



oscal-compass

OSCAL-COMPASS
Open Security Control Assessment Language
Compliance Automated Standard Solution

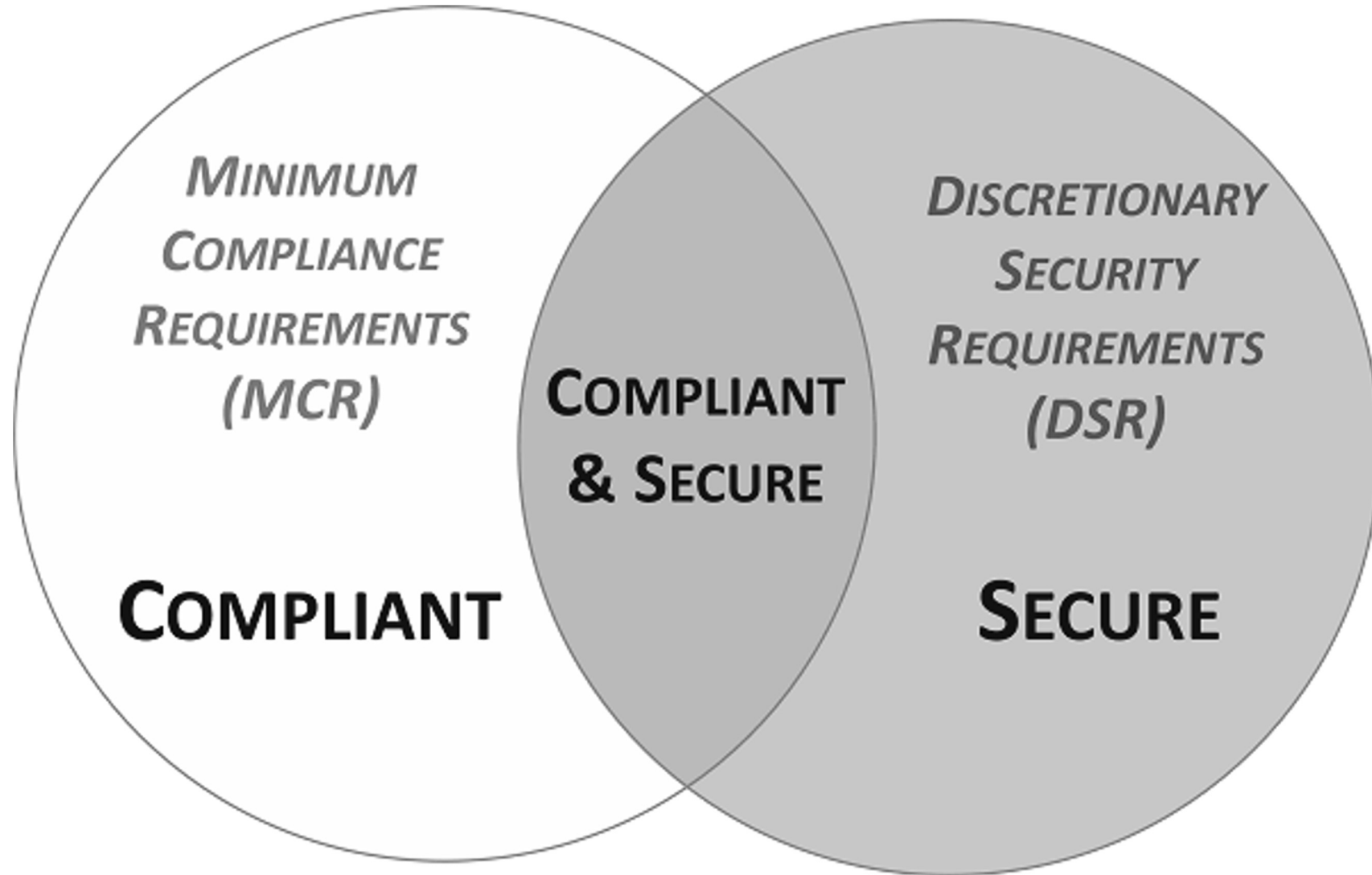
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NIST OSCAL Mini-Workshop July 2024

Agenda

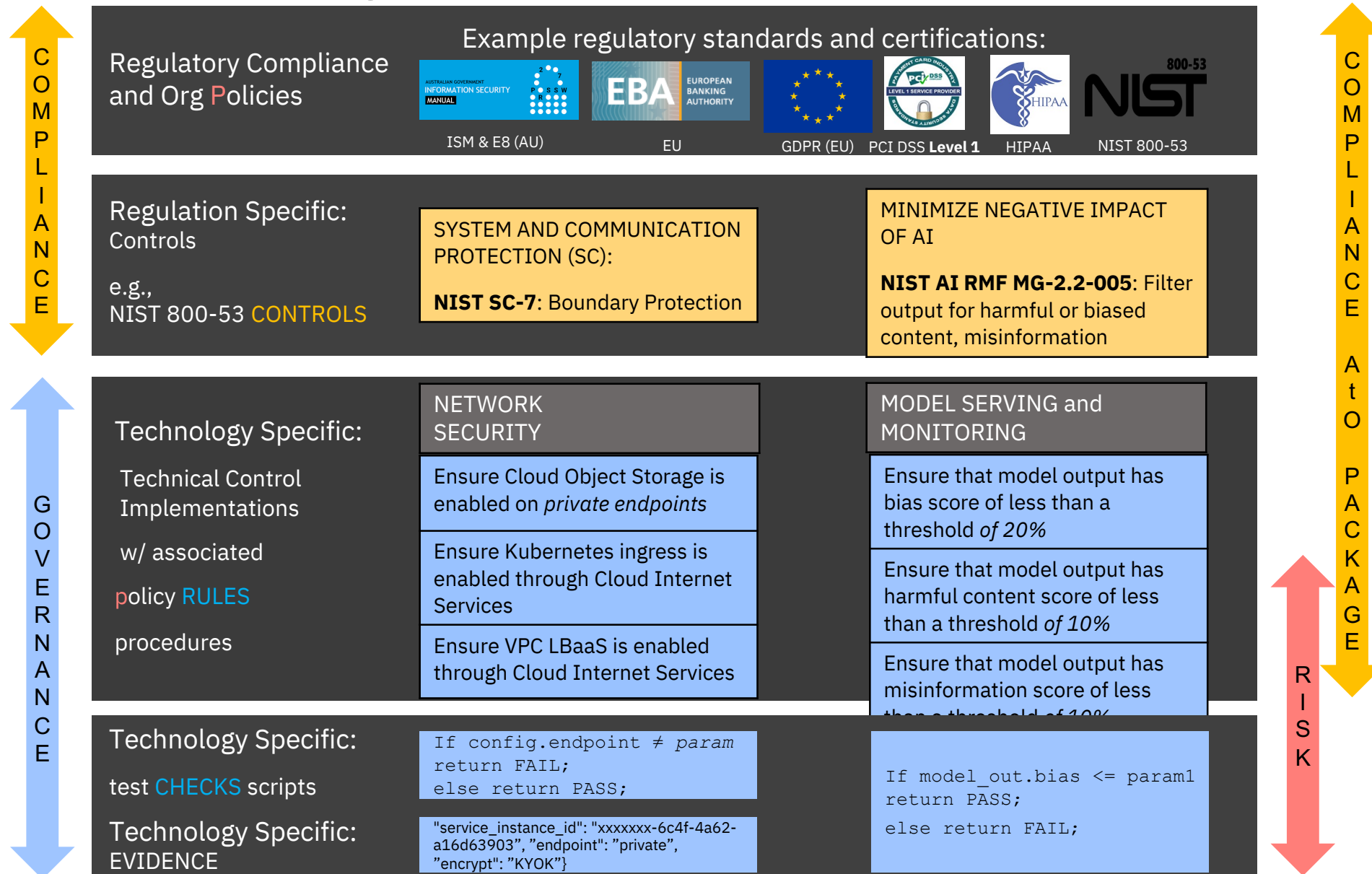
- Compliance v/s Security
- Compliance artifacts
- Personas in compliance governance and lifecycle
- OSCAL-COMPASS projects overview
 - Compliance Trestle
 - Compliance Agile Authoring
 - Compliance to Policy

Compliance v/s Security



Compliance Artifacts and their Representation as code

Regulatory compliance and Org Policy controls are implemented as rules (technical, operational, financial, data, or AI) and tested via rule engines or checks based on evidence



Compliance Governance, Lifecycle, Personas

A **Regulators** define:
 - regulations, standards, laws, catalogs
 PCI, SOC2, NIST 800-53, FedRAMP, HIPAA
 CIS benchmarks: IBM Cloud, OCP, Kube
 - crosswalks mappings between regulations' controls

E **System Owners** select services & products, deploy apps, are responsible to ensure their compliance, define policy **assessment plans** and set compliance monitoring scans

F **Compliance Officers, Auditors, System Operators** examine the policy **assessment results** and apply remediations or deviations

Compliance Team select and tailor **control profiles (aka baselines)** to describe the compliance intent of their regulated organizations and environments

B **Organization Profiles, Organization Crosswalks**

C **Component Definitions, POAM Reference (Products, Svcs, Processes)**

CISO-CTO Process Providers or Products & Services Providers define policies & procedures & POAM, and declare the controls implemented by their **components** (sw, hw, processes) through mapping to **policy rules (technical, operational, financial)**

D **Component Definitions (Policy Validation or Enforcement Points) & Assessment Plans**

Policy Validators or Control Assessors declare the **policy checks** assessing in their policy validation or enforcement engines the policy rules declared by the Controls Providers or Owners; use the pre-defined **evidence data model**

Catalogs, Crosswalks, Predefined Profiles

Compliance Agile Authoring
 Key Features
 OSCAL artifact edit
 GitOps workflows

EPO
 Consume

Environment & Apps Compliance Scope & Scans

Compliance2Policy (C2P), Exchange Protocol
 Key Features
 OSCAL based API
 Trestle SDK based normalization plug-in

[policy profile desired state & inventory scope]

C2P EP1

C2P EP2

Results & Inventory update

Results

Governance Team evaluate the controls performance, precision, and coverage

Governance, Risk, Compliance (GRC) Center
 Key Features
 Policies, Risk, POAM
 Deviations, Exceptions

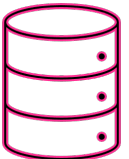
C2P EP3

Business Owners and Risk Managers set context, assess, respond and monitor risk using the **Plan of Actions and Milestones**

policy Validation - Enforcement Points (PVPs - PEPs) w/ declarative & imperative policies

Ansible, Terraform OPA, ArgoCD DAY 1: CICD, apps, data, AI pipeline	Ansible, Auditree, Eriectree, OPA DAY 2: IaaS/PaaS/SaaS, apps, data, FS ops, AI	CEL, OPA Gatekeeper, Kyverno, OSCO (Kubernetes Policies)
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Evidence Data Model or Templates Spec	Evidence Actual State	
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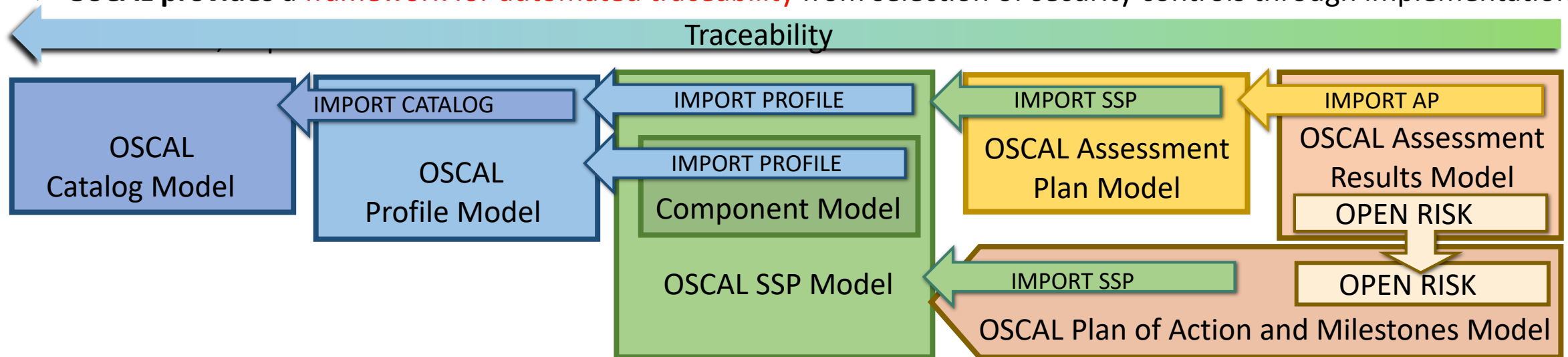


What is OSCAL?

Credit: NIST

OSCAL is the result of NIST and FedRAMP collaboration

- **OSCAL provides a common machine-readable language**, expressed in XML, JSON and YAML for:
 - ❑ multiple compliance and risk management frameworks (e.g., SP NIST 800-53, ISO/IEC 27001&2, COBIT 5)
 - ❑ software and service providers to express implementation guidance against security controls (Component definition)
 - ❑ system owners to share how security controls are implemented in an actual environment (System Security Plans [SSPs])
 - ❑ sharing security assessment plans (System Assessment Plans [SAPs])
 - ❑ sharing security assessment results/reports (System Assessment Results [SARs])
 - ❑ sharing plans of actions for remediations and mitigation
- **OSCAL provides a framework for automated traceability** from selection of security controls through implementation and



OSCAL, Trestle, Agile Authoring, Compliance-to-Policy

<https://pages.nist.gov/OSCAL/>

<https://github.com/oscal-compass>

<https://github.com/oscal-compass/compliance-trestle>

<https://oscal-compass.github.io/compliance-trestle/>



OSCAL is a NIST framework & language for managing compliance artifacts as code end-to-end

From selection of security controls through implementation and assessment

To plans of actions for remediations and mitigation



TRESTLE is an opinionated implementation of the OSCAL standard

Allows editing and manipulation of OSCAL documents while making sure the schemas are enforced

Provides an SDK



AGILE AUTHORIZING is a collaborative platform enabling various compliance personas to orchestrate their individual aspects of the compliance artifacts via an interface of their choice

Trestle-based GitOps automated workflow
Ensures artifacts consistency and traceability



COMPLIANCE_TO_POLICY is a GitOps extension as a pluggable bridge to normalize the policy administration in the policy validation tools

Bridge between compliance-as-code and policy-as-code

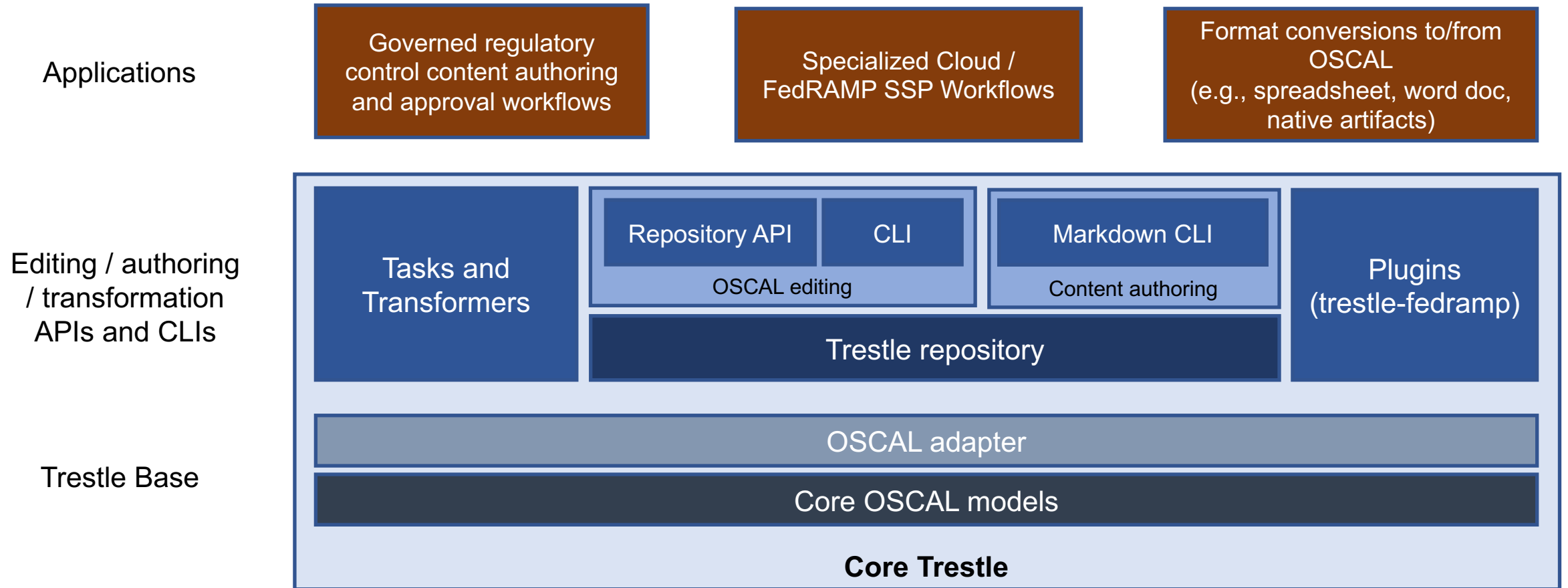
Trestle: An open-source OSCAL SDK



Trestle is an ensemble of tools that enables the creation, validation, and governance of documentation artifacts for compliance needs.

- Git repository as a single source of truth for managing compliance artifacts, change history and approvals.
- JSON format for representing OSCAL data and Python as the programming language for easy scripting and enforcing the schema.
- Command line interface instead of GUI to expose its functionality for easy integration with CI/CD tools.
- Markdown format for human users for easy reading and editing of structured documents with seamless conversion to OSCAL JSON and vice-versa.

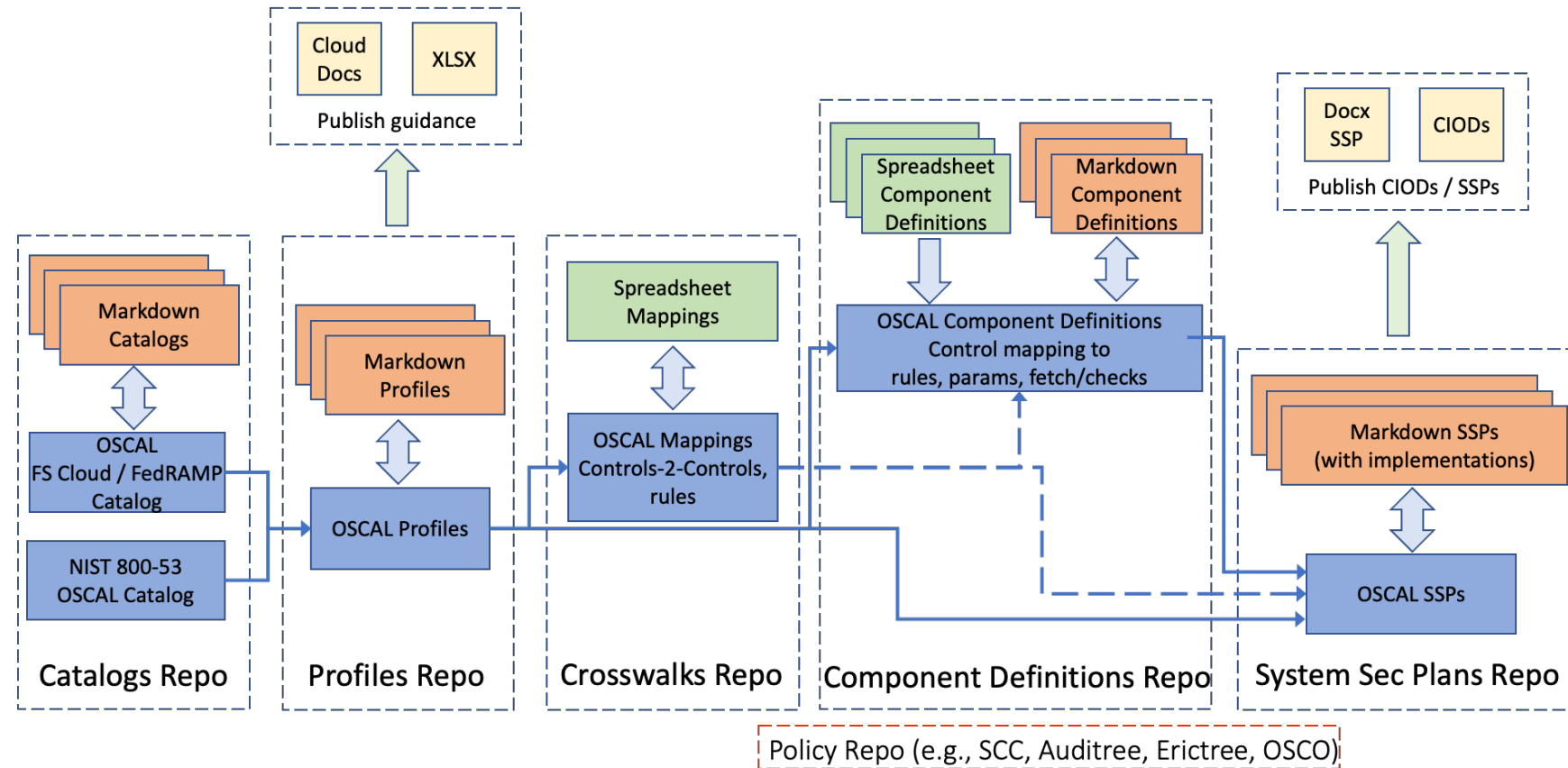
Trestle Architecture



Agile Authoring: Collaborative Authoring Platform



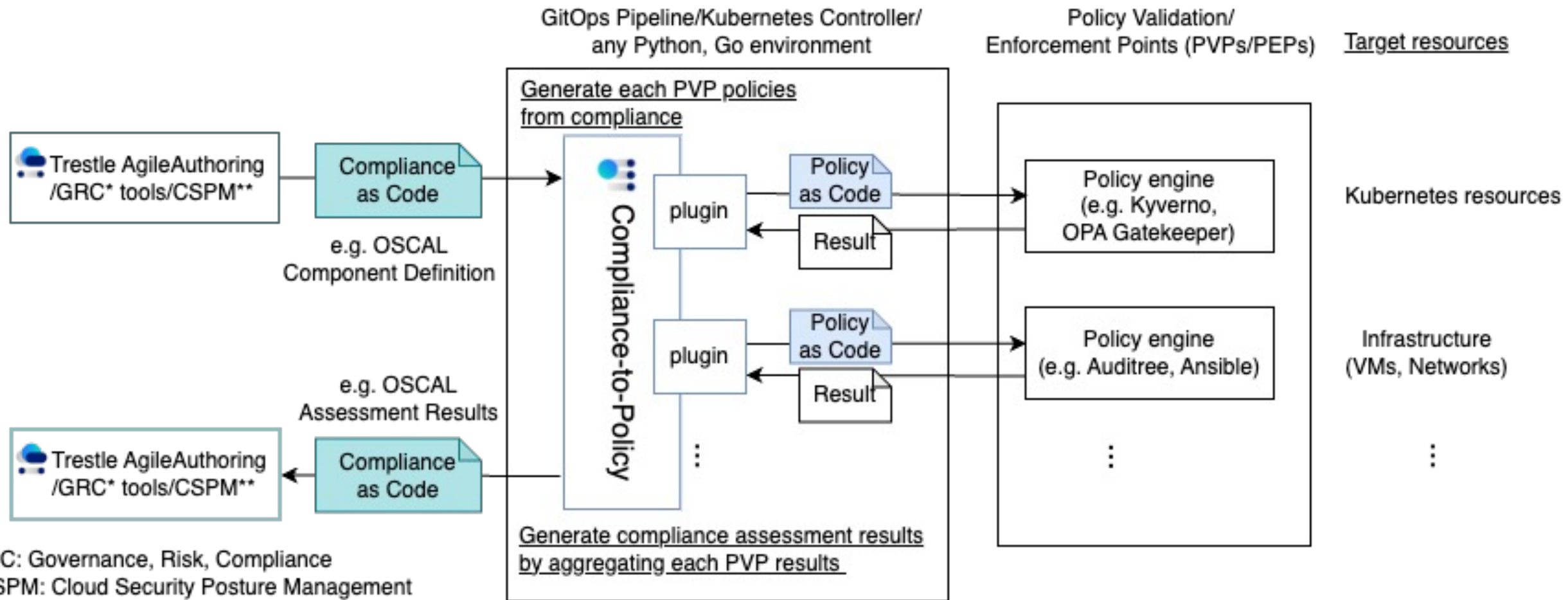
- Human friendly authoring /editing of compliance content
- Structured and auditable workflow
- Trigger automatic validation, updates, and deployments
- Collaborative editing and review process through code review and approval process
- Automatic semantic release management



Compliance-to-Policy (C2P) and plugin architecture



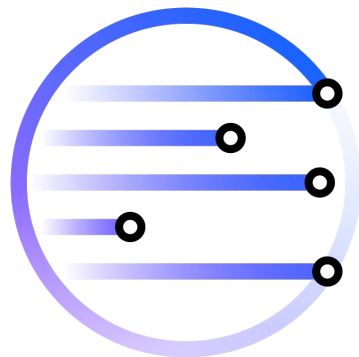
Flexibility in choice of policy engines and compliance framework
Community-driven plugin extension



OSCAL Compass Community

Where To Start

- Our community [README.md](#)
- Our biweekly [community calls](#)



Decision Making

We strive for a consensus-based approach to encourage open discussion and collaboration on most project decisions.

We use a voting based approach when necessary or if consensus cannot be reached or in special circumstances.

Leadership

We have an Oversight Committee made up of maintainers across the projects and project representatives. Learn more at [GOVERNANCE.md](#).

Contribution

We welcome contributions from everyone! Whether you're a seasoned developer or just starting out, we value your input. Learn more at [CONTRIBUTING.md](#).

Keep up with Compass and Trestle

- Community calls
 - OSCAL Compass community calls - <https://docs.google.com/document/d/1XTYM7xnWllqd-8Nn5-qtgvgk8kH3NSmYle5yZvaS7qs/edit#heading=h.6pq38r2red0n>
- Github organization
 - oscal-compass - <https://github.com/oscal-compass>
- Blogs
 - [Personas and Roles](#)
 - [Trestle SDK](#)
 - [Artifacts and Personas](#)
 - [Topologies of Compliance Policy Administration Centers](#)
 - [A Lack of Network Boundaries Invites a Lack of Compliance](#)
 - [Compliance to Policy for Multiple Kubernetes Clusters](#)

