Analysis of Security Automation and Continuous Monitoring (SACM) Use Cases

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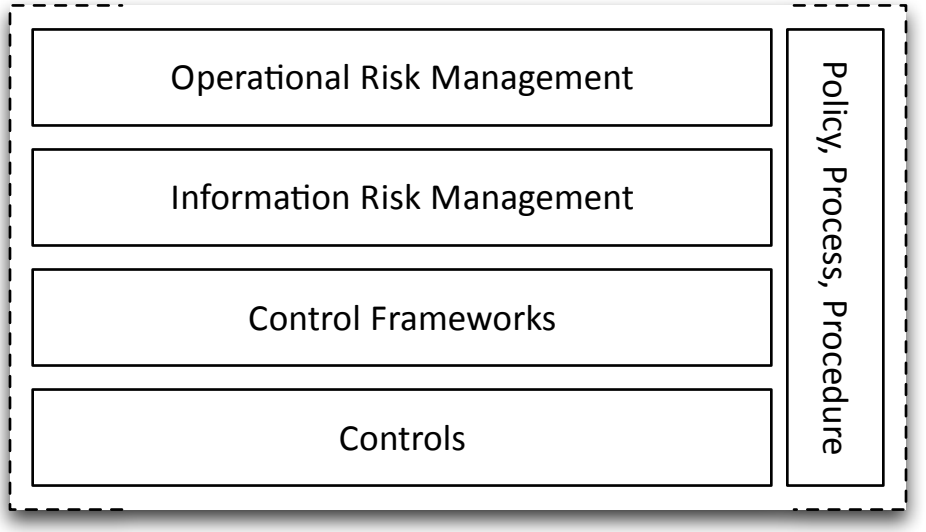
URL: http://tools.ietf.org/html/draft-montville-sacm-asset-identification-00

Abstract:

This document identifies foundational use cases, derived functional capabilities and requirements, architectural components, and the supporting standards needed to define an interoperable, automation \infrastructure required to support timely, accurate and actionable situational awareness over an organization's IT systems. Automation tools implementing a continuous monitoring approach will utilize this infrastructure together with existing and emerging event, incident and network management standards to provide visibility into the state of assets, user activities and network \behavior. Stakeholders will be able to use these tools to aggregate and analyze relevant security and operational data to understand the organizations security posture, quantify business risk, and make informed decisions that support organizational objectives while protecting critical information. Organizations will be able to use these tools to augment and automate information sharing activities to collaborate with partners to identify and mitigate threats. Other automation tools will be able to integrate with these capabilities to enforce policies based on human decisions to harden systems, prevent misuse and reduce the overall attack surface.

Frame Of Reference

Overall Problem Domain



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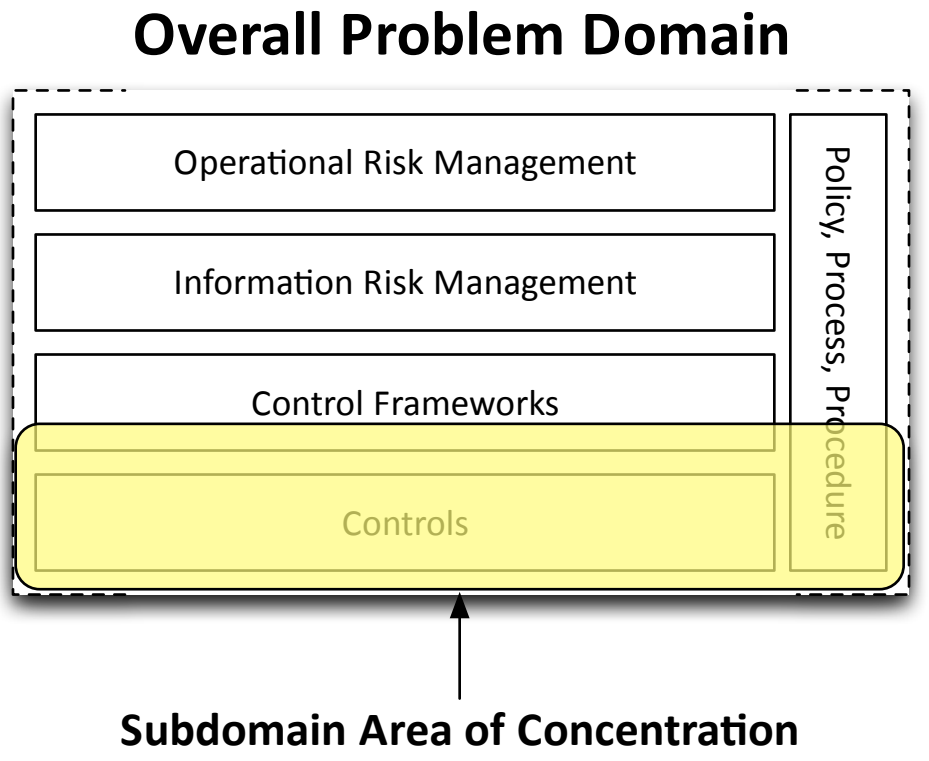
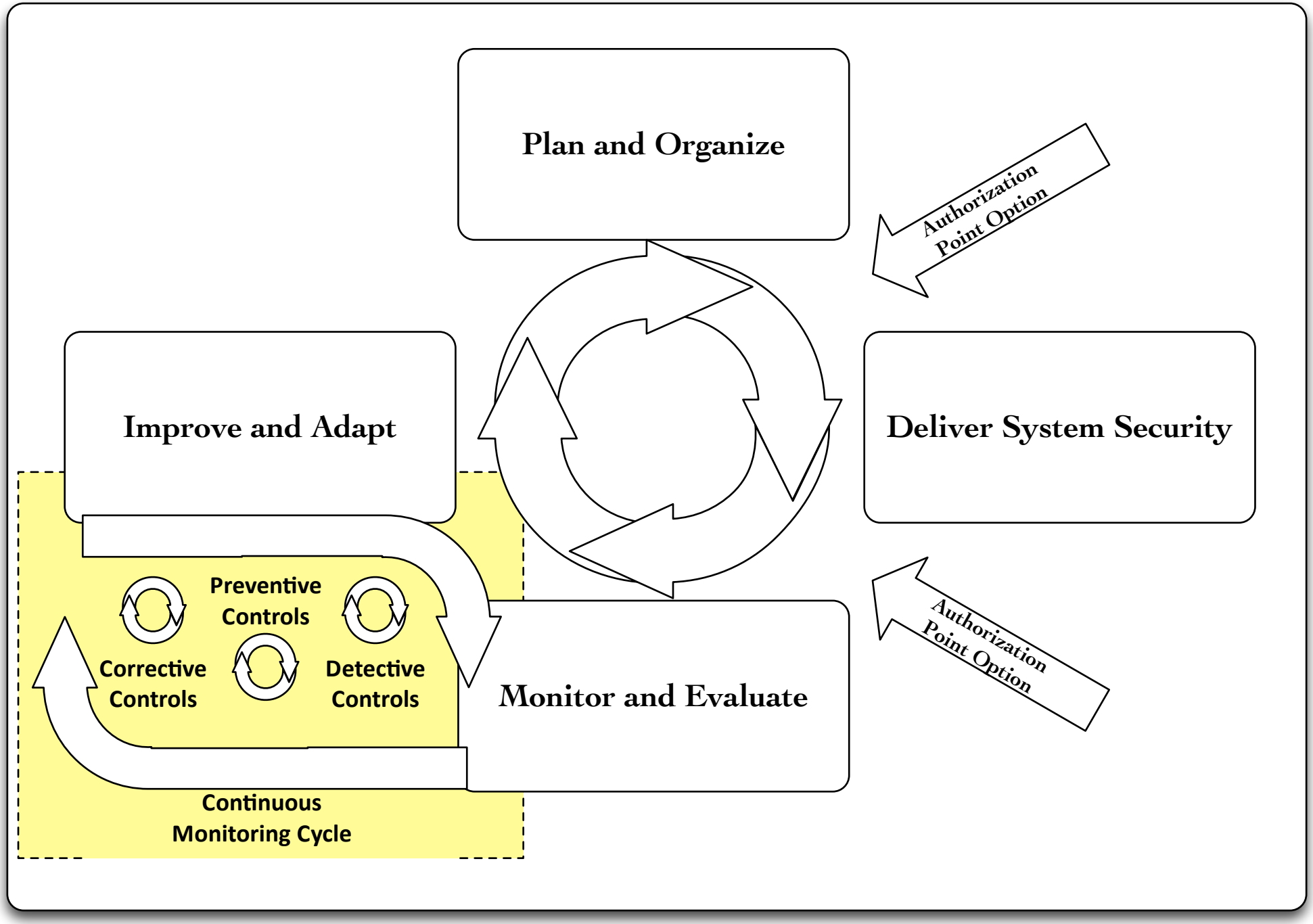
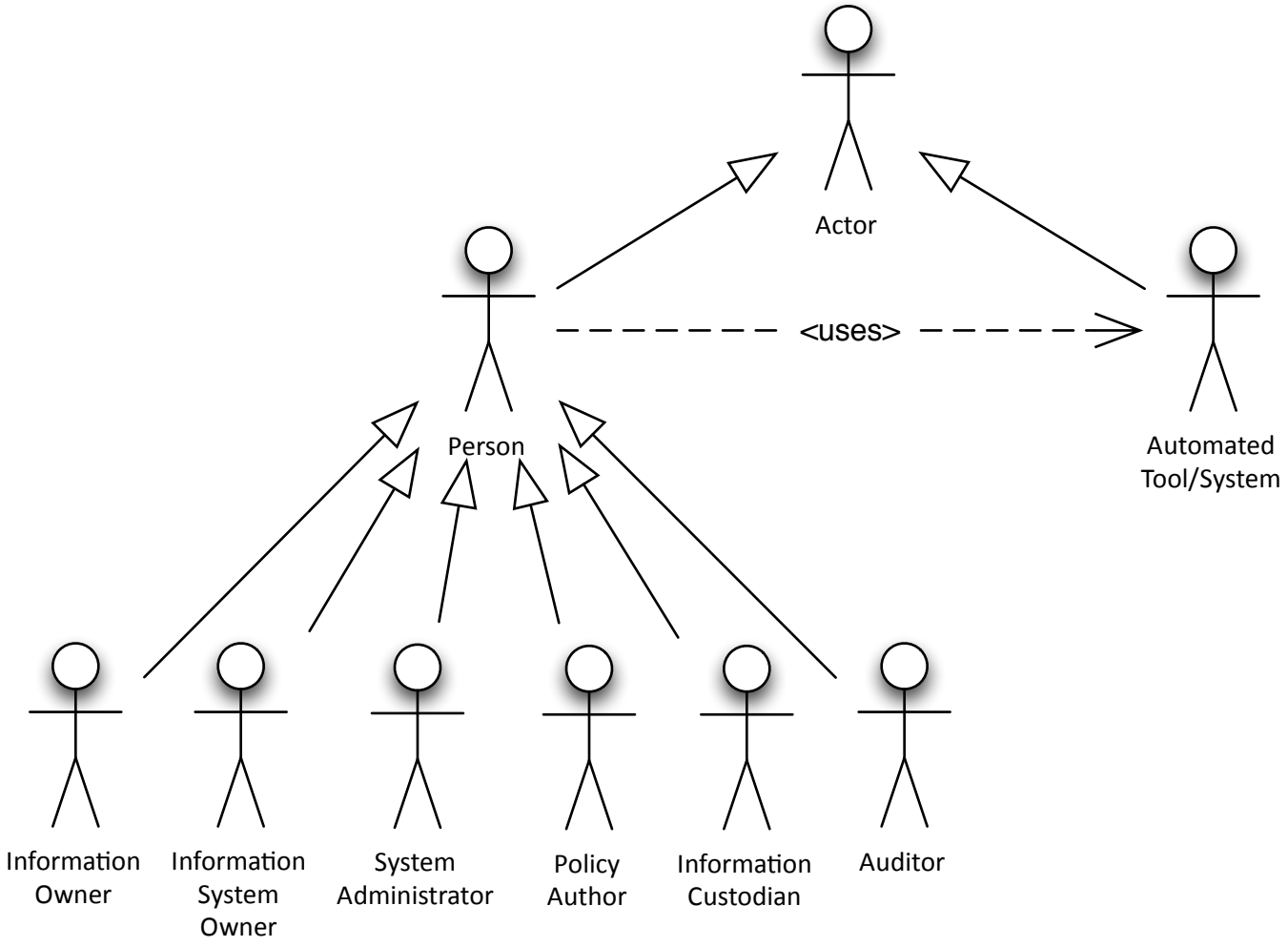



Plan and Organize
Authorization Point Option
Improve and Adapt
Deliver System Security
Preventive Controls
Corrective Controls
Detective Controls
Monitor and Evaluate
Authorization Point Option
Continuous Monitoring Cycle


Actor
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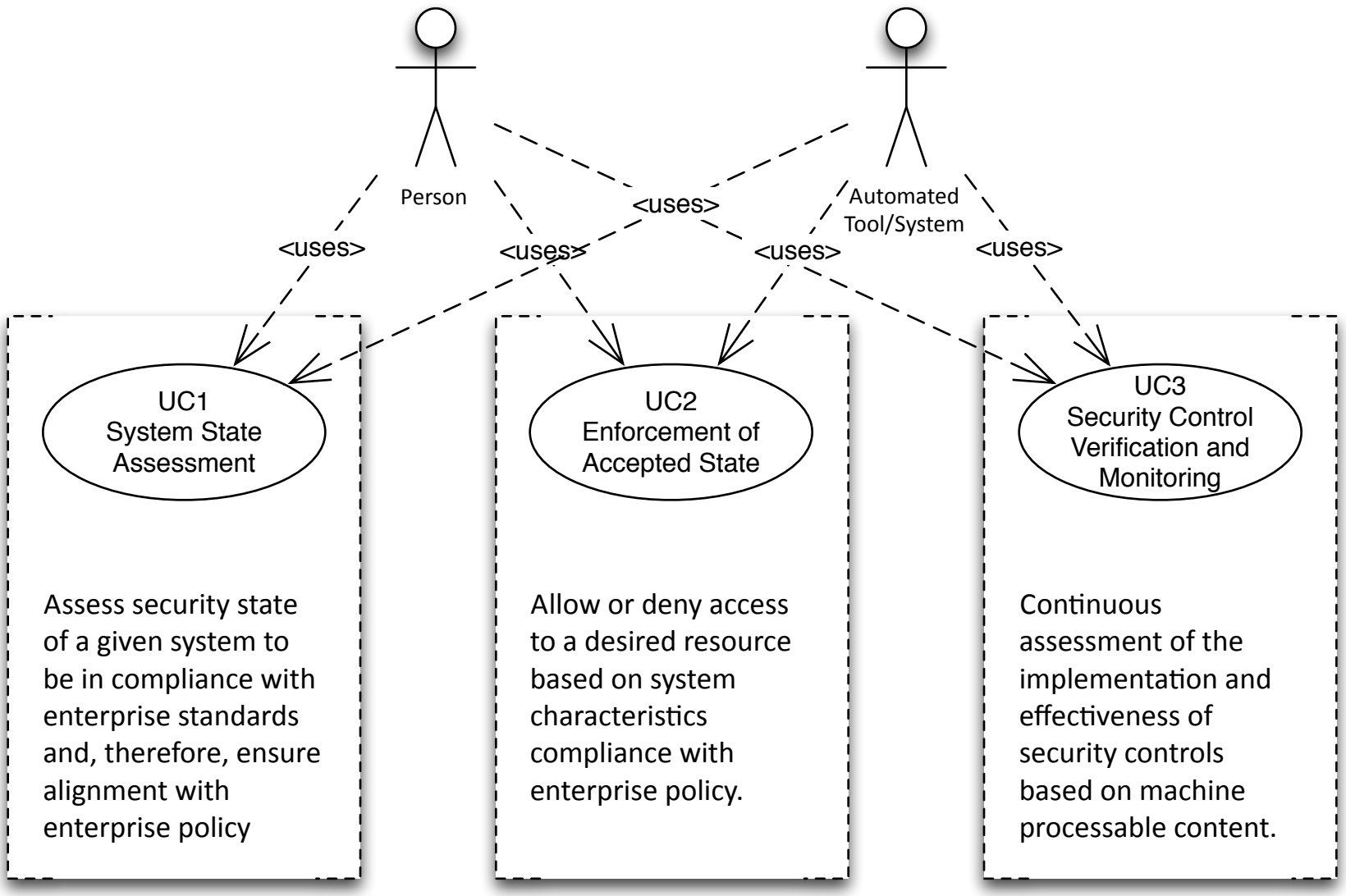
Automated
Tool/System
Information
Owner
Information
System
Owner
System
Administrator
Policy
Author
Information
Custodian
Auditor


Person
Automated Tool/System
<uses>
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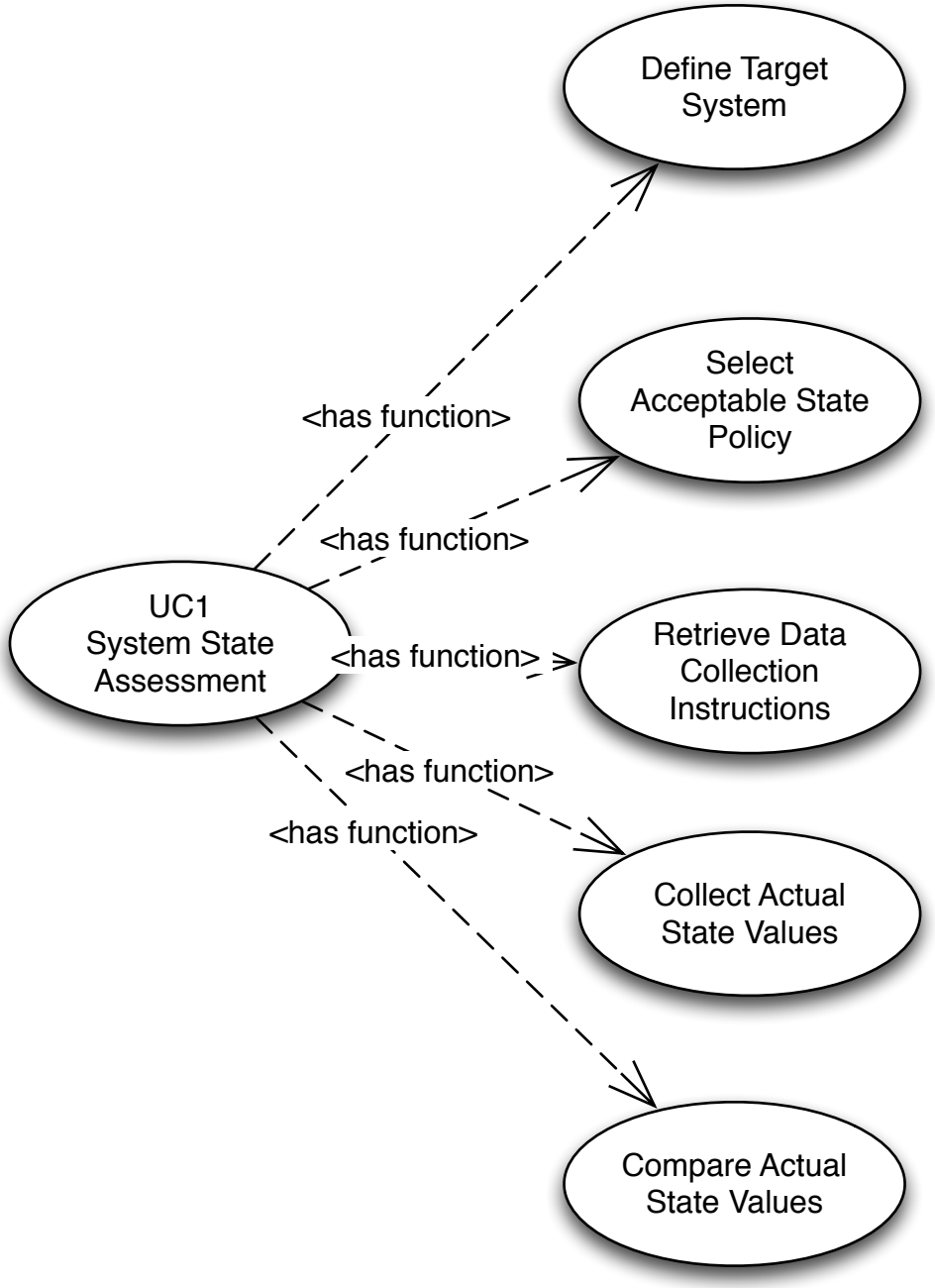
UC1
System State Assessment
UC2
Enforcement of Accepted State
UC3
Security Control Verification and Monitoring
Assess security state of a given system to be in compliance with enterprise standards and, therefore, ensure alignment with enterprise policy
Allow or deny access to a desired resource based on system characteristics compliance with enterprise policy.
Continuous assessment of the implementation and effectiveness of security controls based on machine processable content.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Select Acceptable State Policy
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UC1 System State Assessment
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Retrieve Data Collection Instructions
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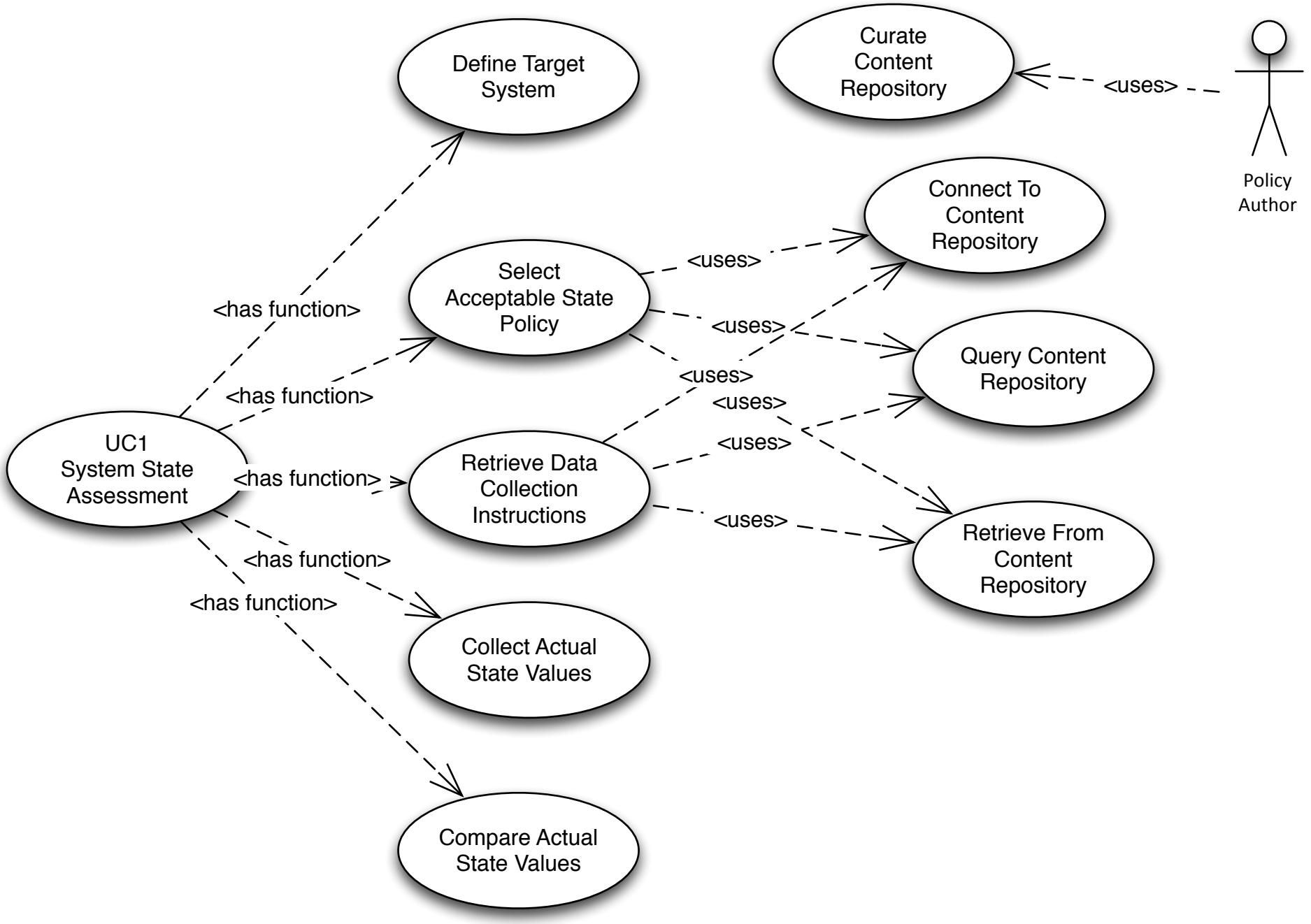
<has function>
Collect Actual State Values
Compare Actual State Values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Connect To Content Repository
Select Acceptable State Policy
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Query Content Repository
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UC1 System State Assessment
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Retrieve Data Collection Instructions
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Retrieve From Content Repository
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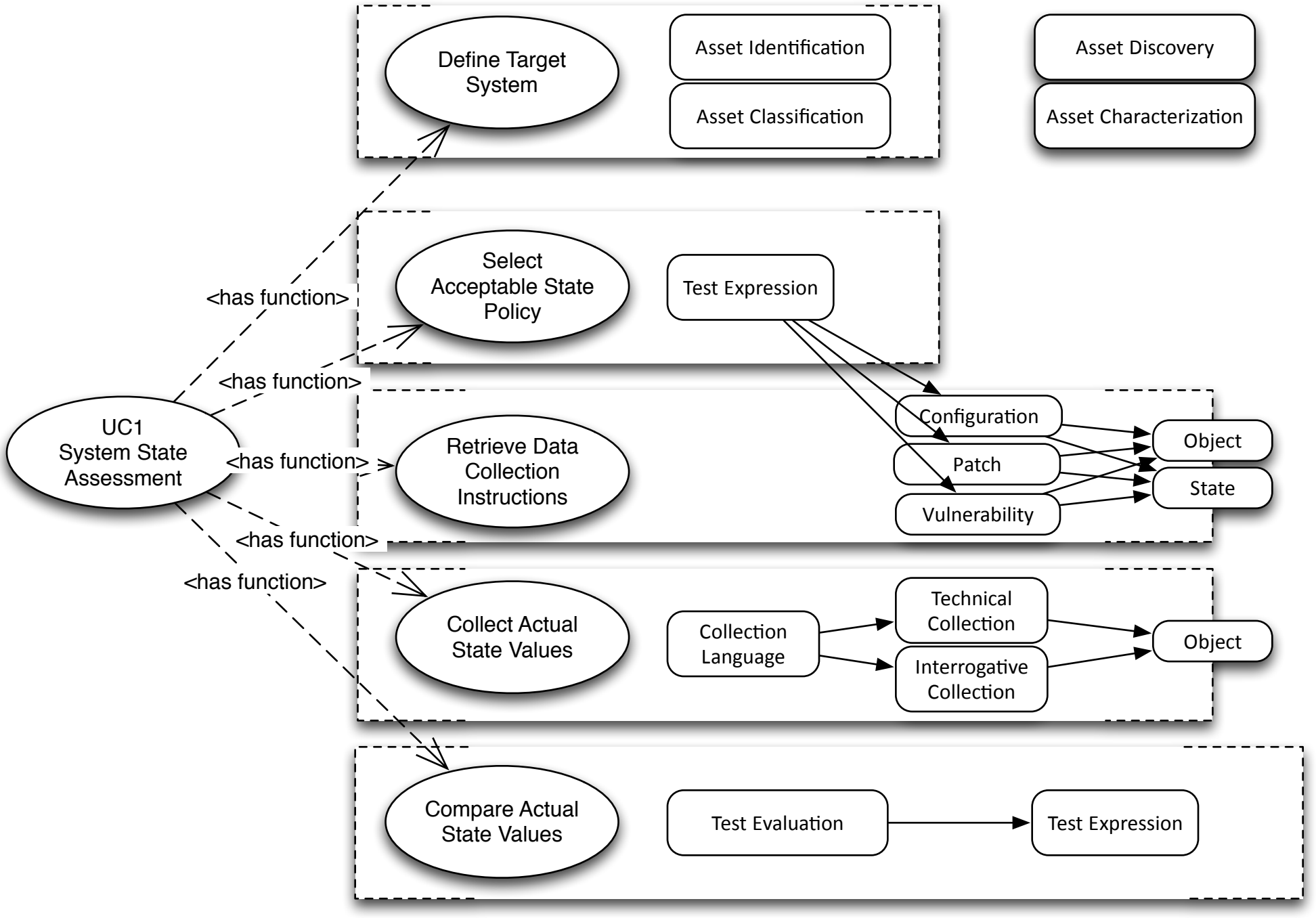
<has function>
Collect Actual State Values
Compare Actual State Values


Define Target System
Asset Identification
Asset Classification
Asset Discovery
Asset Characterization
Select Acceptable State Policy
Test Expression
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UC1 System State Assessment
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Retrieve Data Collection Instructions
Configuration
Patch
Vulnerability
Object
State
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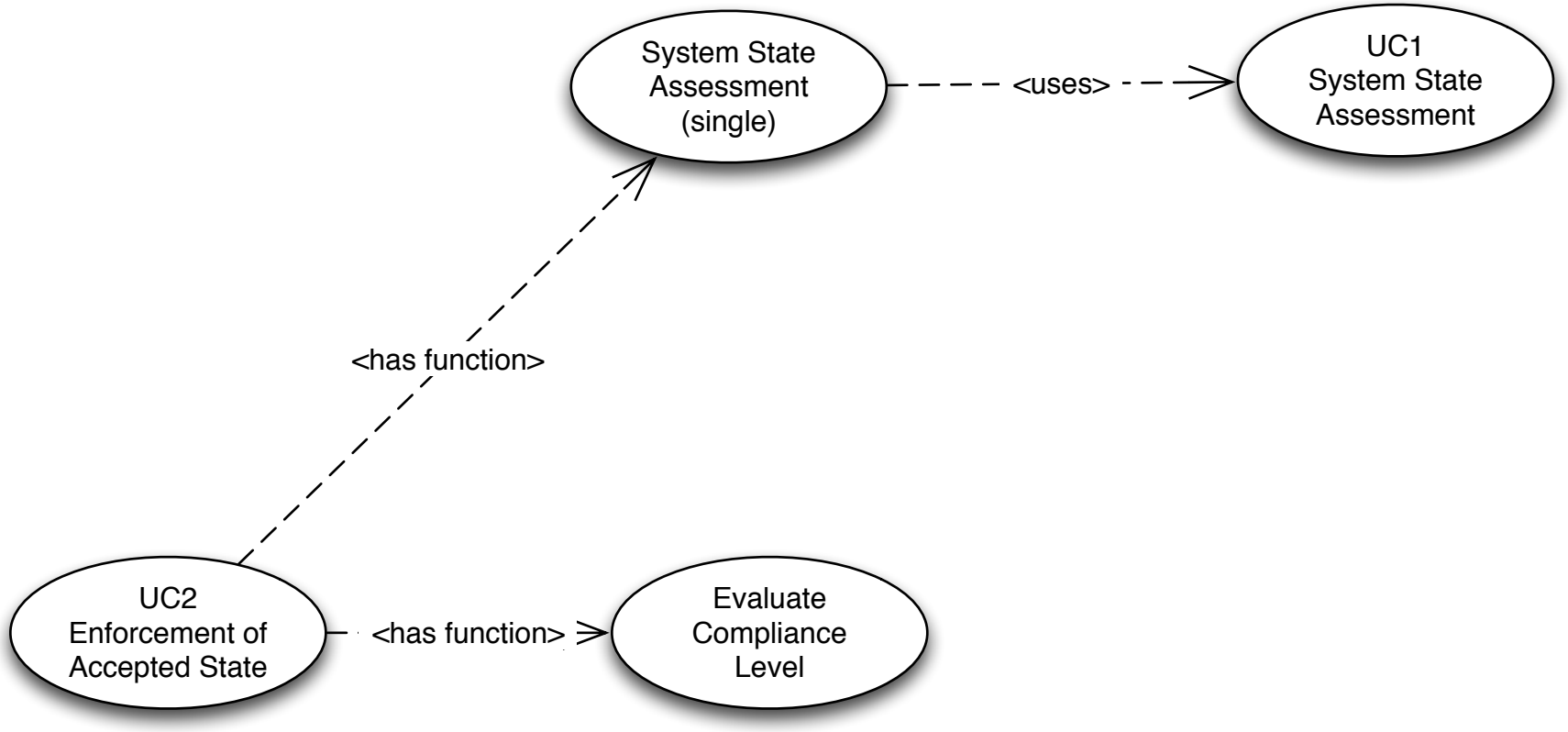
Collect Actual State Values
Collection Language
Technical Collection
Interrogative Collection
Object
Compare Actual State Values
Test Evaluation
Test Expression


System State Assessment (single)
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UC1 System State Assessment
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UC2 Enforcement of Accepted State
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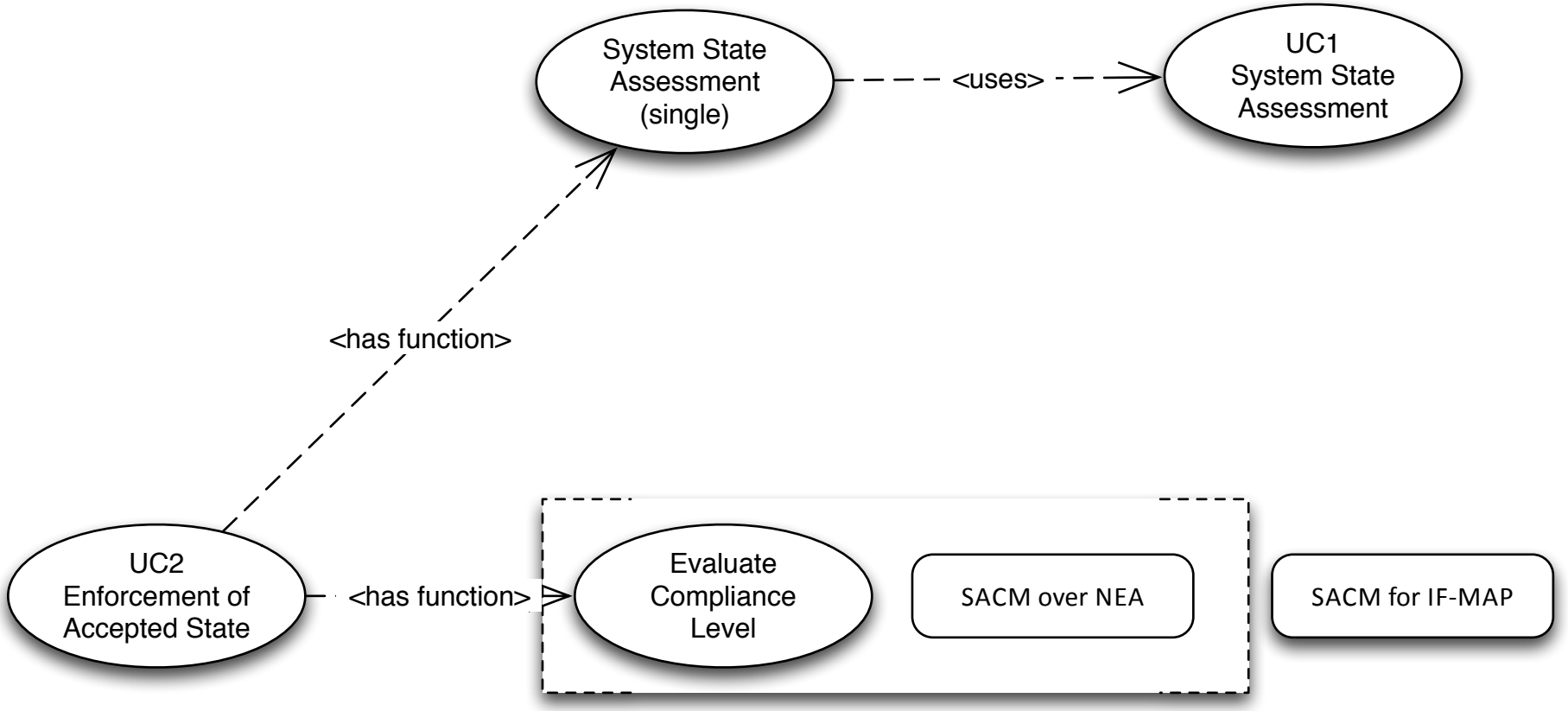
Evaluate Compliance Level


System State Assessment (single)
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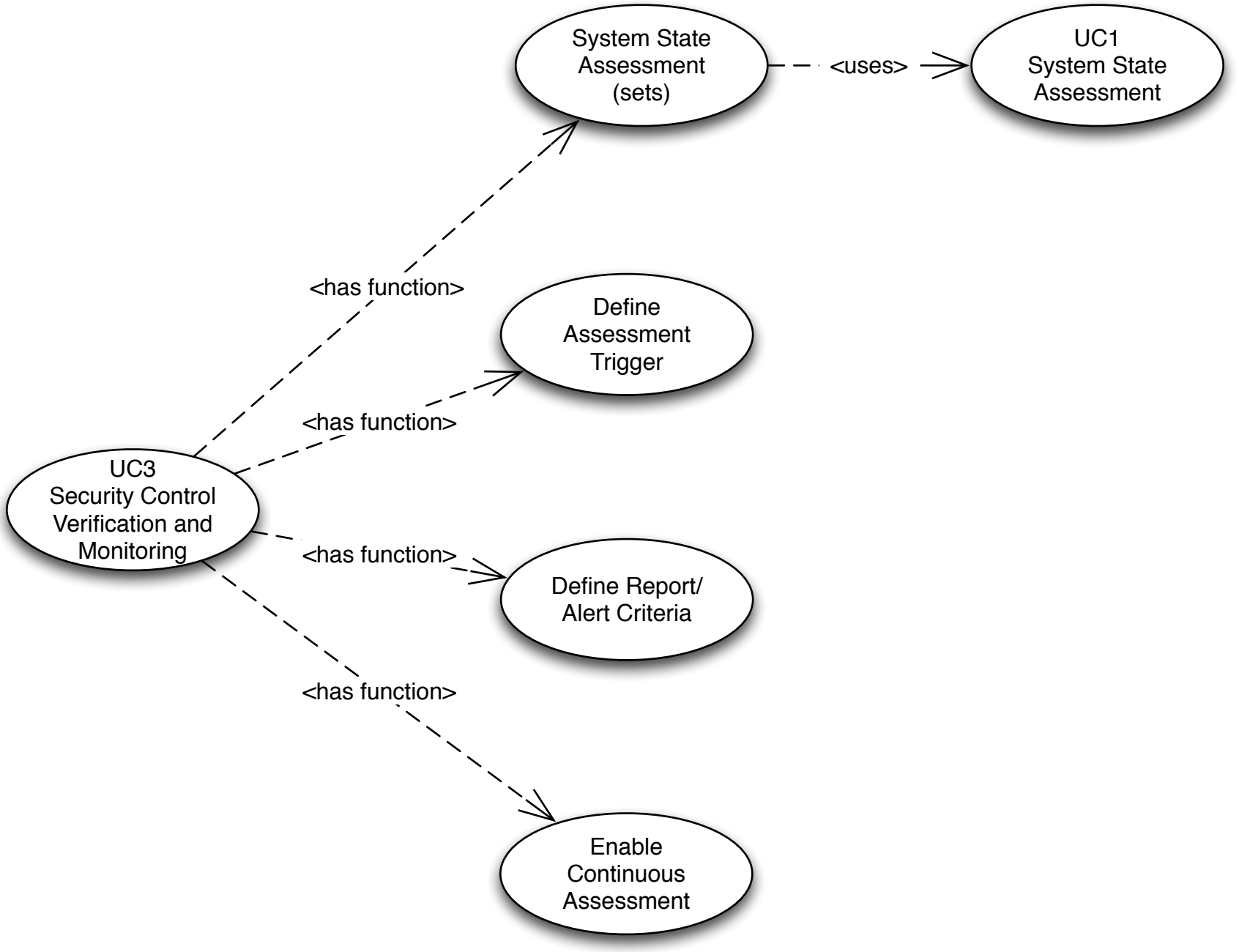
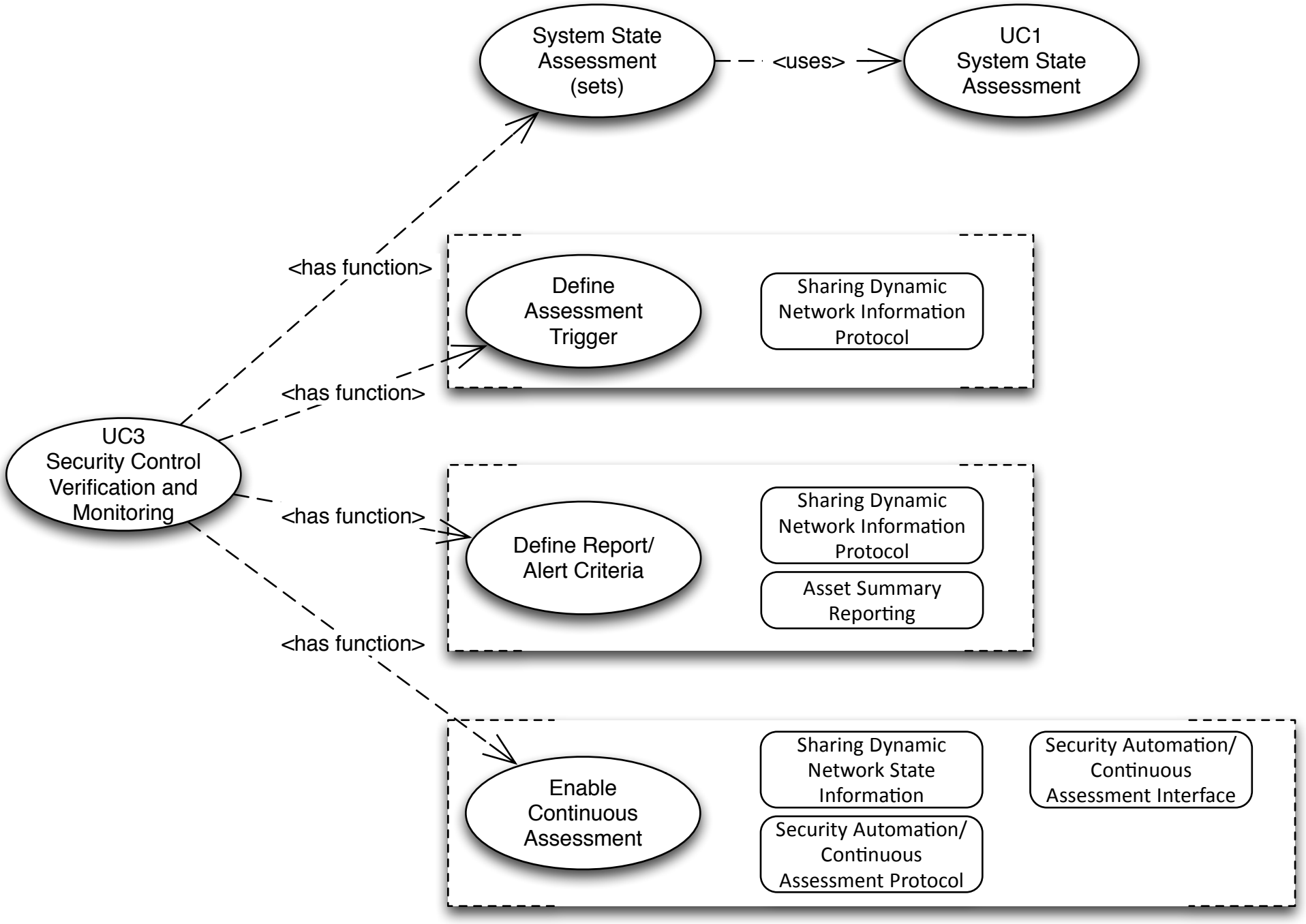
UC1 System State Assessment
<has function>
UC2 Enforcement of Accepted State
<has function>
Evaluate Compliance Level
SACM over NEA
SACM for IF-MAP

has function




System State Assessment (sets)
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UC1 System State Assessment
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Define Assessment Trigger
Sharing Dynamic Network Information Protocol
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UC3 Security Control Verification and Monitoring
<has function>
Define Report/ Alert Criteria
Sharing Dynamic Network Information Protocol
Asset Summary Reporting
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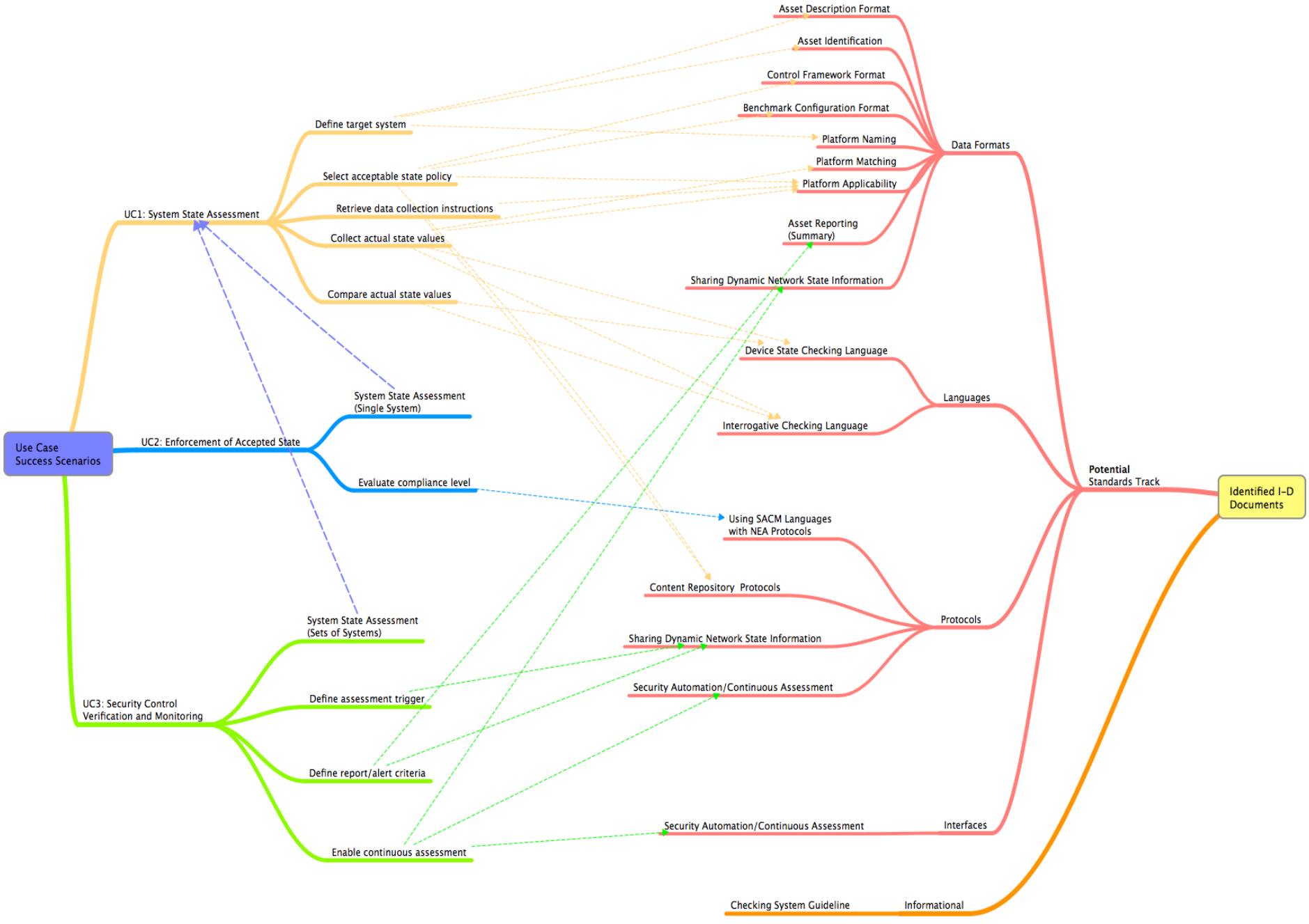
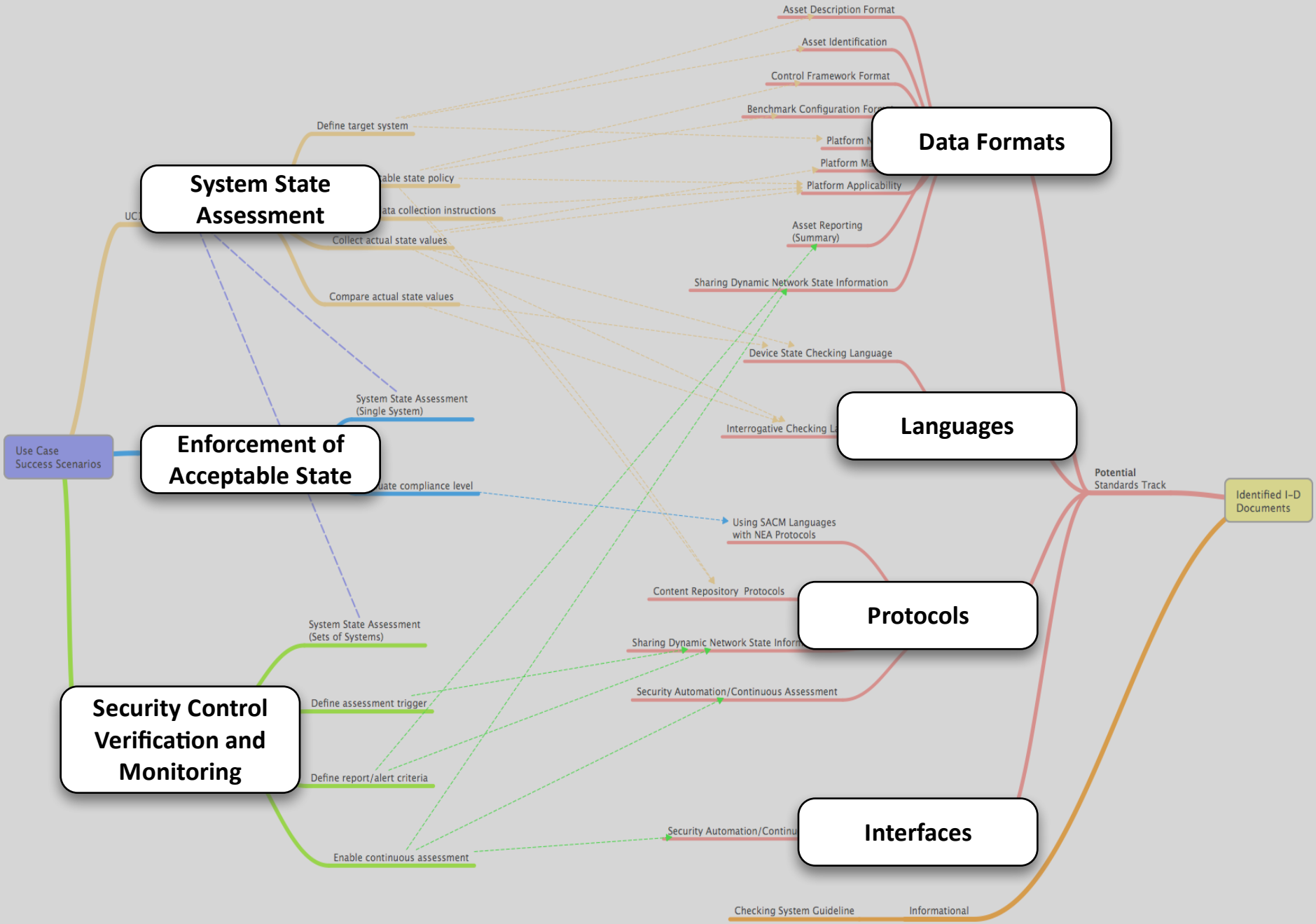
Enable Continuous Assessment
Sharing Dynamic Network State Information
Security Automation/ Continuous Assessment Protocol
Security Automation/ Continuous Assessment Interface


Use Case
Success Scenarios
UC1: System State Assessment
Define target system
Select acceptable state policy
Retrieve data collection instructions
Collect actual state values
Compare actual state values
UC2: Enforcement of Accepted State
System State Assessment
(Single System)
Evaluate compliance level
UC3: Security Control
Verification and Monitoring
System State Assessment
(Sets of Systems)
Define assessment trigger
Define report/alert criteria
Enable continuous assessment
Asset Description Format
Asset Identification
Control Framework Format
Benchmark Configuration Format
Platform Naming
Platform Matching
Platform Applicability
Asset Reporting
(Summary)
Sharing Dynamic Network State Information
Device State Checking Language
Interrogative Checking Language
Languages
Data Formats
Using SACM Languages
with NEA Protocols
Content Repository Protocols
Sharing Dynamic Network State Information
Security Automation/Continuous Assessment
Protocols
Security Automation/Continuous Assessment
Interfaces
Checking System Guideline
Informational
Potential
Standards Track
Identified I-D
Documents


Asset Description Format
Asset Identification
Control Framework Format
Benchmark Configuration For
Platform
Platform
Platform Applicability
Asset Reporting (Summary)
Sharing Dynamic Network State Information
Device State Checking Language
Interrogative Checking
Data Formats
Languages
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Checking System Guideline
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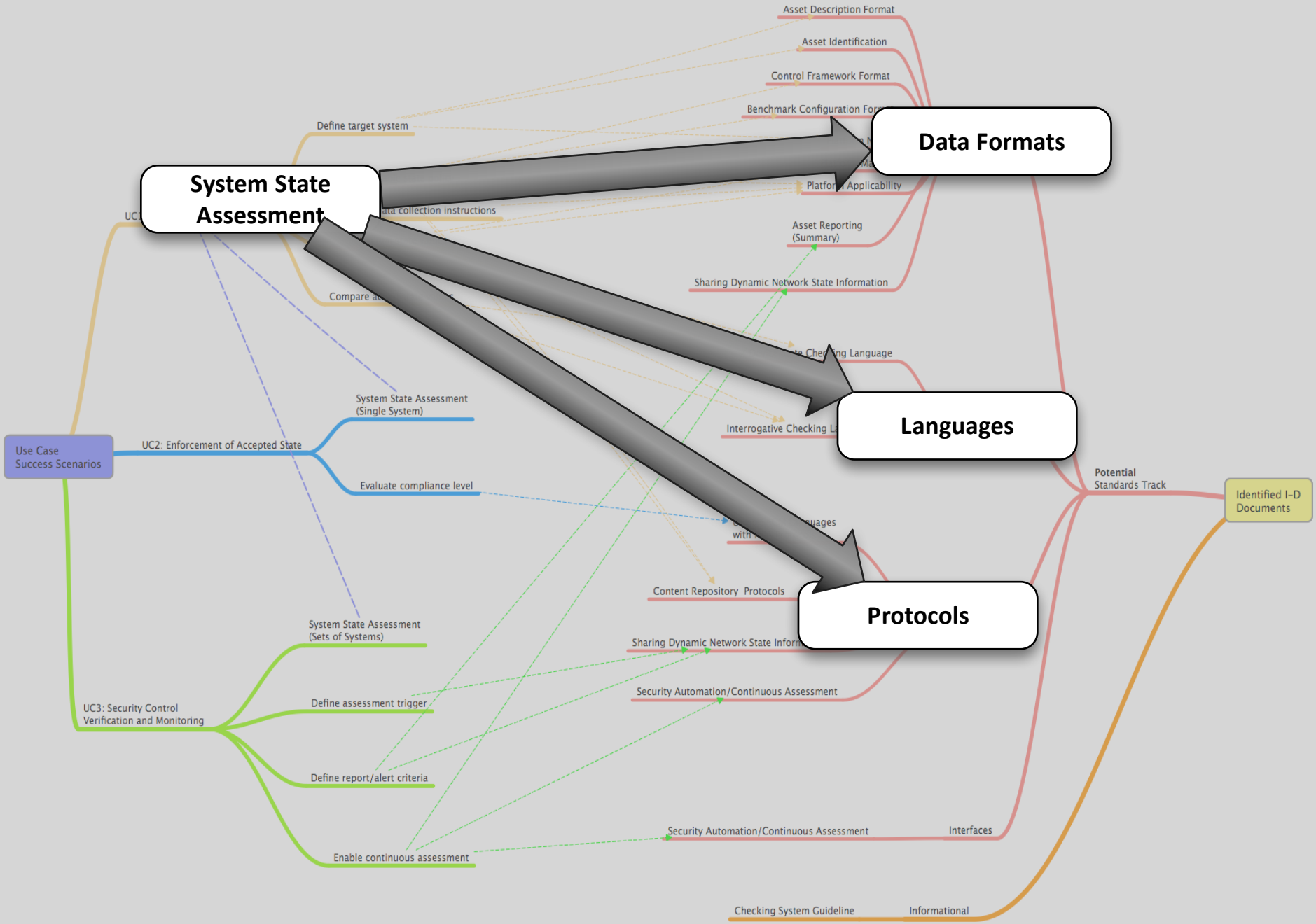
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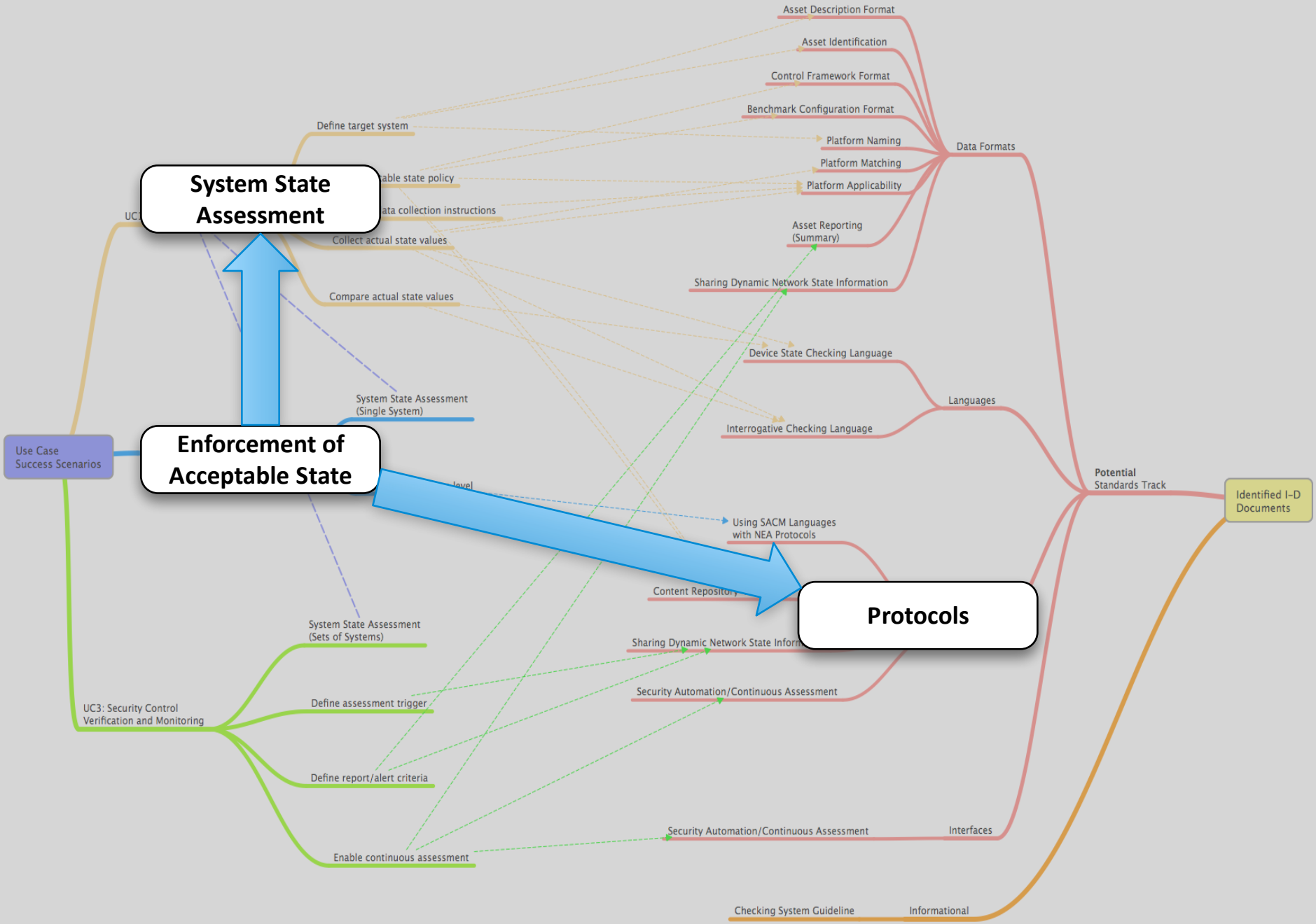
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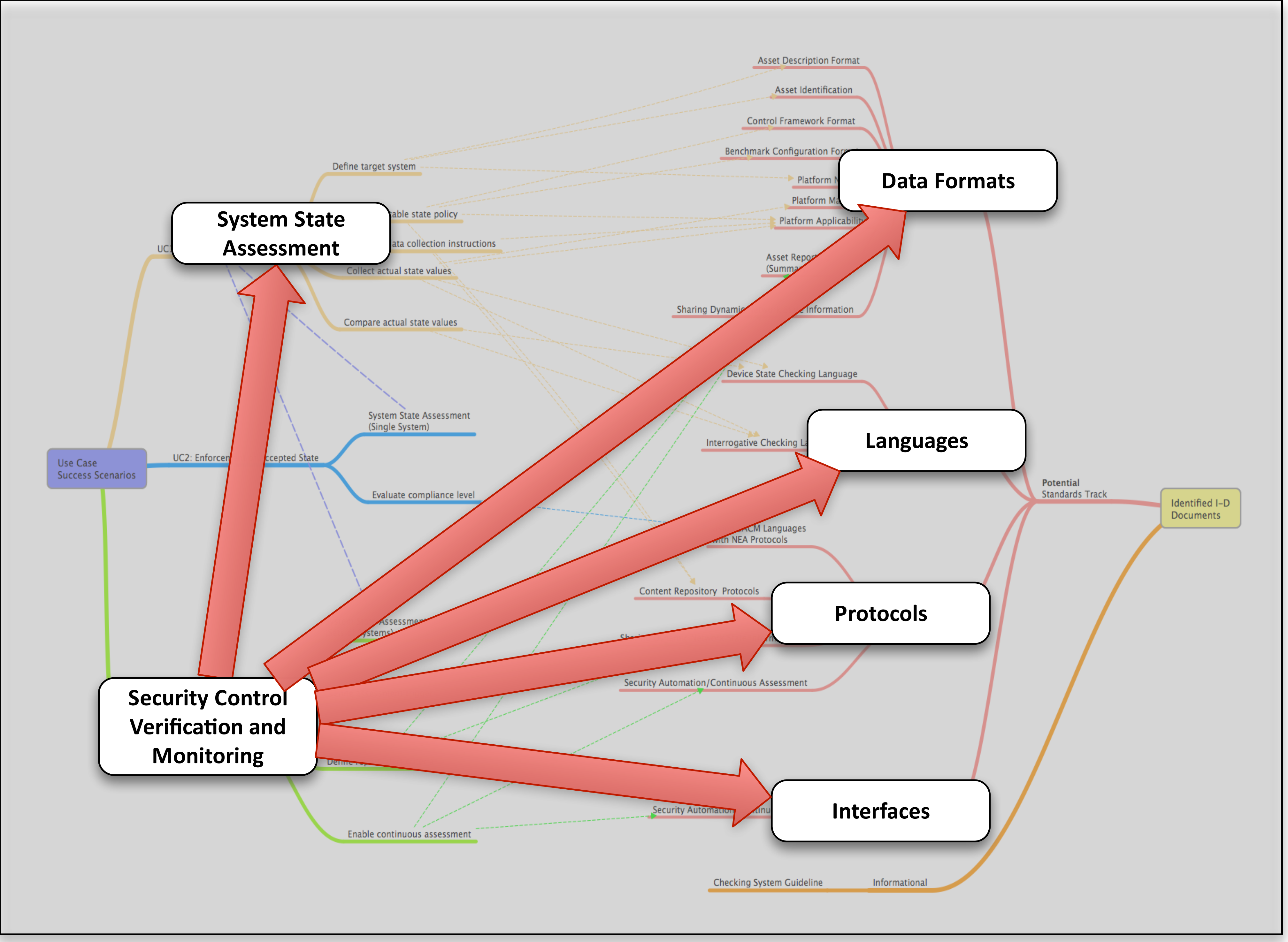
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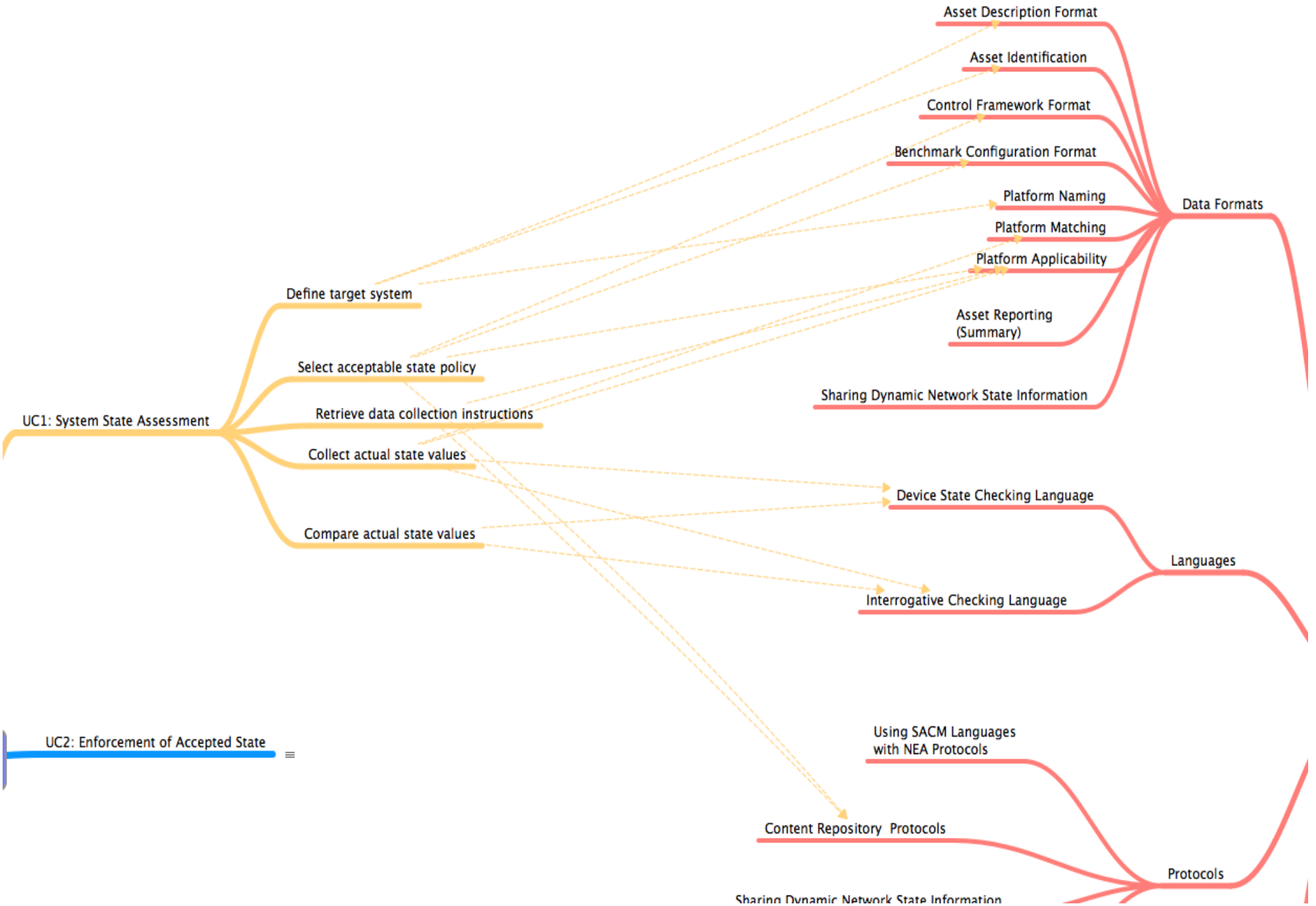
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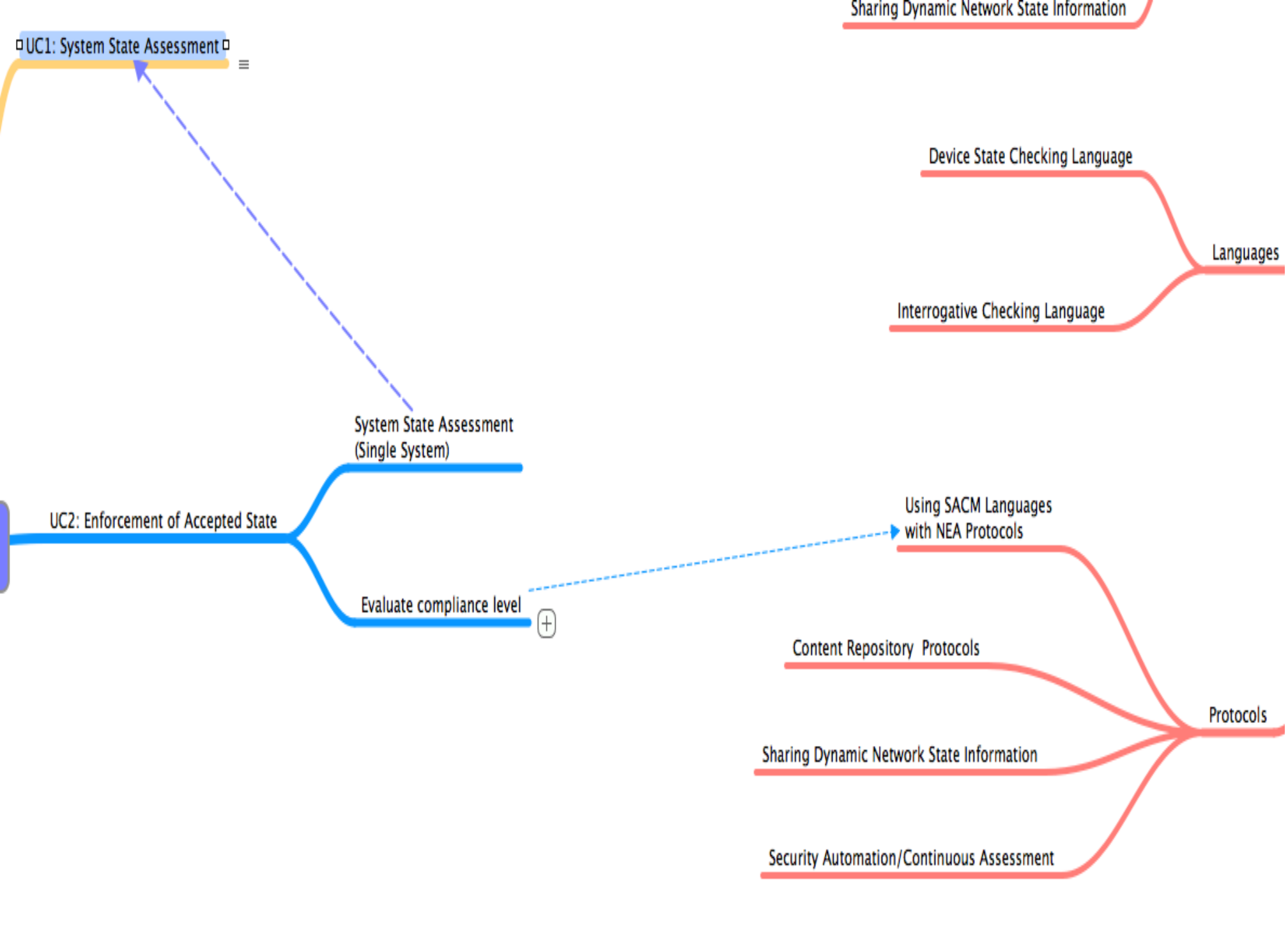
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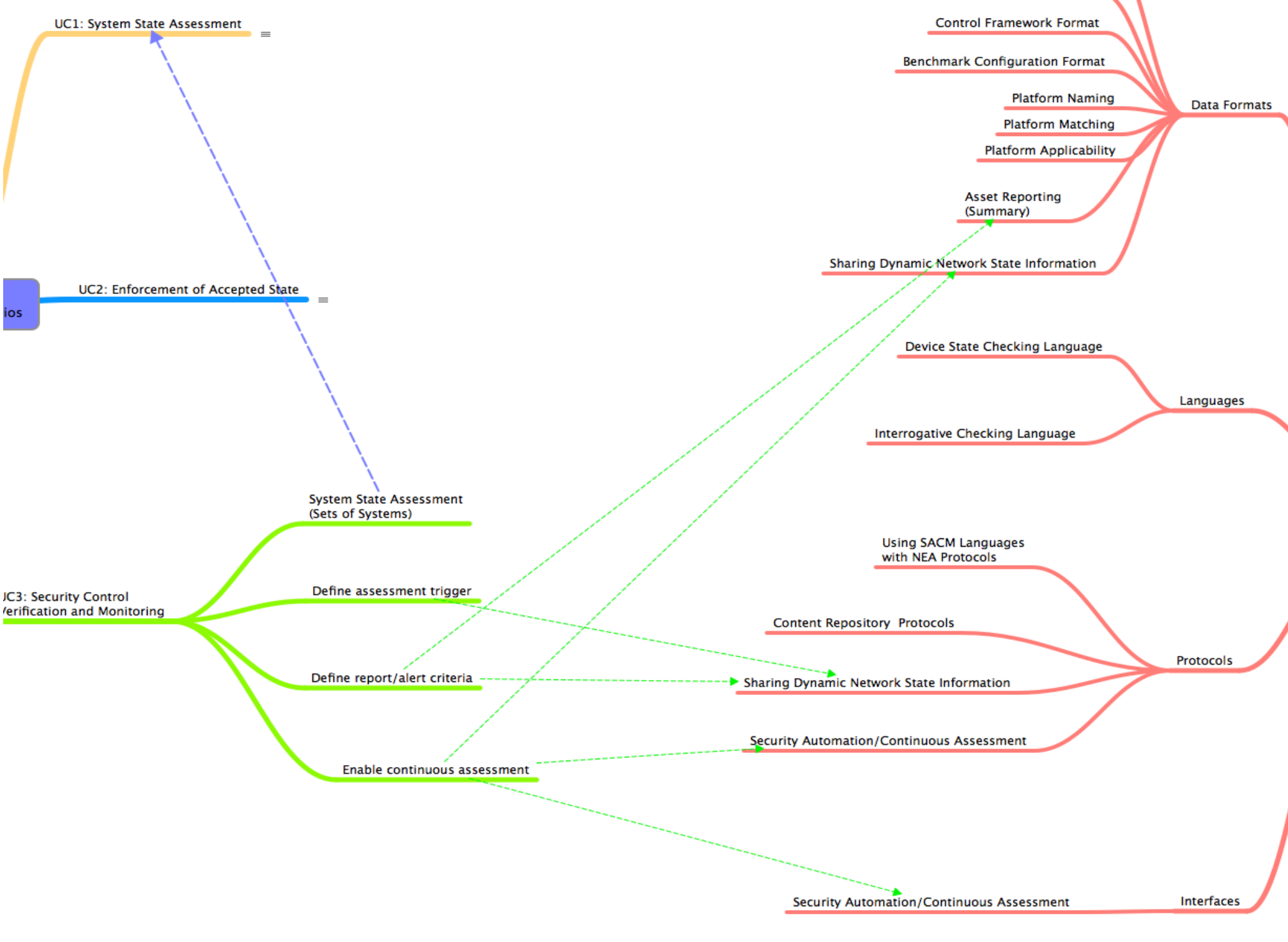
Security Automation/Continuous Assessment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