FIPS 201-2 and Derived Credentials

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2004: Homeland Security Presidential Directive #12

HSPD-12 set the goal for FIPS 201, the Personal Identity Verification (PIV) Standard:

"Subject: Policy for a **Common Identification** Standard for Federal Employees and Contractors" …..

"…it is the policy of the United States to enhance security, increase Government efficiency, reduce identity fraud, and protect personal privacy by establishing **a mandatory, Government-wide standard for secure and reliable forms of identification** issued by the Federal Government to its employees and contractors…"

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2005: FIPS 201
A Smart Card based Solution

- HSPD-12: for **"**…. physical access to Federally controlled facilities and logical access to Federally controlled information systems**"**
  - A portable solution for both environment:
    - "tab and go" for physical access to federal facilities
    - logical access to IT resources via laptop / desktop and their applications / web services.

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FIPS 201-1:
A Smart Card based Solution

- **HSPD-12: "….**graduated criteria, from least secure to most secure, to ensure flexibility in selecting the appropriate level of security for each application**."**
  - A solution for multi-factor Authentication that
  - accommodates several credentials for LoA 2 to LoA4

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FIPS 201-1:
A Smart Card based Solution

- **HSPD-12:** **"**…. secure forms of Identification**"**
  - Security Level (SL) 2 -- FIPS 140-2 Level 2
- **HSPD-12:** **"**…. resistant to… tampering**"**
  - In addition to SL 2, SL 3 physical security is needed

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FIPS 201 History and Projection

- **Logical Access:** A move from 'stationary' desktop/laptop environment to mobile 'anytime and anywhere' federal workforce. (smart phones, tablets ….)
- **Physical Access:** Less significant changes

Standard Strategy Goals

- Continue to satisfy HSPD-12 and OMB-11-11 guidance
- Leverage Federal PIV identities with smart phones, tablets and other mobile devices for Logical Access
- Supply authenticated PIV identity:
  - *To apps on the local mobile device*
  - *To applications or services on remote systems*
- Provide other PIV services to the device

Current Approaches

1. "Conventional"

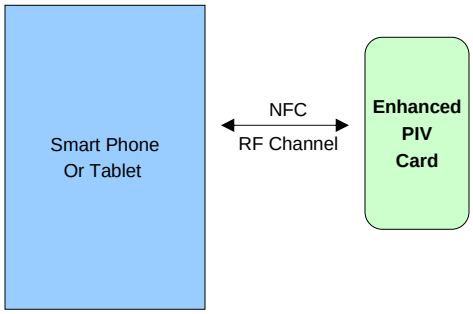
   Contact card reader, middleware on device

2. Battery-Powered Sled

   Sled holds PIV Card; uses Wi-Fi or Bluetooth

(1) and (2) use PIV Cards, but require extra parts.

Enhanced PIV Card



- Requires use of PIV Card with mobile device
- Near Field Communication ISO/IEC 14443 channel
- Secured transactions between device and card
- **Standardize:** PIV-Card-to-device interface

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Pros

Enhanced PIV Card

- Leverages PIV Card fully
- Has minimal impact on other components
- It is an SL 2+, LoA 4 credential, always

Con

- Requires presence of PIV Card

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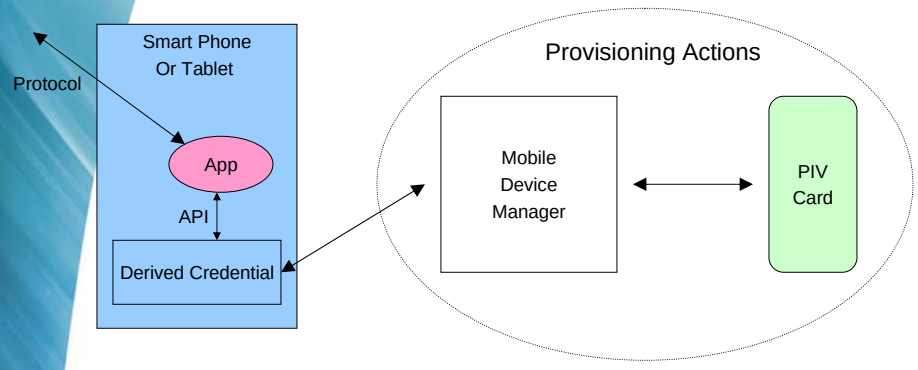
Derived Credential



- PIV Card authorizes MDM to create derived credential
- New logical credential stored within mobile device
- Maximize reuse of PIV data model & PIV behaviors
- **Standardize:** API and protocol bindings

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Features / Options

Derived Credential

- Integral to mobile, better usability
- Differs as necessary from PIV, e.g.,
  - PIV Derived CAK identifies mobile, is revocable
- Could be SL 1 with up to LoA 3 credential
  - When embedded as a ‘credential store /container
- Could be SL 2 with up to LoA 4 credential
  - If implemented as a hard token (SIM, MicroSD)

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Has been done

- SP 800-63-1 added “derived credentials”
- FIPS 201-2 written concept of PIV-derived credentials (& other)

Remains to be done

- FIPS 201-2 revision
- SP 800-73-4 revision (credential & mw)
  - Derived Credential Profiles
- SP 800-79-2 revision (PCI assessment)
  - SP 800-85A & B, & test tool revisions

Useful URLs

- http://www.whitehouse.gov/omb/e-gov/hspd12_reports/ **- OMB quarterlies**
- http://csrc.nist.gov/groups/SNS/piv/standards.html **- FIPS 201 & NIST pubs**
- http://www.idmanagement.gov/ **- ICAMSC & GSA ID management resources**
- http://www.idmanagement.gov/pages.cfm/page/IDManagement-HSPD12-frequently-asked-questions **- HSPD-12 FAQs**
- http://fips201ep.cio.gov/ **- HSPD-12 Evaluation Program (APL)**
- http://www.nist.gov/itl/iad/ **- NIST biometrics resources**

- There are now dozens of OMB Memoranda, NIST publications, CIO Council publications, Federal PKI Policy Authority publications, GSA documents, OPM documents, and others relevant to HSPD-12.
- And, of course, OMB M-11-11.

Questions?

Thank you!

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