Verifiable Credentials HTTP API

Enabling automated Verifiable Credential Workflows

In this session, we will discuss:

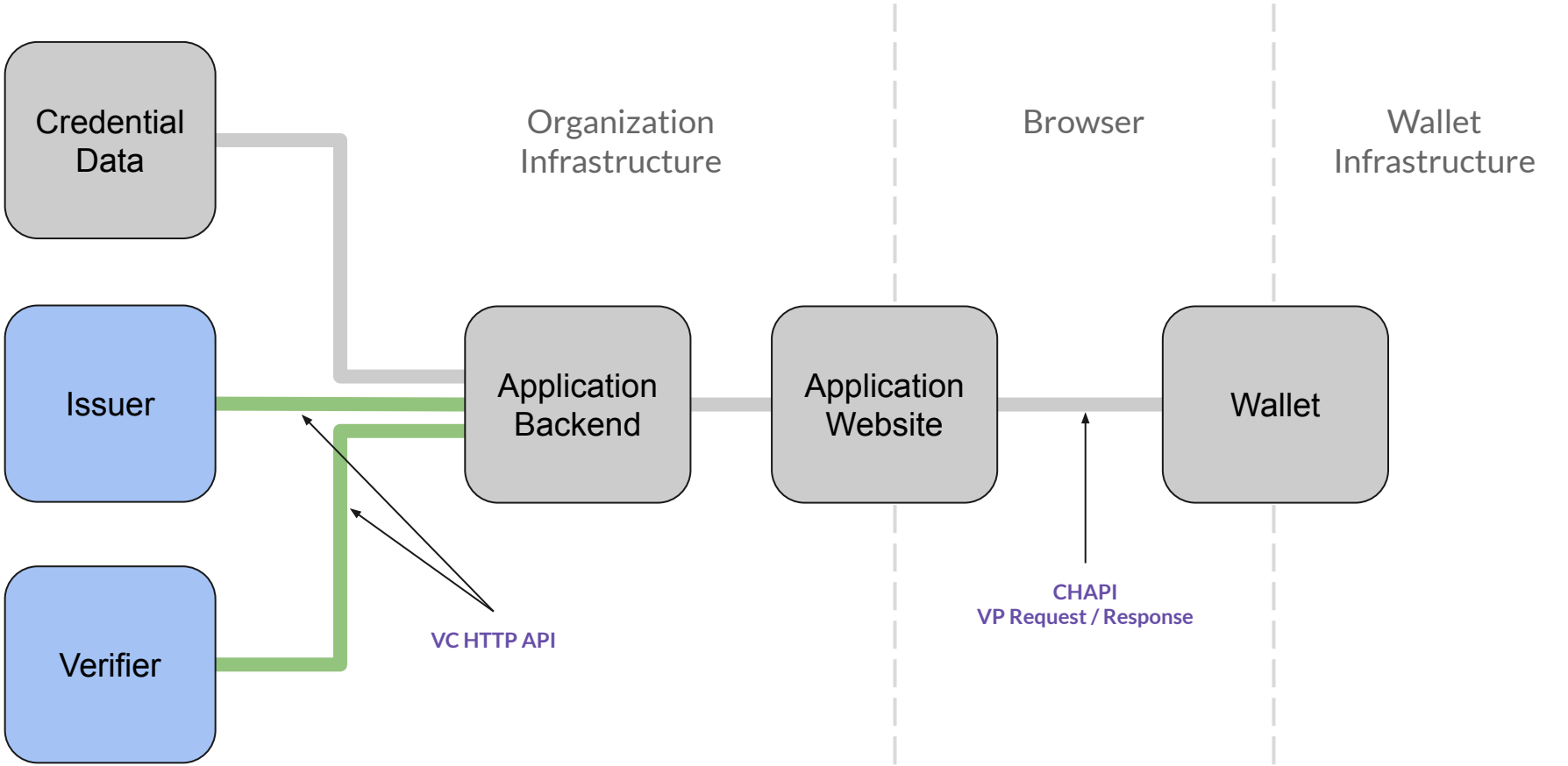
- Problem Statement for VC HTTP API
- Origin of the VC HTTP API
- Implementations of VC HTTP API
- Use Cases and Current Challenges
- Next Steps

VC HTTP API Problem Statement

Provide an HTTP API to issue and verify data used in the Verifiable Credentials Ecosystem for use by servers and clients.

Examples of data include: Verifiable Credentials, Verifiable Presentations, Derived Credentials

Architecture Example using VC HTTP API



The Origin of the VC HTTP API

dhs-silicon-valley@hq.dhs.gov

DHS Science & Technology Directorate

SILICON VALLEY INNOVATION PROGRAM

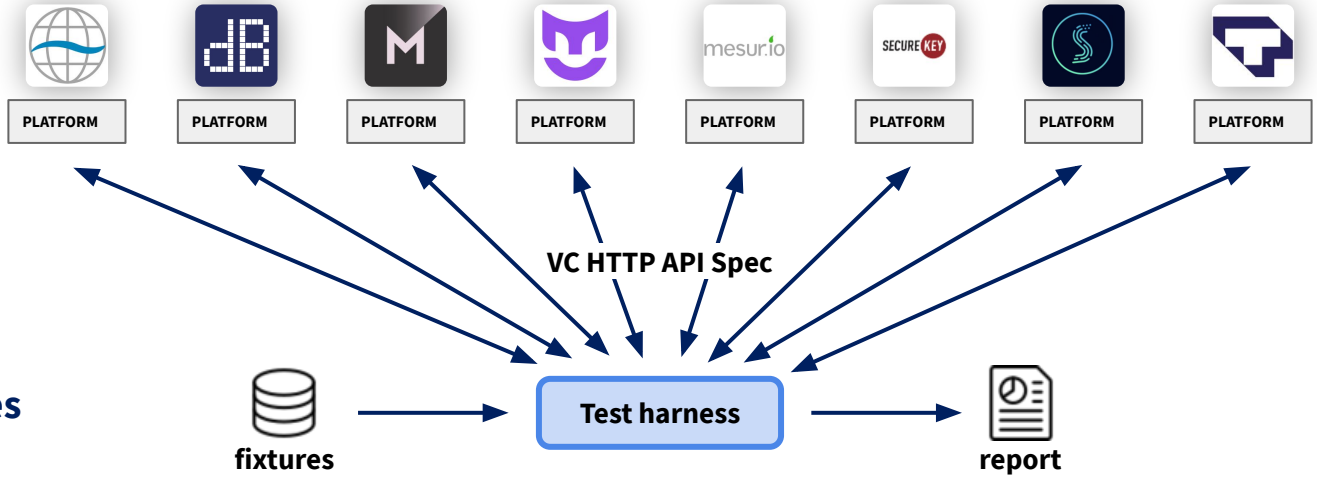
Interoperability Plugfest #1

VC/DID Multi-Platform/Multi-Vendor
Interoperability Showcase/Demo

May 2020

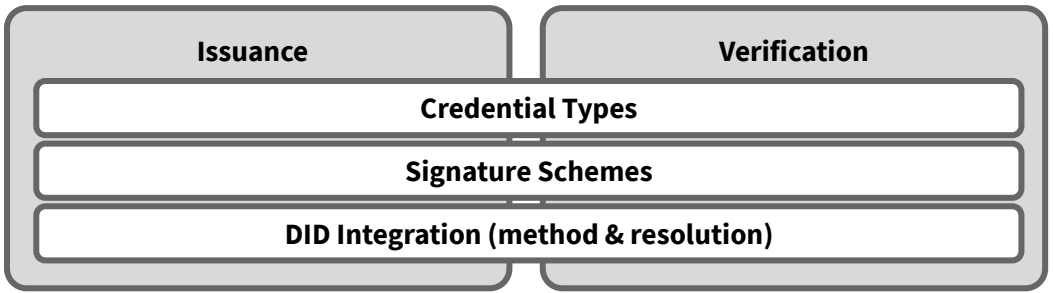
VC HTTP API Test Suite

Test environment



Test objectives

Role of the Test suite
Tests core issuance and verification capabilities for a variety of different credential types against different DID methods and signature suites. “Backend-level testing”



Enabled Issuer/Verifier Interop Test Results

Verifiable Credential Issuer Features	Veres Issuer	Transmute	Secure Key	Spherity	Mattr	Mesur.io	Danube Tech	Mavennet
VC HTTP API								
Issue a single VC	✔	✔	✔	✔	✔	✔	✔	✔
Issue a single VC with expiration?	✔	✔	✔	✔	✔	✔	✔	✔
Sign Verifiable Presentation containing multiple VCs	✔	✔		✔		✔		✔
Authentication								
OAuth2	2021 roadmap	2021 roadmap	2021 roadmap	✔	✔	✔	no plans	✔
Status								
RevocationList2020	✔	✔	✔	✔	✔	✔	✔	2021 roadmap
Refresh								
AutoRefresh2021	2021 roadmap	no plans	TBD	no plans	no plans	no plans	2021 roadmap	no plans
Proofs								
Ed25519Signature2018	✔	✔	✔	✔	✔	✔	✔	✔
JsonWebSignature2020 (RSA, P-384)	2021 roadmap	2021 roadmap	✔	✔	no plans	2021 roadmap	2021 roadmap	2021 roadmap
BbsBlsSignature2020	2022 roadmap	✔	✔	2022 roadmap	✔	✔	2021 roadmap	2021 roadmap

VaxCert Tests Went From 0 to 1,624 in 1 Week

vaccination-certificate-test-suite 25m 56.8s 233 1624 1623 1

Polio - Orimune
/tests/10-issue.js

Danube Tech
/tests/10-issue.js
4.6s 8 ✓8

- should be issued by Danube Tech 471ms
- should be verified by Danube Tech 854ms
- should be verified by Digital Bazaar 158ms
- should be verified by Mattr Labs 694ms
- should be verified by mavennet 1.4s
- should be verified by mesur.io 162ms
- should be verified by Spherity 689ms
- should be verified by Transmute 176ms

§ Polio - Orimune

Test	Danube Tech	Digital Bazaar	Mattr Labs	Mavennet	mesur.io	Spherity
Danube Tech	✓	✓	✓	✓	✓	✓
Digital Bazaar	✓	✓	✓	✓	✓	✓
Mattr Labs	✓	✓	✓	✓	✓	✓
Mavennet	✓	✓	✓	✓	✓	✓
mesur.io	✓	✓	✓	✓	✓	✓
Spherity	✓	✓	✓	✓	✓	✓
Transmute	✓	✓	✓	✓	✓	✓

Seems good, why the fuss?

VC HTTP API: Current Challenges

- Just a Open API Specification YAML file
- No Use Cases document
- No Specification document
- No documented data flows
- No agreement on document structure
- No Lead Editor

Challenge: Use Cases Document

- Proposal: Create a use cases and requirements document.

Challenge: No Specification Document

- Proposal: Create between 1-3 ReSpec specifications in addition to the existing OAS file(s).

Challenge: No Documented Data Flows

- Proposal: Create documented data flow diagrams and place them in the Use Cases document.

Challenge: No Agreement on Structure

- Proposal: Restructure the document into 1 document with three sections (Issuer, Verifier, Holder) or 3 separate documents with an Overview document.

Challenge: No Lead Editor

- Proposal: Identify a Lead Editor and 1-2 supporting Editors for Issuer, Verifier, and "Holder" APIs.