. Acceptance Testing

Any required Acceptance Test Plans and Procedures shall be negotiated by the Ordering Activity at task order level. The Contractor shall perform acceptance testing of the systems for Ordering Activity approval in accordance with the approved test procedures.

b. Training

If training is provided commercially the Contractor shall provide normal commercial installation, operation, maintenance, and engineering interface training on the system. Contractor is responsible for indicating if there are separate training charges.

c. Information Assurance/Security Requirements

The contractor shall meet information assurance/security requirements in accordance with the Ordering Activity requirements at the Task Order level.

d. Related Professional Services

The Contractor is responsible for working with the Ordering Activity to identify related professional services and any other services available on other SINs that may be associated with deploying a complete cloud solution. Any additional substantial and ongoing professional services related to the offering such as integration, migration, and other cloud professional services are out of scope for this SIN.

e. Performance of Cloud Computing Services
The Contractor shall respond to Ordering Activity requirements at the Task Order level with proposed capabilities to Ordering Activity performance specifications or indicate that only standard specifications are offered. In all cases the Contractor shall clearly indicate standard service levels, performance and scale capabilities.

The Contractor shall provide appropriate cloud computing services on the date and to the extent and scope agreed to by the Contractor and the Ordering Activity.

f. Reporting

The Contractor shall respond to Ordering Activity requirements and specify general reporting capabilities available for the Ordering Activity to verify performance, cost and availability.

In accordance with commercial practices, the Contractor may furnish the Ordering Activity/user with a monthly summary Ordering Activity report.

4. RESPONSIBILITIES OF THE ORDERING ACTIVITY

The Ordering Activity is responsible for indicating the cloud computing services requirements unique to the Ordering Activity. Additional requirements should not contradict existing SIN or IT Schedule 70 Terms and Conditions. Ordering Activities should include (as applicable) Terms & Conditions to address Pricing, Security, Data Ownership, Geographic Restrictions, Privacy, SLAs, etc.

Cloud services typically operate under a shared responsibility model, with some responsibilities assigned to the Cloud Service Provider (CSP), some assigned to the Ordering Activity, and others shared between the two. The distribution of responsibilities will vary between providers and across service models.

Ordering activities should engage with CSPs to fully understand and evaluate the shared responsibility model proposed. Federal Risk and Authorization Management Program (FedRAMP) documentation will be helpful regarding the security aspects of shared responsibilities, but operational aspects may require additional discussion with the provider.

a. Ordering Activity Information Assurance/Security Requirements Guidance

i. The Ordering Activity is responsible for ensuring to the maximum extent practicable that each requirement issued is in compliance with the Federal Information Security Management Act (FISMA) as applicable.

ii. The Ordering Activity shall assign a required impact level for confidentiality, integrity and availability (CIA) prior to issuing the initial statement of work. The Contractor must be capable of meeting at least the minimum security requirements assigned against a low-impact information system in each CIA assessment area (per FIPS 200) and must detail the FISMA capabilities of the system in each of CIA assessment area.

iii. Agency level FISMA certification, accreditation, and evaluation activities are the responsibility of the Ordering Activity. The Ordering Activity reserves the right to independently evaluate, audit, and verify the FISMA compliance for any proposed or awarded Cloud Computing Services.

iv. The Ordering Activity has final responsibility for assessing the FedRAMP status of the service, complying with and making a risk-based decision to grant an Authorization to Operate (ATO) for the cloud computing service, and continuous monitoring. A memorandum issued by the Office of Management and Budget (OMB) on Dec 8, 2011 outlines the responsibilities of Executive departments and agencies in the context of FedRAMP compliance.

v. Ordering activities are responsible for determining any additional information assurance and security related requirements based on the nature of the application and relevant mandates.
b. Deployment Model
If a particular deployment model (Private, Public, Community, or Hybrid) is desired, Ordering Activities are responsible for identifying the desired model(s). Alternately, Ordering Activities could identify requirements and assess Contractor responses to determine the most appropriate deployment model(s).

c. Delivery Schedule
The Ordering Activity shall specify the delivery schedule as part of the initial requirement. The Delivery Schedule options are found in Information for Ordering Activities Applicable to All Special Item Numbers.

d. Interoperability
Ordering Activities are responsible for identifying interoperability requirements. Ordering Activities should clearly delineate requirements for API implementation and standards conformance.

e. Performance of Cloud Computing Services
The Ordering Activity should clearly indicate any custom minimum service levels, performance and scale requirements as part of the initial requirement.

f. Reporting
The Ordering Activity should clearly indicate any cost, performance or availability reporting as part of the initial requirement.

g. Privacy
The Ordering Activity should specify the privacy characteristics of their service and engage with the Contractor to determine if the cloud service is capable of meeting Ordering Activity requirements. For example, a requirement could be requiring assurance that the service is capable of safeguarding Personally Identifiable Information (PII), in accordance with NIST SP 800-1224 and OMB memos M-06-165 and M-07-16. An Ordering Activity will determine what data elements constitute PII according to OMB Policy, NIST Guidance and Ordering Activity policy.

h. Accessibility
The Ordering Activity should specify the accessibility characteristics of their service and engage with the Contractor to determine the cloud service is capable of meeting accessibility requirements. For example, a requirement could require assurance that the service is capable of providing accessibility based on Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. 794d).

i. Geographic Requirements
Ordering activities are responsible for specifying any geographic requirements and engaging with the Contractor to determine that the cloud services offered have the capabilities to meet geographic requirements for all anticipated task orders. Common geographic concerns could include whether service data, processes and related artifacts can be confined on request to the United States and its territories, or the continental United States (CONUS).

j. Data Ownership and Retrieval and Intellectual Property
Intellectual property rights are not typically transferred in a cloud model. In general, CSPs retain ownership of the Intellectual Property (IP) underlying their services and the customer retains ownership of its intellectual property. The CSP gives the customer a license to use the cloud services for the duration of the contract without transferring rights. The government retains ownership of the IP and data they bring to the customized use of the service as spelled out in the FAR and related materials.
General considerations of data ownership and retrieval are covered under the terms of Schedule 70 and the FAR and other laws, ordinances, and regulations (Federal, State, City, or otherwise). Because of considerations arising from cloud shared responsibility models, ordering activities should engage with the Contractor to develop more cloud-specific understandings of the boundaries between data owned by the government and that owned by the cloud service provider, and the specific terms of data retrieval.

In all cases, the Ordering Activity should enter into an agreement with a clear and enforceable understanding of the boundaries between government and cloud service provider data, and the form, format and mode of delivery for each kind of data belonging to the government.

The Ordering Activity should expect that the Contractor shall transfer data to the government at the government's request at any time, and in all cases when the service or order is terminated for any reason, by means, in formats and within a scope clearly understood at the initiation of the service. Example cases that might require clarification include status and mode of delivery for:

- Configuration information created by the government and affecting the government’s use of the cloud provider’s service.
- Virtual machine configurations created by the government but operating on the cloud provider’s service.
- Profile, configuration and other metadata used to configure SaaS application services or PaaS platform services.

The key is to determine in advance the ownership of classes of data and the means by which Government owned data can be returned to the Government.

k. Service Location Distribution

The Ordering Activity should determine requirements for continuity of operations and performance and engage with the Contractor to ensure that cloud services have adequate service location distribution to meet anticipated requirements. Typical concerns include ensuring that:

- Physical locations underlying the cloud are numerous enough to provide continuity of operations and geographically separate enough to avoid an anticipated single point of failure within the scope of anticipated emergency events.
- Service endpoints for the cloud are able to meet anticipated performance requirements in terms of geographic proximity to service requestors.

Note that cloud providers may address concerns in the form of minimum distance between service locations, general regions where service locations are available, etc.

l. Related Professional Services

Ordering activities should engage with Contractors to discuss the availability of limited assistance with initial setup, training and access to the services that may be available through this SIN.

Any additional substantial and ongoing professional services related to the offering such as integration, migration, and other cloud professional services are out of scope for this SIN. Ordering activities should consult the appropriate GSA professional services schedule.

5. GUIDANCE FOR CONTRACTORS

This section offers guidance for interpreting the Contractor Description Requirements in Table 2, including the NIST essential cloud characteristics, service models and deployment models. This section is not a list of requirements.
Contractor-specific definitions of cloud computing characteristics and models or significant variances from the NIST essential characteristics or models are discouraged and will not be considered in the scope of this SIN or accepted in response to Factors for Evaluation. The only applicable cloud characteristics, service model/subcategories and deployment models for this SIN will be drawn from the NIST 800-145 special publication. Services qualifying for listing as cloud computing services under this SIN must substantially satisfy the essential characteristics of cloud computing as documented in the NIST Definition of Cloud Computing SP 800-1457.

Contractors must select deployment models corresponding to each way the service can be deployed. Multiple deployment model designations for a single cloud service are permitted but at least one deployment model must be selected.

In addition, contractors submitting services for listing under this SIN are encouraged to select a sub-category for each service proposed under this SIN with respect to a single principal NIST cloud service model that most aptly characterizes the service. Service model categorization is optional.

Both service and deployment model designations must accord with NIST definitions. Guidance is offered in this document on making the most appropriate selection.

a. NIST Essential Characteristics

NIST's essential cloud characteristics provide a consistent metric for whether a service is eligible for inclusion in this SIN. It is understood that due to legislative, funding and other constraints that government entities cannot always leverage a cloud service to the extent that all NIST essential characteristics are commercially available. For the purposes of the Cloud SIN, meeting the NIST essential characteristics is determined by whether each essential capability of the commercial service is available for the service, whether or not the Ordering Activity actually requests or implements the capability. The guidance in Table 3 offers examples of how services might or might not be included based on the essential characteristics, and how the Contractor should interpret the characteristics in light of current government contracting processes.

Table 3: Guidance on Meeting NIST Essential Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Capability</th>
<th>Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-demand self-service</td>
<td>• Ordering activities can directly provision services without requiring Contractor intervention.</td>
<td>Government procurement guidance varies on how to implement on-demand provisioning at this time. Ordering activities may approach on-demand in a variety of ways, including “not-to-exceed&quot; limits, or imposing monthly or annual payments on what are essentially on demand services. Services under this SIN must be capable of true on-demand self-service, and ordering activities and Contractors must negotiate how they implement on-demand capabilities in practice at the task order level:</td>
</tr>
<tr>
<td></td>
<td>• This characteristic is typically implemented via a service console or programming interface for provisioning</td>
<td>• Ordering activities must specify their procurement approach and requirements for on-demand service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contractors must propose how they intend to meet the approach</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contractors must certify that on-demand self-service is technically available for their service should</td>
</tr>
<tr>
<td>Service</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>---------</td>
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<td></td>
</tr>
<tr>
<td>Broad Network Access</td>
<td>Ordering activities are able to access services over standard agency networks. Service can be accessed and consumed using standard devices such as browsers, tablets and mobile phones. Broad network access must be available without significant qualification and in relation to the deployment model and security domain of the service. Contractors must specify any ancillary activities, services or equipment required to access cloud services or integrate cloud with other cloud or non-cloud networks and services. For example a private cloud might require an Ordering Activity to purchase or provide a dedicated router, etc. which is acceptable but should be indicated by the Contractor.</td>
<td></td>
</tr>
<tr>
<td>Resource Pooling</td>
<td>Pooling distinguishes cloud services from offsite hosting. Ordering activities draw resources from a common pool maintained by the Contractor. Resources may have general characteristics such as regional location. The cloud service must draw from a pool of resources and provide an automated means for the Ordering Activity to dynamically allocate them. Manual allocation, e.g. manual operations at a physical server farm where Contractor staff configure servers in response to Ordering Activity requests, does not meet this requirement. Similar concerns apply to software and platform models; automated provisioning from a pool is required. Ordering activities may request dedicated physical hardware, software or platform resources to access a private cloud deployment service. However the provisioned cloud resources must be drawn from a common pool and automatically allocated on request.</td>
<td></td>
</tr>
<tr>
<td>Rapid Elasticity</td>
<td>Rapid provisioning and de-provisioning commensurate with demand. Rapid elasticity is a specific demand-driven case of self-service. Procurement guidance for on-demand self-service applies to rapid elasticity as well, i.e. rapid elasticity must be technically available but ordering activities and Contractors may mutually negotiate other contractual arrangements for procurement and payment. ‘Rapid’ should be understood as measured in minutes and hours, not days or weeks. Elastic capabilities by manual request, e.g. via a console operation or programming interface call, are required. Automated elasticity which is driven dynamically by system load, etc. is optional. Contractors must specify whether automated demand-driven elasticity is available and the general mechanisms that drive the capability.</td>
<td></td>
</tr>
</tbody>
</table>
Measured Service

• Measured service should be understood as a reporting requirement that enables an Ordering Activity to control their use in cooperation with self-service.

• Procurement guidance for on-demand self-service applies to measured service as well, i.e. rapid elasticity must be technically available but ordering activities and Contractors may mutually designate other contractual arrangements.

• Regardless of specific contractual arrangements, reporting must indicate actual usage, be continuously available to the Ordering Activity, and provide meaningful metrics appropriate to the service measured.

• Contractors must specify that measured service is available and the general sort of metrics and mechanisms available.

Inheriting Essential Characteristics

Cloud services may depend on other cloud services, and cloud service models such as PaaS and SaaS are able to inherit essential characteristics from other cloud services that support them. For example a PaaS platform service can inherit the broad network access made available by the IaaS service it runs on, and in such a situation would be fully compliant with the broad network access essential characteristic. Services inheriting essential characteristics must make the inherited characteristic fully available at their level of delivery to claim the relevant characteristic by inheritance.

Inheriting characteristics does not require the inheriting provider to directly bundle or integrate the inherited service, but it does require a reasonable measure of support and identification. For example, the Ordering Activity may acquire an IaaS service from “Provider A” and a PaaS service from “Provider B”. The PaaS service may inherit broad network access from “Provider A” but must identify and support the inherited service as an acceptable IaaS provider.

Assessing Broad Network Access

Typically broad network access for public deployment models implies high bandwidth access from the public internet for authorized users. In a private cloud deployment internet access might be considered broad access, as might be access through a dedicated shared high bandwidth network connection from the Ordering Activity, in accord with the private nature of the deployment model.

Resource Pooling and Private Cloud

All cloud resource pools are finite, and only give the appearance of infinite resources when sufficiently large, as is sometimes the case with a public cloud. The resource pool supporting a private cloud is typically smaller with more visible limits. A finite pool of resources purchased as a private cloud service qualifies as resource pooling so long as the resources within the pool can be dynamically allocated to the ultimate users of the resource, even though the pool itself appears finite to the Ordering Activity that procures access to the pool as a source of dynamic service allocation.

b. NIST ServiceModel
The Contractor may optionally document the service model of cloud computing (e.g. IaaS, PaaS, SaaS, or a combination thereof, that most closely describes their offering, using the definitions in The NIST Definition of Cloud Computing SP 800-145. The following guidance is offered for the proper selection of service models.

NIST’s service models provide this SIN with a set of consistent sub-categories to assist ordering activities in locating and comparing services of interest. Service model is primarily concerned with the nature of the service offered and the staff and activities most likely to interact with the service. Contractors should select a single service model most closely corresponding to their proposed service based on the guidance below. It is understood that cloud services can technically incorporate multiple service models and the intent is to provide the single best categorization of the service.

Contractors should take care to select the NIST service model most closely corresponding to each service offered. Contractors should not invent, proliferate or select multiple cloud service model sub-categories to distinguish their offerings, because ad-hoc categorization prevents consumers from comparing similar offerings. Instead vendors should make full use of the existing NIST categories to the fullest extent possible.

For example, in this SIN an offering commercially marketed by a Contractor as “Storage as a Service” would be properly characterized as Infrastructure as a Service (IaaS), storage being a subset of infrastructure. Services commercially marketed as “LAMP as a Service” or “Database as a Service” would be properly characterized under this SIN as Platform as a Service (PaaS), as they deliver two kinds of platform services. Services commercially marketed as “Travel Facilitation as a Service” or “Email as a Service” would be properly characterized as species of Software as a Service (SaaS) for this SIN.

However, Contractors can and should include appropriate descriptions (include commercial marketing terms) of the service in the full descriptions of the service’s capabilities.

When choosing between equally plausible service model sub-categories, Contractors should consider several factors:

1) **Visibility to the Ordering Activity.** Service model sub-categories in this SIN exist to help Ordering Activities match their requirements with service characteristics. Contractors should select the most intuitive and appropriate service model from the point of view of an Ordering Activity.

2) **Primary Focus of the Service.** Services may offer a mix of capabilities that span service models in the strict technical sense. For example, a service may offer both IaaS capabilities for processing and storage, along with some PaaS capabilities for application deployment, or SaaS capabilities for specific applications. In a service mix situation the Contractor should select the service model that is their primary focus. Alternatively contractors may choose to submit multiple service offerings for the SIN, each optionally and separately subcategorized.

3) **Ordering Activity Role.** Contractors should consider the operational role of the Ordering Activity’s primary actual consumer or operator of the service. For example services most often consumed by system managers are likely to fit best as IaaS; services most often consumed by application deployers or developers as PaaS, and services most often consumed by business users as SaaS.

4) **Lowest Level of Configurability.** Contractors can consider IaaS, PaaS and SaaS as an ascending hierarchy of complexity, and select the model with the lowest level of available Ordering Activity interaction. As an example, virtual machines are an IaaS service often bundled with a range of operating systems, which are PaaS services. The Ordering Activity usually has access to configure the lower level IaaS service, and the overall service should be considered IaaS. In cases where the Ordering Activity cannot configure the speed, memory, network configuration, or any other aspect of the IaaS component, consider categorizing as a PaaS service.

Cloud management and cloud broker services should be categorized based on their own characteristics and not those of the other cloud services that are their targets. Management and broker services typically fit the SaaS
service model, regardless of whether the services they manage are SaaS, PaaS or IaaS. Use Table 3 to determine which service model is appropriate for the cloud management or cloud broker services, or, alternately choose not to select a service model for the service.

The guidance in Table 3 offers examples of how services might be properly mapped to NIST service models and how a Contractor should interpret the service model sub-categories.

**Table 3: Guidance on Mapping to NIST Service Models**

<table>
<thead>
<tr>
<th>Service Model</th>
<th>Guidance</th>
</tr>
</thead>
</table>
| Infrastructure as a Service (IaaS)   | Select an IaaS model for service based equivalents of hardware appliances such as virtual machines, storage devices, routers and other physical devices.  
  - IaaS services are typically consumed by system or device managers who would configure physical hardware in a non-cloud setting  
  - The principal customer interaction with an IaaS service is provisioning then configuration, equivalent to procuring and then configuring a physical device.  
  Examples of IaaS services include virtual machines, object storage, disk block storage, network routers and firewalls, software defined networks.  
  Gray areas include services that emulate or act as dedicated appliances and are directly used by applications, such as search appliances, security appliances, etc. To the extent that these services or their emulated devices provide direct capability to an application they might better be classified as Platform services (PaaS). To the extent that they resemble raw hardware and are consumed by other platform services they are better classified as IaaS. |
| Platform as a Service (PaaS)         | Select a PaaS model for service based equivalents of complete or partial software platforms. For the purposes of this classification, consider a platform as a set of software services capable of deploying all or part of an application.  
  - A complete platform can deploy an entire application. Complete platforms can be proprietary or open source  
  - Partial platforms can deploy a component of an application which combined with other components make up the entire deployment  
  - PaaS services are typically consumed by application deployment staff whose responsibility is to take a completed agency application and cause it to run on the designated complete or partial platform service  
  - The principal customer interaction with a PaaS service is deployment, equivalent to deploying an application or portion of an application on a software platform/service.  
  - A limited range of configuration options for the platform service may be available.  
  Examples of complete PaaS services include:  
  - A Linux/Apache/MySQL/PHP (LAMP) platform ready to deploy a customer PHP application,  
  - a Windows .Net platform ready to deploy a .Net application,  
  - A custom complete platform ready to develop and deploy an customer application in a proprietary language  
  - A multiple capability platform ready to deploy an arbitrary customer application on a range of underlying software services.  
  The essential characteristic of a complete PaaS is defined by the customer’s ability to deploy |
a complete custom application directly on the platform.

PaaS includes partial services as well as complete platform services. Illustrative examples of individual platform enablers or components include:

- A database service ready to deploy a customer’s tables, views and procedures,
- A queuing service ready to deploy a customer’s message definitions
- A security service ready to deploy a customer’s constraints and target applications for continuous monitoring

The essential characteristic of an individual PaaS component is the customer’s ability to deploy their unique structures and/or data onto the component for a partial platform function.

Note that both the partial and complete PaaS examples all have two things in common:

- They are software services, which offer significant core functionality out of the box
- They must be configured with customer data and structures to deliver results

As noted in IaaS, operating systems represent a grey area in that OS is definitely a platform service, but is typically bundled with IaaS infrastructure. If your service provides an OS but allows for interaction with infrastructure, please sub-categorize it as IaaS. If your service “hides” underlying infrastructure, consider it as PaaS.

<table>
<thead>
<tr>
<th>Software as a Service (SaaS)</th>
<th>Select a SaaS model for service based equivalents of software applications.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SaaS services are typically consumed by business or subject-matter staff who would interact directly with the application in a non-cloud setting</td>
</tr>
<tr>
<td></td>
<td>The principal customer interaction with a SaaS service is actual operation and consumption of the application services the SaaS service provides.</td>
</tr>
<tr>
<td></td>
<td>Some minor configuration may be available, but the scope of the configuration is limited to the scope and then the permissions of the configuring user. For example an agency manager might be able to configure some aspects of the application for their agency but not all agencies. An agency user might be able to configure some aspects for themselves but not everyone in their agency. Typically only the Contractor would be permitted to configure aspects of the software for all users.</td>
</tr>
<tr>
<td></td>
<td>Examples of SaaS services include email systems, business systems of all sorts such as travel systems, inventory systems, etc., wiki’s, websites or content management systems, management applications that allow a customer to manage other cloud or non-cloud services, and in general any system where customers interact directly for a business purpose.</td>
</tr>
<tr>
<td></td>
<td>Gray areas include services that customers use to configure other cloud services, such as cloud management software, cloud brokers, etc. In general these sorts of systems should be considered SaaS, per guidance in this document.</td>
</tr>
</tbody>
</table>

c. Deployment Model

Deployment models (e.g. private, public, community, or hybrid) are not restricted at the SIN level and any specifications for a deployment model are the responsibility of the Ordering Activity.

Multiple deployment model selection is permitted, but at least one model must be selected. The guidance in Table 4 offers examples of how services might be properly mapped to NIST deployment models and how the Contractor should interpret the deployment model characteristics. Contractors should take care to select the range of NIST deployment models most closely corresponding to each service offered.
Note that the scope of this SIN does not include hardware or software components used to construct a cloud, only cloud capabilities delivered as a service, as noted in the Scope section.

**Table 4: Guidance for Selecting a Deployment Model**

<table>
<thead>
<tr>
<th>Deployment Model</th>
<th>Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Cloud</td>
<td>The service is provided exclusively for the benefit of a definable organization and its components; access from outside the organization is prohibited. The actual services may be provided by third parties, and may be physically located as required, but access is strictly defined by membership in the owning organization.</td>
</tr>
<tr>
<td>Public Cloud</td>
<td>The service is provided for general public use and can be accessed by any entity or organization willing to contract for it.</td>
</tr>
<tr>
<td>Community Cloud</td>
<td>The service is provided for the exclusive use of a community with a definable shared boundary such as a mission or interest. As with private cloud, the service may be in any suitable location and administered by a community member or a third party.</td>
</tr>
<tr>
<td>Hybrid Cloud</td>
<td>The service is composed of one or more of the other models. Typically hybrid models include some aspect of transition between the models that make them up, for example a private and public cloud might be designed as a hybrid cloud where events like increased load permit certain specified services in the private cloud to run in a public cloud for extra capacity, e.g. bursting.</td>
</tr>
</tbody>
</table>

**FACTORS FOR EVALUATION FOR IT SCHEDULE 70 CLOUD COMPUTING SERVICES SIN**

The following technical evaluation factor applies in addition to the standard Schedule 70 evaluation factors outlined in CI-FSS-152-N Additional Evaluation Factors for New Offerors Under Schedule 70 or CI-FSS-152-S Additional Evaluation Factors for Successful FSS Program Contractors Under Schedule 70 and related documents and applies solely to the Cloud Computing Services SIN. A template will be provided at the time of solicitation refresh to complete the requested documentation.

**FACTOR - Cloud Computing Services Adherence to Essential Cloud Characteristics**

Within a two page limitation for each cloud service submitted, provide a description of how the cloud computing service meets each of the five essential cloud computing characteristics as defined in described in National Institute of Standards and Technology (NIST) Special Publication 800-145 and subsequent versions of this publication. This standard specifies the definition of cloud computing for the use by Federal agencies. The cloud service must be capable of satisfying each of the five NIST essential Characteristics as follows:

- On-demand self-service
- Broad network access
- Resource Pooling
- Rapid Elasticity
- Measured Service

Refer to the ‘Guidance for Contractors’ section of the Terms & Conditions for the Cloud Computing Services SIN for guidance on meeting the NIST characteristics. For the purposes of the Cloud Computing Services SIN, meeting the NIST essential characteristics is concerned primarily with whether the underlying capability of the commercial service is available, whether or not an Ordering Activity actually requests or implements the capability.
FACTOR – Cloud Computing Services Deployment Model

For each cloud service submitted, provide a written description of how the proposed service meets the NIST definition of a particular deployment model (Public, Private, Community, or Hybrid), within a one half (1/2) page limitation for each designated deployment model of each cloud service submitted. Multiple deployment model selection is permitted, but at least one model must be indicated.

Refer to the ‘Guidance for Contractors’ section of the Terms & Conditions for the Cloud Computing Services SIN for guidance on identifying the appropriate deployment model according to the NIST service model definitions.

FACTOR - Cloud Computing Services Service Model

For each cloud computing service proposed to be categorized under a specific sub-category (IaaS, PaaS or SaaS), provide a written description of how the proposed service meets the NIST definition of that service model, within a half (1/2) page limitation for each cloud service submitted.

Refer to the ‘Guidance for Contractors’ section of the Terms & Conditions for the Cloud Computing Services SIN for guidance on categorizing the service into a sub-category according to the NIST service model definitions.

Note that it is not mandatory to select a sub-category, and therefore this factor for evaluation applies ONLY to cloud services proposed to fall under a specific sub-category. If no sub-category is selected, this factor does not need to be addressed. The two other factors (‘Adherence to Essential Cloud Characteristics’ and ‘Cloud Computing Services Deployment Model’) apply to all cloud services.
<table>
<thead>
<tr>
<th>Job Title</th>
<th>Detailed Position Description and functional responsibilities</th>
<th>Min Years of Experience</th>
<th>Min Education Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Systems Solution Engineer</td>
<td>Senior Consultant to top level management. Viewed as the expert in discipline or related area of expertise, exhibiting an exceptional degree of ingenuity, creativity, and resourcefulness. Managerial and leadership experience is required. Typically serves as the spokesperson to the customer. Performs Technical planning, system integration, verification, and validation, cost and risk, and supportability and effectiveness analysis for total systems.</td>
<td>8</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Net Centric Enterprise Architect</td>
<td>Provides Technical Leadership for specifying, designing, implementing, testing, accrediting, deploying, and sustaining enterprise system and services architecture in a net-centric environment. Leverages DoD policies, architectural frameworks, and commercial best practices to design and develop Service Oriented Architectures that satisfy enterprise scale requirements.</td>
<td>6</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Senior Information Technology Expert</td>
<td>Recognizes and recommends new or emerging technology or software to satisfy functional requirements and processes. Provides highly technical and/or specialized guidance concerning automation solutions to complex information processing problems related to the subject field. Provides customer support using enterprise solutions software to integrate business areas, consistent with today’s technology in order to operate in an open systems environment and client service architectures.</td>
<td>6</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Senior Collaboration Engineer</td>
<td>Requires the application of acknowledged expertise in collaboration systems engineering field and the use of considerable initiative and creativity. Responsible for providing technical leadership with strong knowledge in systems, system requirements, development, and architecture.</td>
<td>6</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Unified Capabilities Subject Matter Expert Lead</td>
<td>Provides technical leadership in the pursuit of complex unified capabilities and related network technology projects for Unified Capabilities which include Real Time Services such as voice and video converged with data applications end-to-end over hybrid circuit Switched and IP networks. Provides technical lead management responsibilities for specific technology are associated with network architectures, i.e., network-architecture engineering and in-depth analyses on network interoperability and integration</td>
<td>8</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Unified Capabilities Subject Matter Expert Associate</td>
<td>Provides general support for Unified Capabilities which include Real Time Services such as voice and video converged with data applications end-to-end over hybrid circuit Switched and IP networks. Candidate will possess broad knowledge in one or more areas of unified capabilities (UC) services and network infrastructures that support UC services</td>
<td>4</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Cloud Engineering Development Consultant</td>
<td>Serves as an expert in engineering and development, trend analysis, metric development, vulnerability information dissemination, and the DoD Engineering methodology. Has Understanding of Cloud Architecture, TCP/IP, common networking ports and protocols, traffic flow, system administration, OSI model, defense-in-depth and common security elements.</td>
<td>5</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Role</td>
<td>Description</td>
<td>Required Experience</td>
<td>Degree Requirements</td>
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<tr>
<td>Subject Matter Expert Lead</td>
<td>Provides expert support, analysis and research into exceptionally complex problems, and processes relating to the subject matter. Serves as technical expert on executive-level project teams providing technical direction, interpretation and alternatives. Thinks independently and demonstrates exceptional written and oral communications skills. Applies advanced technical principles, theories, and concepts. Contributes to the development of new principles and concepts.</td>
<td>6</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Cloud Data Scientist Development Consultant</td>
<td>Provides specialized Subject Matter Expert support in specific fields of work for cloud and capabilities development with regards to data. The Cloud Data Scientist Development Consultant can work independently and operate at advanced levels in their field of expertise. Serves as the technical expert in their respective field of work and makes recommendations / identifies solutions for the customer.</td>
<td>6</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Principal Systems Engineer Lead</td>
<td>Applies a comprehensive set of systems engineering principles and discipline supporting Windows, Linux, and network administration support. Provides engineering support, tests, administers, and troubleshoots systems. Develops Engineering assessments of different configurations.</td>
<td>8</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Web Architect</td>
<td>Designs and builds websites using a variety of graphics software applications, techniques, and tools. Designs and develops user interface features, site animation, and special effects elements. Contributes to the design group’s efforts to enhance the look and feel of the organization’s on-line offerings.</td>
<td>4</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Information Systems Security Specialist Intermediate</td>
<td>Performs system security analyses in support of decision making, risk management, and engineering trades. Ensures appropriate security principles, concepts, methods, and practices are applied during the system life cycle to achieve stakeholder objectives for the protection of assets—across all forms of adversity characterized as disruptions, hazards, and threats</td>
<td>2</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>IT Security Analyst</td>
<td>Performs security assessments and analysis in support of decision making and engineering. Centrally coordinate and/or recommend CND operations that impact more than one DoD Component. Monitor the DoDIN for IAVA compliance and assess impact on defense of DoD computer networks. Develop a coordinated curriculum for CND education training, awareness, and ensure the implementation of the curriculum throughout the CNDS certification and accreditation process.</td>
<td>2</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Information Systems Security Specialist Associate</td>
<td>Provides Information Security Controls and guidelines to nodes and network management systems. Maintains network/system access and password controls. Collates and analyzes audit trail data. Reviews security threats and determines/implements effective countermeasures IAW established policies/regulations/directives. Analyzes network or system changes/reconfigurations for security impacts (performs risk analysis/assessment).</td>
<td>0</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Collaboration Analyst</td>
<td>Focuses on tactical and operational items, operational effectiveness, and delivering results related to collaboration capabilities. Utilizes and understanding of collaborative business processes to translate business initiatives and varied business requests to program managers and technical leadership</td>
<td>4</td>
<td>Bachelor's (4 years of additional experience is substitute for Bachelors)</td>
</tr>
<tr>
<td>Cloud AMIs</td>
<td>Cloud AMIs are delivered with functional cloud capabilities in big data analytics on either remote servers or inhouse servers. Our cloud products support a variety of IT functionality and applications based on customer requirements and demands. The cloud AMIs allow for the simultaneous integration, development and data access for large amounts of users</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Course Code</td>
<td>Course Description</td>
<td>Detailed Description</td>
<td>Course Length</td>
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<tr>
<td>RBR-NO-001. NetOps Dashboard Setup</td>
<td>Course describing how to set up Ozone widget Framework and associated dashboards for NetOps users. Goes into categories of frames and displays. The dashboards are configurable screens that are tailored to user’s needs. At the end of the course the user will be able to utilize the ozone widget framework, create a specialized, dashboard, and navigate through new capabilities efficiently.</td>
<td>1 day</td>
<td>1</td>
</tr>
<tr>
<td>RBR-NO-002. ASI Grid and Calendar</td>
<td>Course detailing Authorized Service Interruption Grid and Calendar views. Show users how to understand the ASI schedule and impacts. Users will learn the intricacies of the DoD IT scheduled maintenance system. At the end of the course users will understand the DoD IT ASI jargon, ASI Scheduling, Calendar Operations, functions of grids and calendar.</td>
<td>2 days</td>
<td>1</td>
</tr>
<tr>
<td>RBR-NO-004. DEE Maps</td>
<td>Course showing users how to navigate and utilize the Defense Enterprise Email Situational Awareness map. Discusses selecting geographic pod views as well as duty locations and organizational views. At the end of the course users will be able to navigate the map, tabular DEE view, outage times, heat map, and other DEE functionality.</td>
<td>.5 day</td>
<td>1</td>
</tr>
<tr>
<td>RBR-NO-005. DEE Performance Indicator</td>
<td>Defense Enterprise Email Performance widget class details the use of the DEE Performance Indicator and the intricacies of Problem Management situational awareness of Enterprise Email. At the end of the course users will understand ITSM Problem Management, methodology for Problem Management Input, Problem Management views, and other DEE Problem Management functionality.</td>
<td>.5 day</td>
<td>1</td>
</tr>
<tr>
<td>RBR-NO-007. HBSS Performance Indicator</td>
<td>Course describing the method for utilizing the Host Based Security Sensor Performance Indicator widget and the intricacies of Problem Management situational awareness of HBSS. At the end of the course users will understand ITSM Problem Management, methodology for HBSS Problem Management Input, Problem Management views, and other HBSS Problem Management functionality.</td>
<td>.5 day</td>
<td>1</td>
</tr>
<tr>
<td>RBR-NO-008. ITSM Repository</td>
<td>Course detailing the use of the Information Technology Service Management tool and information repository. Describes in details the methods for manipulating and displaying ITSM data. Users at the end of the course will be able to navigate the ITSM widget, scroll through incidents, problems, events, and change requests, and present situational awareness issues related to critical applications.</td>
<td>.5 day</td>
<td>1</td>
</tr>
<tr>
<td>RBR-CSA-001. Cloud Search and Analysis</td>
<td>Course describing the tools for conducting Analytic Cloud Search and Analysis to include understanding and visualizing big data. Users at the end of this course will be able to run and display custom analytics, visual data in unique methods, and present information in new and interesting ways</td>
<td>2 days</td>
<td>1</td>
</tr>
<tr>
<td>RBR-CSA-002. Work Plan Scenario: Search IP</td>
<td>Course detailing the work planner collaboration tool and how to effectively document relevant Internet Protocol searches for collaboration among the community. Users at the end of this course will be able to search for IP addresses that are indicators or alerts, utilize collaboration tools, and share data with other analysts.</td>
<td>1 day</td>
<td>1</td>
</tr>
<tr>
<td>RBR-CSA-003. Work Plan Scenario: Using Analytics</td>
<td>Course detailing the Work Plan Collaboration tool and how to effectively document custom analytic searches and work for community collaboration. Users at the end of this course will be able to collaborate with other analysts, share data, share specialized analytics, utilize other created analytics, and be</td>
<td>3 days</td>
<td>1</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Course Description</td>
<td>Duration</td>
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<tr>
<td>RBR-CND-001. Fight by Indicator</td>
<td>Course detailing computer network defense and defensive cyber operations utilizing the fight by indicator tool. Users at the end of this course will be able to upload cyber threat reports, extract indicators of compromise, recommend countermeasures, and deconflict countermeasures</td>
<td>2 days</td>
<td>1</td>
</tr>
<tr>
<td>RBR-CND-003. Working with Reports and Indicators</td>
<td>Course detailing the reports and indicators within the Fight by Indicator tool and how to effectively read and utilize the reports and indicators to perform cyber defense. Users at the end of this course will be able to understand report color codes, methods of extracting and enriching indicators, methods of countermeasures, and implementation of countermeasures</td>
<td>1 day</td>
<td>1</td>
</tr>
<tr>
<td>RBR-CND-006. Creating and working with the Signature Repository</td>
<td>Course detailing the usage of the Cyber Threat Signature Repository for use in defensive cyber operations. Users at the end of this course will be able to identify and deconstruct signatures, build custom signatures, extract signatures, use signatures to produce countermeasures</td>
<td>2 days</td>
<td>1</td>
</tr>
<tr>
<td>RBR-CND-007. Working with Cyber Analytic Charts</td>
<td>Course detailing the effective use of charts to capture CYBER Analytic Metrics to include attack patterns, threat vectors and other cyber defensive operation charting. Users at the end of this course will be able to read and display charts to show data in a meaningful way, create and display new charts to display data in accordance with leadership guidance, and identify issues and problems through charts and graphs</td>
<td>1 day</td>
<td>1</td>
</tr>
<tr>
<td>RBR-CND-008. Cyber Countermeasures and DE confliction</td>
<td>Course detailing the methodology for recommending and implementing effective cyber defense countermeasures in the protection of DoD networks. At the end of this course users will become subject experts in deconfliction of countermeasures within the Cyber Defensive Tool Suite</td>
<td>3 days</td>
<td>1</td>
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</tbody>
</table>