Department of Energy
Identity, Credential, and Access Management (ICAM)

Cyber Security Training Conference

Tuesday, May 18, 2010

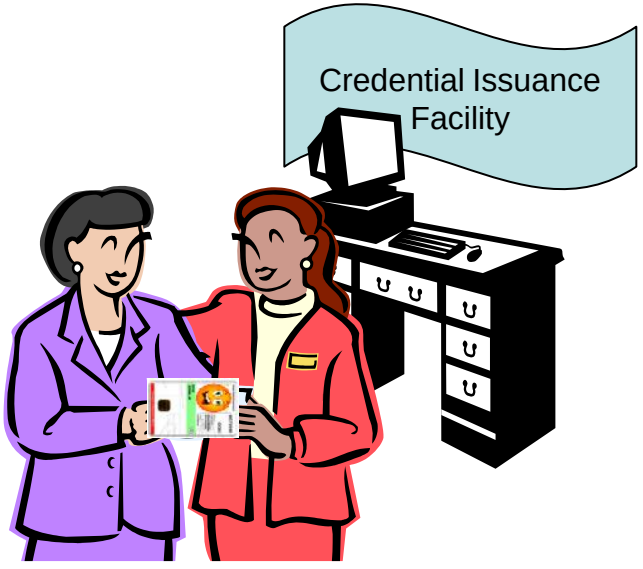
Announcement

- LACS Birds-of-a-Feather Session
  - Logistics
    - Wednesday, May 19, 2010
    - 9:30 AM – 11:30 AM EST
    - Room A708
  - Focus: LACS ONLY!
    - LACS implementation experiences, lessons, questions, challenges, etc
  - Everyone is welcome
- Science Identity Federation (Risk Management Track)
  - Logistics
    - Tuesday, May 18, 2010
    - 4:00 PM – 5:00 PM EST
    - Room A704
  - Focus
    - Ties into NSF/NIH InCommon Federation
    - Federated identity solution for Level 1 authentication

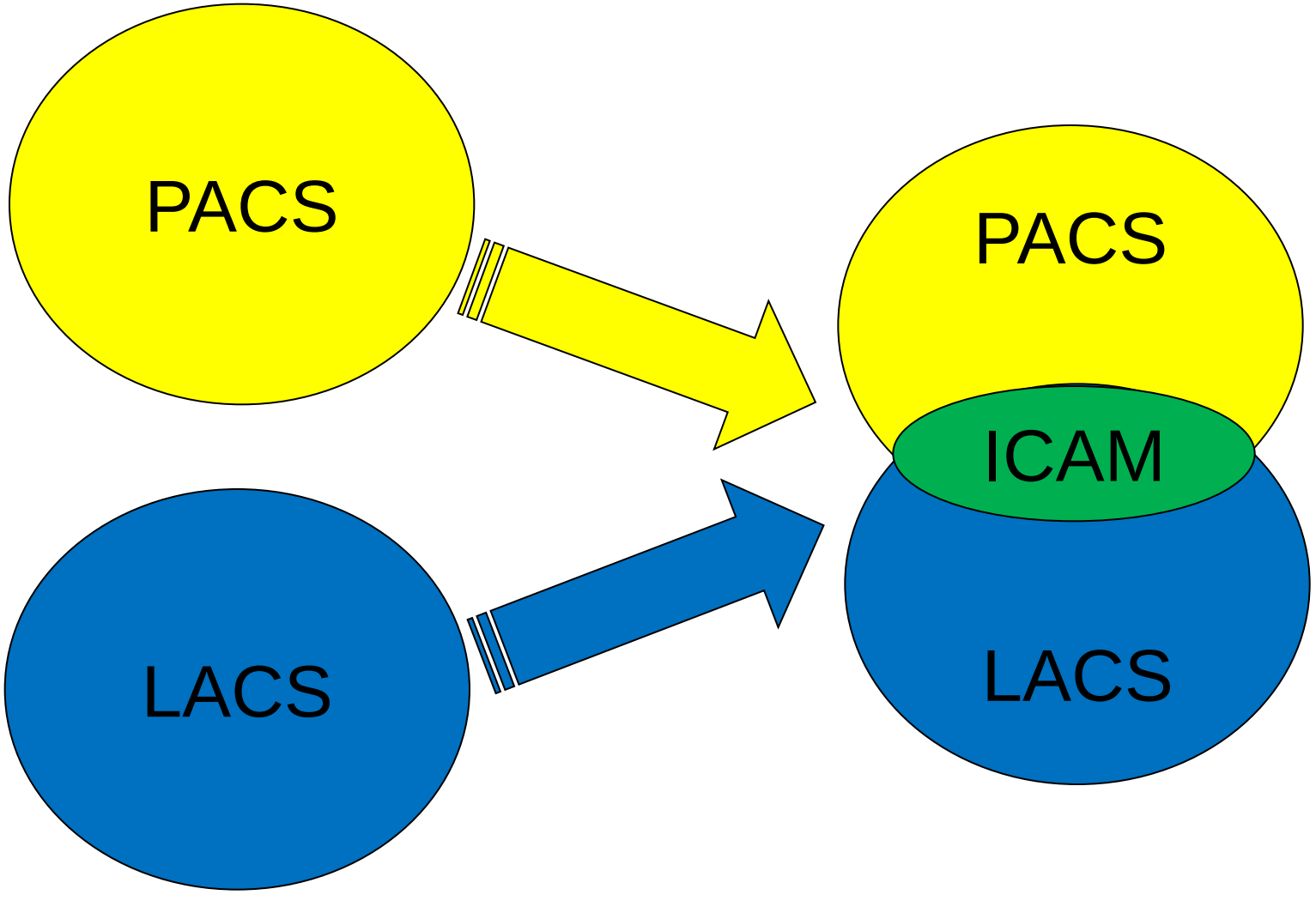
Slight Change of Focus

HSPD-12

ICAM
Identity, Credential, & Access Management



Paradigm Shift



DOE Activities

- DOE/NNSA HSPD-12/ICAM Workshop
  - March 2-4, 2010 – San Antonio, TX
  - LACS & PACS community together in one forum
- NA-1 Memo (15 March)
  - “Inconsistent approaches to physical and logical security are inefficient and costly, increasing the risks for compromise.”
  - “Successful implementation of HSPD-12 and Identity, Credential, and Access Management (ICAM) will improve the security and interoperability of the Nuclear Security Enterprise (NSE)”
- Cyber Security Governance Council Representatives
  - ICAM Governance model proposed
    - DOE ICAM Program Office
  - Meeting: 15 April 2010
  - Coordination and approval of ICAM documentation
- DOE LACS Plan
  - Draft updated per Field review
- DOE ICAM Approach
  - Consensus-based document on implementing ICAM
  - Executive Level: May 2010
  - Detailed Level: July 2010
- PACS/LACS Pilots
  - HQ and other sites
- DOE PIV Middleware Focus Group
  - DOE-wide group
  - Standard middleware for Windows Platform
  - Recommendation to Cyber Security Governance Council Representatives by 15 June

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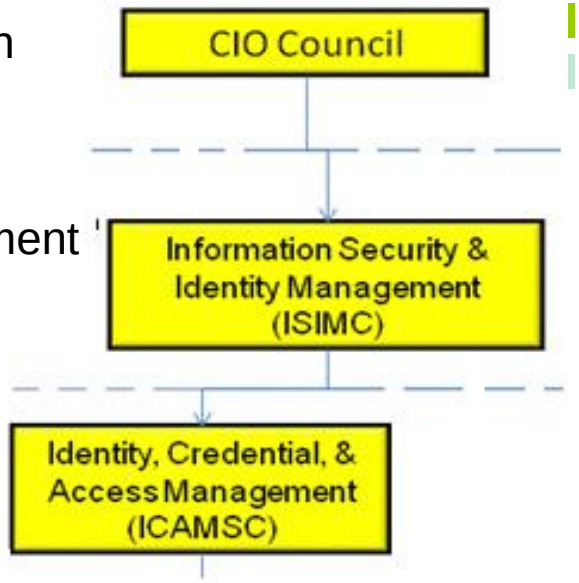
Identity, Credential, and Access Management (ICAM)

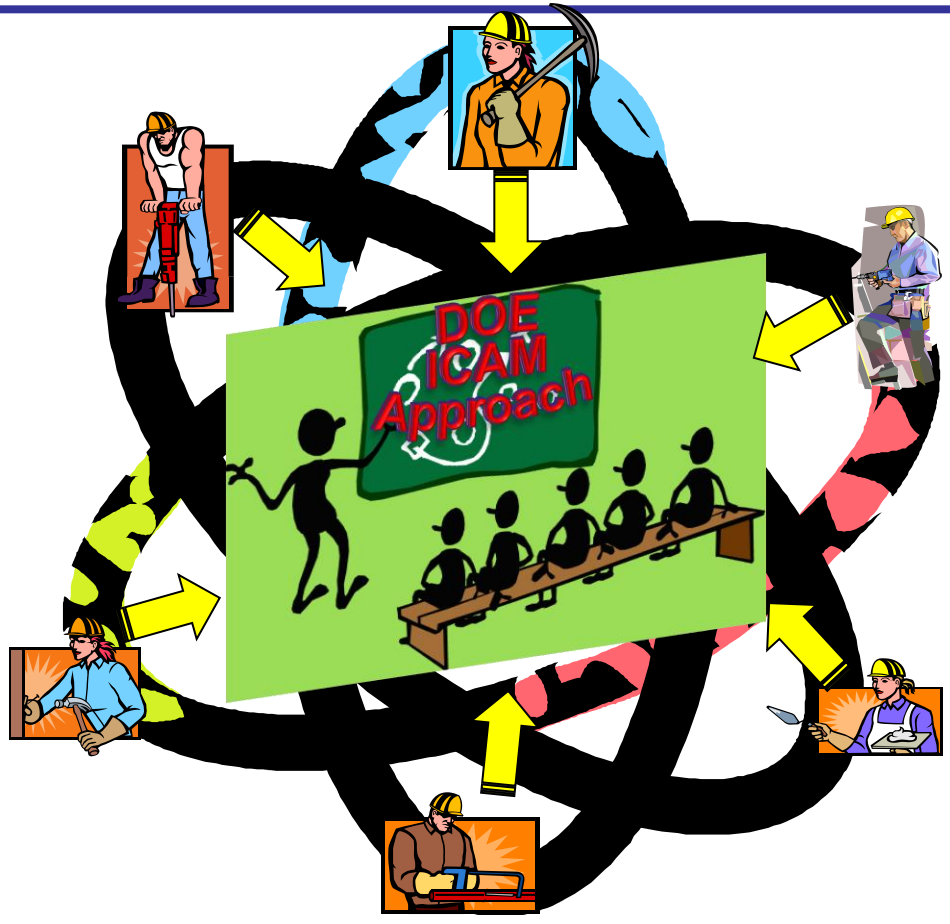
- What is ICAM? It is the intersection of:
  - Identity Management:
    - A combination of technology, rules and procedures for assigning attributes to a digital identity, associating the digital identity to an individual, and managing the digital identity throughout its life cycle.
  - Credential Management:
    - The management of the lifecycle of a credential, which is “an object that authoritatively binds an identity to a token possessed and controlled by a person.” (sp 800-63)
  - Access Management:
    - The management and control of how individuals are granted logical access to an IT network, system or application and physical access to physical locations such as a building, parking lot, garage, or office.
- Why ICAM?
  - Holistic approach for government-wide identity, credential and access management initiatives that support access to federal IT systems and facilities
  - Prevent unauthorized access to federal IT systems and facilities
  - Authoritative enterprise view of identity that can enable application and mission-specific uses

ICAM Governance

- Federal ICAM Subcommittee (ICAMSC)
  - Consolidated HSPD-12, Federal PKI and E-Authentication initiatives
  - Foster effective government-wide identity and access management
  - Ensure alignment across all identity and access management activities that cross agency boundaries
- Federal ICAM Roadmap
  - www.idmanagement.gov
  - Released November 2009 by ICAMSC
  - ICAM Segment Architecture
    - As is:
      - application/system specific, stove-piped implementation of establishing and managing identity and credentials for access
    - Target:
      - enterprise digital identity established and managed by authoritative systems, which can be leveraged within the organization and across agencies for physical and logical access
  - 81 Milestones
    - 42 Milestones for Agencies
    - FY10, 11, & 12
- Tracking
  - ICAM Template
  - Annual FISMA Report



Department Approach



- ICAM Roadmap Milestones
  - (PACS, 7.2) Adopt an agency-wide approach to managing physical access that links individual PACS via a federated network wherever possible. (6/30/2010)
  - (LACS, 8.1) Adopt an agency-wide approach to managing logical access that links individual applications to a common access management infrastructure wherever possible. (12/31/2009)

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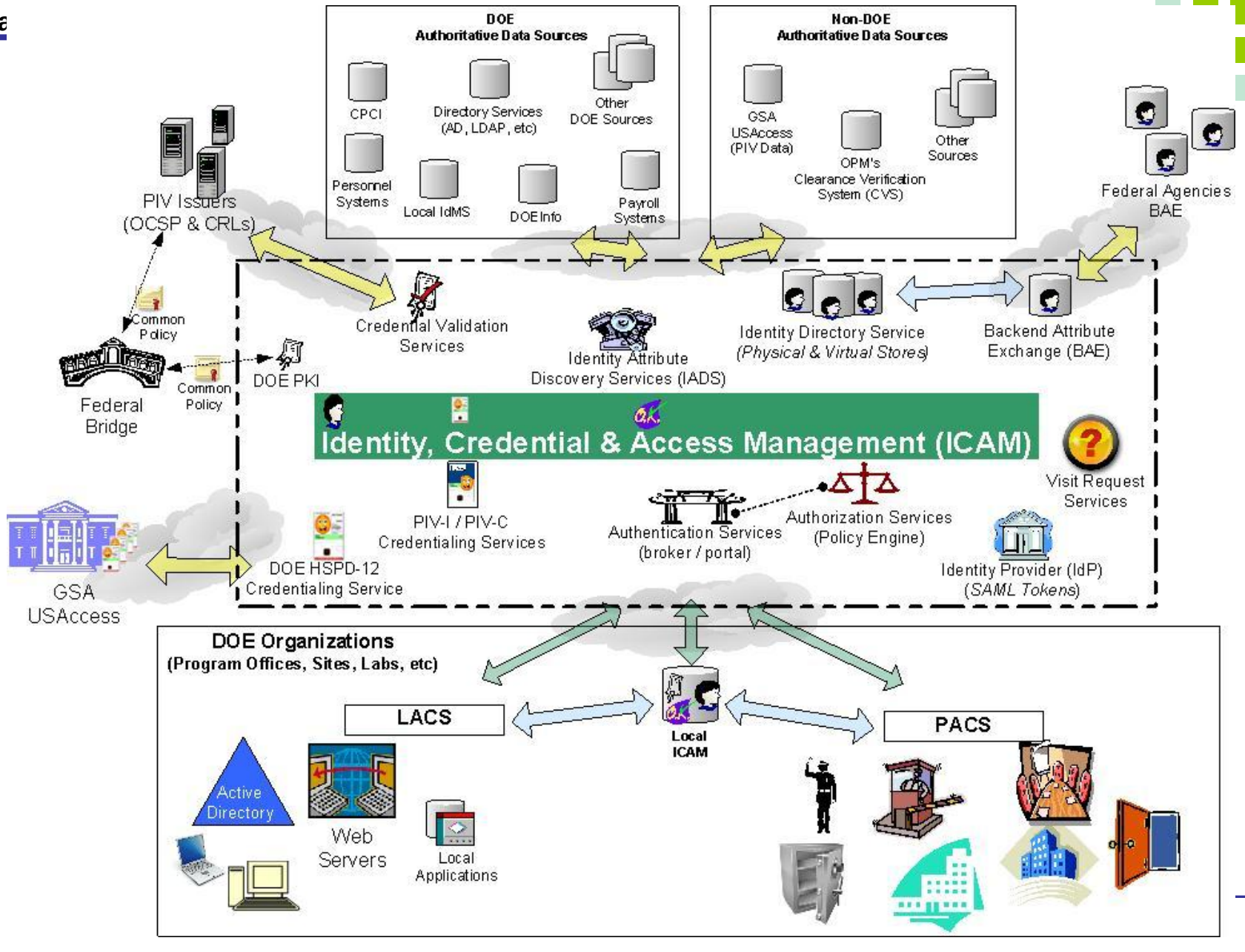
DOE ICAM Approach



High-level ICAM Approach Targets

- Short term (FY10/11)
  - Domain Logon (feds and contractors)
    - Readers ($15) and Middleware ($10)
  - HSPD-12 Repository
    - CFO initiative (30 Sep)
  - PACS using HSPD-12 credential
    - Interoperability proof
- Mid term (FY11/12)
  - Identity Management System
    - CFO initiative
  - Enterprise authentication service
    - HQ Applications
  - PACS/LACS using IdMS for data
  - Credential Validation Services
    - OCSP and CRLs
  - Credential Issuance Service
    - HSPD-12 and PIV-I
- Long term (FY12/13)
  - Enterprise ICAM
  - Local ICAM
  - Automated Workflows
  - LACS/PACS for field

ICAM Key Services & Elements

- Identity Directory Services
  - DOE HSPD-12 Credential Repository
- Credential Validation Services
- PKI
- Authentication & Authorization Services
  - Identity Provider (IdP)
- Privilege Management

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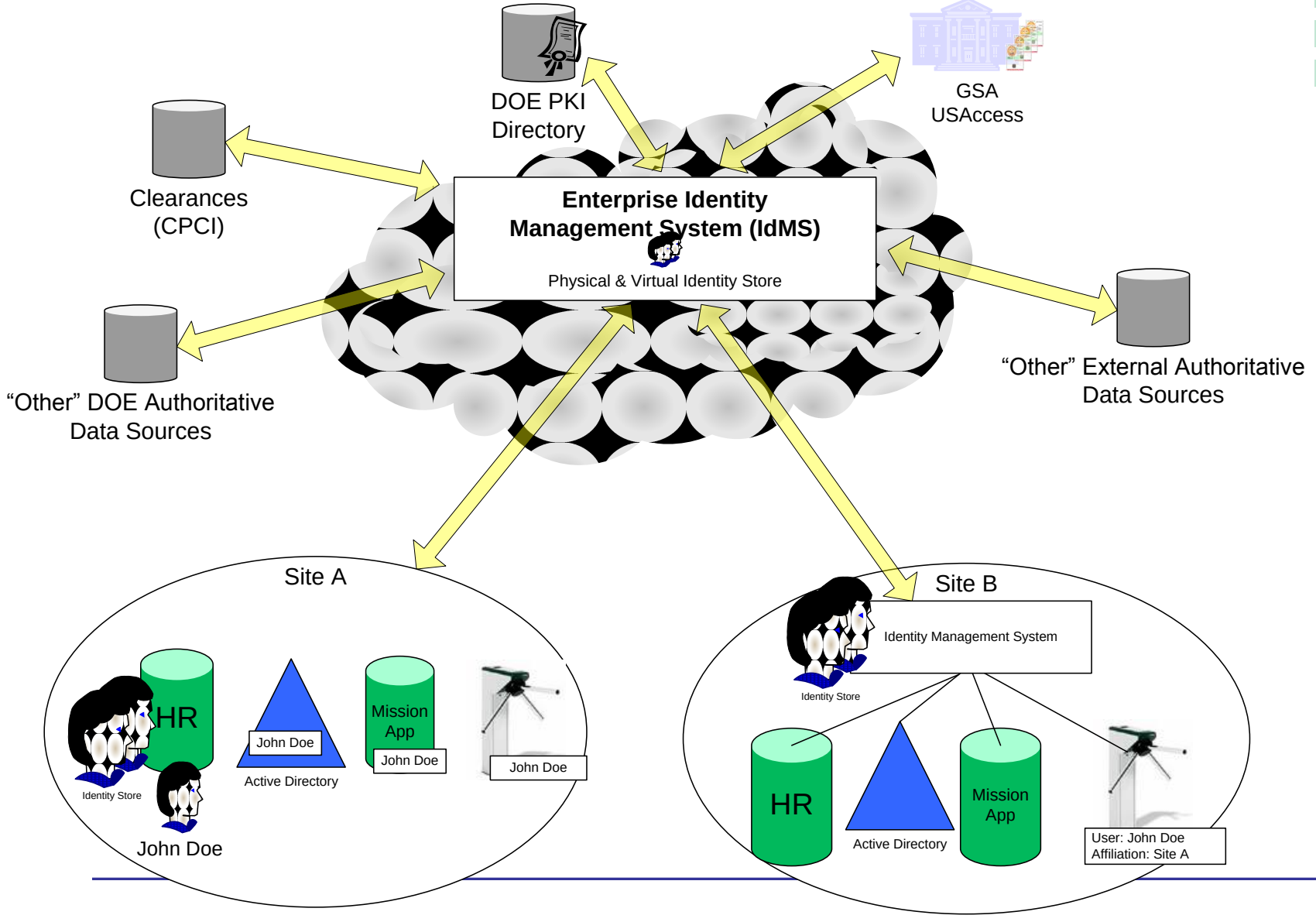
Identity Management System



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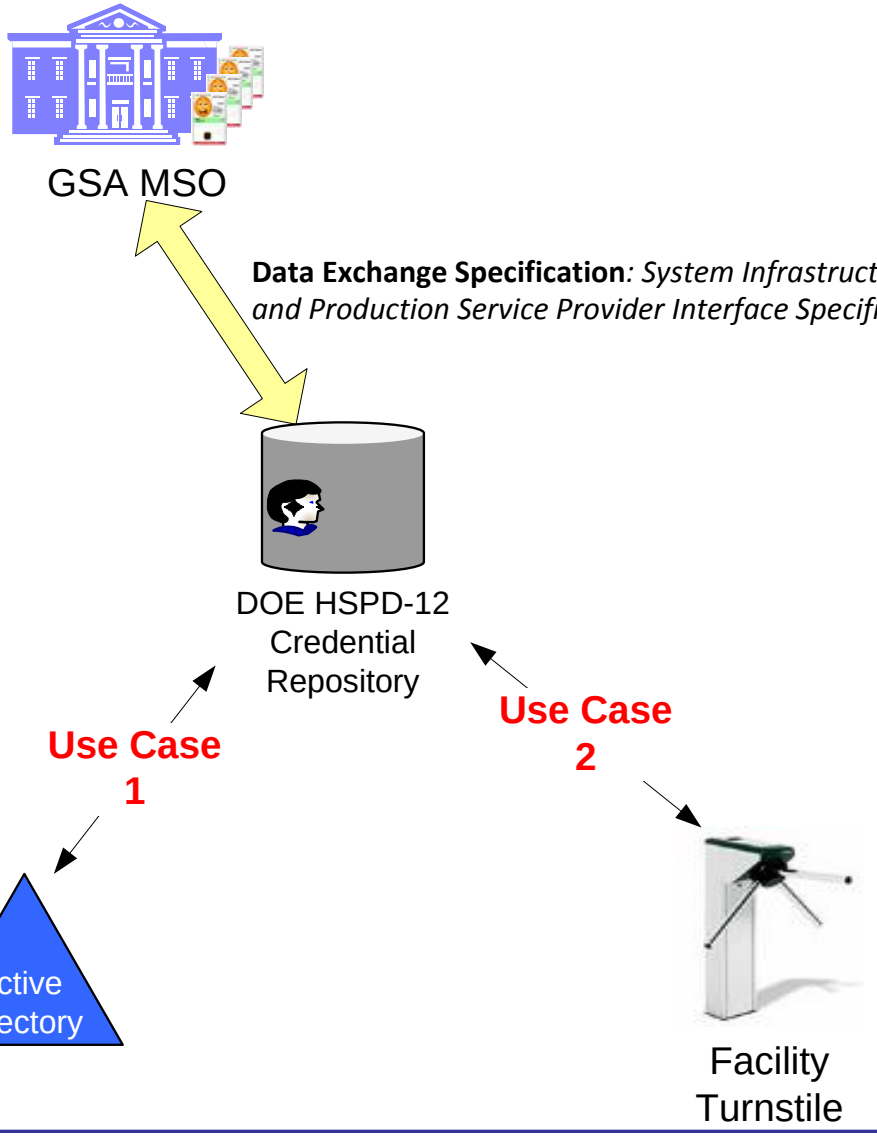
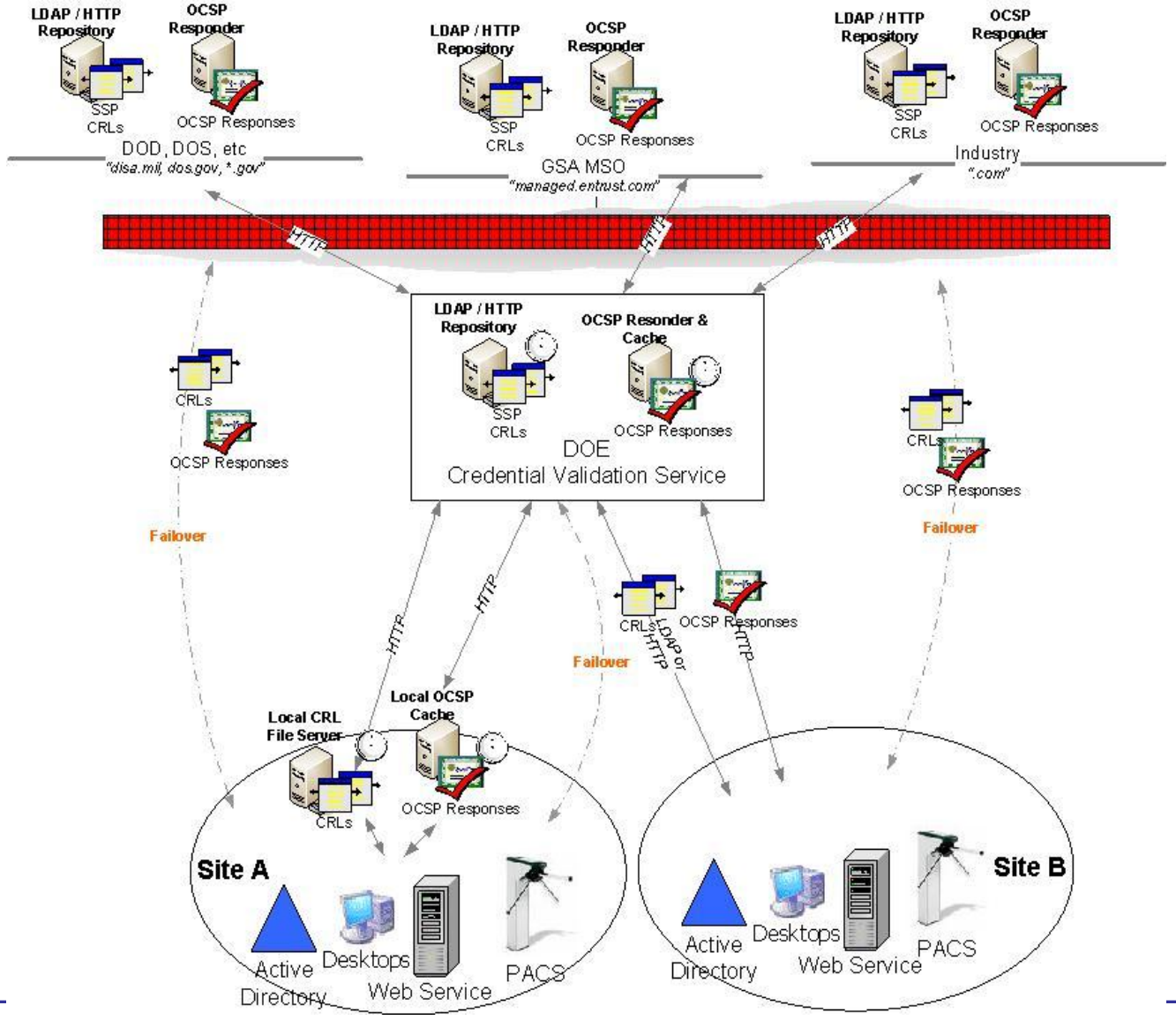
HSPD-12 Credential Repository

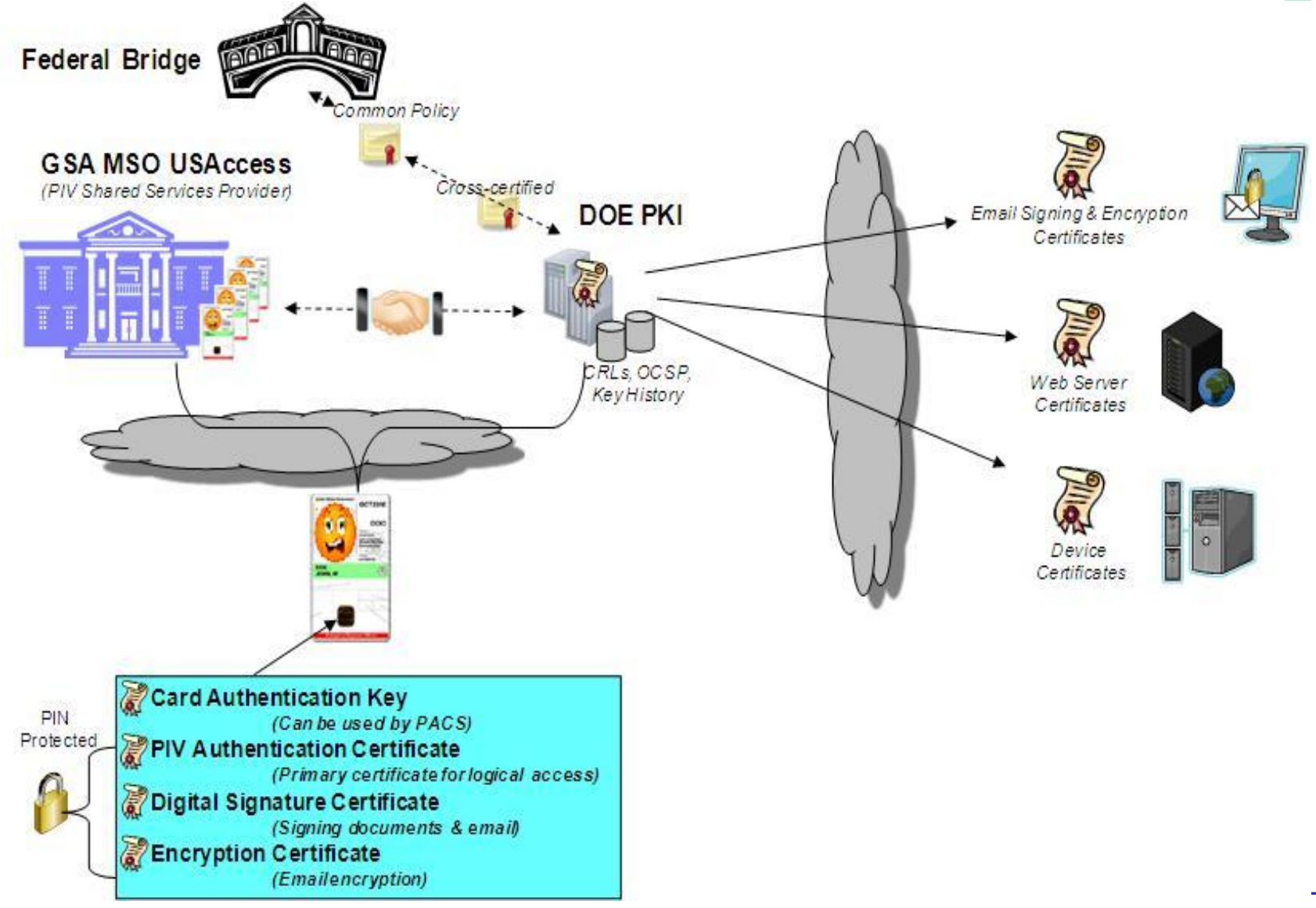
CF-40 Initiative In-Progress



Credential Validation



PKI


Federal Bridge
Common Policy
GSA MSO USAccess
(PIV Shared Services Provider)
Cross-certified
DOE PKI
CRLs, OCSP,
Key History
Email Signing & Encryption
Certificates
Web Server
Certificates
Device
Certificates
PIN
Protected
Card Authentication Key
(Can be used by PACS)
PIV Authentication Certificate
(Primary certificate for logical access)
Digital Signature Certificate
(Signing documents & email)
Encryption Certificate
(Emailencryption)

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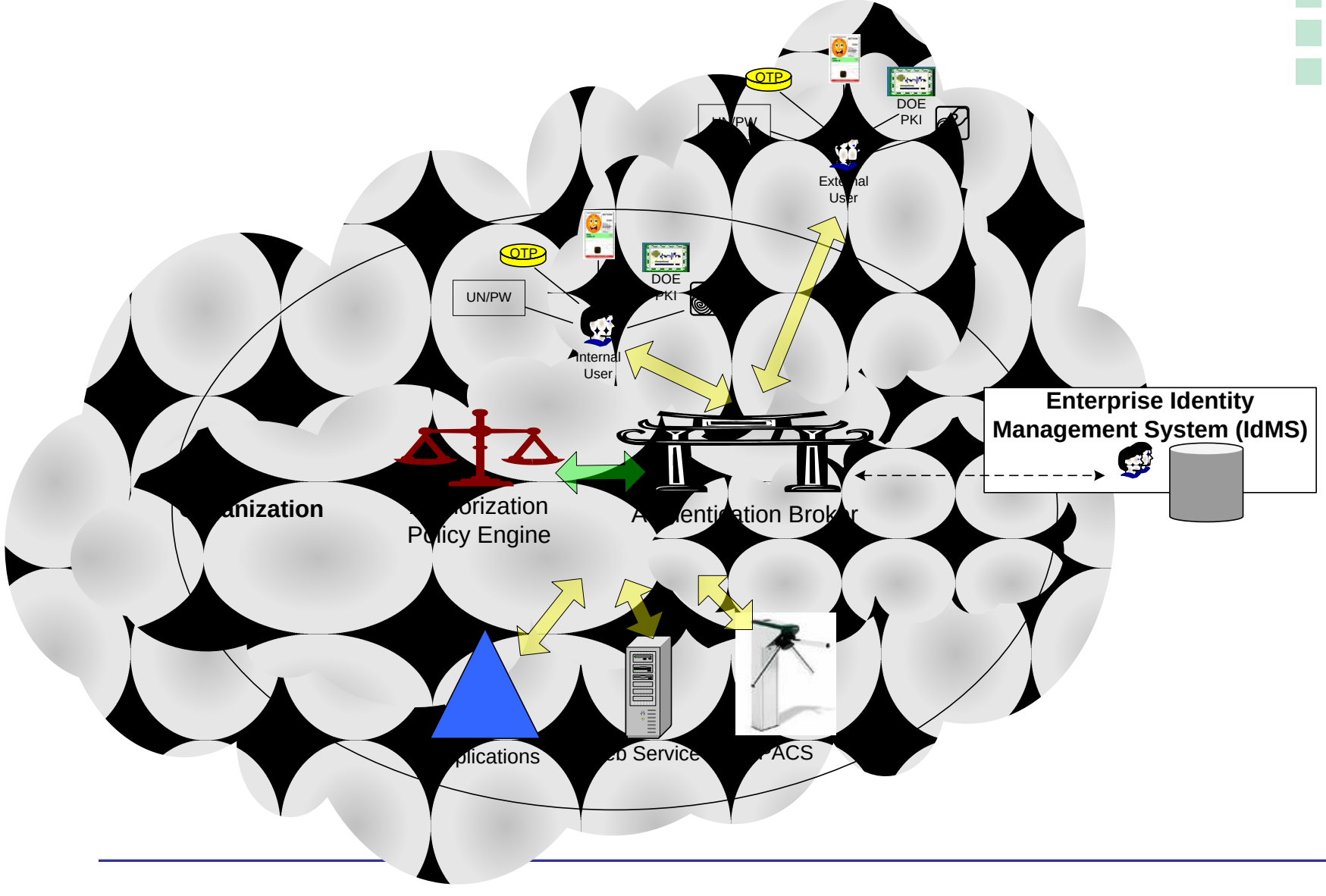
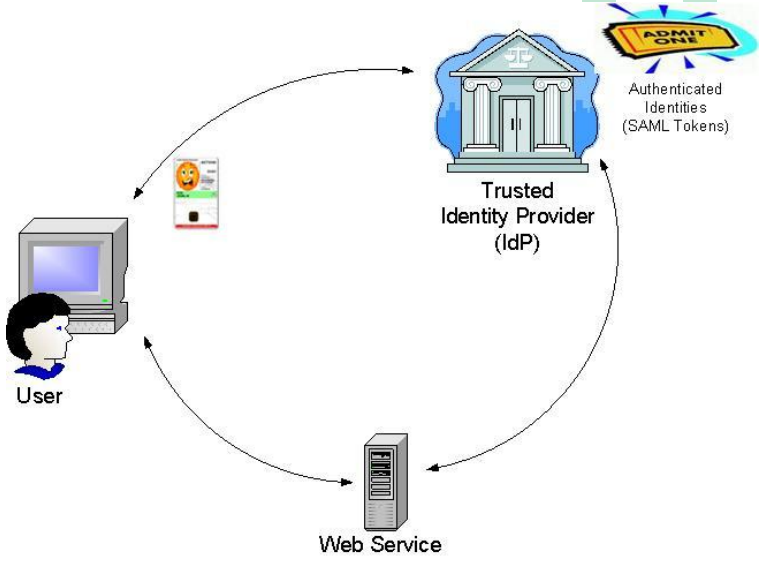
Authentication & Authorization

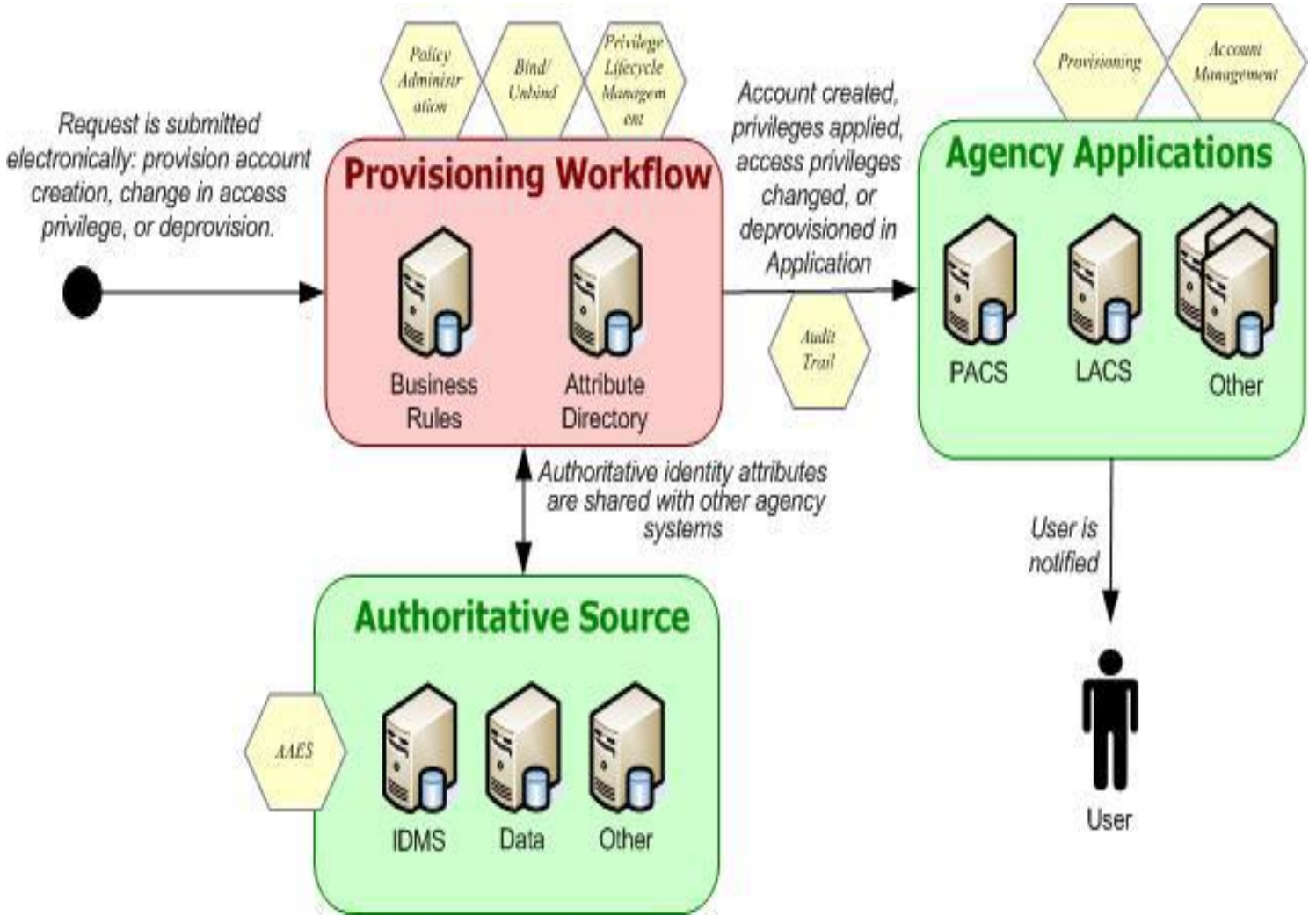


Identity Provider (IdP) "Generalized Concept"

- The IdP authenticates the user and creates a SAML Token
  - The IdP is configured with the types of authentication credentials to accept to include, OpenID, CardSpace, UN/PW, HSPD-12 credentials, and others.
- The SAML Token is provided to the user and the web service provider
  - The SAML token provides identity information about the user as well as what type of credential the user authenticated (a.k.a. Level of Assurance per M-04-04)
- The web service provider consumes the SAML Token and makes an authorization decision
  - Web service provider may provide different levels of privileges based on the level of assurance of authentication conveyed in the SAML token
- The user provides the same SAML Token (unless it has expired) to access other web service providers that recognize (or "Trust") the IdP.



Privilege Management



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ICAM Success Story… NASA

- Population: 20,000 Feds | 55,000 Contractors | 25,000 Others
- Provide Central Authentication and Authorization (A&A) Service
  - PIV-enable the A&A service
  - Applications integrate with the A&A service, not directly to PIV
- A&A Service supports credentials at all levels of assurance
  - Applications can use mixed sets of credentials according to system needs and users' capabilities
  - Users get Single Sign-on benefit
- Status
  - Smart Card Logon: 81%
  - NASA Account Management System (NAMS) Integration: 70%
  - Authentication Integration: 21% (complete Sep 2011)
- Benefits today
  - Smartcard login to the desktop, then get to over 300 applications without re-logging in
  - Any NASA worker can visit any NASA Center and get pre-authorized access to any building/room
  - Ensure on a person-by-person basis that those who need IT security training have taken it
  - Provide "Basic Level of Entitlement" access to IT systems based on Identity attributes
  - Initiate "Close Account" processes on 70% of our IT assets when someone leaves
- Benefits tomorrow
  - Establish a non-PIV smartcard for use by temporary workers and others
    - Allows us to lock IT systems down to smartcard-only
  - Assign a Level of Risk to each Access role in our IT systems
    - Automatic comparison of Level of Risk of the Asset to Level of Confidence in a person
    - Allows early access to low-risk systems, while protecting our higher-risk systems
  - Link training requirements to each Access role
    - Automatic check against our training system to ensure proper training for the role has been completed

What's next

- DOE ICAM Approach
  - Department collaboration
- Garner support for enterprise services to facilitate local implementations
- Collaboration
  - DOE PACS Wiki: https://spaces.kcp.com/display/doepacs
  - DOE LACS Wiki: https://spaces.kcp.com/display/doelacs
  - DOE LACS ListServ: doelacs@vm1.hqadmin.doe.gov

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