Chemical Biological Defense Acquisition Initiative Forum (CBDAIF)

Information System Sector Reponses to Bryce Cloud Strategy

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Relevant Technology(RTI)

Challenge

How can industry help us (DoD) provide <u>operational and analytical capabilities</u>, including <u>command and control</u>, from "the cloud" given the vast culture, trust, non-standardization, classification, and "often disconnected and/or limited bandwidth" issues that must be overcome?

IT Sector Response

A hard question to answer that requires:

- Key government folks (with IT experience) to work side by side with experienced industry partners who understand and have experience in Cloud environments and tactical system integration

- A Tiger Team with an experienced operational person on staff who can articulate the idiosyncrasy of IT to general staff in a meaningful way: A Focused IT Approach

- A budget and a commitment from the JPEO (JSTO/ECBC) to at least pilot an effort to expedite a tactical environment

[Background]

Across the CBDP enterprise (JPMs, JSTO, and other related elements of DTRA) many IT investments support business processes as well as warfighter-centric capabilities. One JPM (Information Systems) is chartered to develop and deliver IT systems in support of the CBDP mission. The remaining JPMs also develop and deliver IT-centric systems. DTRA, JSTO, and elements of JPEO initiate IT-rich Advanced Technology Demonstrations which are intended to accelerate delivery of warfighter capabilities (e.g., JUPITR, HIBRID/IEW). For the most part, these projects are considered individually as discrete investments.

Unfocused Approach = Reduced Effectiveness
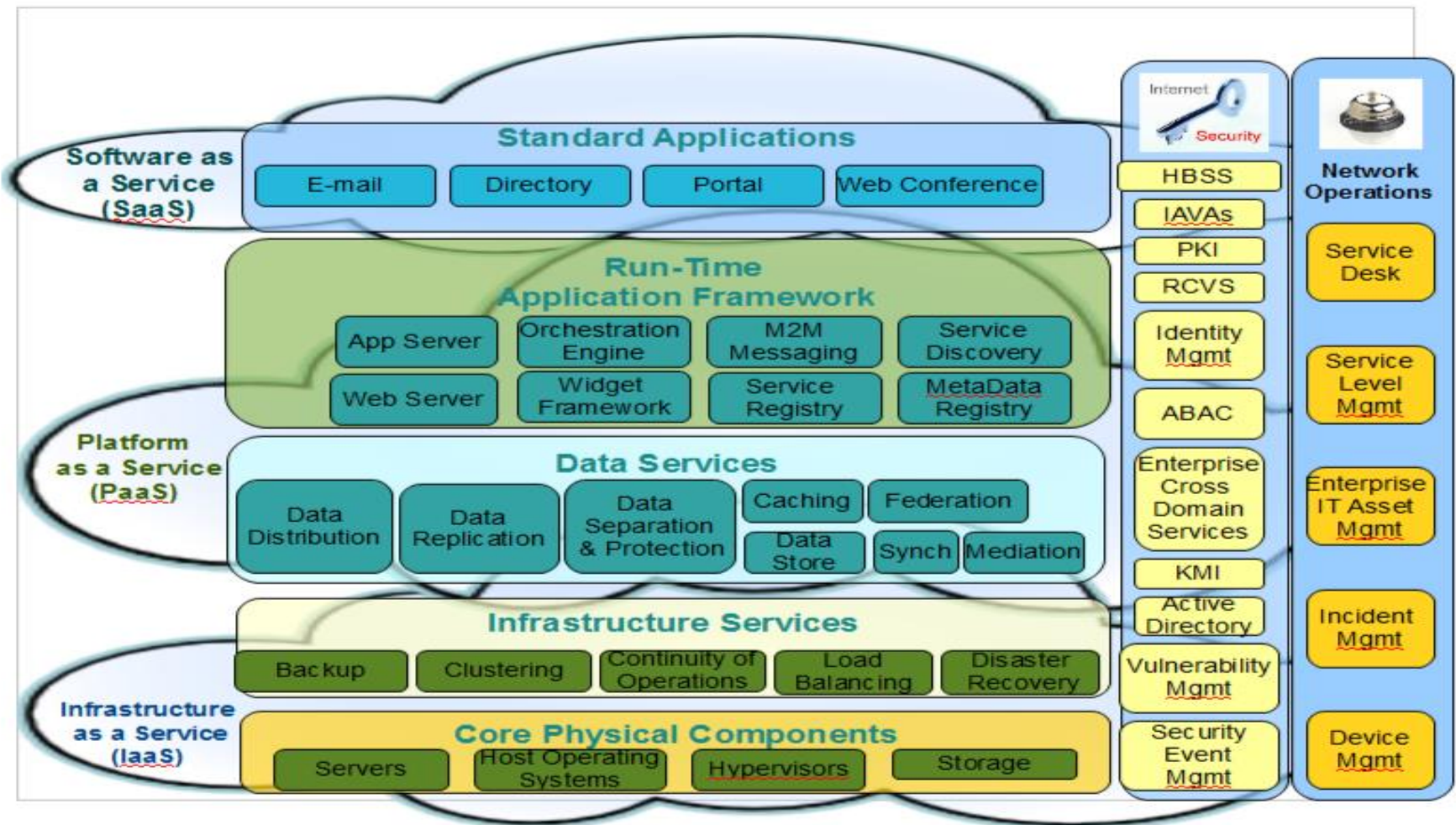
[Current Environment]

No IT Unity of Effort:

- CBDP is not looking holistically at the entire IT budget as a unified suite of investments.
- JPMs are not coordinating IT efforts and investments; do not standardize tools, data, development environments, platforms and infrastructure; have no standardized test and validation methodology; and have no clear, over-arching IT development guidance
- No Platform identified to unify the elements and build a cloud centric strategy

Definitions

- Analytics
  - The systematic computational analysis of data or statistics
- Policy
  - A course or principle of action adopted or proposed by a government, party, business, or individual
- Standards
  - A level of quality or attainment:
  - An idea or thing used as a measure, norm, or model in comparative evaluations
- Software Product lines
  - Refers to software engineering methods, tools and techniques for creating a collection of similar software systems from a shared set of software assets using a common means of production

Cloud Block Diagram

Software as a Service (SaaS)

Standard Applications: E-mail, Directory, Portal, Web Conference

Platform as a Service (PaaS)

Run-Time Application Framework: App Server, Orchestration Engine, M2M Messaging, Service Discovery, Web Server, Widget Framework, Service Registry, MetaData Registry

Data Services: Data Distribution, Data Replication, Data Separation & Protection, Caching, Federation, Data Store, Synch, Mediation

Infrastructure as a Service (IaaS)

Infrastructure Services: Backup, Clustering, Continuity of Operations, Load Balancing, Disaster Recovery

Core Physical Components: Servers, Host Operating Systems, Hypervisors, Storage

Internet Security: HBSS, IAVAs, PKI, RCVS, Identity Mgmt, ABAC, Enterprise Cross Domain Services, KMI, Active Directory, Vulnerability Mgmt, Security Event Mgmt

Network Operations: Service Desk, Service Level Mgmt, Enterprise IT Asset Mgmt, Incident Mgmt, Device Mgmt

Selection and Implementation of Platforms is Critical

JIE OV-1

Access at the Point of Need

DISA
A Combat Support Agency

DoD Mobile Application Storefront
Pre-approved Apps from across DoD

Secure Government Enterprise Services

DoD Enterprise Capabilities

Mobile Device Management

| VoIP/ Video | Email | Txt Msging | Calendars |

Mobility Gateway
Apps and devices authorized & ready to connect to DoD networks & services

Mobile

Fixed **Ozone Widget Framework** **Simplify Innovation in Secure Environment**

Mobility Networking

Wireless Carriers
Standardized service plans simplify startup

HOME

WORK

MOBILE (TDY/DEPLOY)

FUTURE DEVICES

Commercial Mobile Devices
Pre-approved and authorized device list for all of DoD

Joint Information Environment is DOD's IT Future – Critical Success Factor for JPEO
IT'S NOT AN OPTION!

What drives good Analytics

- Large capacity properly-structured data repository that is well-indexed and easy to access

- Access to meaningful, accurate, up-to-date, and sourced information

- Availability of interoperable tools to filter, search, access, and manipulate large quantities of data

- Secure and capable network infrastructure that is cost-effective, always available and quickly accessible

- The ability to easily fuse disparate data manually thru visuals and/or automation

Why Policy & Standards for Analytics

To insure interoperability of data sources and consistent access to formatted (and validated) data that

- Promote Standards:
    - Development Process (Agile, CM and User Feedback)
    - Development Tools
    - Platforms and Infrastructure
    - Approved and Coordinated Data Models
    - Industry and Government Open Source
- Promote Compliance:
    - Data Centers
        - Government (MilCloud, GovCloud)
        - Industry (AWS, etc)
    - Align Funding with Policy
    - Sandbox for third party Test and Evaluation

Why a Product line

- We can agree that the latest app stores have enriched our ability to plan, execute and communicate in our daily lives

- Apps are developed based on perceived need and from available data feeds

- Government agencies have the unique ability to provide road maps of critical information systems needs

- Product Line enforce policy and standards in order to build products that promote a consistent (evolutionary) platform environments and product strategies, enabling rapid delivery of successful and innovative capabilities

- A well defined Cloud (PAAS) platform will reduce cost, increase productivity and reduce training costs.

[PROPOSED APPROACH FOR CBDP]

A broad-based approach enables future JPEO success in many areas

- Identify and empower a Tiger Team to define a Best Practices approach from Industry and DOD

- Utilizing the Tiger Team and two industry partners, to implement and validate a pilot effort based on the JCACS white papers for a tactical Cloud environment strategy, with the following collateral deliverables:
  - A JPM-supported enterprise-wide implementation plan for IT standardization
  - A strategy and initial POAM to standup a JPEO-centric ITIM environment, to include an IT portfolio management structure
  - An ITIM maturation strategy
  - An ITIM Cybersecurity strategy
  - A recommended Investment Review Board structure
  - Implementation plan for industry engagement

- Use JCACS ATD as the funding mechanism to make this effort a reality in record time (Similar to how JMDSE and JUPTIR ATDs were used to build out and validate BSP)

[PROPOSED APPROACH FOR CBDP]

This specific approach enables realization of immediate needs

- Utilize the CBRN-IS tools and processes to ensure proper development, system validation and Cyber security of the Tactical cloud platform

- Utilize JCACS phases and test elements to ensure the Cloud Platform meets the operational criteria of DOTMLPF in the exercises (like BSP in Able Response and UG Freedom)

- Review White Papers provided in JCACS, meeting the needs of platform requirements and vendors who can participate with the Tiger Team to expedite vendor selection
    - The proposed Tiger Team would evaluate these efforts and report out on their potential value within 15 days of being chartered

- Review the Survey of Cloud platforms sanctioned by Bill Ginley to select the appropriate Cloud Platform

Outcome of the Pilot

- Proof of Concept will demonstrate utilization of Cloud baseline in a tactical environment

- CBRN-IS baseline will be realized and articulated to industry and other JPEO stakeholders – A PAAS environment for Industry to build on

- Information Systems Standards, Policies, Processes across JPEO CBD Organizations and Programs will be define and packaged

- Consolidated single source for platforms, tools, etc. - to design, control deploy and evolve Information Systems – End of PowerPoint Eng.

- A mechanism to allow developers to build, test, and validate their "widgets" with the standards that are required for communications, interoperability, analytical data processing, and product strategy that aligns with the JPEO 30 year plan objectives

- Enhance Situational Awareness and delivery of capabilities for the 20th command and other operational CBRN units – JIE realized

- Increase opportunities for Software companies to leverage their skills and products for CBDP's benefit

ROM

- **Initial Development ….. ~ 2.5M - 4M - 18 months**
  - NRE Software / System development / Configuration / Cyber
  - Program Management
  - NRE Hardware Cost
  - Licensing
  - IOC/FOC and IA-RMF support cost
- **On-going Sustainment Cost ~ .8M - 1.5M – on-going**
  - System Administration
  - Recurring Hardware up-keep
  - Configuration Management
  - Risk Management and monitoring
  - Deployment Support
  - Licensing
- **Tactical Deployment Instance ~ 100K (each)**

Backup

Acronyms

- AWS   Amazon Web Services
- BSP   Biological Surveillance Portal
- DOTMLPF   Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities
- DTRA   Defense Threat Reduction Agency
- ECBC   Edgewood Chemical and Biological Center
- HIBRID   Homeland Integrated Bio surveillance Response and Information Demonstration
- IA-RMF   Information Assurance - Risk Management Framework
- IEW   Integrated Early Warning
- ITIM   Information Technology Investment Management
- JCACS   Joint CBRNE Advanced Capability Sets
- JMDSE   Joint Medical Distance Support and Evacuation
- JIE   Joint Information Environment
- JPEO   Joint Program Executive Office
- JPM   Joint Program Manager
- JSTO   Joint Science and Technology Office
- JUPITR   Joint USFK Portal and Integrated Threat Recognition
- NRE   Non-Recurring Engineering
- PAAS   Platform as a Service