



Enabling NASA Software-as-a-Service (SaaS) Use

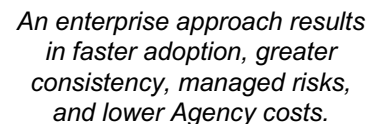
Office of the Chief Information Officer

Computing Services Program Office
Enterprise Managed Cloud Computing (EMCC) Service Office

Version 1.0, September 29, 2016



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Facilitated NASA Cloud Use

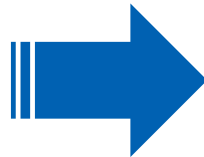


Case for an Enterprise SaaS Approach

If each NASA community or project addresses the wide array of Requirements for Cloud Computing:

- Projects may interpret and fulfill requirements differently
- Unknown security posture and risks
- Inconsistencies in policies, processes, and implementations
- Highly inefficient approach that results in large Agency spend
- Chaos

Strategy



Do the “heavy lifting” once for the Agency and enable projects to leverage the capabilities we’ve created.

Goal: All cloud use at NASA shall be MANAGED cloud use



NASA OCIO Computing Program Goals For SaaS



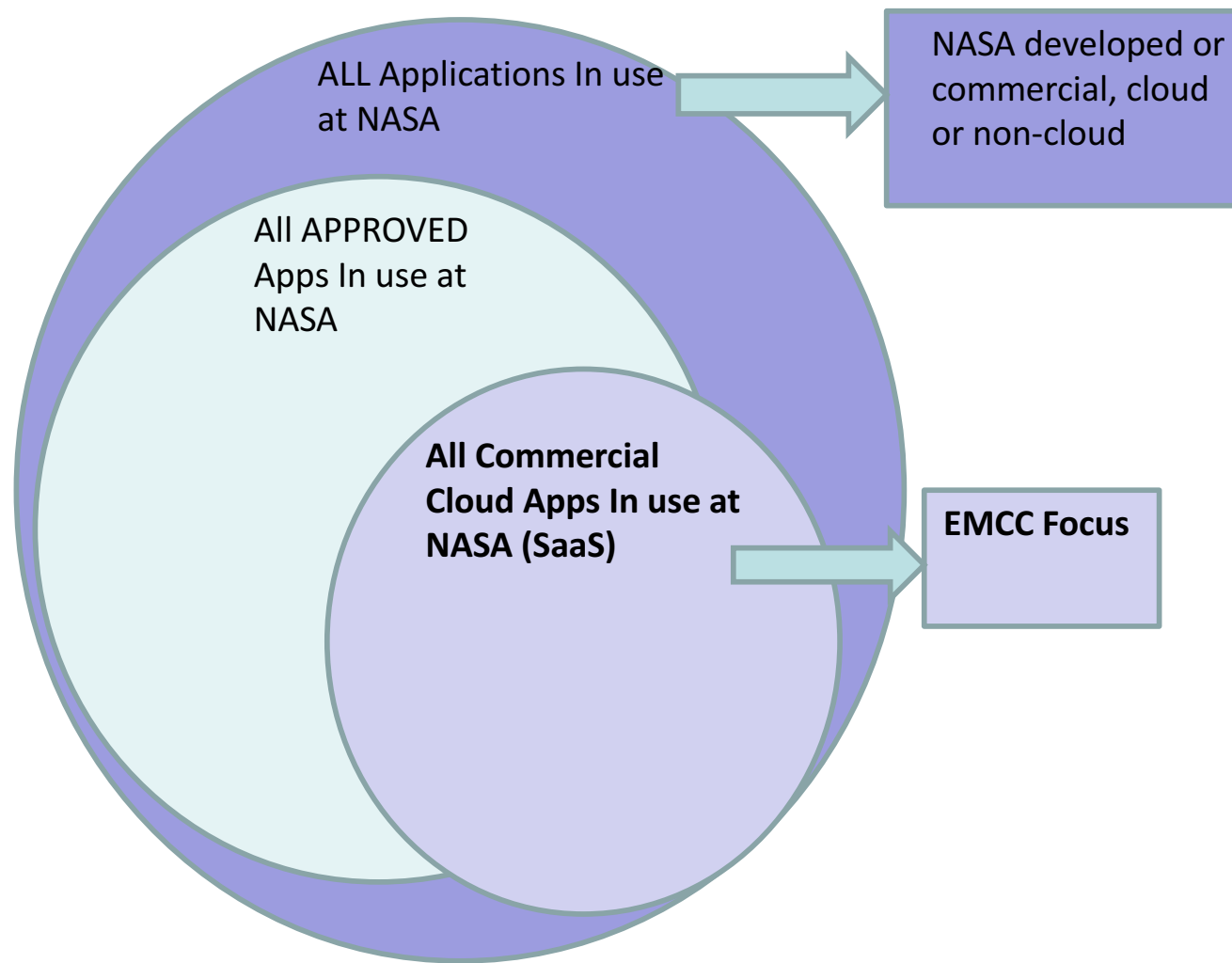
Goals are aligned with Federal, Agency, and OCIO guidance, mandates, goals, and objectives.

Long-Term End Results

1. NASA experiences widespread adoption of cloud computing by programs and projects.
2. NASA uses Commercial SaaS to address program and project requirements when it is the best available approach
3. NASA-used SaaS is governed, managed, and operated using an enterprise-managed approach.
4. NASA SaaS management processes are open and malleable to enable service innovation.

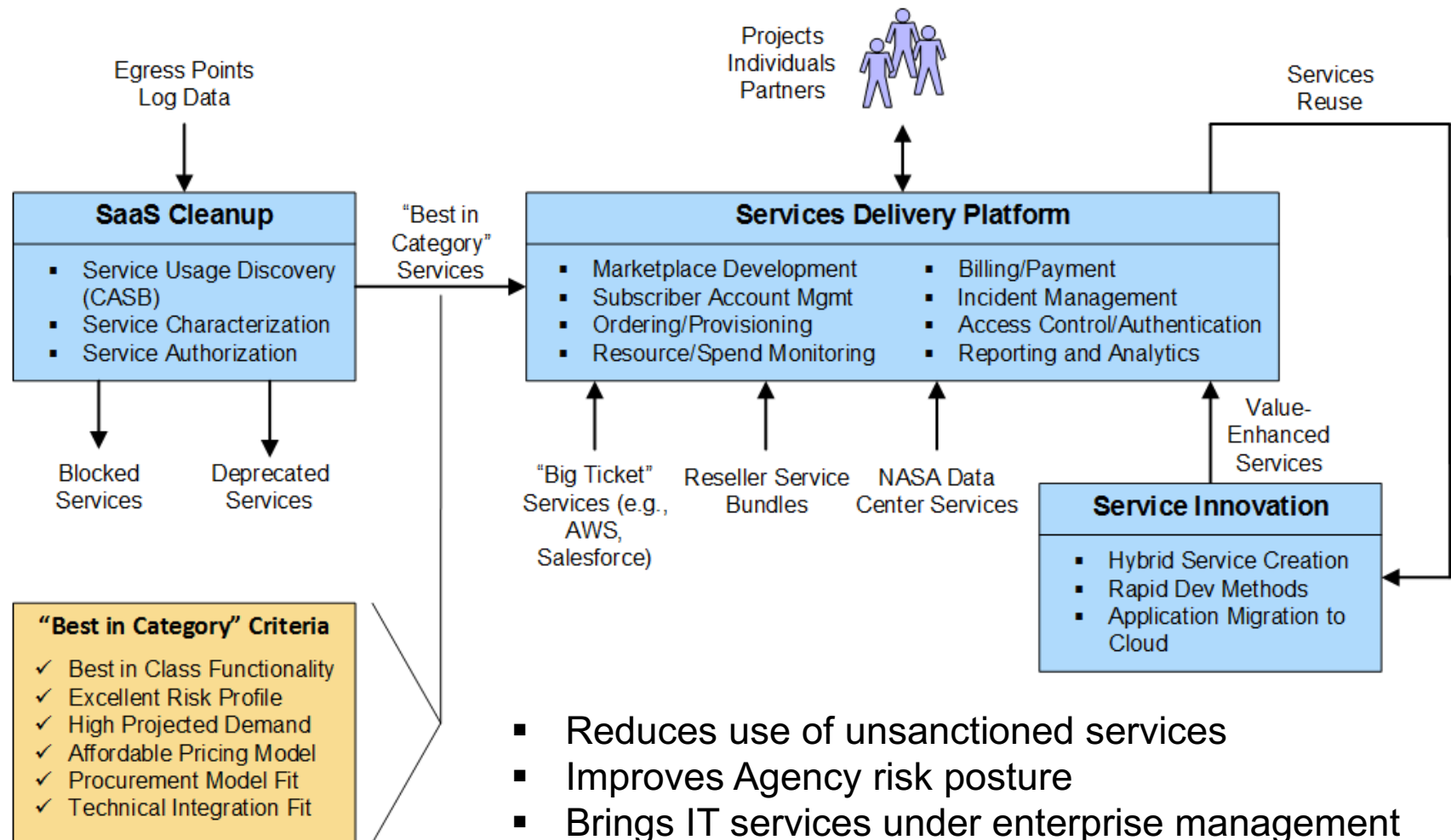


EMCC Application Portfolio Focus





Computing Services Strategy



- Reduces use of unsanctioned services
- Improves Agency risk posture
- Brings IT services under enterprise management
- Provides a unified services delivery approach
- Enables innovation to address mission requirements



Services Delivery Platform Rationale



Services delivery platform solutions (e.g., cloud brokering platforms) are emerging to address cloud computing and hybrid IT.

Why a Platform is Needed

- Explosive growth in SaaS usage cannot be managed using manual approaches
- Provides a unified approach to delivering IT services (Cloud and Data Center), thereby improving the user experience
- Increases efficiency and productivity via workflow automation (e.g., auto-provisioning, license management)
- Consolidates pockets of service usage, enabling Agency buys with discounts
- Leverages reseller service bundles, accelerating development of services portfolio
- Provides existing Agency data centers with a platform to reach new customers



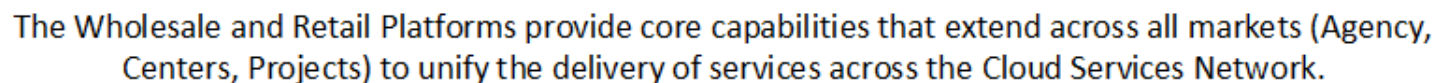
SaaS High-Level Business Strategy



The CSPO extends its Cloud Services Delivery Network to Centers to leverage resources to address the significant demand for SaaS.

Key Elements of SaaS Strategy

1. Deploy an Agency-wide SaaS storefront (marketplace) where customers can easily and quickly purchase and use SaaS apps
2. Develop and empower network of internal service providers at Centers to evaluate, onboard, and curate SaaS apps for Agency-wide use
3. Where possible, acquire bundles of SaaS services from cloud brokers to reduce cost of managing individual services
4. Give precedence in the early stages to SaaS apps that can be onboarded to the Minimal Risk Portfolio (MRP)





SaaS Enterprise Implementation Strategy

Driving Objectives: Gain visibility into the SaaS products already in use, assess risk due to the low level of governance that has been applied to those SaaS products in the past, and make the transition to Agency-level managed SaaS

Deploy Security Framework

- A&A processes and guidance
- Cloud Access Security Broker tool (CASB)
- Establish technical integrations including authentication, networking, security operations



Enables centers to onboard new SaaS in a safe and compliant way

Audit and Cleanup Existing SaaS

- Triage the list to prioritize biggest risks
- Audit usage
- Establish any special rules or constraints
- Establish center ownership and who will perform assessment



Brings existing SaaS into compliance and reduces Agency risk

Develop SaaS Business Environment

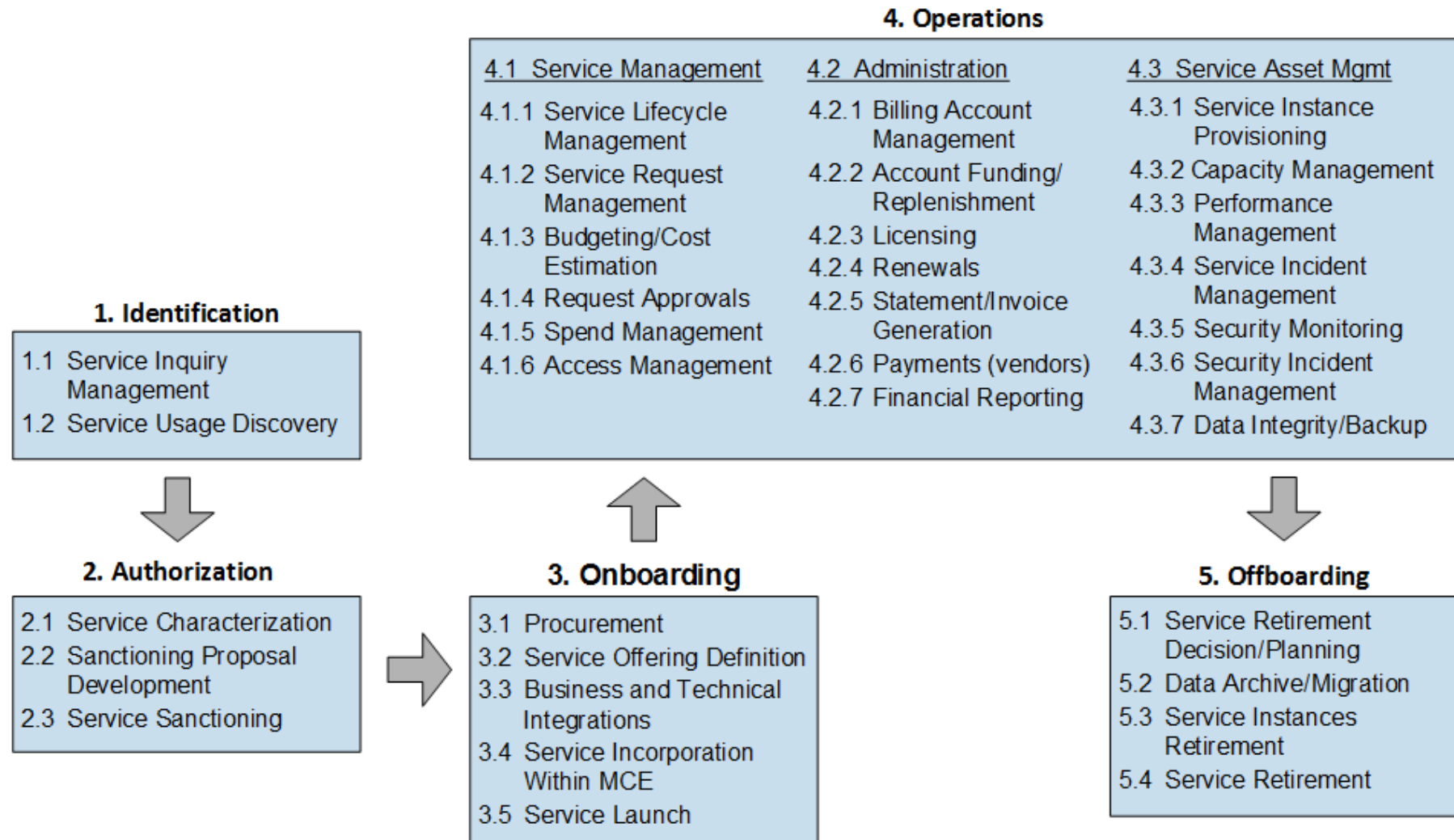
- Identify SaaS vendor business models
- Define ownership and curation requirements
- Determine best procurement approach
- Define ordering and payment and renewal mechanism



Enables enterprise management of SaaS business aspects



SaaS CONOPS Framework





Key Enabling Tool: Cloud Access Security Broker

Cloud Access Security Brokers (CASB) are on-premise or cloud-hosted software that act as a control point to secure cloud services. Range of capabilities may include:

- **Visibility:** Dashboards, identification of approved vs unapproved applications, analytics, incident reporting, policy control, automated alerting and reporting, license counts and usage, identification of “shadow IT”
- **Compliance:** Role based auditing, file content monitoring for compliance to PII, HIPAA, etc., policy enforcement
- **Data Security:** DLP, Encryption, Tokenization
- **Threat Protection:** inbound/outbound content monitoring, user behavior analytics, prevent prohibited devices and locations from accessing network, anomaly detection
- **Enterprise Integration:** ICAM, centralized log management, secure web gateway/proxies

By 2016, 25% of enterprises will secure access to cloud-based services using a CASB platform, up from less than 1% in 2012, reducing the cost of securing access by 30%.

– Gartner, The Growing Importance of Cloud Access Security Brokers

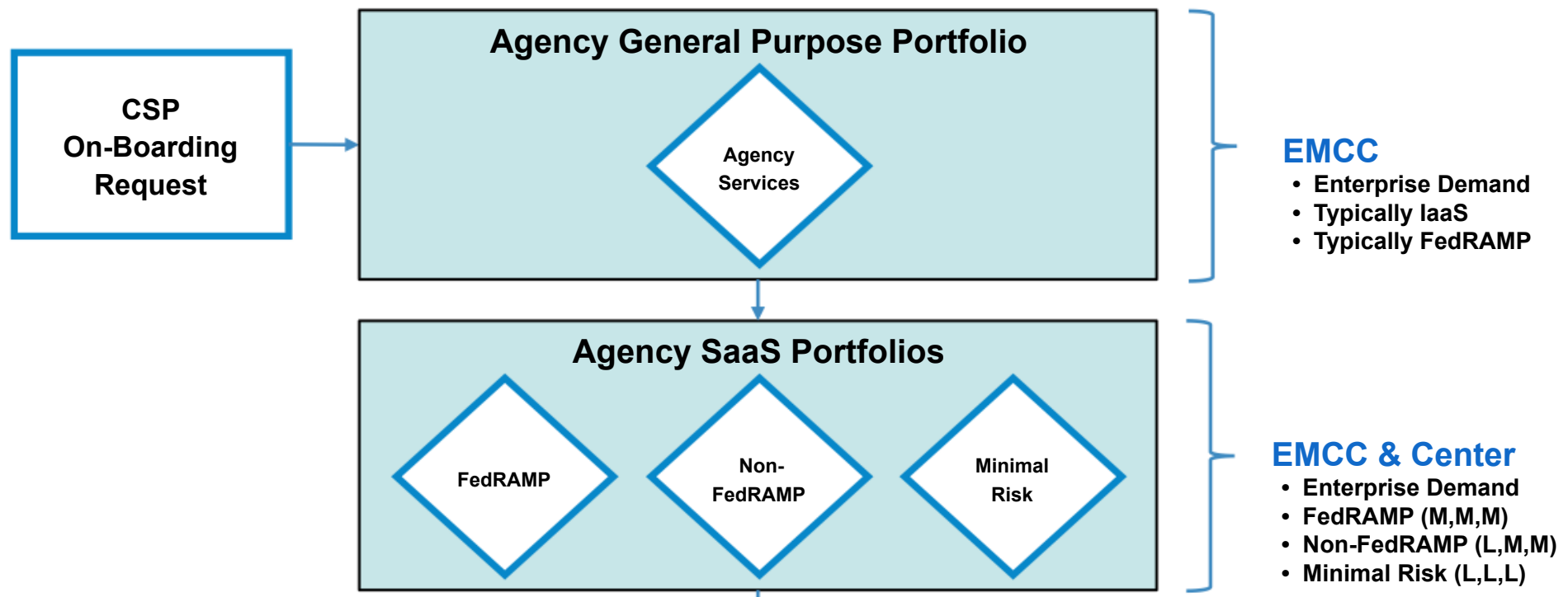


Key Enabling Tool: Enterprise SaaS Aggregation Platform

- Per Gartner, most of today's SaaS aggregation platforms support commercial service providers looking to broker SaaS services via a marketplace or app store to **external customers**.
- A few providers are expanding their offer to also support **internal IT** departments.
- EMCC is monitoring developments and new offerings in this space closely, as this such a capability is a key component of the SaaS business strategy

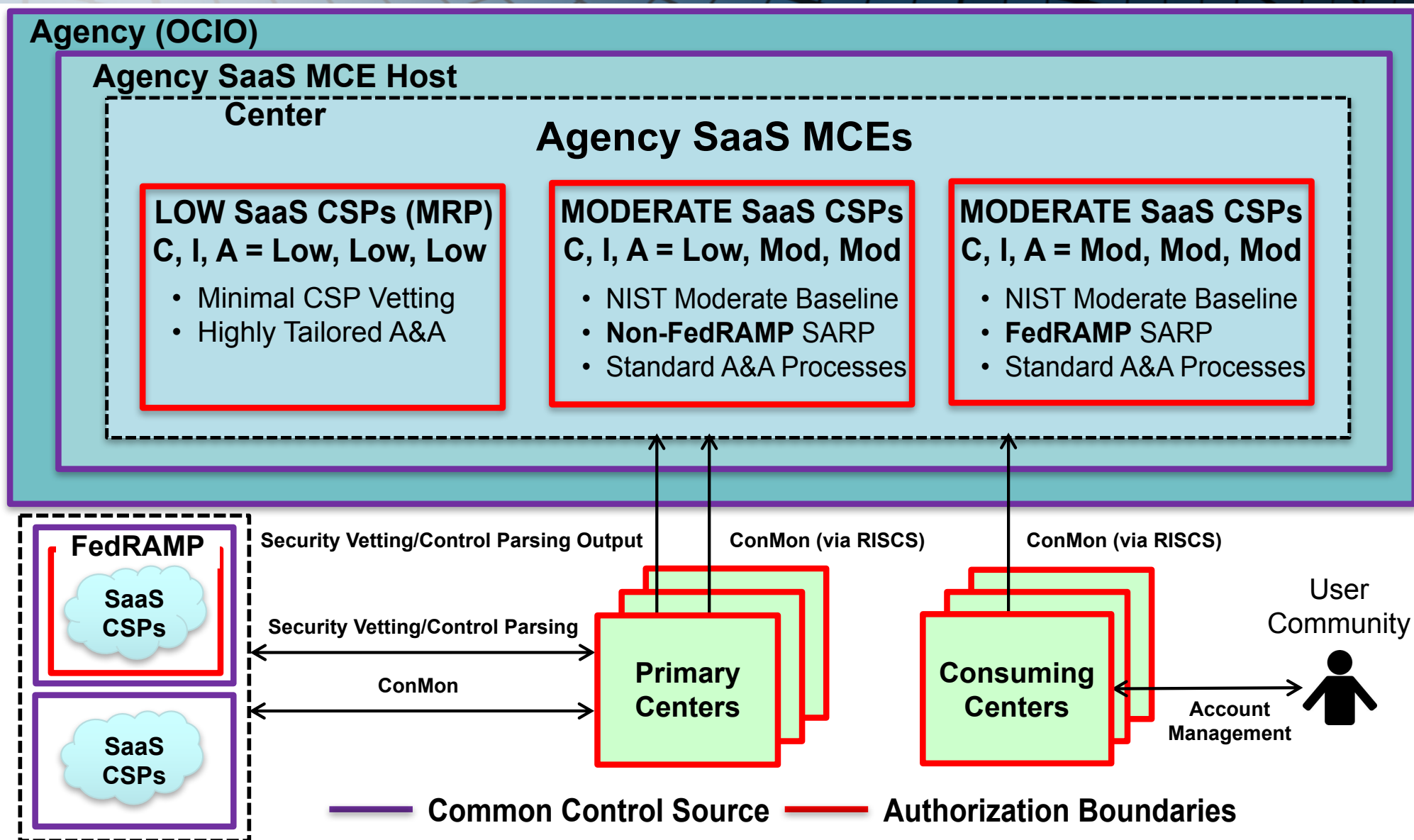


Key Enabling Construct: Agency Cloud Service Portfolios





Key Enabling Security Approach: SaaS Accreditation and Authorization





Changes in EMCC Operating Concept

	Generation 1.0	Generation 2.0
Distinguishing Characteristics		
Name	Computing Services Service Office (CSSO)	Enterprise Managed Cloud Computing
Value Proposition	Value-added Service Provider for IaaS (AWS), governance, management oversight	Platform Operator and Broker that facilitates buying and selling of cloud services, governance, management oversight
Customers	NASA Managed Cloud Service Providers	NASA Service Providers, Projects, Communities, Individuals
Platform Levels	Wholesale	Wholesale, Retail (multiple levels)
Service Models	IaaS (AWS today; others planned)	IaaS, SaaS, PaaS
Alliance	Minimal Reliance: Business/Technical Integration and Solution Development by EMCC team	Extensive Reliance (planned): Scalability via the Cloud Services Delivery Network (Centers)
Role of MC SPs	Buyer, B2C Seller	Buyer, B2B or B2C Seller
Suppliers	CSPs	CSPs, NASA MC SPs, NASA Data Centers



Questions?