

Storage Blades in Military Applications



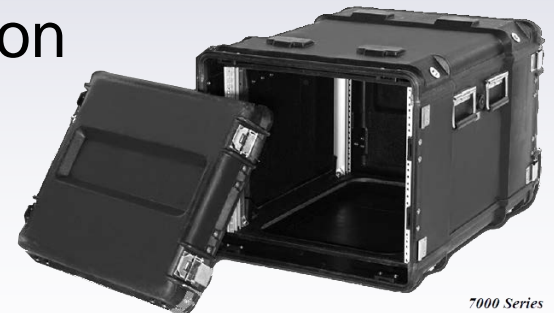
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Director of Product management

Agenda

- Why In-Chassis ATCA Storage ?
- 4 Key Disk Technology Advances
- 3 Case Studies

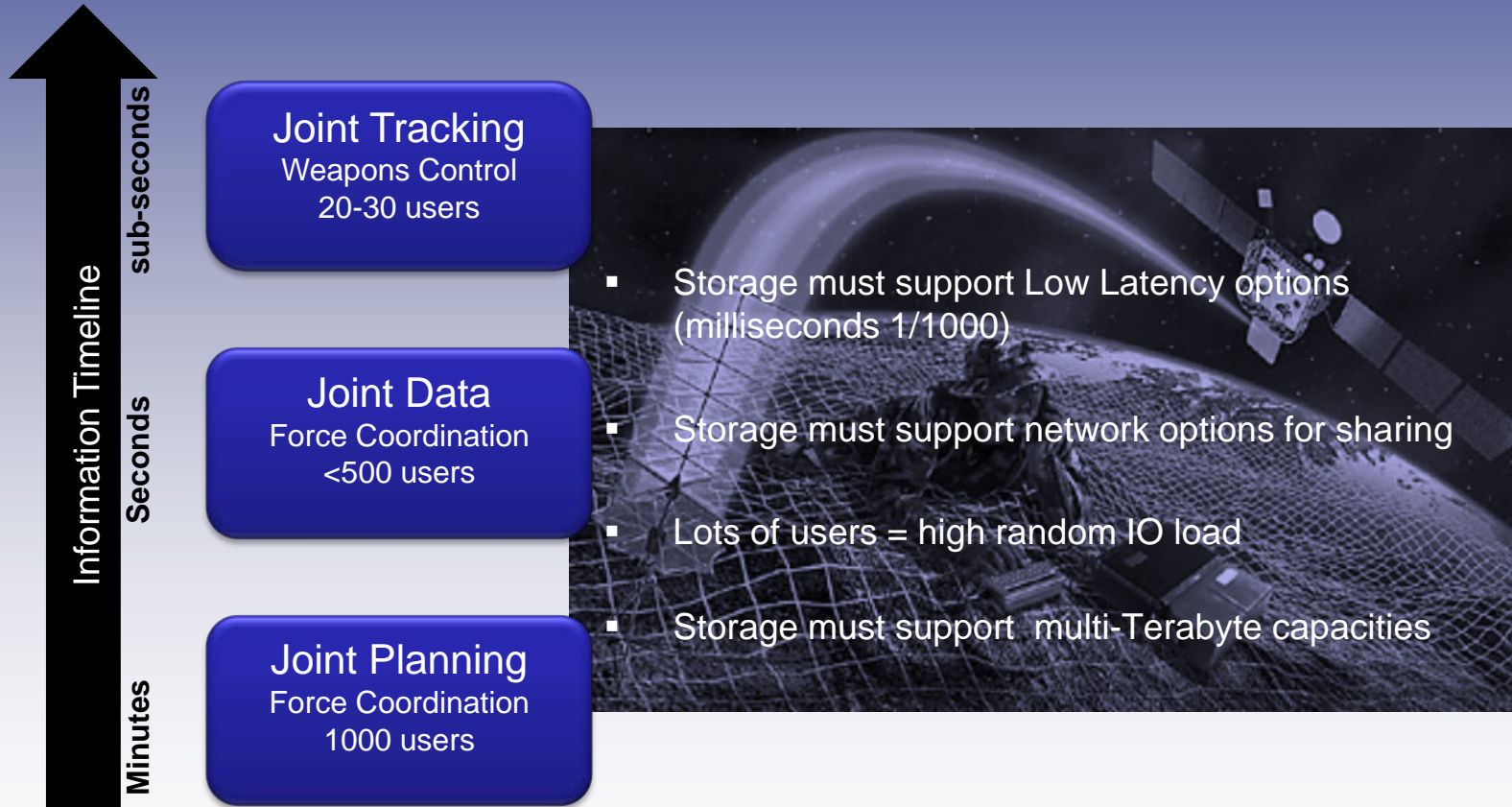
Why in-chassis ATCA Storage?

- Network Centric Warfare and Operations
 - Information on robust network = competitive advantage
 - Convergence of computers and communications
 - By definition, computers imply storage
- Portability.
 - DoD organizations want Modular Communication Platforms (MCP). Solution ready modules that drop into standards-based network.
- ATCA enables Incremental expansion
 - Key to Net-centric initiatives
 - Expand with blades, chassis, or racks.



7000 Series

NCW Implications For Storage

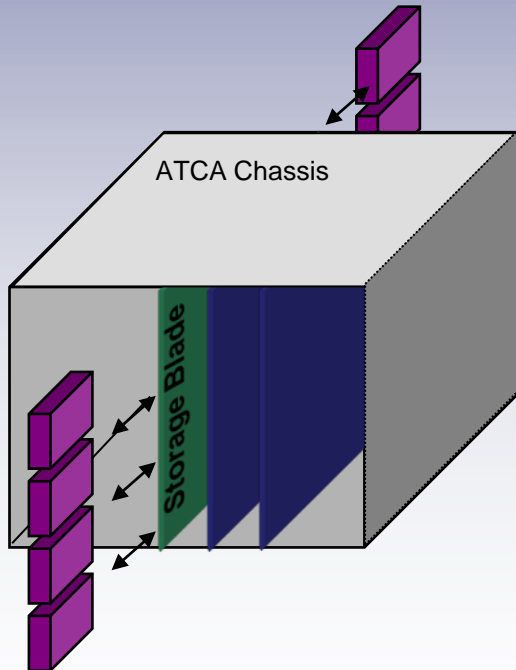


Disk Technology Advances

1) Capacity Increase per slot

- 4 Years ago...

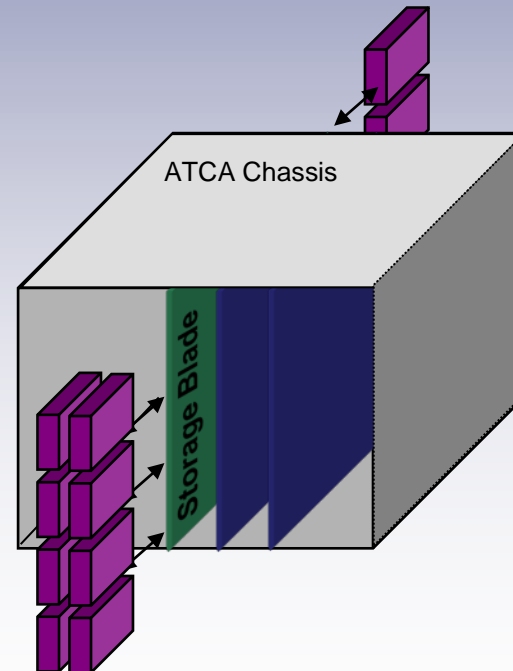
SAS: 6 x 146GB = 0.867 TB/Slot



- Today...~600% more

SAS: 6 x 1000GB = 6.0 TB/Slot

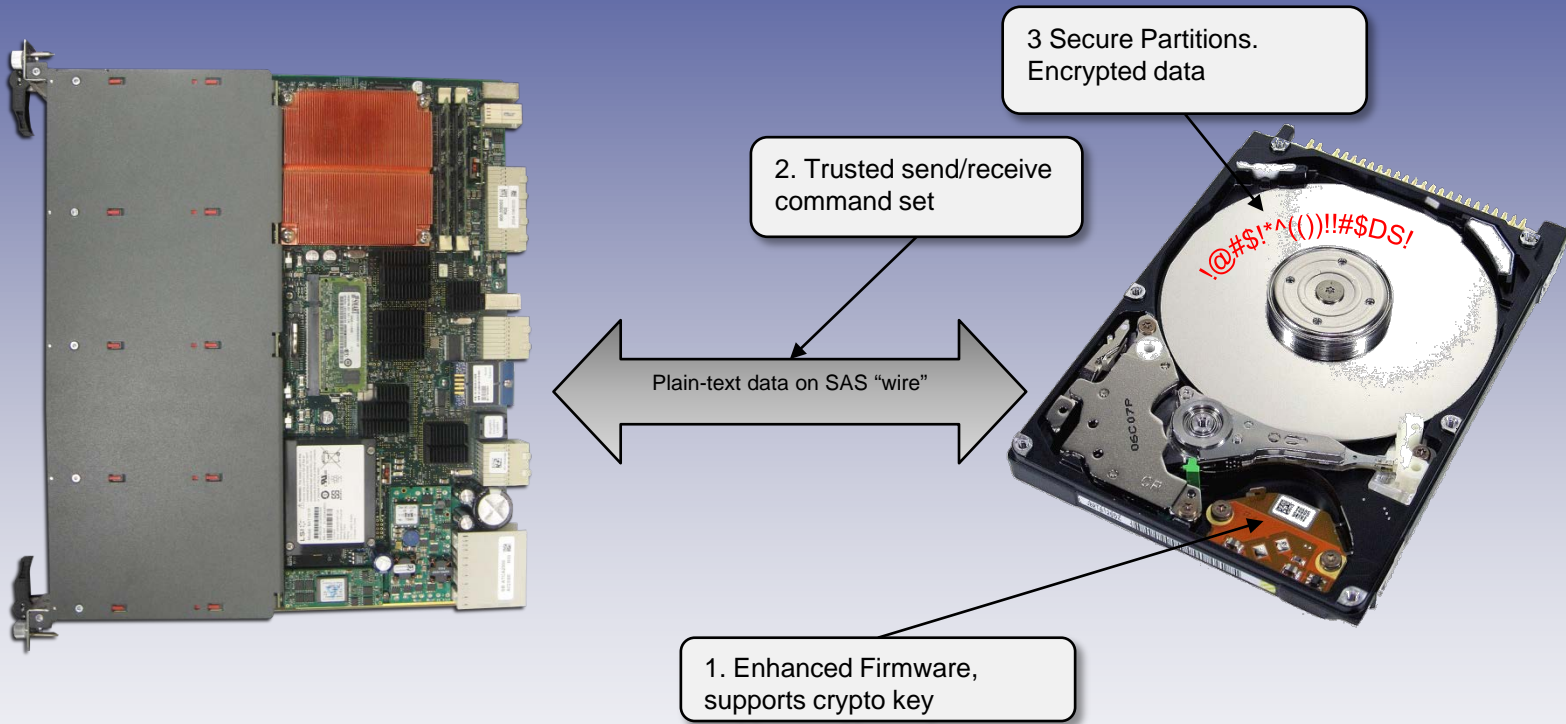
SSD: 10 x 600GB = 6.0TB/Slot



Note: Two slots provide 12TB SAS or SSD storage

Disk Technology Advances

2) Full Disk Encryption (FDE)



User/Admin Responsibility:

1. Establish host boot password (permit local storage of crypto key)
2. Establish crypto-key password with each disk

**Requires "Specially marked" SAS and SSD disks.*

**Destroy Key = Destroy Data (erase)
takes only seconds**

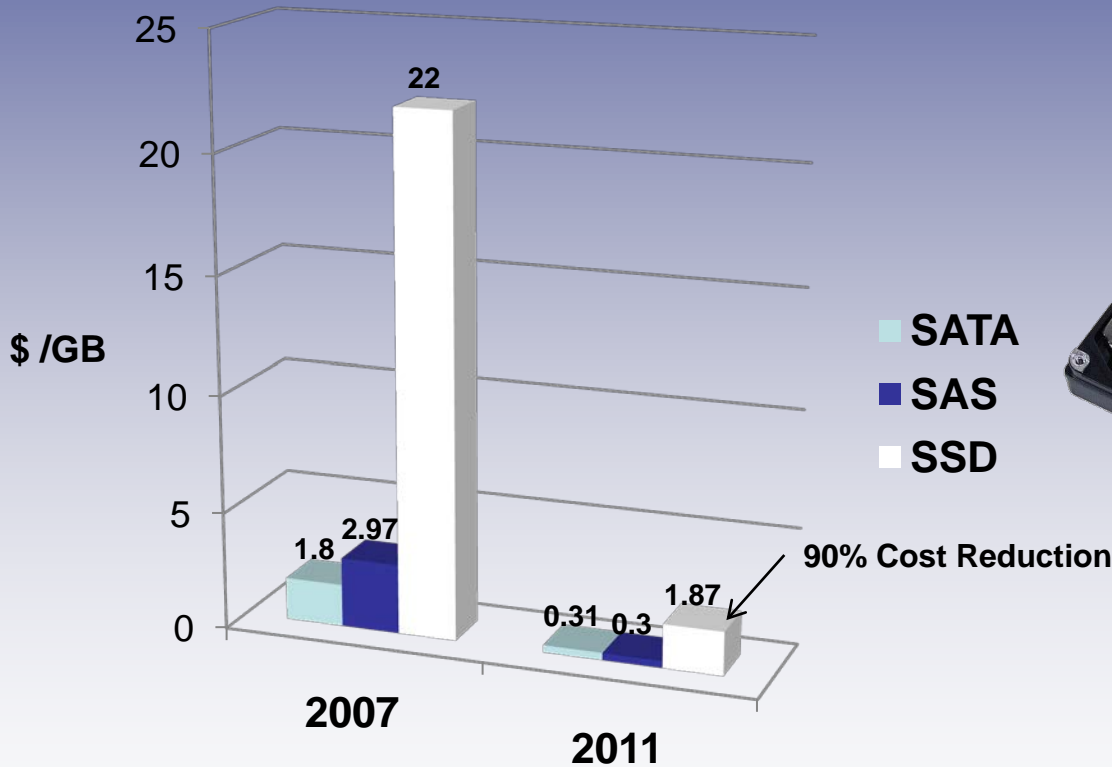
Disk Technology Advances

3) SSD: Game Changer

- Making MLC flash viable
 - Capacity under provisioning, (reserve pools)
 - Wear leveling, write distribution
 - 20GB/day * 365 days * 5 years
- Random IOPS 40:1 better than SAS HDD
 - SSD for Database Query, SAS for Library
- Better Environmental ratings
 - Temp: 70C vs. 55C (↑ 27%)
 - Shock: 1500G vs. 70G (↑ 2000%)
 - Vibe: 2.17 vs. 0.5 (↑ 334%)

Disk Technology Advances

4) Reduced cost

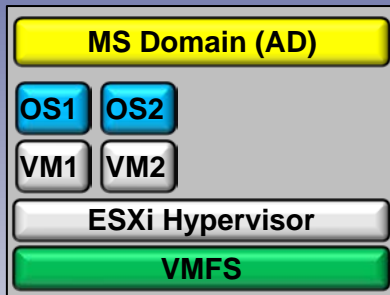


ATCA Storage

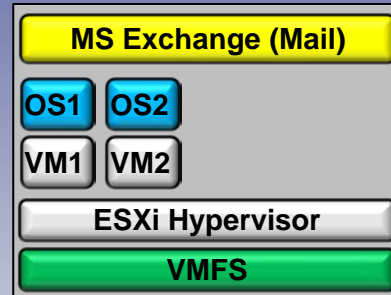
CASE STUDIES

Rapid Modular Deployment "Rugged Cloud"

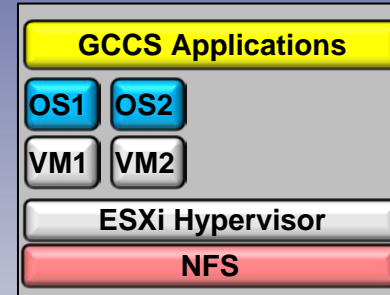
X86 Blade1



x86 Blade2



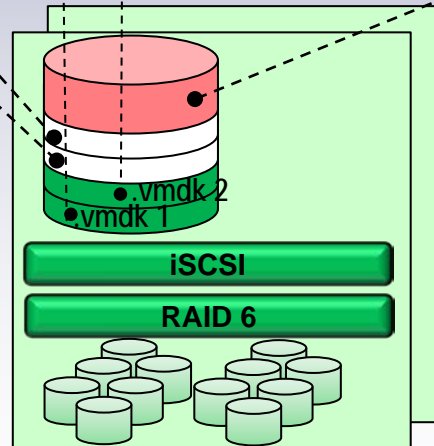
SPARC Blade3 & 4



ESXi
 Host Blades

Solution:
2 Slot Storage Blade

- 4 TB Usable
- RAID6 Storage
- 12 iSCSI Volumes



Securing Data/Information

- Removable Disks
 - AMC or similar FRU
 - Quick Tool less extraction
- Encryption
 - Destroy key=
Instantly erase data
 - Can leave disks behind



Solution:

Seagate 300GB FDE Disks

- Full Disk Encryption
- Real time encryption (data at rest)
- 1.2 TB Usable

Encrypting Data/Information

- Log Data collected on aircraft
 - No RTM
- Stored to Encrypted disk
- Disks removed for offsite processing
 - Readable at “endpoints” only
 - Digital Keys secure/protect data

Solution:

Seagate 300GB FDE Disks

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- Real time encryption (data at rest)
- 1.2 TB Usable



Tiered Storage

- Organization had “hot” and “cold” data.
 - 2 TB Database Library, 20% active
- Cost sensitive

Solution- Hybrid Disk
Incremental SSD investment to create 2nd tier
cache to maximize system I/O performance

(5) Seagate 500GB FDE Disks
(2) Intel SSD

