

Memorandum

Cloud Services Education Session

June 22, 2022

To: Members of the Board
From: Josh R. Williams, Senior Analyst
Thru: Monica R. Valentine, Executive Director

Subject: **Cloud Services Education Session** (Topic A)

INTRODUCTION

The Federal Government is adopting cloud computing at an increasing rate in recent years and plans to continue that trend in the future. Therefore, the Board is currently in the process of developing financial reporting guidance for cloud-service arrangements to encourage consistent accounting and financial reporting among federal entities. During the April 2022 Board meeting, members expressed an interest in hearing an education session on cloud services to gain further insight into how and why federal entities use cloud services in their operations. Staff presents this education session as an introduction to cloud services in the federal environment.

Prior to the Board's June meeting, please review the materials in preparation for the education session.

Presenters' Biographies

Skip Jentsch

IT Specialist - Enterprise Architecture
Cloud IT Products Manager
Office of Information Technology Category
Federal Acquisition Service
U.S. General Services Administration

Skip Jentsch is the government lead for the GSA IT Schedule 70 Cloud Special item Number 132-40. He is the IT Cloud Products Manager within the IT Products Category under GSA's Federal Acquisition Service (FAS).

The Federal Acquisition Service provides buying platforms and acquisition services to Federal, State and Local governments for a broad range of IT products and services.

A former federal CIO for an independent small agency within the Department of Interior, Skip Jentsch has over 30 years of experience in managing IT enterprises in the public, private and non-profit sectors. His IT career has always been focused on internal and external customer outreach, bridging any communications gaps between technical and non-technical stakeholders.

He joined the GSA as an IT Specialist/Enterprise Architect responsible for managing the Government wide cloud-focused acquisition vehicles such as the GSA Schedule Cloud Special Item Number (SIN) 518210C.

In this capacity, he is responsible for promoting the adoption of cloud services across government, assisting agencies in realizing cost savings and efficiencies while modernizing and expanding their IT capabilities through the adoption of cloud and other innovative technology.

Skip engages with government customer agencies, educates them about GSA cloud offerings and services, provides strategic guidance, technical insight and acquisition aid as requested, thereby helping agencies implement Cloud technology by leveraging GSA cloud acquisition vehicles and other vehicles across government.

Additionally, he is involved in market research, feasibility studies and development of next generation GSA cloud initiatives.

Edward Gramp

Acting Director, Financial Policy Division
General Services Administration
Office of the Chief Financial Officer
Office of Financial Management

With over 35 years working in GSA's CFO accounting community, Mr. Gramp brings a wealth of experience in financial reporting and implementation of accounting standards. Having been a principal preparer and leader of GSA's consolidated financial reporting, Mr. Gramp has been involved first-hand in implementing many of the FASAB standards. Ed has participated on multiple FASAB task force teams and is a regular responder to formal and informal FASAB exposure drafts and inquiries on behalf of GSA.

ATTACHMENT

1. GSA Cloud computing slide deck

How to Buy Cloud Computing for Government

Skip Jentsch

IT Specialist – Enterprise Architect
IT Cloud Products Manager
Office of Information Technology Category (ITC)
Federal Acquisition Service (FAS)
U.S. General Services Administration (GSA)



What does the GSA cloud team do for agencies?

- **Free Market Research as a Service (MRAS)**
 - ❖ Agencies fill out a questionnaire, and GSA publishes an RFI on the agency's behalf.
 - ❖ GSA receives, collates and reports results.
- **Free cloud acquisition strategy guidance**
 - ❖ Brand Name Justification and Approval (J&A)
 - ❖ Contract Types to fit Pay as You Go (PAYG) cloud rates
- **Free scope review** of your Cloud SOO, SOW, RFI, RFP, RFQ
- **A GSA Contracting Officer POC** provided to new users of the GSA Schedule
- **GSA's Cloud SIN (518210C)** for all cloud-based products and labor hours (LCATs) for a one stop solution.
- **Content Moderators** of the GSA Cloud Information Center (CIC) at cic.gsa.gov

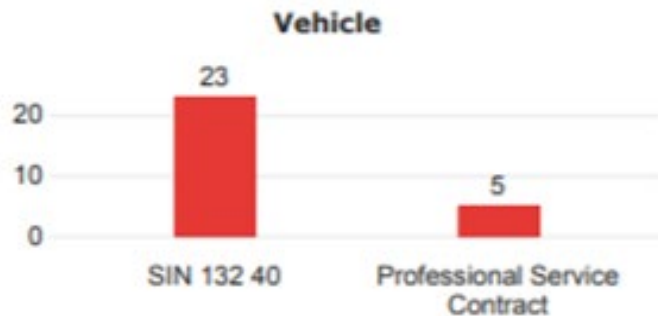


Sample Market Research Report from GSA's MRAS

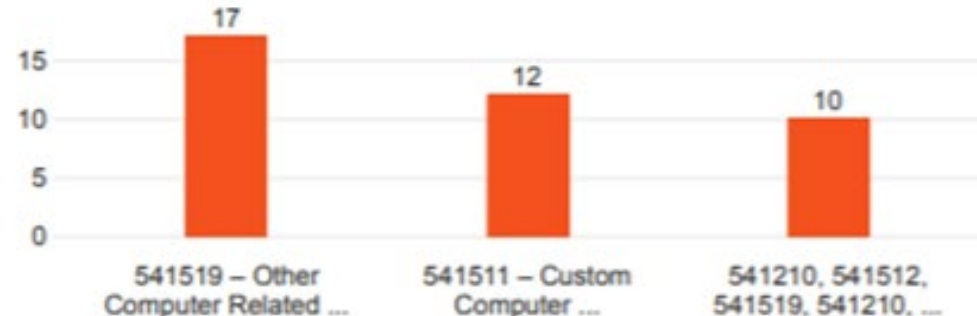
A GSA M-RAS Report shows:

1. Size and socioeconomic status of interested vendor firms.
2. How many vendor firms would respond to an RFQ if issued.

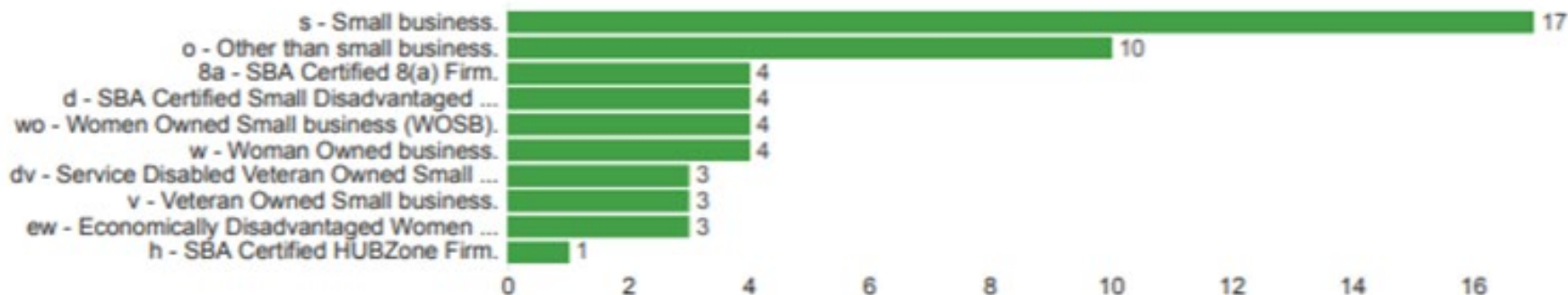
Interested Parties - Recommended Contract



Recommended NAICS - Interested Parties



Socio-economic Status/Business Size - Interested Parties

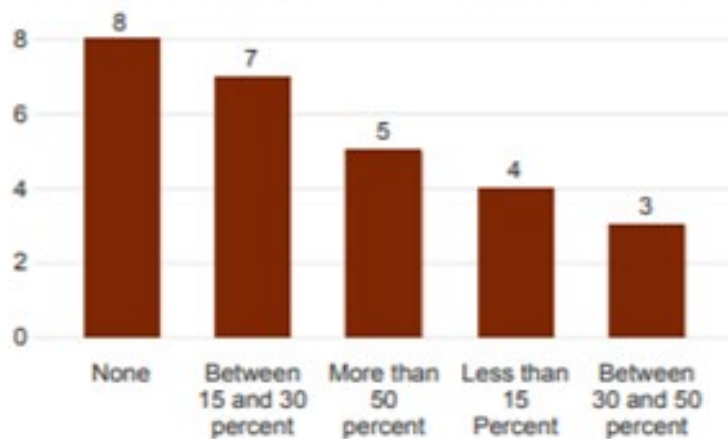


Sample Market Research Report from GSA's MRAS

A GSA M-RAS Report also shows:

3. Vendors' recommended Contract Type and estimated subcontracting information.
4. Tabulated vendor answers to Yes/No questions from the agency.

Subcontracting Estimation - Interested Parties



Recommended Contract Type - Interested Parties



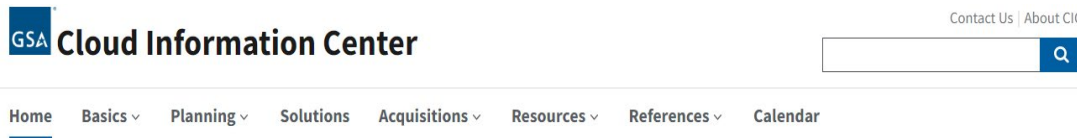
Technical Yes or No - Interest Parties

Questions	Yes	No
1. Does your company utilize industry best practice to address technical performance, KPI, service level perspectives, and/or contractual business perspectives?	27	0
2. Does your company utilize best practices to provide the government with billing insight?	27	0
3. Does your company possess corporate certifications and partnerships you believe are important for the government to consider?	26	1
4. Has your company had experience within the past 5 years providing services and products to support migration to the cloud with similar scope and scale?	27	0

GSA's Cloud Information Center (CIC)

Visit cic.gsa.gov for cloud SOO templates, acquisition guidance, and more!

GSA



Helping Government get on the Cloud

Whether you're piloting a program or migrating an agency, we're here to help.

1

BASICS

Learn all things Federal Cloud

2

PLANNING

The What, Why, and How

3

SOLUTIONS

Find the Right Providers

4

ACQUISITIONS

Acquire a Cloud Solution

5

OPERATIONS

Maintain with Confidence

What is the Cloud Information Center?

Provides

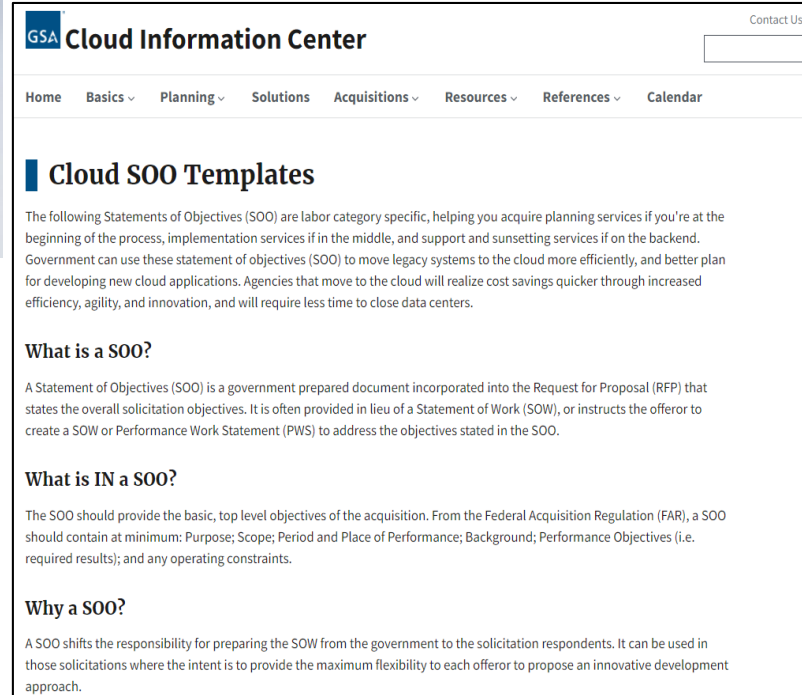
- a Managed Collection of Cloud Computing Best Practices, Guidance, and Templates
- an explanation of what Cloud Computing is and the Benefits

Assists

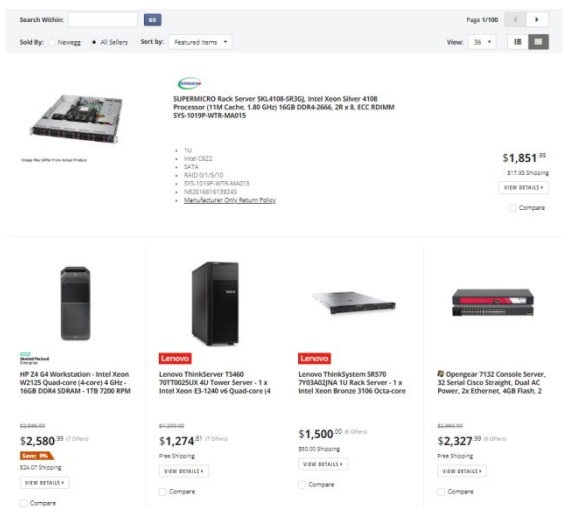
- in identifying and conducting Market Research on Cloud Service Providers (CSPs)
- your journey through the Cloud Lifecycle with Cloud Experts to Support

Promotes

- the Communication and Collaboration between the Government Cloud Community and Industry Experts



How to Add Network Servers – On Premises

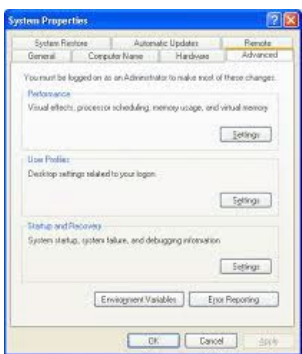


Deliver Servers



Unload Servers

Order Servers via Delivery Order



Configure your OS



Wire Servers and connect them to your enterprise network



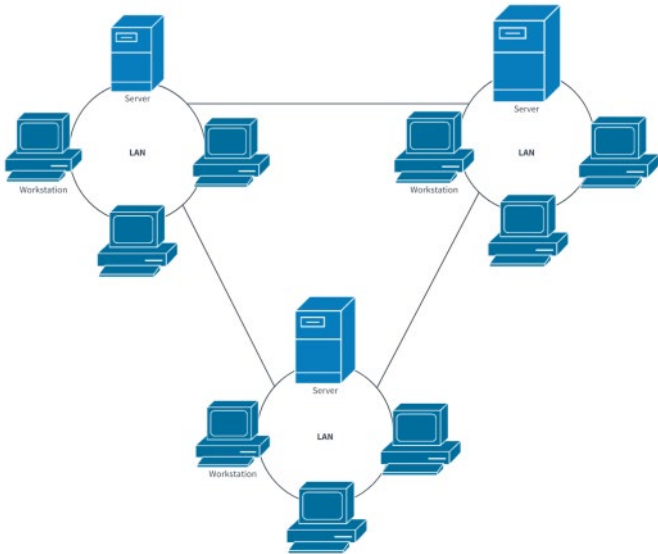
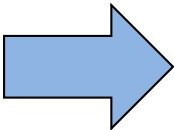
Rack and Stack Servers



Unbox Servers



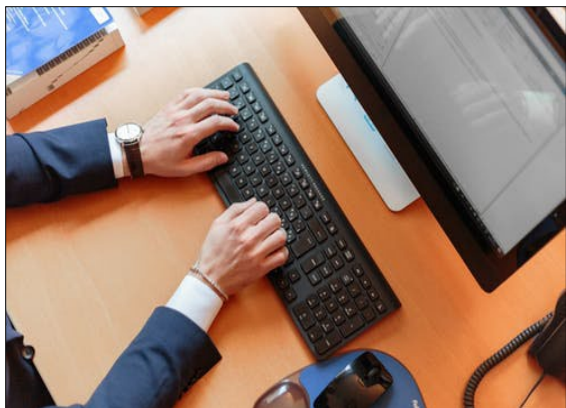
**Order Online
Cloud Servers**



**Connect Cloud
Servers to the
Agency's Enterprise**

What Is Cloud Computing?

The USG uses the 5 part NIST definition of Cloud Computing:



On-demand Self-Service

Unilateral management via an online portal



Broad Network Access

Available from all devices and locations



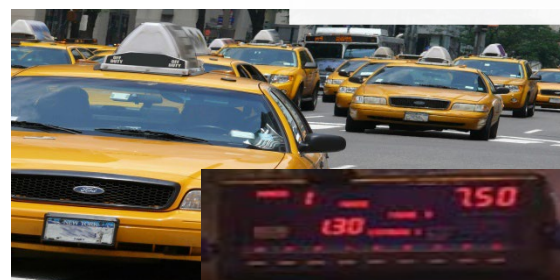
Resource Pooling

Multi-tenant shared resources for economy of scale



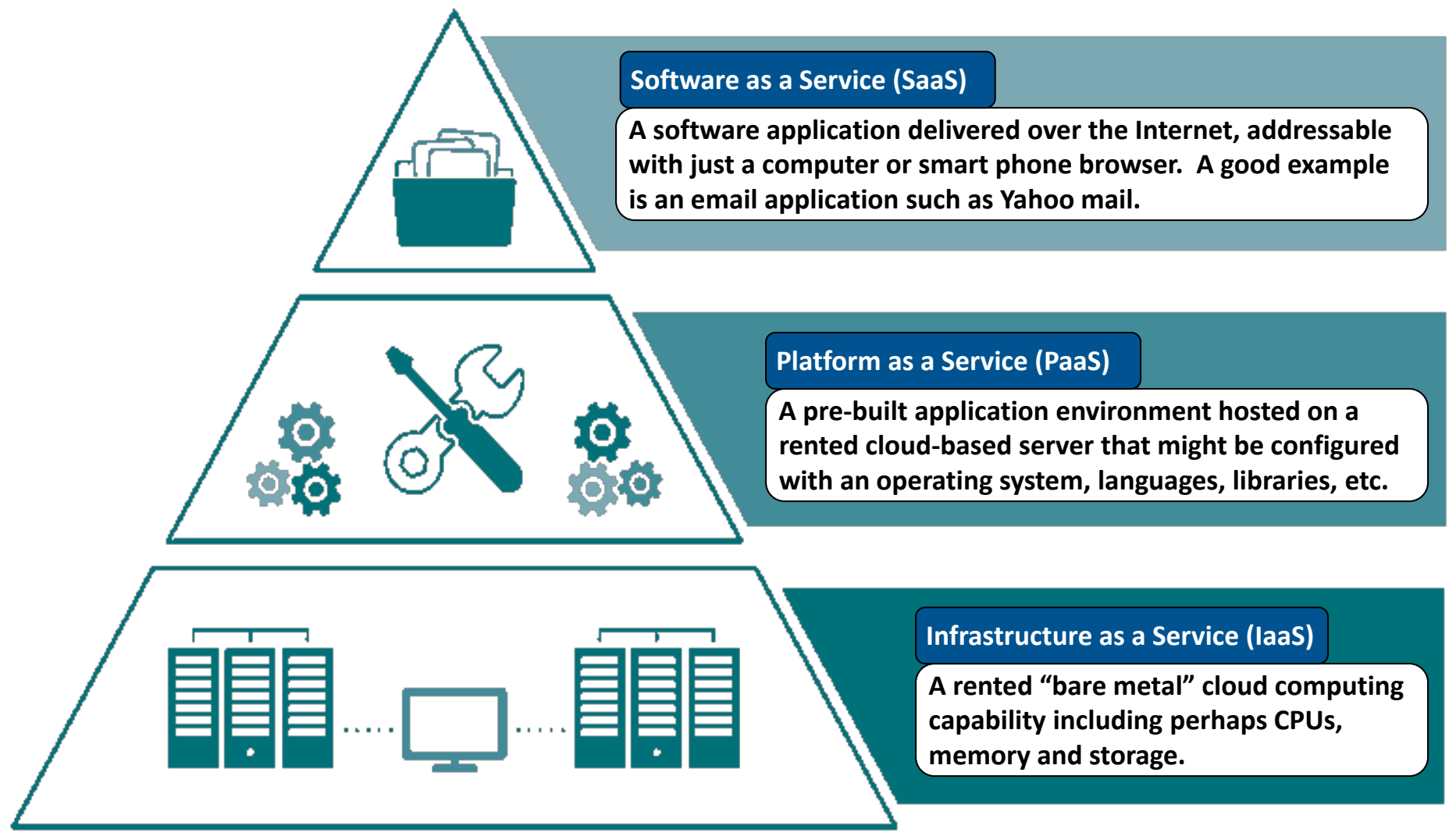
Rapid Elasticity

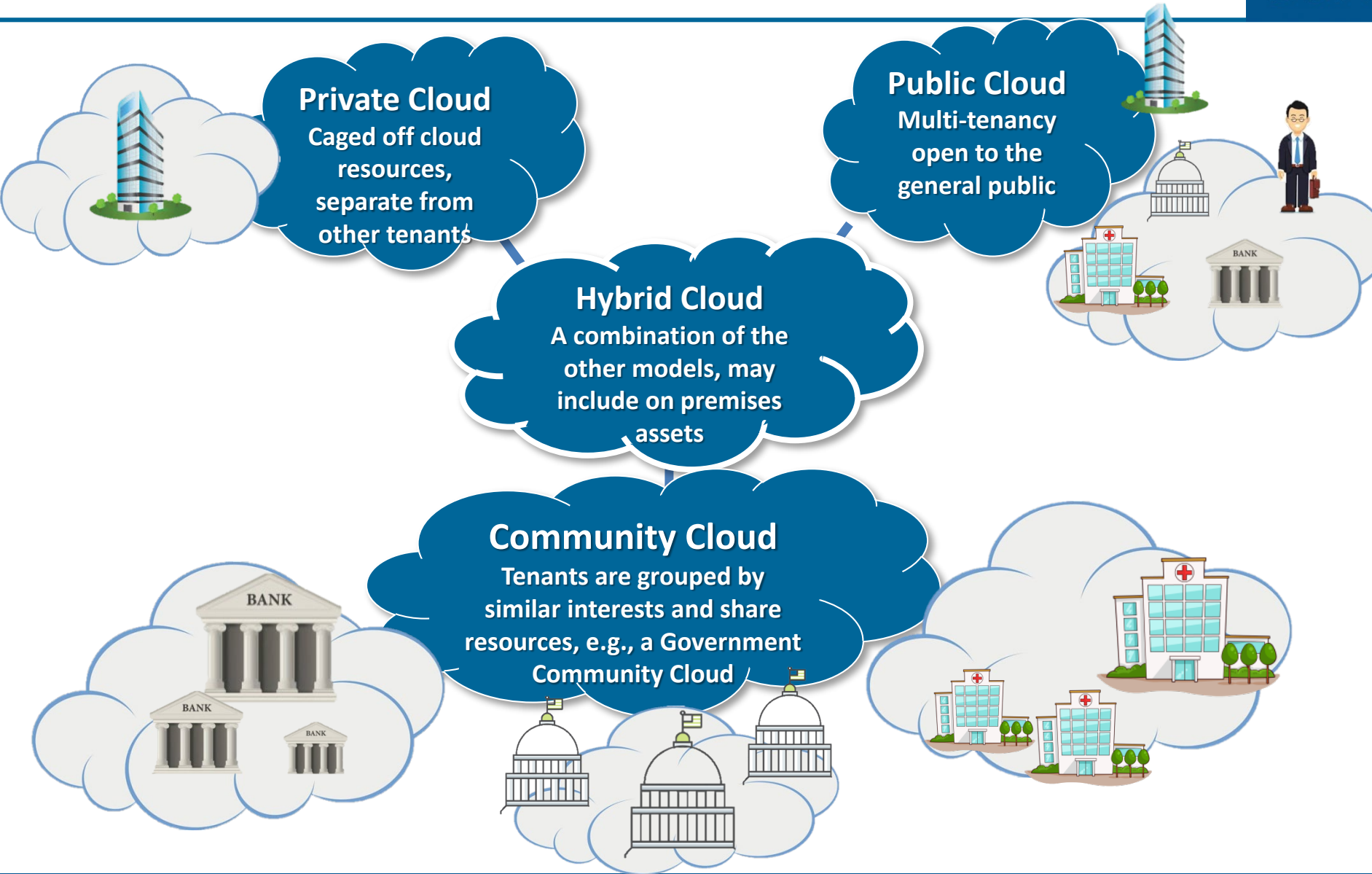
Scale resources up and down *quickly*



Measured Service


Pay only for what you use, like on a taxi meter






Pizza as a Service – An Analogy

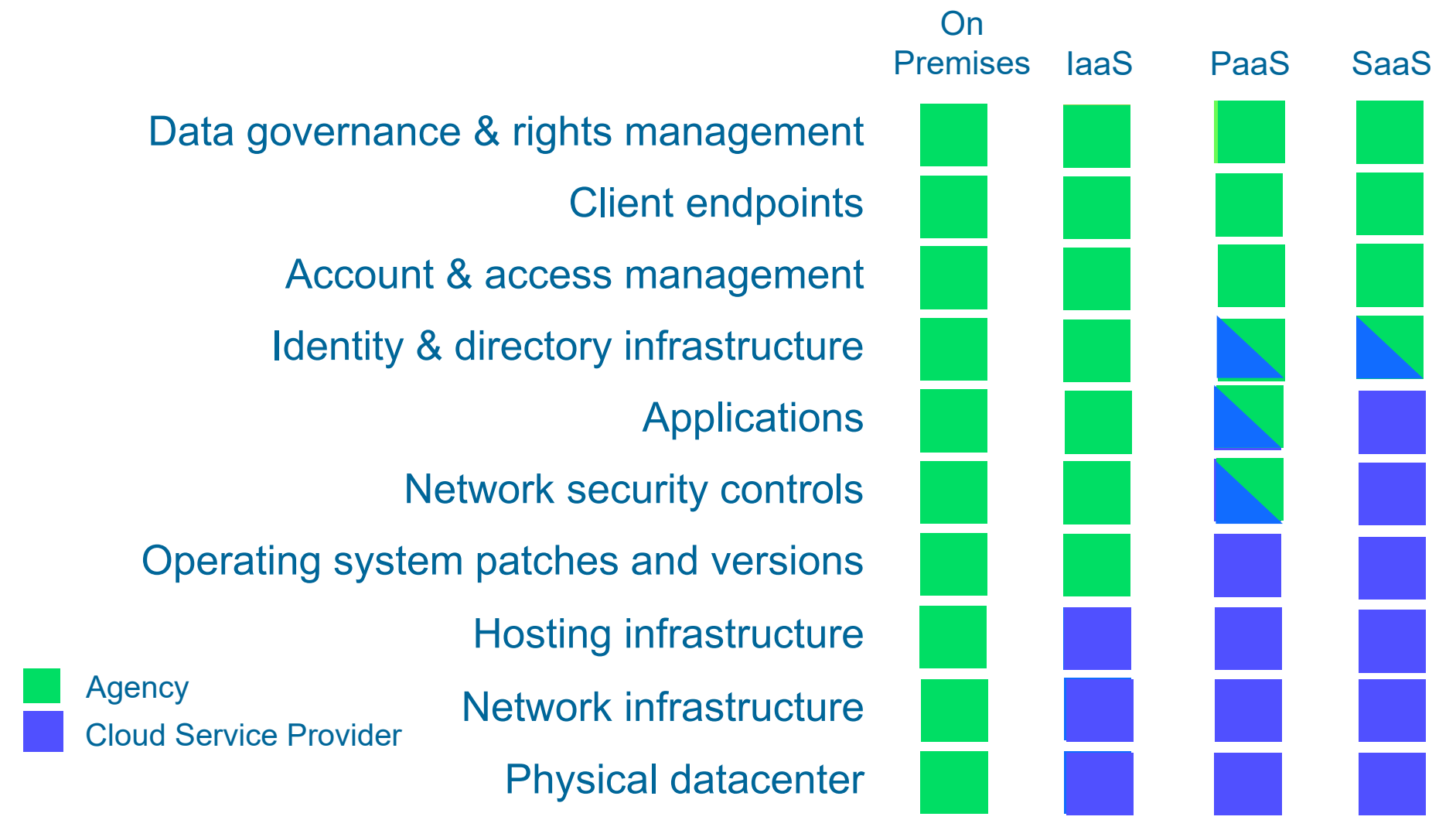


 Pizza Service Provider

 Homeowner's Responsibility

	Home Made Pizza	Take and Bake	Pizza Delivery	Dine at the Pizza Shop
Dining Table				
Utensils				
Electricity/Gas				
Oven				
Tomato Sauce				
Toppings				
Cheese				
Pizza Pie Pan				
Kitchen Facilities				
Pizza Expertise				
	(On Premises)	(IaaS)	(PaaS)	(SaaS)

Responsibilities: Agency vs. Cloud Service Provider



- **FISMA – Federal Information Security Management Act (2002):** Establishes categories for sensitivity of data, i.e., FISMA “high”, “moderate” and “low” data. Repealed Computer Security Act of 1987. The DoD has a roughly equivalent Cloud Computing Security Requirements Guide (SRG).
 - Loss of Confidentiality – did the bad guys view the data?
 - Loss of Integrity – did the data become corrupt and permanently unreadable?
 - Loss of Availability – did the data go offline?
 - FISMA High example – crime tipster names & addresses, if revealed, a threat to life & limb
 - FISMA Moderate example - if data is unreadable, would cause some serious financial damage
 - FISMA Low example – loss of today’s menu at your agency’s cafeteria
- **OMB Circular A-130**, directs how all USG IT systems are managed. First appeared in 1985.
- **NIST SP 800-37, 800-137, 800-53**, are manuals that contain hundreds of security controls for risk management, indexed by FISMA “high”, “medium” and “low”. One security control might be “all passwords shall be 8 characters in length.”
- **Assessment and Authorization (A&A.)** required by FISMA, the agency’s IT system is assessed against the NIST security controls indexed by FISMA. The product is an Authority to Operate (ATO.)
- **Authority to Operate (ATO)** is a summary of the results of the A&A and an assumption of known IT security risks. Signed by the system owner, usually the agency head, before the system is **authorized** to be put into operation.

Cloud Security: What is FedRAMP?



- When adding cloud services (IaaS, etc.) the agency is extending the boundary of its computing enterprise to the CSP's (cloud vendor's) premises and so the CSP is subject to the A&A/ATO process. OMB mandates the use of the FedRAMP process when drafting agency A&A/ATOs for cloud services.
- These FedRAMP security controls are added to the NIST baseline for cloud instances:
 - ❖ FISMA High = 421 cloud controls added by FedRAMP
 - ❖ FISMA Moderate = 325 cloud controls added by FedRAMP (Reciprocity with DoD IL 2)
 - ❖ FISMA Low = 125 cloud controls added by FedRAMP
- CSPs pay for a one time A&A done at their own facilities by a FedRAMP certified consultant. Result: a FedRAMP ATO.
- As part of their system-wide Assessment and Authorization (A&A) process, we know that agencies are required to issue their own ATO before placing cloud hosted data or software application into service. Agencies may also include a CSP's FedRAMP ATO for their new cloud instance by reference and thus leverage it when drafting their complete agency-wide ATO.
- Agencies that wish to review the detailed security documentation for any CSP holding a FedRAMP ATO may request it from FedRAMP.gov. FedRAMP performs continuous monitoring of FedRAMP authorized CSPs.
- It's not enough to copy any old software application to a FedRAMP'ed CSP platform. The software application itself must also be assessed. Remember SQL injections?

- ✓ **By the Minute, Seconds, Hours or Days**, for CPUs, storage or memory for virtual machines in the cloud. Charges accrue for provisioned CPUs, running or not.
- ✓ **For IaaS/PaaS: By a Defined Long Term, sometimes called a “Reserved Instance,” or “Reservation”** for a bundle of many pre-configured cloud CPUs over a long term purchase commitment of 1-3+ years. Available at a steep discount of as much as 30%-70%, usually for IaaS/PaaS only.
 - ✓ May sacrifice some pay as you go consumption advantages but keeps the other cloud advantages such as agility.
 - ✓ May carry a “use or lose” cloud services component and/or up front payment options that may cause funding violations so check with your finance staff.
 - ✓ The purchase commitment may span multiple government fiscal years and/or the period of performance (POP) of the cloud contract, causing funding/contracting violations. Again, check with your contracting/finance staff.
- ✓ **For SaaS/EaaS: By the Application User Seat per Day, Month or Year**, in the case of SaaS or EaaS.

- ✓ **By the Transaction**, as in the case of large SaaS databases. Login may or may not be free, and a per transaction charge only accrues when the customer issues a query against a large database (e.g., real estate or scientific applications.) Another example, for IaaS, might be a charge for each read/write disk operation, sometimes sold in dollars per 10M operations, etc.
- ✓ **By the Bandwidth Consumed**, often as a surcharge on top of IaaS/PaaS. Calculated from the up/down bandwidth used when addressing the cloud instance.
- ✓ **By a Percentage of Spend**, where charges accrue as a percentage of the underlying CSP spend being managed by the SaaS application. Often used by cloud management platform SaaS applications, which offer dashboard and management capabilities across multiple CSPs and their catalogs.

- ✓ **Draft a broadly defined Statement of Objectives (SOO)**, not a Performance Work Statement (PWS), or a Statement of Work (SOW) for access to entire catalog of CSP services.
- ✓ **Draft the requirements as capabilities-based, not performance-based.** You may not want a solution-based response for specific CPUs, etc. Access to entire catalog is desired.
- ✓ **Consider a BPA against GSA Schedule** which may be used to execute multiple Task Orders (TOs), each with its own funding and different contract type (T&M model or FFP) with no further competition. BPAs may be issued against GSA Schedule under FAR 8.405-3(a)(1).
- ✓ **OCONUS vs CONUS [(Outside)Continental US].** If a CSP stores your data in a foreign jurisdiction, its servers may be subject to the laws of that jurisdiction and therefore risks government data being seized by a foreign government. Expect to pay more for CONUS storage.
 - ✓ For defense agencies, DFARS Part 239.7602-2 says that all DoD data not on DoD premises must be stored within CONUS, with some exceptions made by the “authorizing official.”
 - ✓ For civilian agencies, policies on this issue differ from agency to agency

- ✓ **Consider a requirement for direct access to CSP usage and billing/utilization reports;** with no single line item cloud charges. No reseller-provided 3rd party **Cloud Service Broker (CSB)** cloud management tools or cloud auto-configuring in CSB applications, even for free.
- ✓ **Consider awarding to a reseller of more than one CSP.** A single award to a multiple-CSP reseller eliminates the need for a multiple award BPA to cover several CSPs. Another possibility: A single solicitation for multiple single award BPAs, covering several CSPs.
- ✓ **Do not make a FedRAMP Authorization a requirement to bid** (legal folks say this limits competition.) Instead, score respondents on their stated FedRAMP status.
- ✓ **The best funding for cloud services may be more flexible working capital** rather than appropriation funding that does not span years.
- ✓ **Cloud Solicitations:**
 - ✓ Templates: The Cloud Information Center at <https://cic.gsa.gov/>
 - ✓ Contains several templates for cloud SOOs
 - ✓ Live RFQs: GSA's eBuy Open at <https://www.ebuy.gsa.gov/ebuyopen/>
 - ✓ Requires OMB MAX login
 - ✓ Filter by "Category" 518210C to view agency RFQ IDs and POCs for active/closed cloud RFQs

Best Practices for Contracting for Cloud Computing - Continued

- ✓ **Is a Brand Name Justification Appropriate?**
 - ✓ Cloud is often sold through many resellers of a single CSP's catalog. In this case the "source" is the CSP, but competition among many resellers of the CSP's catalog may be available.
 - ✓ A Sole Source would target a seller of the specific CSP catalog offerings, while a Brand Name Justification would allow all resellers to compete for the CSP catalog offerings "source."
- ✓ **Is Migrating from one CSP to Another Appropriate?** The best CSP cloud tools (e.g., APIs, auto-scaling, cacheing, container services, etc.) are designed to make cloud applications run faster and efficiently and are part of the reason to migrate to the cloud. But they often require extensive configuring/customization for those tools to run well. Therefore the cost to disentangle a portfolio of applications from one CSP and re-engineer the applications to run well on another CSP's platform may be expensive.
 - ✓ ***FAR 6.302-1 "Supplies may be deemed to be available only from the original source in the case of a follow-on contract for the continued development or production of a major system...when it is likely that award to any other source would result in...substantial duplication of cost to the Government that is not expected to be recovered through competition...."***

May Cloud be Acquired as a Small Business Set Aside?

- Cloud is usually sold via resellers, not directly by the CSP
 - Resellers are often small businesses, while CSPs are often large businesses.
- The **SBA** considers Cloud (IaaS, PaaS, etc.) as a **service**, not as a **product**.
“Subscription services, remote hosting of software, data, or other applications on servers or networks of a party other than the U.S. Government are considered by SBA to be services and not the procurement of a supply item. CFR 121.1203(d)(3)”
 - **Products** may be acquired as a set aside if the small business reseller prime pays to its CSP subcontractor(s) $\geq 50\%$ of the cost of the product.
 - **Products** under the **non-manufacturing rule(NMR)**: The NMR says that a small business reseller may supply a **product** as a set-aside if it comes from another small business. CFR 121.406 (CSPs are usually large businesses so this may not apply.)
 - **Products** may receive a waiver of the non-manufacturing rule only if no small business can supply the **product**. CFR 121.1203(d)(3).
- Therefore, since the SBA considers cloud computing as a **service**, and not a **product**, none of the above set-aside strategies are valid. ***A cloud set-aside might not be defensible against a solicitation Q&A or defensible against a protest by a large CSP.***

Cloud as a Small Business Set Aside - Continued

- SBA issued a final rule effective on 12/30/2019 as 84 FR 65647
 - *In a prior rulemaking, SBA determined that...cloud computing...should be considered a service and therefore the NMR would not apply. 13 CFR 121.1203(d)(3). Due to the costs and scale involved, cloud computing is generally provided by other than small business concerns.*
 - *Of course, where cloud computing itself is the **primary purpose** of the procurement, the limitations on subcontracting could not be met by a small business, and, therefore, such a procurement should not be set aside or reserved for small business.*
- **So to answer the question “Can cloud computing be acquired as a small business set-aside,” the answer is generally No...**
 - But yes if the vendor itself (or any cloud subcontractor(s) or CTA) is a small business. (Not generally likely since most CSPs are large businesses.)
 - But yes if the vendor is a small business and the CSP cloud subcontractor or CTA is a large business and the cloud computing is **not** the “primary purpose” of the acquisition. (Not likely if the acquisition is only for cloud computing.)

- **FAR Restrictions:** The FAR may be creatively applied to cloud computing just as it does to any other IT procurement using a funding burn rate model. It should not be an impediment to the purchase of cloud services.

FAR 1.102(d) In exercising initiative, Government members of the Acquisition Team may assume if a specific strategy, practice, policy or procedure is in the best interests of the Government and is not addressed in the FAR, nor prohibited by (any other) law...that the strategy, practice, policy or procedure is a permissible exercise of authority.

- Yes, FAR Part 16.601 only speaks of a T&M or Labor Hour contract type in the context of an acquisition of commercial services (i.e., labor.) But since the FAR does not specifically prohibit the acquisition of cloud computing using the T&M model one might be able to interpret the FAR as permitting acquisition of cloud computing on a T&M model contract.

Why use the GSA Multiple Award Schedule (MAS) or “GSA Schedule” for Cloud Computing?

- ✓ **Ordering falls directly under FAR Subpart 8.4**, with 15,000+ pre-vetted local/global contractors offering 20,000,000+ products and services. The largest government wide contract of any kind. Also available to state, local and tribal governments.
- ✓ **A Self Service Platform.** A Delegation of Procurement Authority (DPA) and DPA extra training class is *not* necessary. Training events listing: <http://www.gsa.gov/events>
- ✓ **GSA Schedule ceiling prices** can be further discounted via vendor-to-vendor competition and also via government-to-vendor negotiations down to the Task Order level.
- ✓ **GSA Schedule allows both FFP & T&M contract types.** You might establish a Firm Fixed Price for cloud, or perhaps a cloud contract that is similar to a Time & Materials model with NTE CLINs with dedicated funding with a calculated burn rate.
- ✓ **A Single Award BPA may be awarded with no up front funding against GSA Schedule (FAR 8.405-3)** that can be used over and over by sub-agency departments without the need to compete each individual Task Order (TO). Each BPA TO may carry a *different* contract type (FFP/T&M.) Each TO under a BPA also carries its own funding, making a BPA a good fit for agencies whose funding for cloud is not fully available at time of award, where funding for cloud trickles in during the course of the fiscal year(s).

- ✓ A subset of GSA MAS vendor offerings. The SIN lists cloud computing offerings that meet the NIST Definition of Cloud Computing (NIST SP 800-145.)
- ✓ The Cloud SIN also contains the cloud-focused labor hours for any cloud project for an all in one solution.
- ✓ Agencies might solicit only the cloud-qualified vendors on the Cloud SIN and still satisfy their competition requirements.
- ✓ The Cloud SIN now includes 425+ offerings from 240+ vendors.
- ✓ Vendors may submit proposals to be listed on the Cloud SIN at anytime.
 - ✓ Onboarding of new cloud vendors is continuous.
 - ✓ Vendor proposals must pass a technical evaluation by the GSA Cloud Team of whether the cloud offering meets the NIST definition of cloud computing.

POC: Skip Jentsch, skip.jentsch@gsa.gov, 202-617-5356

- ✓ DEOS: Defense Enterprise Office Solutions - a BPA for all DoD, including 4th of State entities
 - ✓ For Microsoft O365 cloud word processing, email, spreadsheet, presentation tools, etc.
 - ✓ A Single Award BPA for fast (30 day) Task Order processing - no competition required
 - ✓ Period of Performance (\$4.4B) 10 years from October, 2020 to 2030 (with option years)
 - ✓ No labor hours are available on the BPA for any customization
- ✓ GSA's Assisted Acquisition Service administers the DEOS BPA and all its Task Orders, for cradle to grave GSA acquisition support, after signing an Interagency Agreement (IAA)
- ✓ GSA manages a portal for DEOS on the GSA Acquisition Gateway at <https://hallways.cap.gsa.gov/app/#/gateway/deos> (OMB Max required)
 - ✓ There is an intake form on the portal that DoD agencies may use to get info or start the process
- ✓ DEOS POC is at deos@gsa.gov

- ✓ **GSA Enterprise Infrastructure Solutions (EIS)**
 - ❖ **A network and telecom based Best in Class (BIC) government wide vehicle enabling agencies to modernize their IT infrastructure, voice, data and cybersecurity capabilities**
 - ❖ **Helps users move to the Cloud with emphasis on:**
 - ✓ **Secure connectivity to Cloud Service Providers**
 - ✓ **FedRAMP certified Security as a Service (SaaS) tools**
 - ✓ **Continuous technology refreshment including Software Defined Wide Area Networking (SD-WAN) and 5G**
 - ✓ **Trusted Internet Connection (TIC) services that meet updated OMB TIC Policy and CISA TIC 3 guidance**
 - ✓ **Solutions for TIC 3 use cases and Zero Trust implementations**
- ✓ **POC: Loren Smith loren.smith@gsa.gov (703) 306-6378**

- ✓ A government wide acquisition vehicle (GWAC)
 - ❖ Primarily used when an agency wishes to contract with a systems integrator to take charge of a cloud initiative
 - ✓ May add cloud services (IaaS, etc.,) as Other Direct Costs (ODCs)
 - ❖ A closed multiple award IDIQ with 52 industry partners
 - ❖ Holds Best in Class (BIC) status
 - ❖ Requires Alliant2 training and Delegation of Procurement Authority (DPA)
 - ❖ POC: Alliant2@gsa.gov, (877) 534-2208

The GSA's Office of Governmentwide Policy's (OGP) IT Modernization division is seeking to meet with interested small (non CFO act) Federal agencies one-on-one to discuss a potential partnership to submit a TMF request to support small agency IT modernization efforts.

Given the Administration's investment in the TMF, we think there is an opportunity for us to partner with an interested group of agencies and jointly identify areas for modernization and improvement through TMF investments.

If you'd like to have a one-on-one discussion with the PMO about your agency's IT needs and thoughts about a team-approach to a TMF proposal, please contact kiran.balsa@gsa.gov.



Cloud Information Center

Visit cic.gsa.gov for acquisition templates, guidance, resources, and much more.



GSA Cloud Assistance

Visit gsa.gov/cloud for more customer support and points of contact.

Skip Jentsch

IT Specialist – Enterprise Architect

IT Cloud Products Manager

Office of Information Technology Category (ITC)

Federal Acquisition Service (FAS)

U.S. General Services Administration (GSA)

202-617-5356

Skip.Jentsch@gsa.gov

