Agenda

• Cloud Computing 101
• US Government and Cloud Computing
  • Presidential Declaration
  • How is FEMA using Cloud Computing
• Other examples
New Technology

- On the Rise
  - Expectations
  - Mass media hype begins
  - Early adopters investigate
  - First-generation products, high price, lots of customization needed
  - Startup companies, first round of venture capital funding
  - R&D

- At the Peak
  - Activity beyond early adopters
  - Supplier proliferation

- Sliding Into the Trough
  - Negative press begins
  - Supplier consolidation and failures
  - Second/third rounds of venture capital funding

- Climbing the Slope
  - Less than 5 percent of the potential audience has adopted fully
  - Methodologies and best practices developing

- Entering the Plateau
  - High-growth adoption phase starts: 20% to 30% of the potential audience has adopted the innovation
  - Third-generation products, out of the box, product suites
  - Second-generation products, some services

Source: Gartner (August 2010)
01. 01 Cloud Computing 101
Definition and Characteristics of Cloud Computing

Cloud computing is defined as “a model for enabling 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 of service provider interaction.”

Five Essential Characteristics

- On-demand self-service.
- Broad network access.
- Resource pooling.
- Rapid elasticity.
- Measured service.

—National Institute of Standards and Technology
What is Cloud Computing

• IaaS (Infrastructure as a Service)
• PaaS (Platform as a Service).
• SaaS (Software as a Service), ‘
• Others
  • NaaS (Network as a Service)
  • CaaS (Communication as a Service)
• Future
  • ?aas (Strategy-as-a-Service)
  • ?aaS (Collaboration-as-a-Service),
  • BPaaS (Business Process-as-a-Service),
  • DaaS (Database-as-a-Service),
Cloud Brokerages

- Intermediaries between customers and the cloud technologies they use.
- Aggregation Brokerage
- Integration Brokerage
- Custom Services Brokerage
Types of Clouds

- Private cloud
- Community cloud
- Public cloud
- Hybrid cloud
Advantages

• Decreased costs
• Scalability and Speed
• Innovation
• Convenience
• Location Independence
• Business Continuity during a disaster
• Optimal Resource Utilization
Disadvantages

- Security & Privacy
- Dependency - vendor lock-in
- Technical Difficulties and Downtime
- Data Transfer
- Latency
- Understanding/Acceptance
- Integration
  - Not everything fits into the cloud
Network Tips for Cloud Computing

• Bandwidth Management

• Encryption Increase

• Access Controls and Authentication
02 US Government & Cloud Computing
• Efficiency Improvements will shift resources toward higher-value activities
• Assets will be better utilized
• Demand aggregation will reduce duplication
• Data center consolidation can be accelerated
• IT will be simpler and more productive
• Agility improvements will make services more responsive
• Services will be more scalable
• Innovation improvements will rapidly enhance service effectiveness
• Encourage entrepreneurial culture by reducing risk
Figure 3: Decision Framework for Cloud Migration

<table>
<thead>
<tr>
<th>Select</th>
<th>Provision</th>
<th>Manage</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Identify which IT services to move and when</td>
<td>- Aggregate demand at Department level where possible</td>
<td>- Shift IT mindset from assets to services</td>
</tr>
<tr>
<td>- Identify sources of value for cloud migrations: efficiency, agility,</td>
<td>- Ensure interoperability and integration with IT portfolio</td>
<td>- Build new skill sets as required</td>
</tr>
<tr>
<td>innovation</td>
<td></td>
<td>- Actively monitor SLAs to ensure compliance and continuous improvement</td>
</tr>
<tr>
<td>- Determine cloud readiness: security, market availability, government</td>
<td>- Contract effectively to ensure agency needs are met</td>
<td>- Re-evaluate vendor and service models periodically to maximize</td>
</tr>
<tr>
<td>readiness, and technology lifecycle</td>
<td>- Realize value by repurposing or decommissioning legacy assets and</td>
<td>benefits and minimize risks</td>
</tr>
<tr>
<td></td>
<td>redeploying freed resources</td>
<td></td>
</tr>
</tbody>
</table>

Framework is flexible and can be adjusted to meet individual agency needs
Security Requirements

• **Statutory compliance** to laws, regulations, and agency requirements

• **Data characteristics** to assess which fundamental protections an application’s data set requires

• **Privacy and confidentiality** to protect against accidental and nefarious access to information

• **Integrity** to ensure data is authorized, complete, and accurate

• **Data controls and access policies** to determine where data can be stored and who can access physical locations

• **Governance** to ensure that cloud computing service providers are sufficiently transparent, have adequate security and management controls, and provide the information necessary for the agency to appropriately and independently assess and monitor the efficacy of those controls
FEDERAL INFORMATION SECURITY MANAGEMENT ACT (FISMA) IMPLEMENTATION PROJECT

Our Vision
To promote the development of key security standards and guidelines to support the implementation of and compliance with the Federal Information Security Management Act including:

- Standards for categorizing information and information systems by mission impact
- Standards for minimum security requirements for information and information systems
- Guidance for selecting appropriate security controls for information systems
- Guidance for assessing security controls in information systems and determining security control effectiveness
- Guidance for the security authorization of information systems
- Guidance for monitoring the security controls and the security authorization of information systems

Leading To...
- The implementation of cost-effective, risk-based information security programs
- The establishment of a level of security due diligence for federal agencies and contractors supporting the federal government

Protecting the Nation’s Critical Information Infrastructure

FISMA NEWS
(Apr. 29, 2013) — Social Security Administration (SSA) and NIST have released Guides for Information Security Risk Management for Federal Information Systems and Organizations. The guides are intended to assist organizations in assessing their risks, managing their information systems, and implementing appropriate controls.

To view the full announcement of document release.

Special Publication 800-53 Revision 4, Security and Privacy Controls for Federal Information Systems and Organizations has been approved as final.
FedRAMP is a government-wide program that provides a standardized approach to security assessment, authorization, and continuous monitoring for cloud products and services.
• DHS operates at least nine private clouds and three public clouds
• Sensitive data, put on a private cloud, non-sensitive data, put on a public cloud
• DHS is consolidating 16 data centers into 2
• With cloud-based systems, the cost per email box is about $7 for each user which is a substantial savings over about $24 per user,
DHS – Hybrid Cloud

- Public
  - Web Content Management (public) – DHS.gov and FEMA.gov plus 8 other sites online or committed to migrate.
- Private
  - Email (private) – More than 100,000 users in production.
  - SharePoint (private) – More than 33,000 users on service
  - Project Server (private) – HQ, USCIS, CBP, USGS.
  - Workplace (private) – ATO received October 2012; pilots scheduled with HQ, FLETC and USCIS.
  - CRM (private)
  - Business Intelligence (private) – Managed Service available across CXOs; ICE, CHCO
  - Production (private) – pilots in progress for HQ applications; seed money in place for most components.
  - Dev/Test (private) – HQs, TSA, USCIS in operation; rolling to more components.
  - Authentication (private) – implementing ADFS 2.0 for internal and external requirements; implementing Kerberos, a network authentication protocol designed to provide strong authentication for client/server applications by using secret-key cryptography;
FEMA

- FEMA has been moving to the cloud over the last few months
- RFI issued in Feb 2013
- GeoPlatform
- P4 Tool
DMSE is interested in developing a cloud environment that will support geospatial efforts to merge data and processes of several legacy systems and will contain information subject to Privacy Act restrictions and “For Official Use Only” information.

A potential requirement would be FEMA-wide inclusive of integration of its various geospatial components.
FEMA GeoPlatform
Providing geospatial data and analytics in support of emergency management

FEMA is a partner of the FGDC’s National Geospatial Platform Visit: www.geoplatform.gov

Make a Map »
Create a map that can be viewed in a browser, desktop or mobile

ArcGIS for Developers »
Build custom web and mobile applications that incorporate your maps
FEMA’s GeoPlatform

• Previously called the GeoPortal (http://fema.maps.arcgis.com/home/)
• A central location for storing, maintaining, and retrieving Risk Assessment data.
• Allows assigned users to publish and maintain the Risk Assessment data.
• Allows anyone to retrieve the Risk Assessment information.
03 Other Examples of Cloud Computing
State & Local Cloud Computing

- **State of New Jersey (New Jersey Transit Authority)**
  Project: Customer Relationship Management

- **State of New Mexico (Attorney General's Office)**
  Project: E-mail & Office Productivity

- **Commonwealth of Virginia (Virginia Information Technologies Agency)**
  Project: Application Development Platform

- **State of Wisconsin (Department of Natural Resources)**
  Project: Collaboration

- **State of Utah (Department of Technology Services)**
  Project: Cloud Computing Services

- **City of Canton, Georgia**
  Project: E-mail

- **City of Carlsbad, California**
  Project: Communication & Collaboration Services

- **City of Los Angeles, California**
  Project: E-mail & Office Productivity

- **City of Miami, Florida**
  Project: 311 Service

- **City of Orlando, Florida**
  Project: E-mail

- **City of Pittsburgh, Pennsylvania**
  Project: E-mail

- **Klamath County, Oregon**
  Project: Office Productivity
**MIKE by DHI Software as a Service**

Welcome to the MIKE by DHI SaaS portal. This portal gives you access to running MIKE by DHI software on powerful "in the cloud" hardware operated by Amazon.com.

Getting started is easy, simply follow these steps:
1. Register as a user of Amazon Web Services through this link.
2. Register as a MIKE by DHI SaaS user through the Registration link.
3. When your registrations are completed, login using your user ID and password.

Detailed instructions and information on the process can be found in the MIKE by DHI SaaS Step by Step Guide.

When you have selected the hardware and the MIKE package that you need, the service fee per hour will be calculated. When you have accepted the fee, you will be able to access the ready virtual PC with the installed MIKE software within a few minutes. You will automatically be charged the hourly fee until you actively terminate your use of the virtual PC.

The detailed MIKE by DHI SaaS Customer Agreement is provided here. Please read the Customer Agreement carefully and note in particular section 7.2 "No refunds of Service Fees".

Also please note that the SaaS service fee includes the same high quality technical support as you are used to get for your local licenses - provided that your company has a Service and Maintenance Agreement for the relevant product. See section 6 of the Customer Agreement.
## My Virtual PCs

<table>
<thead>
<tr>
<th>InstanceId</th>
<th>Status</th>
<th>Version</th>
<th>PackageName</th>
<th>Service Pack</th>
<th>IP Address</th>
<th>Ordered At</th>
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<tbody>
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</tr>
</tbody>
</table>

### Quick help

- **Ordered**: Virtual PC is ordered through our portal.
- **Pending**: Virtual PC is in the process of being launched.
- **Starting**: Virtual PC is starting up.
- **Initializing**: Virtual PC is in the process of configuration.
- **Failed to initialize**: Virtual PC is failed to execute one of the required tasks.
- **Ready**: Virtual PC is fully configured and ready to be used.
- **Failed**: Virtual PC is failed to launch.
- **Rebooting**: Virtual PC is being rebooted.
- **Shutting down**: Virtual PC is shutting down. All your unsaved work will be lost.
- **Not available**: Virtual PC has been shut down or failed to launch.

Please notice, it may take some time, when creating a virtual PC, before you can log in to the machine, even if it’s in “running” state.
Questions?