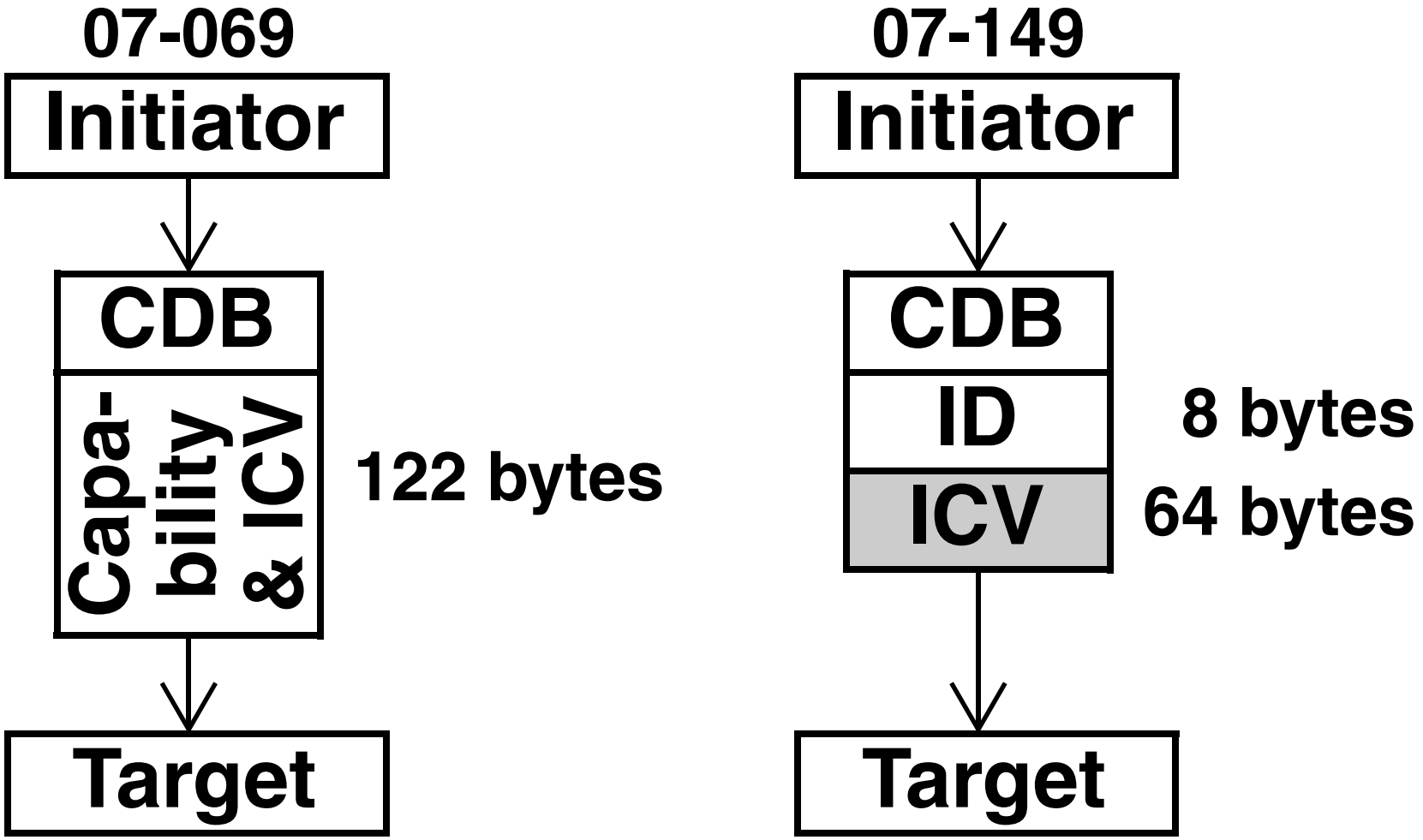
Command Security via SAs

Goals

- ☆ Per-Command Security
- ☆ Fine-grained Reservations and/or Access Controls
  - ✚ Tied to TBD Entities Inside Application Client
  - ✚ Greater Command-Access Flexibility
- ☆ Consideration for OS Performance

Securing Commands

(Comparison of Approaches)



ID Options

(ICV is ICV …)

- ✓ **SA Identifier**
  - ✺ **AC_SAI + DS_SAI**
- ✓ **OS-Specific**
  - ✓ **Setup as Synonym for SA ID (during SA Creation**, i.e., validated**)**
  - ✓ **Tied to Program Running on OS**
    - ✚ (Windows) **Process ID**
    - ✚ (Windows) **Image Count**

SA Extensions

(Extensions to SA Creation)

- ✺ **Authentication Required (usage based)**
- ✺ **Synonym Setup**

- ☆ **Commands Controls**
  - ➔ **Allowed When SA ID Present**
  - ➔ **Allowed for Others**
  - ✓ **Allowed Lists Checked Against Permissions for Authenticated SA Creator**

Command Controls

(Preliminary Format Ideas)

- ☆ **Allowed Bit Mask (1 bit for each OP code)**
- ☆ **Exceptions Descriptors**
  - ➔ **Service Actions**
  - ➔ **Mode Page Codes**
  - ➔ **Log Page Codes**
  - ➔ **Diagnostic Page Codes**
  - ➔ **Reservations Modes**
  - ➔ **LBA Ranges**
  - ➔ **…**

Command Controls

(Preliminary Format Ideas)

- ☆ **Prohibit All MAINTENANCE OUT except SET IDENTIFYING INFORMATION**
- ☆ **Allow All MODE SELECT(10) except Control Mode Page**
- ☆ **Prohibit All Reservations except All Registrants**

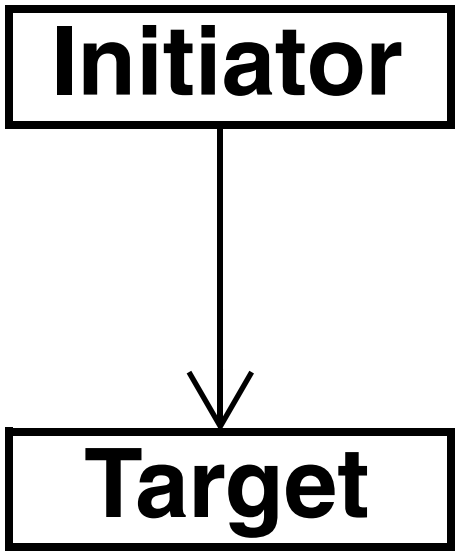
➔ **Is the Allow/Prohibit Model Flexible Enough?**

Capabilities Too?

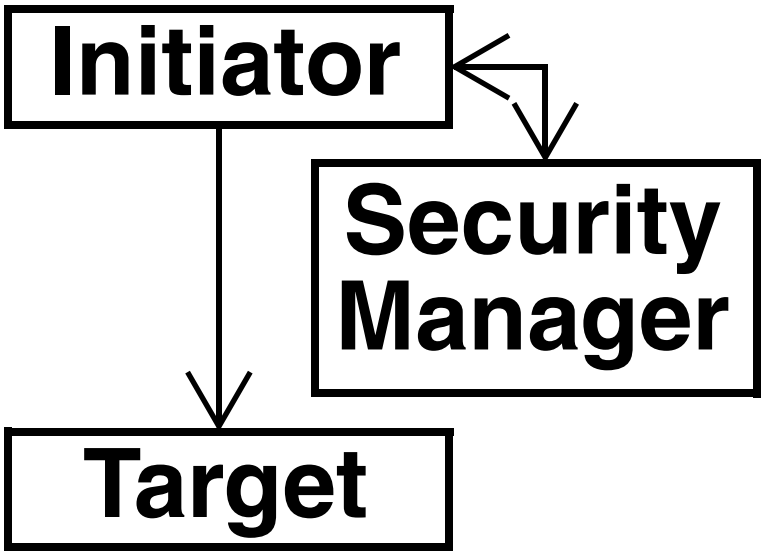
- ☆ **Could SA Extension be Capability?**
  (instead of bulky bit/exceptions format)
  - ✺ **Somehow push to 1 Authentication (the Security Manager one)**
  - ✺ **I_T Nexus ID?**
  - ✺ **ICV?**

Two Usage Models

(Good Reasons for Each)



- Usage validation in Target
- Decentralized Security
- More Smarts in Target
- Small Configurations



- Usage validation in SM
- Centralized Security
- Less Smarts in Target
- Large Configurations

Help!