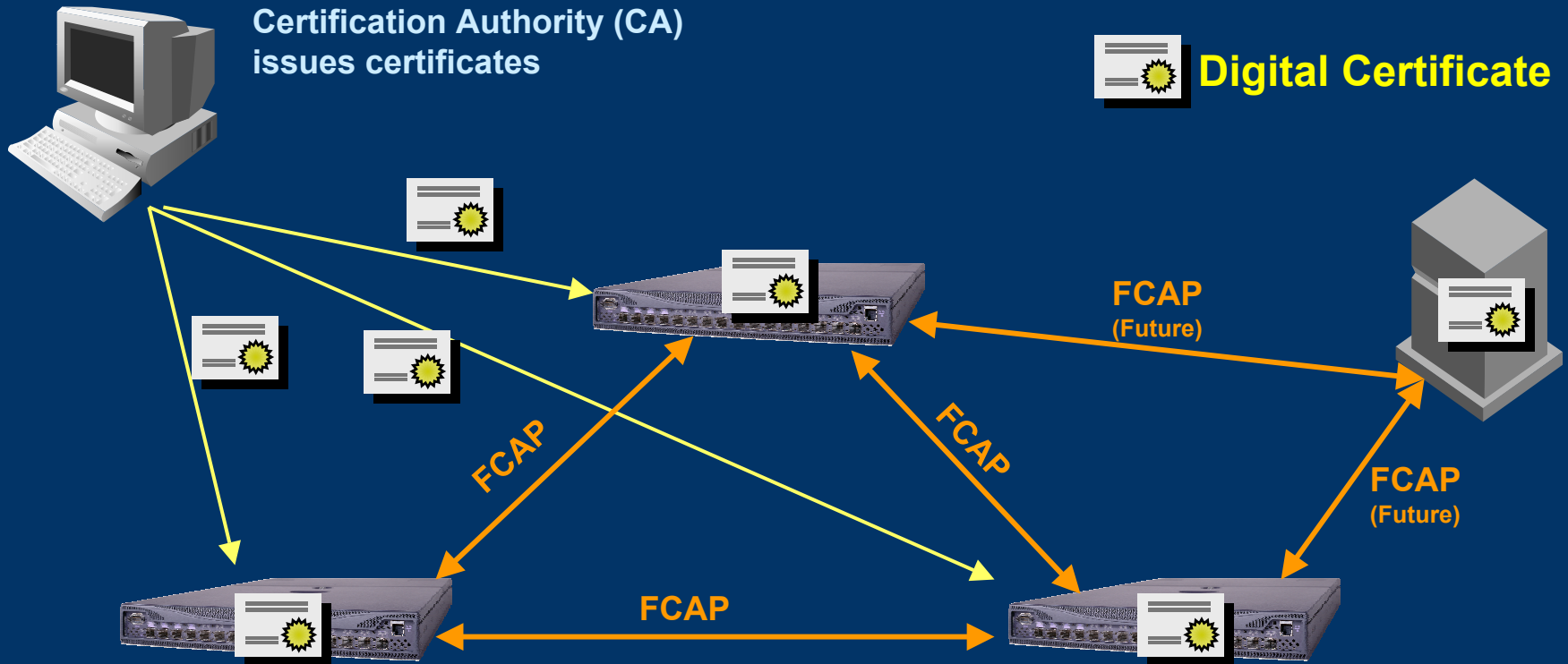


Fabric Security Architecture (ANSI T11)

Confidentiality	ESP (Encapsulating Security Payload)
Integrity	Policy Distribution (Signatures / HMACs / ESP)
Authorization (Access Control)	Fabric Asymmetry / Fabric-wide Security Policies (ACLs)
Authentication	FCAP // FCPAP // DH-CHAP
Security Infrastructure	PKI // Password Administration // Shared-Secret Administration



PKI based Security



PKI = Public Key Infrastructure
(Use of **digital certificates** and signatures for authentication)

FCAP = Fibre Channel Authentication Protocol (ANSI T11.3 FC-SP)



IP vs. SAN Security

IP Networks

- **Secure communications**
 - IPSEC / VPNs
 - SSL/SSH
- **Secure user access**
 - Radius, Kerberos, etc.
- **VLANs**
- **Secure management**
 - SNMP v3

SANs

- **Device access controls**
 - Port-level ACLs/binding
 - Switch-level ACLs/binding
- **Management access controls**
- **Device authentication (switches/HBAs)**
- **Secure management (API/SSH/SSL/enc.)**
- **Zoning (hardware enforced+LUN-level)**
- **User-level authentication/authorization**
- **Centralized policy administration**
- **File/data encryption**

Some overlap, but there are unique requirements!

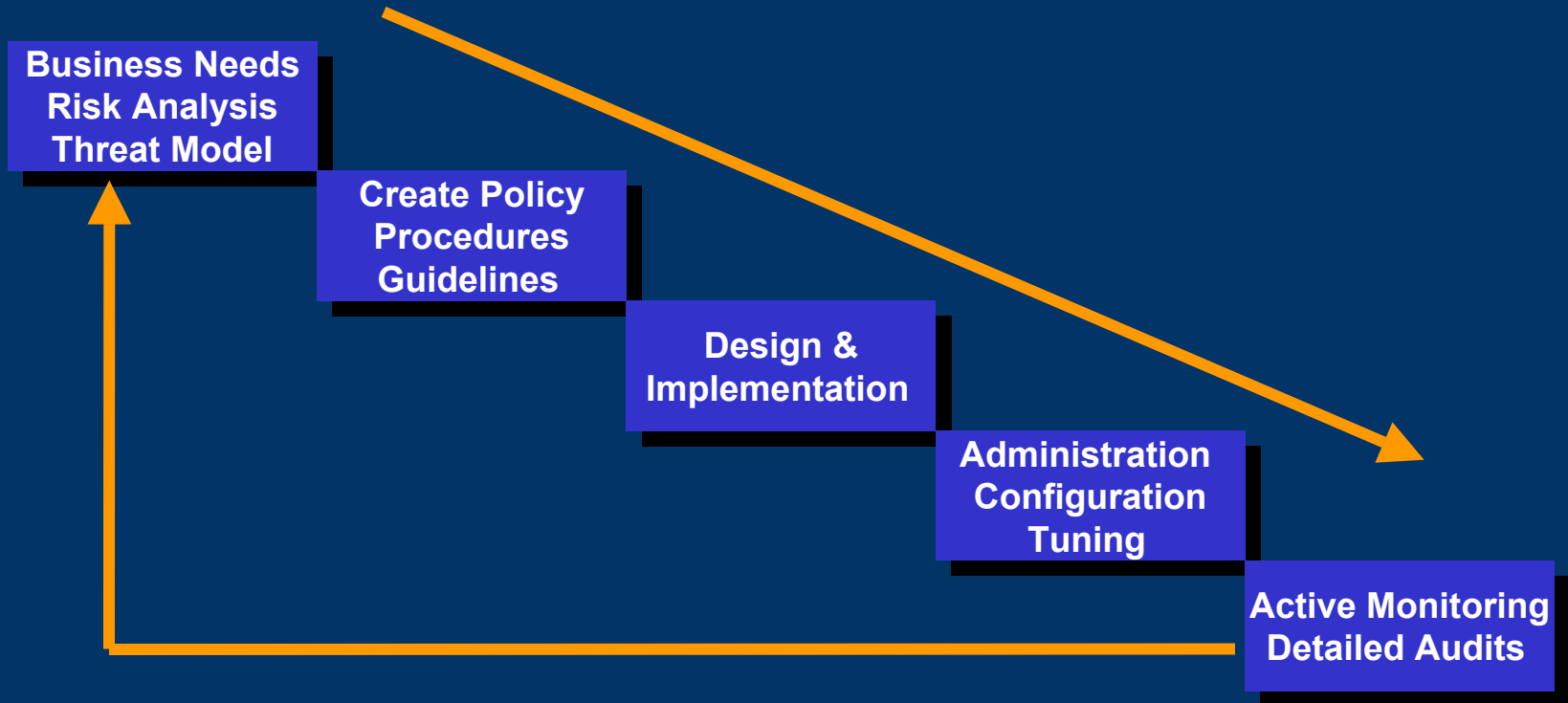


SAN Security – An Infrastructure Decision

- Security is a fundamental consideration when designing SANs and selecting SAN infrastructures
- As with any network, SAN security must be:
 - Based on risk analysis and a defined threat model
 - Scalable and relatively simple to set up and manage
 - Policy-based – a component of the overall corporate security
 - Based on proven, standards-based mechanisms
 - Manageable and support active monitoring
 - Auditable – detailed audit trails



Security Implementation Hierarchy



For More Information

- Please access the Secure Fabric OS® and SNIA-SSIF related info at:
 - http://www.brocade.com/san/Feature_Stories/secure_SAN.jsp
 - <http://www.brocade.com/products/pdf/SecureFabricLR.pdf>
 - <http://www.snia.org/ssif/home>
- Other Educational Tools From Brocade
 - Brocade SAN Security Course – SFO200 (2 days)
 - Brocade SAN Security Web based Course – SFO101
 - SAN Security - A Best Practices Guide (on partner site)
 - Comprehensive as well as Quick Start User's Guides
 - Certification Practices Statement (CPS) - (on partner site)
- Contact your HP Representative



Thank You



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