

The background of the slide is a close-up, slightly blurred image of the American flag, showing the stars and stripes in a wavy pattern. The colors are vibrant, with the red and white stripes and the blue field with white stars. The flag is set against a dark blue gradient background that is darker at the top and bottom edges.

# Vision for Government Cloud Computing

**Industry Advisory Council  
Networks and Telecommunications Special Interest Group**

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# NIST Definition of Cloud Computing

## **Cloud Computing:**

*Cloud computing is a model for enabling available, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is comprised of five essential characteristics, three delivery models, and four deployment models.*

- Is accessible via Internet protocols from any computer.
- Is always available and scales automatically to meet demand.
- Offers Web or programmatic control interfaces.
- Enables full customer self-service on demand
- Offers location independent resource pooling

# Cloud Computing Initiative

- Provide a services-based environment that is technology and vendor-agnostic
- Enable rapid deployment of technology solutions for the Federal government without developing stove-pipes
- Enable scalability for existing and new capabilities
- Increase savings through virtualization
- Improve the government's ability to create a transparent, open and participatory government.

# Three basic service delivery models that together create the 'Cloud'

- Categorizes vendors and services provided according to Cloud Computing Architecture types:
  - **Software as a Service (SaaS):** Software deployment model whereby a provider licenses an application to customers for use as a service on demand
  - **Platform as a service (PaaS):** Delivery of computing platform & solution stack as a service
  - **Infrastructure as a Service (IaaS):** Delivery of computer infrastructure (typically a platform virtualization environment) as a service

## SaaS:

- Gov-Apps, Internet Services
- Blogging/Surveys/Twitter, Social Networking
- Information/Knowledge Sharing (Wiki)
- Communication (e-mail), Collaboration (e-meeting)
- Productivity Tools (office)
- Enterprise Resource Planning (ERP)

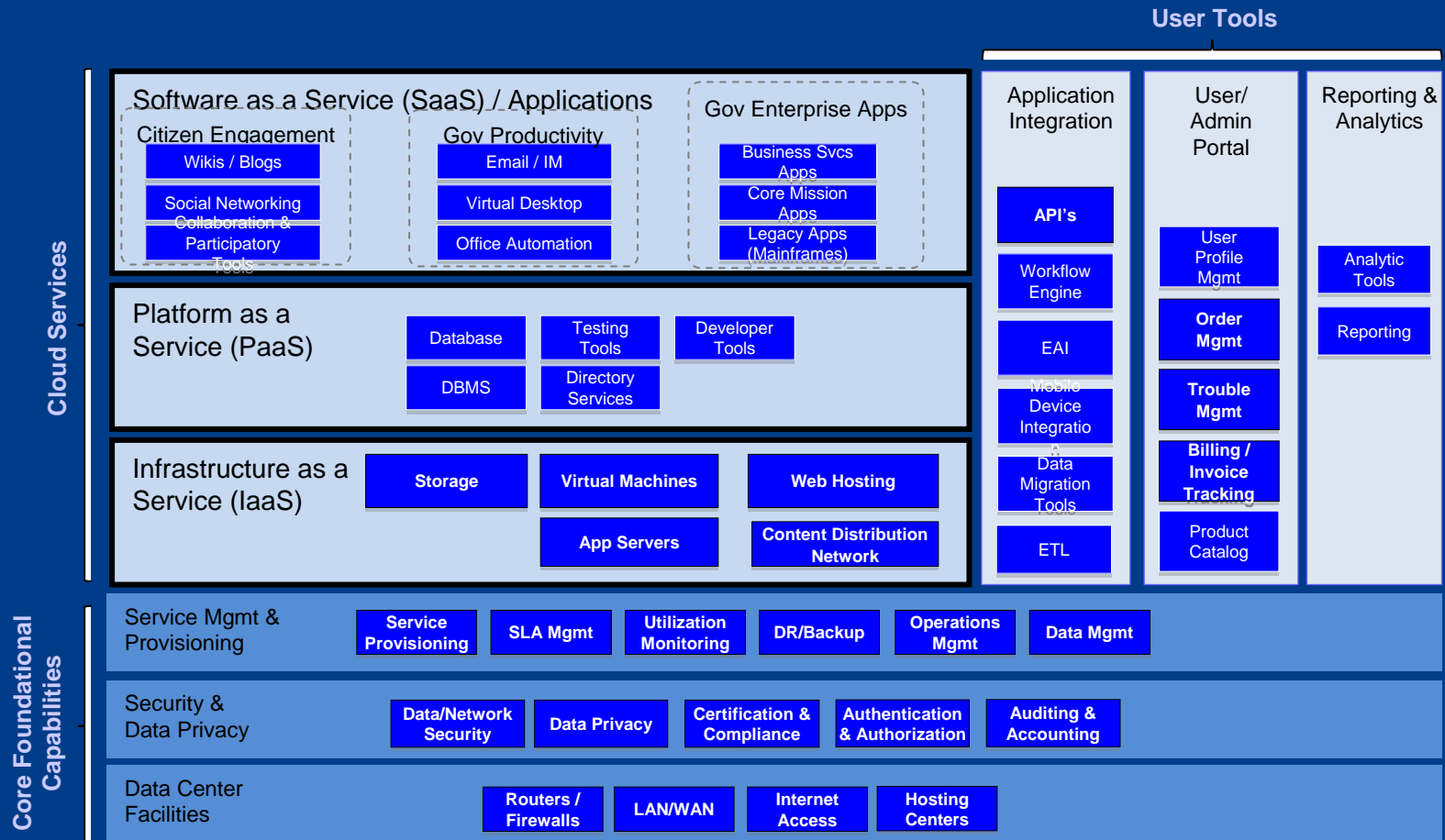
## PaaS:

- Application Development, Data, Workflow, etc.
- Security Services (Single Sign-On, Authentication, etc.)
- Database Management
- Directory Services

## IaaS:

- Networks, Security, Mainframes, Servers, Storage
- Telecom Carrier Services
- IT Facilities/Hosting Services

# Cloud Computing Framework Capability Areas



# Delivery Model

Model	Capability Provided	Example Services
SaaS	To use the provider's applications running on a cloud infrastructure and accessible from various client devices through a thin client interface such as a Web browser	<ul style="list-style-type: none"><li>▪ Citizen Engagement (Wikis, Blogs, Data.gov)</li><li>▪ Government Productivity (Cloud based tools)</li><li>▪ Business Enablement (Salesforce.com)</li><li>▪ Enterprise Applications (Core Mission &amp; Business Svcs)</li></ul>
PaaS	To deploy onto the cloud infrastructure consumer-created applications using programming languages and tools supported by the provider (e.g., java, python, .Net)	<ul style="list-style-type: none"><li>▪ Database and Database Management Systems</li><li>▪ Developer / Testing Tools</li><li>▪ Virtual Environments</li></ul>
IaaS	To provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications	<ul style="list-style-type: none"><li>• Computing</li><li>• Storage</li><li>• Application hosting</li></ul>

# Deployment Model Overview

## PRIVATE CLOUD

Operated solely for an organization.

## COMMUNITY CLOUD

Shared by several organizations and supports a specific community that has shared concerns

## PUBLIC CLOUD

Made available to the general public or a large industry group and is owned by an organization selling cloud services.

## HYBRID CLOUD

Composition of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardized or proprietary technology that enables data and application portability

# Different clouds will have to exist to accommodate agency needs and security considerations

**Citizen Cloud** – Cloud as defined by user access and perspective (not hosting location or data owner)

**Public Cloud** – Cloud as defined by providers of cloud computing services, i.e. non-government or commercial

**Federal Civilian Cloud (i.e. non-DoD/Intel)** – Cloud services provided within a established Federal cloud environment with government/commercial providers, managed by one agency, subscribed to many other agencies. Specific attributes may include greater compliance with Federal policy and agency specific cloud services. Additionally, greater interoperability amongst cloud services in the Federal Cloud. Leverages TIC.

**National Security Cloud** – Managed by a DOD / Intel agency, with government/commercial providers. Traditional national security requirements and applications are provisioned within this cloud environment. Leverages TIC MTIPS providers.

**Federal, State, & Local Government Cloud** – Cloud services provided to facilitate enhanced government services, public safety, interoperability, and business operations amongst all American government Agencies

# Progress to Vision

- Issued RFI to assess: business and pricing models, operational support, data management, security and interoperability and portability
- Issued a cloud computing data call across the Federal government to identify cloud projects in operation or planned
- Establishing a “cloud” storefront under the GSA Advantage site to offer access to SaaS and IaaS services
  - Identified existing offerors of SaaS under Schedule 70
  - Creating Blanket Purchase Agreement for IaaS
- Establishing a formal governance structure:
  - CIO Council
  - CIO Cloud Working Group (Executive Steering Committee)
  - Cloud Advisory Group – representative from across the government

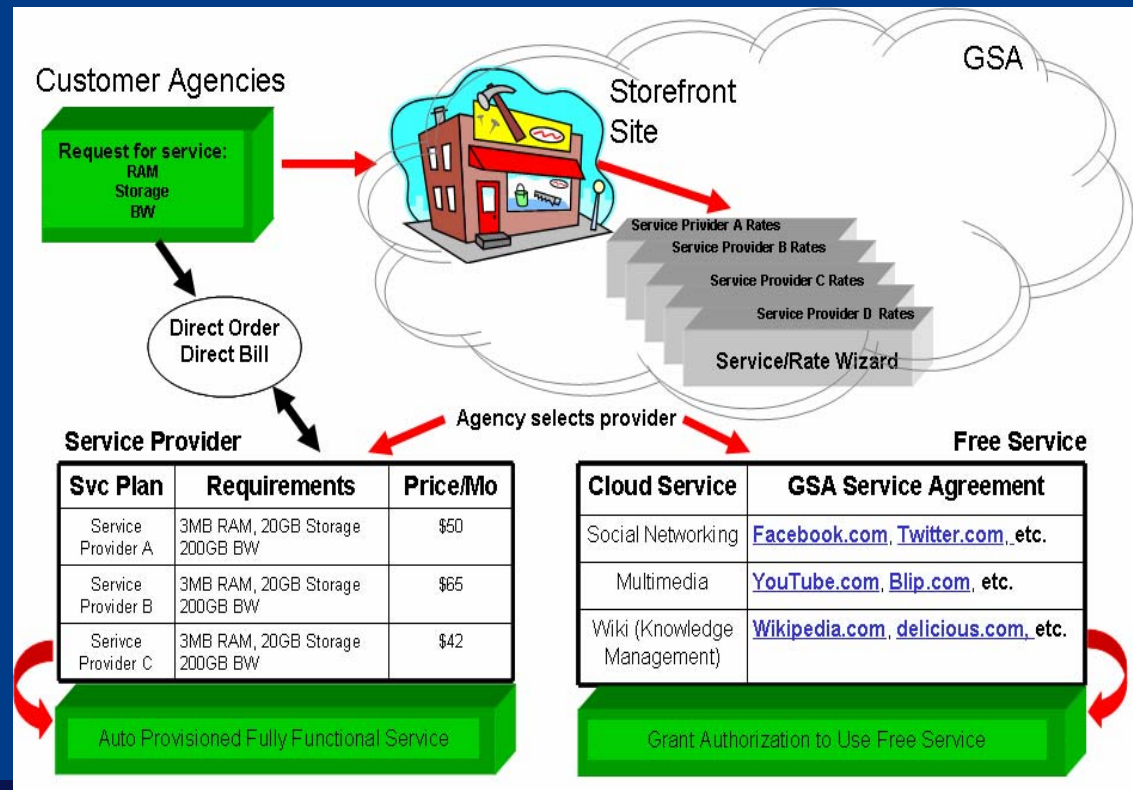
# Potential Cloud Computing Offering: Access to Services via GSA Storefront

- Simplify the customer experience – web application “storefront”
  - Agencies identify their infrastructure and web application requirements using a menu-type screen
  - Payment is by credit card or requisition
  - Delivery of a secure environment supported by the selected applications configured for their slice of the cloud.

Front-end user interface based on simple commercial hosting model

Provides access to service agreements negotiated by GSA for free Social Media

Limited one-stop shop site for agencies to: request services, make selection from several vendor options, resulting in auto-provisioned fully functional service IaaS



# GSA Cloud Computing Services

🛒 Shopping Cart  
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Welcome, let GSA help get you started using cloud computing services.



## Cloud Computing

Get your head in the cloud! We invite you to join other Federal agencies in adopting cloud computing technologies in order to save money, facilitate faster procurement, and expedite the deployment of leading edge technologies available in the consumer space.

What is it?

Why do I need it?

How much does it cost?

How do I get it?

### Software as a Service

- ▶ Customer Relationship Management (CRM)
- ▶ ERP - Financials, Human Resources
- ▶ PR/Document Management



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### Infrastructure as a Service

- ▶ Web Site Hosting
- ▶ Storage
- ▶ Data Back-up

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### Citizen Engagement Services

- ▶ Social Networking Services
- ▶ Web 2.0



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### Platform as a Service

- ▶ Software Development

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### Welcome to Cloud Computing



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