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Application of SCAP to Secure Unified Communications

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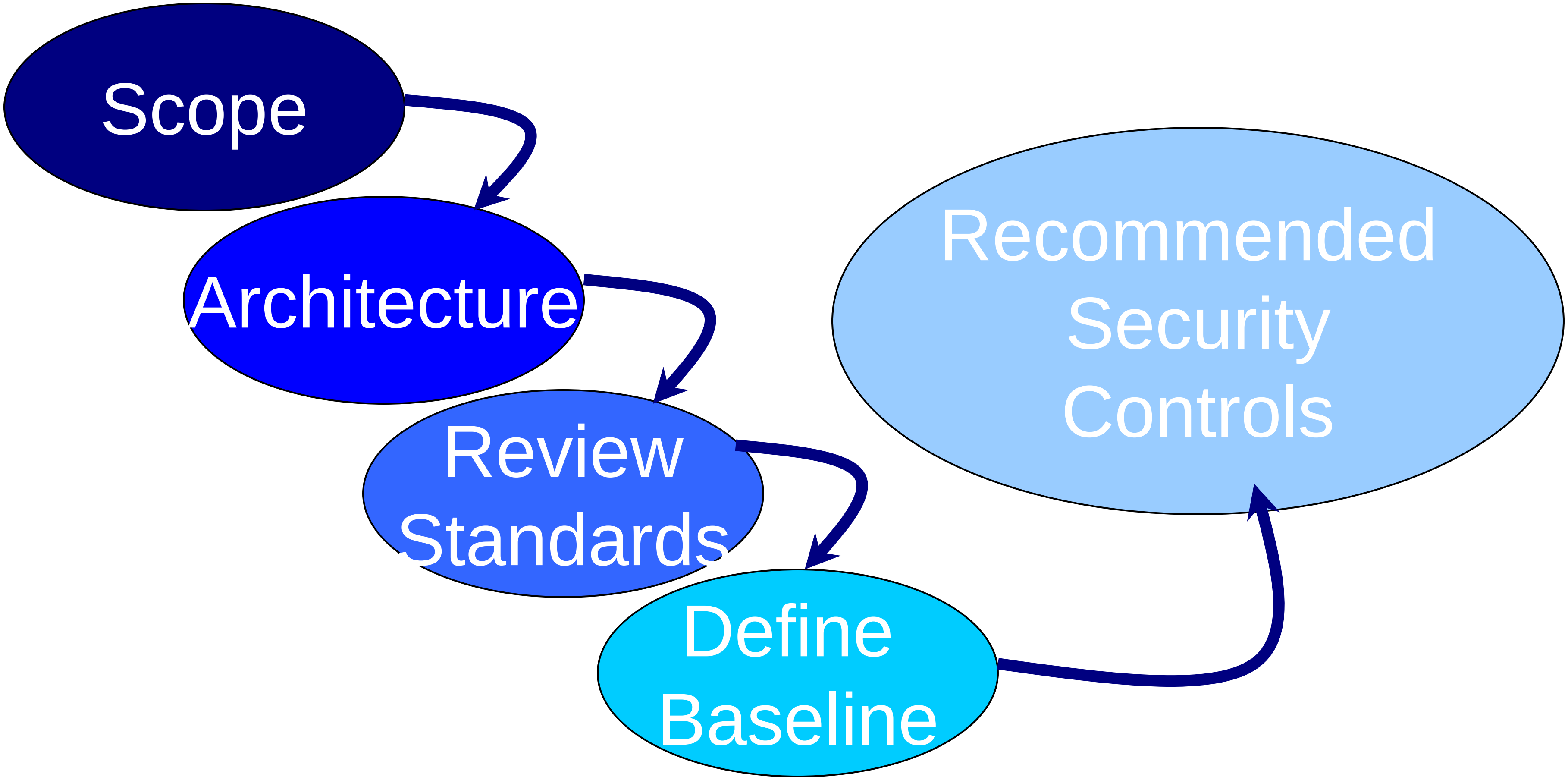
Baseline Standards Process



Scope

Architecture

Review Standards

Define Baseline

Recommended Security Controls

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Baseline Standards Defined Areas

- Phone Security Overview - Hypertext Transfer Protocol Secure (**HTTPS**)
- Using the Certificate Authority Proxy Function
- Encrypting Phone Configuration Files
- Configuring Digest & Phone Hardening
- Call Controller Hardening
- Firewalls and Intrusion Prevention Systems (**IPS**)
- Security at Different Planes and Other Relevant Controls
- Signaling and Media Protection Mechanisms

Baseline Standards Basis for SCAP

- Why SCAP?
- VoIP Community Today
  - Distinct Groups and Perspectives
    - Common Carrier
    - Vendors
    - Enterprise/ Business

Baseline Standards Basis for SCAP

Key Resources

- DraftTelecommunication Standardization Sector (**ITU**-**T**) Recommendation X.805 (Formerly X.css), Security architecture for systems providing end-to-end communications
- Internet Protocol Telephony & Voice Over Internet Protocol – Security Technical Implementation Guide Version 2, Release 2
- Alliance for Telecommunications Industry Solutions (ATIS) -1000007.2006 - Generic Signaling and Control Plane Security Requirements for Evolving Networks
- Federal Information Security Management Act (FISMA).
- NIST SP 800-32, "Introduction to Public Key Technology and the Federal PKI Infrastructure",
- Security Guidance for Deploying IP Telephony Systems. http://www.isalliance.org/images/stories/I332-016R-2005.pdf
- Defence Information Systems Agency (DISA) Security Technical Implementation Guides.

Baseline Standards Basis for SCAP

Key Resources (Cont.)

- Federal Information Processing Standards (FIPS) PUB 140-2, Security Requirements for Cryptographic Modules
- NIST SP 800-53 Rev. 3, “Recommended Security Controls for Federal Information Systems
- Jonathan Rosenberg, et. al., “SIP: Session Initiation Protocol”

  Internet Engineering Task Force (IETF) Request for Comments (RFC) 3261.
- Peter Thermos, Ari Takanen, “Securing VoIP Networks; Threats, Vulnerabilities and Countermeasures”, Addison-Wesley 2007, ISBN:978-0321437341
- S. Kent, K. Seo, “Security Architecture for the Internet Protocol”, RFC 4301, December 2005

Baseline Standards Strategy

- Configurations and Compliance Testing
- Minimum Baseline Controls
- Security Considerations
  - – Defense in Breadth
  - – Defense in Depth
- Automated Processes

Baseline Standards

Phone Security Overview

- Match Baseline to Organization’s needs
  - Appropriate Assurance Level
  - Flexible
  - Adaptable
  - Currently Available Solution
- Adequate Service Continuity

  (Switched Network Equivalent)

Baseline Standards

Certificate Authority Proxy Function

- Enable Certificates and Public Key Infrastructure (**PKI**)
  - – Identity Management
  - – Confidentiality
  - – Integrity
  - – Availability

Baseline Standards

Encrypting Phone Configuration Files

- Encryption/Decryption Process
- Security Controls
  - Symmetric Encryption Algorithms
  - Asymmetric Encryption Algorithms
  - Key Management
- Security Considerations
  - Public Key Infrastructure (**PKI**)
  - Key Management Infrastructure (**KMI**)
  - Trivial File Transfer Protocol (**TFTP**)
  - Passwords

Baseline Standards

Configuring Digest – Phone Hardening

- Digest Authentication
  - – Users-to-Proxy
  - – Proxy- to-Proxy
  - – Proxy-to-Server
- Phone Hardening
  - – Device Update Assurance
  - – Data-at-Rest (minimize Attack surface)
  - – Data-in-Transit **(CIA)**

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Baseline Standards

Call Controller Hardening

- Minimize Attack Surface
- Delete Unnecessary Services & Utilities
- Enable Incident Management
  - Detection
  - Analysis
  - Response

Baseline Standards

Firewalls and IPS

- Segment & Isolate Infrastructure
  - Pass Allowed Traffic
  - Block Attacks
- Monitor and Manage Network
  - Network & Situational Awareness
  - Audit and Accountability

Baseline Standards

Security at Different Planes & Other Relevant Controls

- Management Plane
- Signaling Plane
- Media/Control Media Plane
- Attack Vectors and Exposures
  - MITM, Replay, Impersonation, TFTP…..

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Request the White Paper

Please email bfoer@isalliance.org

to request a free copy of

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Baseline Standards

Questions?

Baseline Standards

Phone Security Overview

- Technology Changed
- VoIP Quickly Adopted
  - Commercial Market
  - Government
- Regulation and Legal Issue Also Following
  - ISAlliance Leading Effort to Assist Definition
  - Others