Analysing the EUCS requirements Executive Summary

François DUTHILLEUL Red Hat representative in Sylva WG03





ABOUT THIS DECK



- Sylva WG03 analysed the EUCS requirements from the ENISA EUCS draft from December 2020 [1]
- Each EUCS requirement has been analysed to check whether it was related to the Sylva software stack or not
- For each relevant requirement, one (or more) Sylva feature was (were) identified
- During the F2F meeting, we agreed to release a blog post to share the main outcome of this analysis
- This deck is trying to summarise this outcome



EXECUTIVE SUMMARY - OUTCOME BY THE NUMBERS

- 534 requirements reviewed
- 109 requirements where one or more Sylva features identified
 - 85 requirements with a single feature identified
 - 24 requirements with multiple features identified
- 61 features identified
 - 39 unique features covering the 85 requirements
 - 43 unique features covering the 24 requirements
 - 21 common features



EUCS Requirements



EUCS REQUIREMENTS

- WG03 analysed also the category 20 even if there is a note that some of the PSS requirements have been moved to other categories
- We should decide if we report our analysis for 19 or 20 categories

Foreword for Reviewers

There is an ongoing discussion on the PSS category, as some of the PSS sections have been moved to other categories:

- PSS-01 and PSS-03 have been moved to DOC;
- PSS-02 has been moved to DEV;
- PSS-05, PSS-07, PSS-08 and PSS-09 have been integrated into IAM; and
- PSS-11 has been moved to CO.

For the objectives and requirements listed below, the question remains open. The original C5 numbers have been kept for clarity



EUCS ASSURANCE LEVELS

EUCS assurance levels are described on page 82

- Requirements labelled **Basic** apply to all assurance levels
- Requirements labelled Substantial apply to levels Substantial and High
- Requirements labelled **High** only apply to level High



EUCS CATEGORIES & EUCS REQUIREMENTS PER ASSURANCE LEVEL

COUNTA of Ass. Level	Ass. Level			
Category Category Title	Basic	High	Substantial	Grand Total
A.1 ORGANISATION OF INFORMATION SECURITY	7	3	4	14
A.10 COMMUNICATION SECURITY	15	7	11	33
A.11 PORTABILITY AND INTEROPERABILITY	7	2	4	13
A.12 CHANGE AND CONFIGURATION MANAGEMENT	7	11	8	26
A.13 DEVELOPMENT OF INFORMATION SYSTEMS	11	7	13	31
A.14 PROCUREMENT MANAGEMENT	12	5	6	23
A.15 INCIDENT MANAGEMENT	15	7	9	31
A.16 BUSINESS CONTINUITY	3	1	10	14
A.17 COMPLIANCE	6	5	5	16
A.18 USER DOCUMENTATION	13	3	10	26
A.19 DEALING WITH INFORMATION REQUESTS FROM GOVERNMENT	5	1	1	7
A.2 INFORMATION SECURITY POLICIES	11	4	4	19
A.20 PRODUCT SAFETY AND SECURITY (PSS)	5	2	9	16
A.3 RISK MANAGEMENT	10	1	3	14
A.4 HUMAN RESOURCES	14	6	13	33
A.5 ASSET MANAGEMENT	10	6	7	23
A.6 PHYSICAL SECURITY	12	14	10	36
A.7 OPERATIONAL SECURITY	33	24	22	79
A.8 IDENTITY, AUTHENTICATION AND ACCESS CONTROL MANAGEMENT	19	16	32	67
A.9 CRYPTOGRAPHY AND KEY MANAGEMENT	4	3	6	13
Grand Total	219	128	187	534



Assurance Level	# Requirements	%	Cumulative Requirements	%
Basic	219	41%	219	41%
Substantial	128	24%	347	65%
High	187	35%	534	100%
Total	534	100%	N/A	N/A



Assurance Level	# Requirements	%	Cumulative Requirements	%
Basic	214	41,3%	214	41,3%
Substantial	126	24,3%	340	65.6%
High	178	34,4%	518	100%
Total	518	100%	N/A	N/A



Sylva Features identified from EUCS Analysis



EUCS REQUIREMENTS WITH AT LEAST ONE SYLVA FEATURE WAS IDENTIFIED

COUNTA of Ass. Level	Ass. Lev	rel		,
Category Category Title	В	asic Hig	h Substan	tial Grand Total
A.10 COMMUNICATION SECURITY		6 1	5	12
A.12 CHANGE AND CONFIGURATION MANAGEMENT	NT	2 3		5
A.13 DEVELOPMENT OF INFORMATION SYSTEMS		2	4	6
A.18 USER DOCUMENTATION		1	3	4
■ A.19 DEALING WITH INFORMATION REQUESTS FR	OM GOVERNMENT	1 1		2
A.20 PRODUCT SAFETY AND SECURITY (PSS)		1 1	2	4
A.5 ASSET MANAGEMENT		6 4	5	15
A.7 OPERATIONAL SECURITY		7 7	6	20
A.8 IDENTITY, AUTHENTICATION AND ACCESS C	ONTROL MANAGEMENT	8 9	18	35
A.9 CRYPTOGRAPHY AND KEY MANAGEMENT		2 3	1	6
Grand Total		36 29	44	109



EUCS REQUIREMENTS WITH MULTIPLE SYLVA FEATURES IDENTIFIED

COUNTA	of Multiple features identified	Ass. Level			
Category	Category Title	Basic	High	Substantial	Grand Total
A .1	ORGANISATION OF INFORMATION SECURITY	0	0	0	0
A .10	COMMUNICATION SECURITY	1	1	1	3
A .11	PORTABILITY AND INTEROPERABILITY	0	0	0	0
A .12	CHANGE AND CONFIGURATION MANAGEMENT	0	1	0	1
A .13	DEVELOPMENT OF INFORMATION SYSTEMS	1	0	1	2
A .14	PROCUREMENT MANAGEMENT	0	0	0	0
A .15	INCIDENT MANAGEMENT	0	0	0	0
A .16	BUSINESS CONTINUITY	0	0	0	0
A .17	COMPLIANCE	0	0	0	0
A .18	USER DOCUMENTATION	1	0	0	1
A .19	DEALING WITH INFORMATION REQUESTS FROM GOVERNMENT	0	0	0	0
A.2	INFORMATION SECURITY POLICIES	0	0	0	0
A.20	PRODUCT SAFETY AND SECURITY (PSS)	1	0	1	2
A .3	RISK MANAGEMENT	0	0	0	0
A.4	HUMAN RESOURCES	0	0	0	0
A .5	ASSET MANAGEMENT	1	1	0	2
A .6	PHYSICAL SECURITY	0	0	0	0
A .7	OPERATIONAL SECURITY	1	1	1	3
A .8	IDENTITY, AUTHENTICATION AND ACCESS CONTROL MANAGEMENT	2	3	3	8
A .9	CRYPTOGRAPHY AND KEY MANAGEMENT	0	1	1	2
Grand To	otal	8	8	8	24



EXECUTIVE SUMMARY - IDENTIFIED FEATURES

Feature Category	Feature Category Description	Amount of features identified	Amount of requirements covered by these features
<u>AM</u>	Asset Management	5	13
CKM	Cryptography and Key Management	9	16
DOC	Documentation	1	2
GEN	Generic?	1	2
<u>IAM</u>	Identity and Access Management	13	47
<u>OPS</u>	Operational Security	30	73
SEG	Segregation	1	1
SIEM	Security Information and Event Management	1	3
	Total	61	157



AM - ASSET MANAGEMENT FEATURES

Feature Category	Identified Features	Feature Description	Ref
AM	SYLVA-REQ-AM-01	Sylva stack inventory capability	AM-01.6
			CS-01.4
			CS-03.5
			DEV-03.4
			DEV-06.1
	SYLVA-REQ-AM-02	Sylva underlying inventory capability	AM-01.1
			CS-01.4
	SYLVA-REQ-AM-03	Inventory policies	AM-01.1
			AM-01.2
			AM-01.3
	SYLVA-REQ-AM-04	Sylva HW security recommandations	AM-03.3
	SYLVA-REQ-AM-05	Sylva HW compatibility matrix	AM-03.2
			DEV-02.1



CKM - CRYPTO & KEY MANAGEMENT FEATURES

Feature Category	Identified Features	Feature Description	Ref
CKM	SYLVA-REQ-CKM-1	Cryptographic algorithms	CKM-01.3
	SYLVA-REQ-CKM-2	Protocol usages	CKM-01.3
	SYLVA-REQ-CKM-3	CSP Key storage	CKM-04.3
	SYLVA-REQ-CKM-4	Key management (creation, renewal, revocation)	CKM-04.1
	SYLVA-REQ-CKM-5	CSP Volume / disk encryption	AM-01.1
			CKM-03.1
	SYLVA-REQ-CKM-6	Tenant and public network interfaces protection	CCM-06.2
			CKM-02.2
			CS-05.2
	SYLVA-REQ-CKM-7	CSP internal interfaces protection	AM-01.1
			CCM-06.2
			CKM-02.2
	SYLVA-REQ-CKM-8	CSC Data Storage encryption	AM-01.1
			CCM-06.2
			CKM-03.4
	SYLVA-REQ-CKM-9	CSC Key storage isolation	CCM-06.2



DOC - DOCUMENTATION FEATURES

Feature Category	Identified Features	Feature Description	Ref
DOC	SYLVA-REQ-DOC-01	Release notes	AM-01.4 CS-03.4



GEN - GENERIC (?) FEATURES

Feature Category	Identified Features	Feature Description	Ref
GEN	SYLVA-REQ-GEN-1	CAPACITY MANAGEMENT – CONTROLLING OF RESOURCES	CS-01.1
			OPS-03.1



IAM - IDENTITY & ACCESS MANAGEMENT FEATURES

eature Category	Identified Features	Feature Description	Ref
IAM	SYLVA-REQ-IAM-1	Identifier and credential management	IAM-07.1
			IAM-07.5
			IAM-07.7
	SYLVA-REQ-IAM-10	all authorisations / accesses should rely on an centralized access controler (e.g. FreeIPA, Keycloak)	IAM-02.8
			IAM-03.1
			IAM-03.10
			IAM-03.2
			IAM-03.3
			IAM-03.4
		IAM-03.9	
			IAM-04.3
			IAM-04.6
		IAM-04.7	
		IAM-05.4	
			IAM-06.6
			IAM-06.7
			IAM-06.8
		IAM-08.6	
		IAM-08.7	
		IAM-08.8	
		IAM-09.3	
	SYLVA-REQ-IAM-11	Sylva should provide a set of rules for IAM-specific detections, in order to be used in a SIEM	IAM-03.12
 SYLVA-REQ-IAM-12 Sylva should provide a first set of rules for a SIEM (as a reference set - that can be used for the choice of a SIEM (CSP) SYLVA-REQ-IAM-13 All Sylva components should support strong authentication mechanism (by themselves or relying on third party 	Sylva should provide a first set of rules for a SIEM (as a reference set - that can be used for the choice of a SIEM by the	CS-01.3	
	 All Sylva components should support strong authentication mechanism (by themselves or relying on third party mechanism - e.g. centralized) 	IAM-07.2	
			IAM-07.3
			IAM-07.4
			IAM-07.8
	SYLVA-REQ-IAM-14	Controlled usage of generic/shared accounts	IAM-07.6
	SYLVA-REQ-IAM-15	Password storage	IAM-08.4
			IAM-08.5
	SYLVA-REQ-IAM-2	RBAC (Role Based Access Control) & ABAC (Attribute Based Access Control) modeling and tooling	CCM-05.1
			CCM-05.2
			CCM-05.3
			IAM-01.1
			IAM-06.1
			IAM-07.2
			IAM-07.3
			IAM-07.4
			INQ-03.2
	SYLVA-REQ-IAM-4	Appropriate interfaces to define the workflow of role/rights/ atribution for people/robots should be provided (APIs ?)	IAM-01.1
			IAM-02.7
			IAM-04.7
	SYLVA-REQ-IAM-5	Compatibility with a usage by the CSP (Cloud Service Provider) OR the CSC (Cloud service Customer), with decorrelation and role separation	IAM-02.7
			IAM-09.3
	SYLVA-REQ-IAM-6	High automation of most of the IAM daily security operations	IAM-03.1
	SYLVA-REQ-IAM-7	High customization of right management	IAM-02.7
	SYLVA-REQ-IAM-9	Enrichment to Free IPA and/or development of IAM add on to monitor IAM logs and run automatic reaction	IAM-03.11



OPS - OPERATIONAL SECURITY FEATURES

Feature Category	Identified Features	Feature Description	Ref
OPS	SYLVA-REQ-OPS-1	Capacity & Usage Metrics	OPS-02.2
			OPS-02.3
	SYLVA-REQ-OPS-10	Git repository security	CCM-06.2
			CCM-06.3
	SYLVA-REQ-OPS-11	Persistent volumes Backup security	CCM-06.2
	SYLVA-REQ-OPS-14	Log encryption	CS-03.6
			PSS-01.3
	SYLVA-REQ-OPS-15	Log access	PSS-01.1
			PSS-01.3
	SYLVA-REQ-OPS-16	Log interface CSP/CSC	CS-01.3
			PSS-01.1
			PSS-01.2
	SYLVA-REQ-OPS-17	Log storage management	CS-01.3
	SYLVA-REQ-OPS-18	Log sending to SIEM	CS-01.3
	SYLVA-REQ-OPS-19	Log centralization inside Sylva architecture	PSS-01.1
	SYLVA-REQ-OPS-2	Anti Malware Technical Measures	CS-01.1
			OPS-04.1
			OPS-04.2
			OPS-04.3
			OPS-04.4
			OPS-05.1
			OPS-05.2
			OPS-05.3
	SYLVA-REQ-OPS-21	Vulnerability Management Process	DEV-06.5
			DOC-02.1
			OPS-17.2
			OPS-17.3
			OPS-17.4
	SYLVA-REQ-OPS-23	Vulnerability detection	DEV-02.1
			DEV-02.3
	SYLVA-REQ-OPS-25	Check Software Signatures	PSS-04.3

SYL	VA-REQ-OPS-29		Secure delivery	AM-01.1
SYL	VA-REQ-OPS-3		Back Up Existence	OPS-06.1
				OPS-06.2
	VA-REQ-OPS-33	_	Configuration changes	AM-01.5
SYL	VA-REQ-OPS-34 (???)	-		AM-01.5
SYL	VA-REQ-OPS-35	-	Security feature list	AM-02.1
SYL	VA-REQ-OPS-36		Removable media logs	AM-02.3
SYL	VA-REQ-OPS-37	-	Sylva blueprint	AM-05.1
				AM-05.2
				AM-05.3
				CS-07.1
				CS-07.2
				CS-07.3
				DEV-02.2
SYL	VA-REQ-OPS-38		Sylva resources control	CS-01.1
SYL	VA-REQ-OPS-39		Segmentation & Network policies	CS-03.2
SYL	VA-REQ-OPS-4	-	Back Up Export / Access	OPS-06.1
				OPS-06.2
				OPS-07.1
SYL	VA-REQ-OPS-42		Permanent deletion of Cluster Data	AM-03.5
SYL	VA-REQ-OPS-43		Sylva should allow Identity user check from external referential	AM-04.3
				IAM-02.1
SYL	VA-REQ-OPS-44		Sylva Vulnerability Registry	DEV-06.5
				DOC-02.1
				DOC-02.3
				DOC-02.4
				DOC-02.5
SYL	VA-REQ-OPS-5		Back up of user management system (out of Sylva)	OPS-06.1
				OPS-06.2
				OPS-07.3
SYL	VA-REQ-OPS-6		Back up of CaaS layer (management cluster)	OPS-06.1
				OPS-06.2
				OPS-07.3
- SYL	VA-REQ-OPS-7		Back up of Customer Applications without persistent data	OPS-06.1
				OPS-06.2
				OPS-07.3
				OPS-08.1
SYL	VA-REQ-OPS-8		Back up of Customer Applications with persistent data	OPS-06.1
				OPS-06.2
				OPS-07.2
				OPS-07.3
				OPS-08.2



SEG - SEGREGATION FEATURES

Feature Category	Identified Features	Feature Description	Ref
SEG	SYLVA-REQ-SEG-01	Network seggregation policies	CS-06.1



SIEM - SECURITY INFORMATION AND EVENT MANAGEMENT FEATURES

Feature Category	Identified Features	Feature Description	Ref
SIEM	SYLVA-REQ-SIEM-2	Log the activity of all users	CS-01.3
			IAM-06.2
			INQ-03.4



FEEDBACK RELATED TO FEATURE ANALYSIS

- Not consistent feature naming e.g. -01 and -1
- Some features are not found or mapped to a requirement

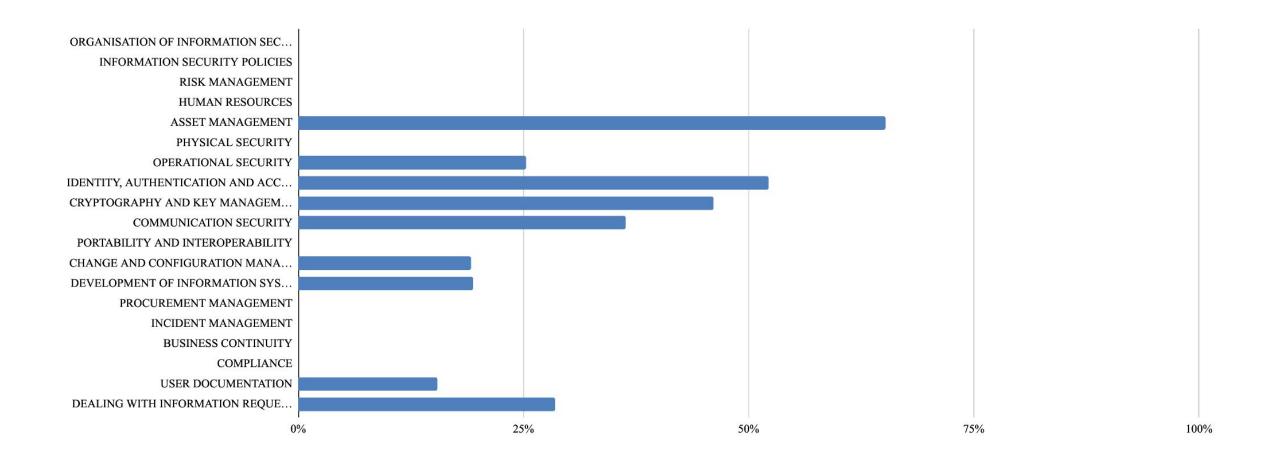


SOME FEATURES ARE NOT FOUND OR MAPPED TO ANY EUCS REQUIREMENT

A	В	In .	In	F	G	H H			
ID Feature SYLVA-REO-IAM-3	Main domain	Feature	Description	Implemented in versi	Technical solution proposed Examples of tools : NetBox	Requirement EUCS associ(-T	Comment Dependency Track is a tool to list components and manage their		
31LVA-KLQ-IABI-3	Identity Access Management	Management of ressource catalog	List of assets on which applicative/technical roles are implemented for the project	Implementation of NetBox is ongoing Not done yet (target > V0.3)	Automated SBOM & HBOM This is an enabler for access management The enrollment of new servers/apps/NF/others should	no tound,	dependency rack is a too to be evaluated in the future 20250203: Not a feature linked to EUCS		
SYLVA-REQ-IAM-8					be automated in Free IPA				
STLVA-REQ-IAM-8	Identity Access Management	The Sylva components must send IAM logs to SIEM, with sufficient level of environmental details (who, when, how, which IP, etc)	There must be a way to send the logs to a SIEM matching its requirements (sysleg could be an example). The logs must be cyphered and must respect the principles of integrity & confidentiality. The logs must also be continous available for the SIEM. The activity of sensitive accounts (high privilege / non personal / generic) should be particularly highlighted.	To be done target > V0.3	TBD	not found;			
SYLVA-REQ-OPS-9	OPERATIONAL SECURITY	Recovery procedure	Recovery procedures should be analyzed/tested for the following use cases: - complete lost of the management cluster - lost of one mater node - lost of a workload cluster - lost of a workload cluster - lost of a workload cluster - lost of the storage node Sylva should be able to adress Recovery Time Objective (RTO) and Recovery Point Objective (RPO) adapted to Teloo objectives (eg: rebuild an entire network in X minutes) Syvla should provide the capability to run automatic regular backups.	Not before V0.3		not found;			NOT FOUND
SYLVA-REQ-OPS-12	OPERATIONAL SECURITY	Artefacts Registry backup (Images, Helm Charts,)	The artefact registry is key to rebuild the infrastructure. It should be therefore backed up. Protection Integrity, Confidentiality, .	Not before V0.3		not found;			
SYLVA-REO-OPS-13	OPERATIONAL SECURITY	Log retention time	The log retention period should be customizable, depending on the log source.	Not before V0.3		not found;			
SYLVA-REQ-OPS-20		Facilitate forensic analysis	The log retention period settings should be in compliance with the law Sylva should be able to provide access to the logs and backups in case of forensic analysis on a CSC.	Not before V0.3		not found:			
SYLVA-REQ-OPS-24	OPERATIONAL SECURITY	CSC Log Privacy	The CSC logs should not be accessible by the CSP	Not before V0.3		not found;			
SYLVA-REQ-OPS-26	OPERATIONAL SECURITY	Validate and sign the images				not found; not found;			
SYLVA-REQ-OPS-27	OPERATIONAL SECURITY	EDR Capability	EDR (Endpoint Detection and Responses) solution must be deployed on worker nodes that having the following capabilities: -real time continuous monitoring -collection of endpoint data with configurable rules-based response -analysis calaphilities to identify thempt parters -automatically respond to identified threabs and perform actions such as removing or containing them -notify security presend of the identified threats			not round,			
	CHANGE AND CONFIGURATION	Version control		Sylva v.0.1					
SYLVA-REQ-CCM-01 SYLVA-REQ-SD-01	MANAGEMENT SECURE DEVELOPMENT	Development policies	Sylva versioning together with rollback capabilities, upgrade of components will be managed automatically whever possible Sylva must implement CLA (Contributor License Agreement), Contributor License Agreement, artifacts signature, generate SBOM,						
SILVAREQSD-01	ENVIRONMENT	Development porters	Sylva must implicate CLP (Controller Lecture Agreement, Controller Lecture Agreement, annuals injuriately general SDOW, pre-commit hook (git), litters, SAST / DAST or LI, (littlesk, code review with "core reviewers", multiple validation before merge, dependency upgrade using renovate, SLSA framework (on going https://slsa.dev/) Suggestion when we finish check https://enterprisecontract.dev/ Feature descriptions, lest descriptions (input/output) Code coverage by tests						
SYLVA-REQ-SD-01	SECURE DEVELOPMENT	Secure testing							
SYLVA-REQ-SD-01	ENVIRONMENT SECURE DEVELOPMENT	License documentation	Sylva's automated test shall be secured enough to run non-regression and regression testing, security testing						
	ENVIRONMENT		Sylva should define the usage of licenses is used. The list should be tied to the sBOM in order to understand what is the license use	rd					
SYLVA-REQ-SD-01	SECURE DEVELOPMENT ENVIRONMENT	ALL						_	NOT MAPPED
SYLVA-REQ-SD-01	SECURE DEVELOPMENT ENVIRONMENT	SLSA framework compliancy	When all security features from SYLVA contributes to meet the requirement. Follow the SLSA framework (SBOM, intoto attestation, image signing and verification, commit tracability, renovate usage, SAST, DAST, per review. CE. NIST SP 800-204D		SLSA compliancy check : https://enterprisecontract.dev/	′			1101 11/1/11 120
SYLVA-REQ-DOC-02	DOCUMENTATION	User/security guide documentation	Sylva shall provide in its documentation portal documentation for: -secure configuration, -installation, -deployment, -operation and maintenance - CNF/application installation on top of the infrastructure - Information sources on known vulnerabilities and update mechanisms; -Internation sources on known vulnerabilities and update mechanisms; -Authentication mechanisms; -Authentication mechanisms; -Services and functions for administration of the cloud service by privileged users, and Complementary Customer Controls (CCCs).						
SYLVA-REO-DOC-03	DOCUMENTATION	transparent update of cluster components	Sylva should offer mechanism to apply update in a transparent maner for the workload clusters. The trigger of doing the updates						
SYLVA-REQ-PSS-01	PRODUCT SAFETY AND	Session Management	needs to be done by the CSP Active sessions should secure regarding confidentialy, integrity and availability of the session.						
	SECURITY		Strong authentification mechanism (recommended cryptographic, MFA) should be implemented before a session is opened.						
			Configurable timeout mechanisms should be implemented for sessions without any activity.						
			Session management server should be configured following best security pratices (alarming, logging)						
SYLVA-REQ-PSS-02	PRODUCT SAFETY AND SECURITY	Session usage	Sylva should refuse weak sessions (i.e. telnet, rsh, rloging, rcp, ftp) and accept only strong secure sessions (i.e. ssh, scp, tls)						
	IMAGES FOR VIRTUAL	Image usage restriction							Red Hat

19 CATEGORIES

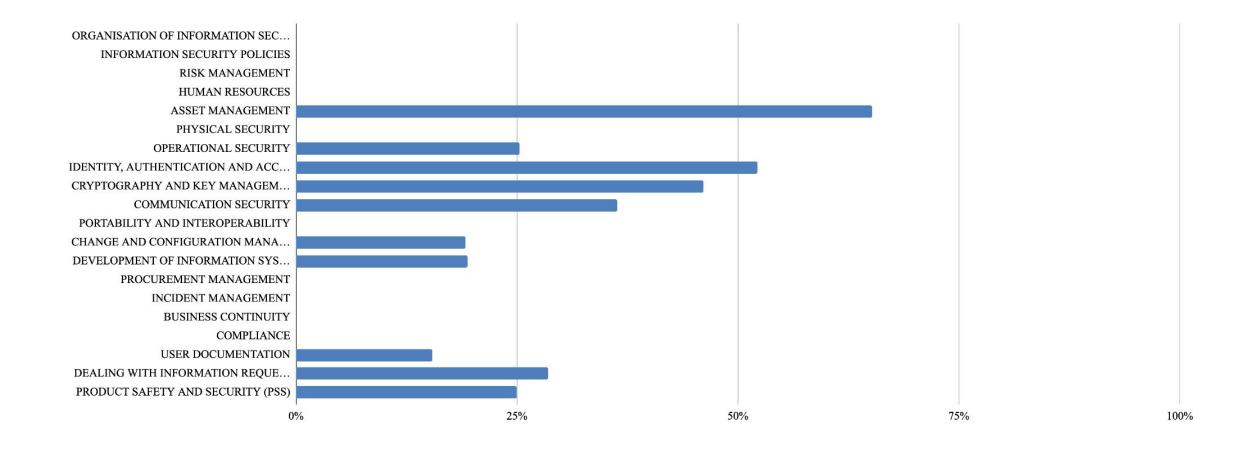
Percentage of requirements per category for which <u>at least one</u> Sylva feature has been identified





20 CATEGORIES

Percentage of requirements per category for which <u>at least one</u> Sylva feature has been identified





Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.

- in linkedin.com/company/red-hat
- youtube.com/user/RedHatVideos
- facebook.com/redhatinc
- twitter.com/RedHat

