TRUST Over IP FOUNDATION

All-Member Meeting

18 August 2021

10:00-11:00 PT / 17:00-18:00 UTC

THE LINUX FOUNDATION

Antitrust Policy & Member Participation

- Attendees are reminded to adhere to the meeting agenda and not participate in activities prohibited under antitrust and competition laws.*
- Only members of Trust over IP who have signed the necessary agreements and charters are permitted to participate in this activity beyond an observer role.

* Examples of types of actions that are prohibited at Linux Foundation meetings and in connection with Linux Foundation activities are described in the Linux Foundation Antitrust Policy available at http://www.linuxfoundation.org/antitrust-policy.

Agenda

- Possible Remarks Executive Director, John Jordan - 3 min
- Announcements - 5-10 min
  - New ToIP Website has launched
  - New Members Orientation next Friday, August 27th 9am PT
  - Storage and Portability Task Force - Speaker September 13th
  - Guardianship Addendum Task Force - Call for Action
- Today's Special Topic - Trust Registries (30 min)
- Open Q & A (All) - 10 min

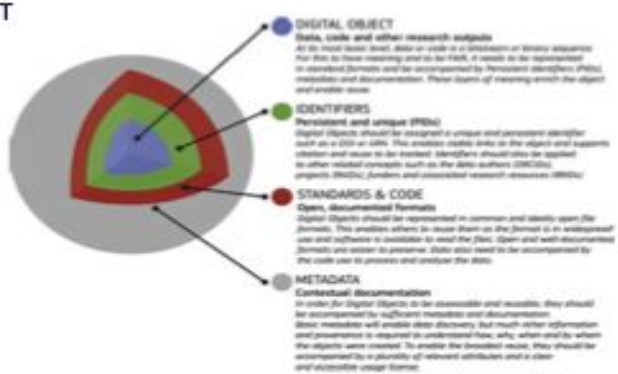
Announcements - Storage and Portability TF - Speaker Sept 13th

Dr. Peter Wittenburg

FAIR Digital Objects – self-standing data entities for organising our digital data space

Speaking at storage and portability TF
Monday September 13th
9am PDT/12pm EDT/4pm UTC/6pm CEST

Dr. Peter Wittenburg is highly esteemed in the research data community and is currently engaged in significant developments around research data. This includes his leading roles in building European research/data infrastructures (CLARIN, EUDAT), in the Research Data Alliance and in contributing to the launch of the multi-billion Euro European Open Science Cloud (EOSC).



Guardianship:

The Need for the GHP Blueprint to Consider Guardianship

Presented by the Chairs of the Guardianship Addendum

John Phillips and Jo Spencer

August 2021

GOOD HEALTH PASS

The Good Health Pass Blueprint is a great initial achievement

Version 1.0.0 of the Blueprint has constructed a holistic approach to travel enablement using credentials that can be verified and trusted.

GOOD HEALTH PASS

The current release focuses on self-directed travellers

Assumptions are that the traveller is able to register themselves.

Travellers hold their own identity, health and pass credentials

Digital models and digitally enabled physical models (and a mix) are supported

Verification is through the presentation of credentials by each traveller, individually

GOOD HEALTH PASS

As travel begins post-pandemic, families will be a large proportion of travellers

Familiarity with remote working and time lost to quarantine means that business travel will reduce.

Many families have an intense need to reconnect.

Unaccompanied or dependent travellers will need to be supported.

Digitally supported travel needs better proof of guardianship relationships

GOOD HEALTH PASS

Family, and unaccompanied and supported travel demand a specific approach

Guardianship concepts to be added to the blueprint.

Pass management must be possible on behalf of / for dependents.

Unaccompanied minors need passes and trusted destination pick up.

Dependent adults and seniors should be supported too.

Guardianship credentials can provide a way to do this

GOOD HEALTH PASS

Work on Guardianship in the Sovrin Working Group developed a critically important mental model

Approaches we identified in the Sovrin Guardianship Working Group are directly applicable to Travel Passes and guardian activities

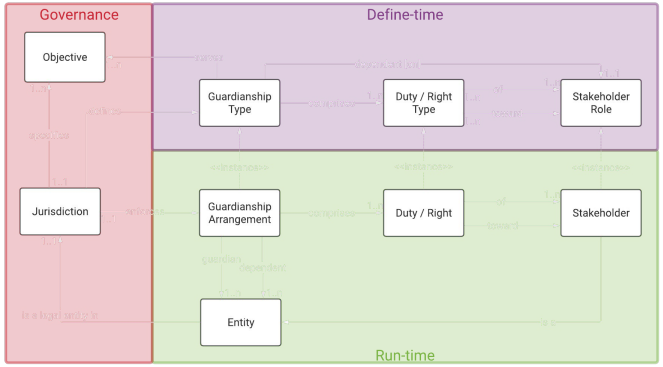
Jurisdictions need to be catered for such that they can evolve and control travel independently.

The mental model helps the definition and use of VCs.

There are a few references in the GHP blueprint that make guardianship solution assumptions.

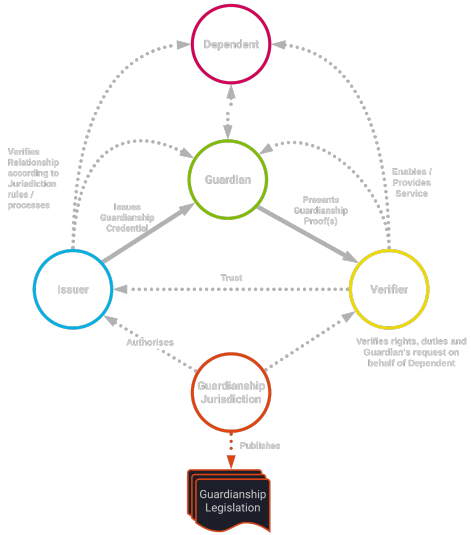
GOOD HEALTH PASS

Guardianship Mental Model

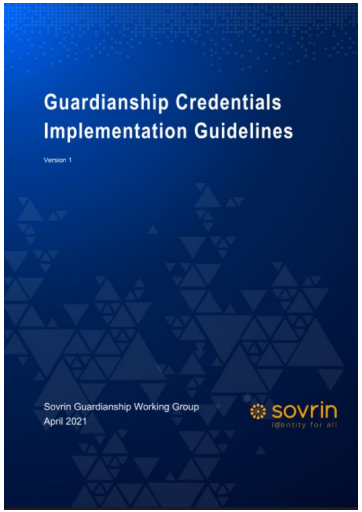


We have a framework that needs to be tested and the findings reflected into the Blueprint

Guardianship Interaction Model



Implementation Guidelines



Technical Requirements

GOOD HEALTH PASS

We need your help

GOOD HEALTH PASS

We have developed a Guardianship Addendum for Blueprint 1.0.0

We will not be updating the whole of the document to consider guardianship.

An addendum (chapter) to be separate for this version.

Next versions of the blueprint may incorporate more guardianship considerations throughout.

GOOD HEALTH PASS

We need to coordinate with the other authors, experts and groups

The insertion of guardianship credentials into each model needs consideration - physical, digital, mixed.

User interactions for pass registration need to change.

Trust registries and rules implications need to be understood.

Practical use of travel passes by guardian on behalf of a traveller.

What are the commercial model implications?

GOOD HEALTH PASS

We need input from the other drafting groups and external experts

Group and Experts	
Blueprint - General	
Blueprint - Credential Formats	
Blueprint - Governance	
Blueprint - Identity Binding	
Blueprint - Consistent UX	
Blueprint - Security, Privacy, and Data Protection	
Blueprint - Paper Credentials	
Experts - Travel Agent Process Impacts	
Experts - Airline Process Impacts	
Experts - Travel Rules	

GOOD HEALTH PASS

Addendum Drafting Group Activities and timelines

Twice weekly discussions:

- Monday 1600 PST, Tuesday 0900 AEST
- Thursday 0930 CEST, 1730 AEST

Zoom meetings on TOIP Calendar.
ToIP Slack channel #ghp-guardianship

Wiki page:
https://wiki.trustoverip.org/display/HOME/Guardianship

Aim: Final Addendum Draft for completion by end-Sept

GOOD HEALTH PASS

What do you think?

We're listening...

GOOD HEALTH PASS

Special Topic - Trust Registries

- **Trust Registry TF co-chair Darrell O'Donnell**
  will introduce the overall concept of trust registries and the special role they play in ToIP architecture.
- **Trust Registry TF co-chair Drummond Reed**
  will explain the unique way in which trust registries integrate the two halves of the ToIP stack, i.e., bring together the technical “tools” with the governance “rules”.
- **Lucy Yang, Community Director of Covid Credentials Initiative (CCI) and staff at Linux Foundation Public Health (LFPH)**
  will explain the business reasons why trust registries are at the core of the LFPH’s Global COVID Certificate Network (GCCN) project.
- **John Walker, Community Architect of CCI and staff at LFPH**,
  will explain how GCCN is tackling the task of offering a global directory of trust registries for COVID-19 certificates.

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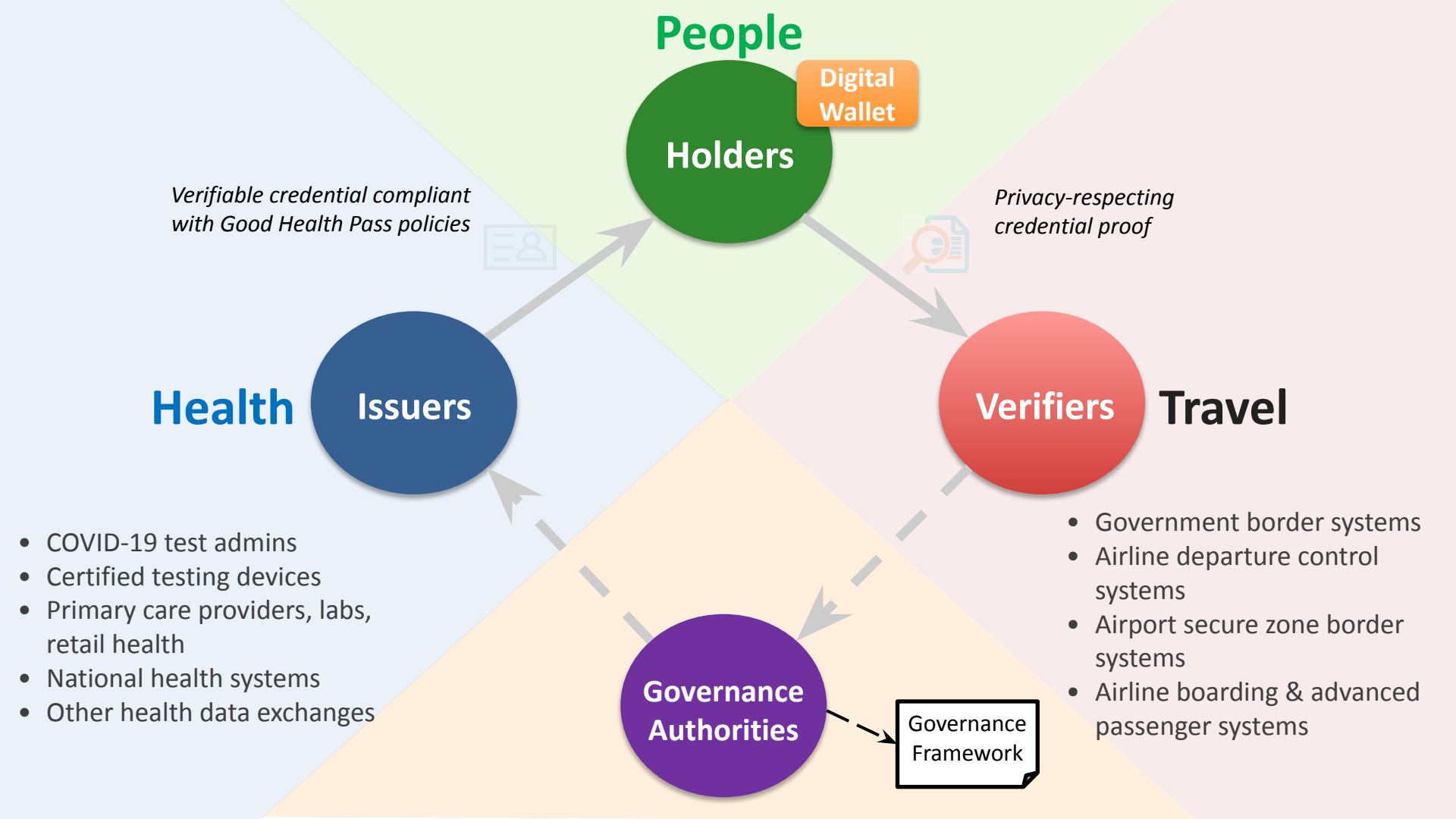
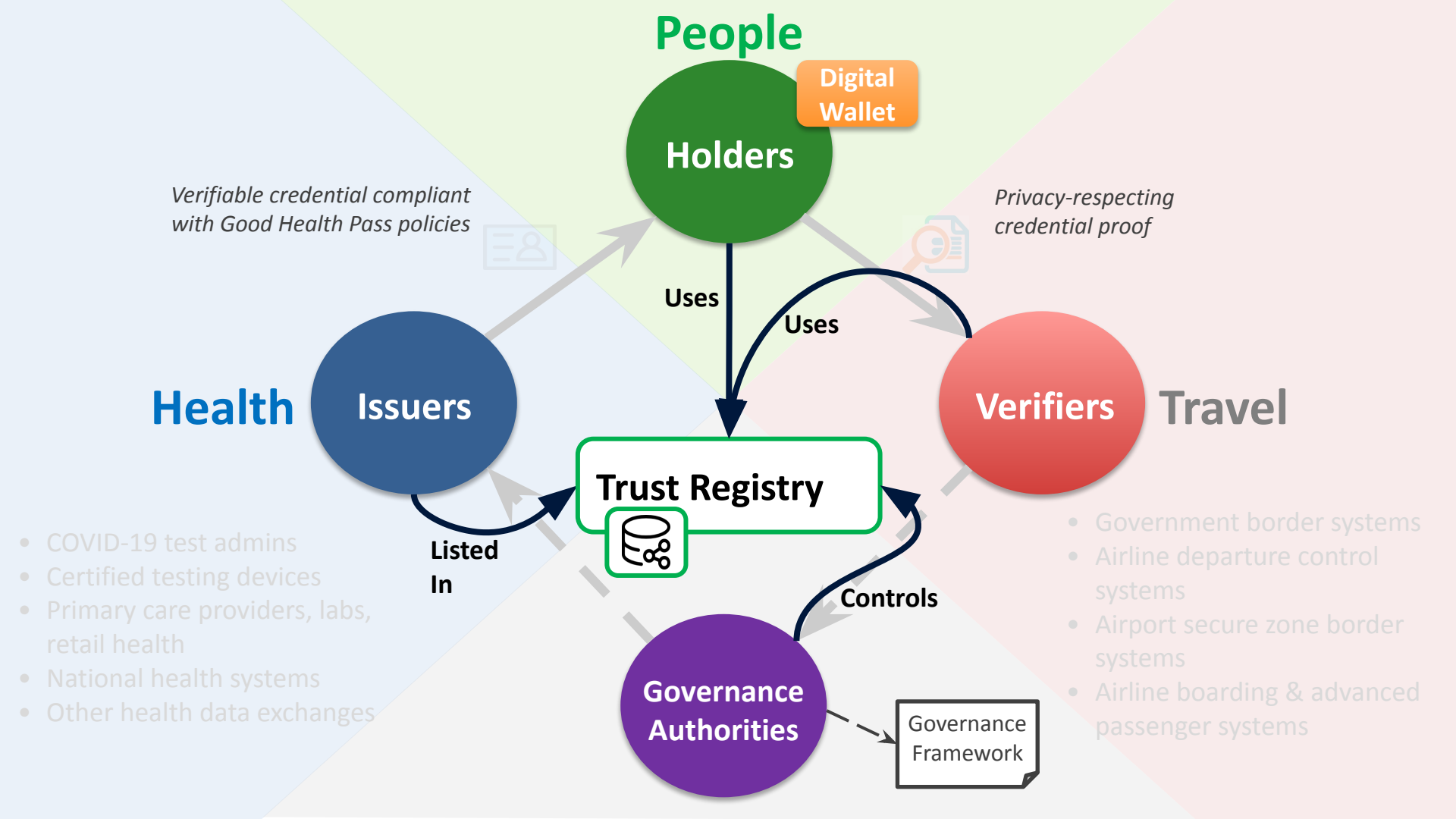

People
Digital Wallet
Holders
Verifiable credential compliant with Good Health Pass policies
Privacy-respecting credential proof
Health
Issuers
Verifiers
Travel
• COVID-19 test admins
• Certified testing devices
• Primary care providers, labs, retail health
• National health systems
• Other health data exchanges
• Government border systems
• Airline departure control systems
• Airport secure zone border systems
• Airline boarding & advanced passenger systems
Governance Authorities
Governance Framework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Listed In
Controls
Governance Authorities
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• COVID-19 test admins
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• Primary care providers, labs, retail health
• National health systems
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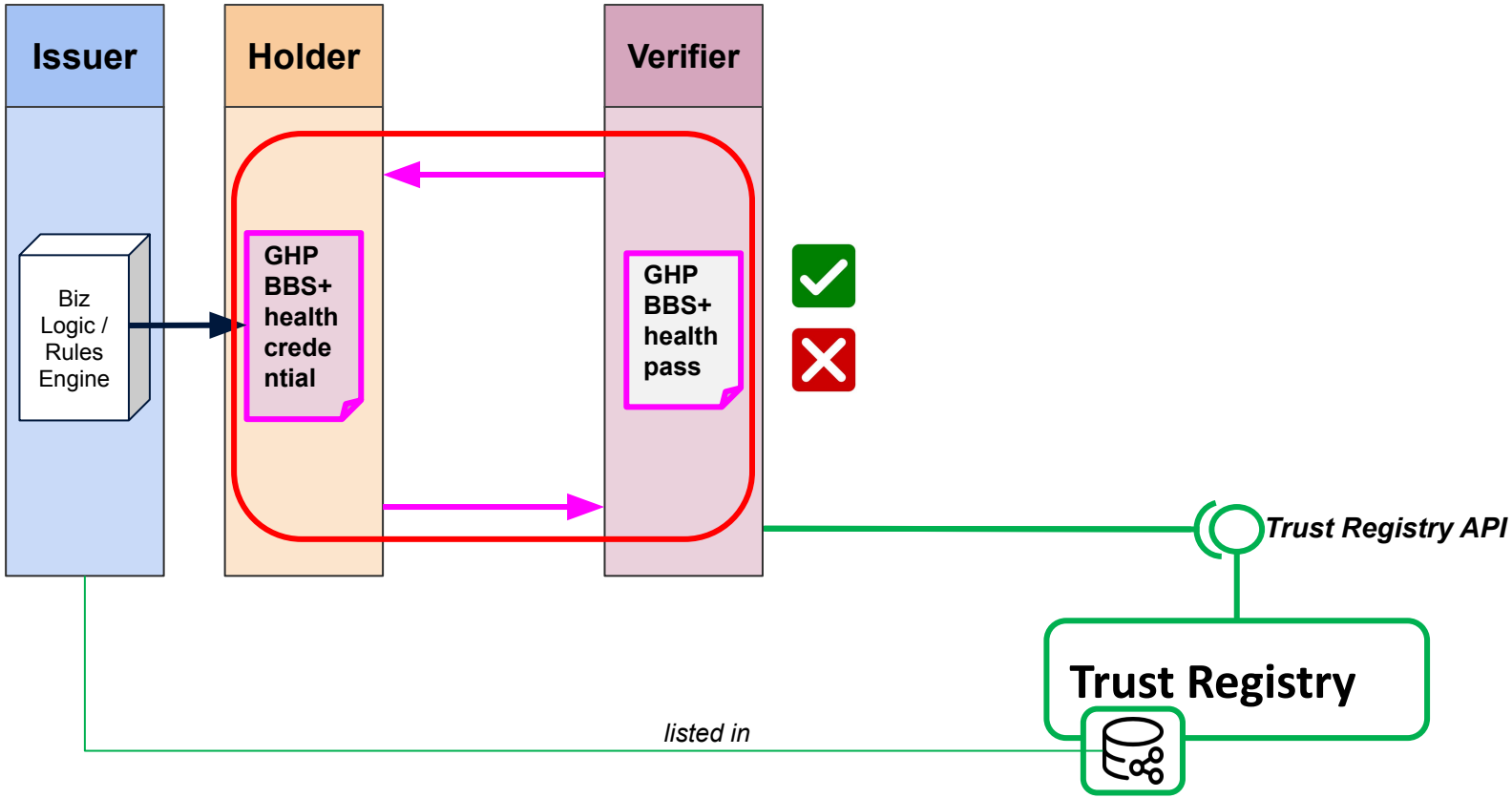
• Airline departure control systems
• Airport secure zone border systems
• Airline boarding & advanced passenger systems

CRITICAL INTERACTION - Presenting a GHP pass



What Does a Trust Registry Do - EXTERNALLY?

Shares the key information that

- Issuers and Verifiers - aut
- Key DID information
  - EGF
- Key Ecosystem information - provide answers
  - What type(s) of credential(s) are in used?
  - What uses (presentations) of credentials are “normal” under the EGF?
  - What Layer 1 Utilities are supported?
- Initially the Trust Registry Task Force is focused on the most basic minimum use case.

Trust Registry Task Force

Initially the TRTF is focused on the External view of a Trust Registry

Minimum Viable API - aimed at implementers for Verification use case.

- CheckIssuer()
- CheckVerifier()
- CheckTrustRegistry()
- GetOffLineFile()

Future work will include more capabilities:

- Credential & Interaction Types
- Cryptographic information (e.g. point to KERI records)

Special Topic - Trust Registries

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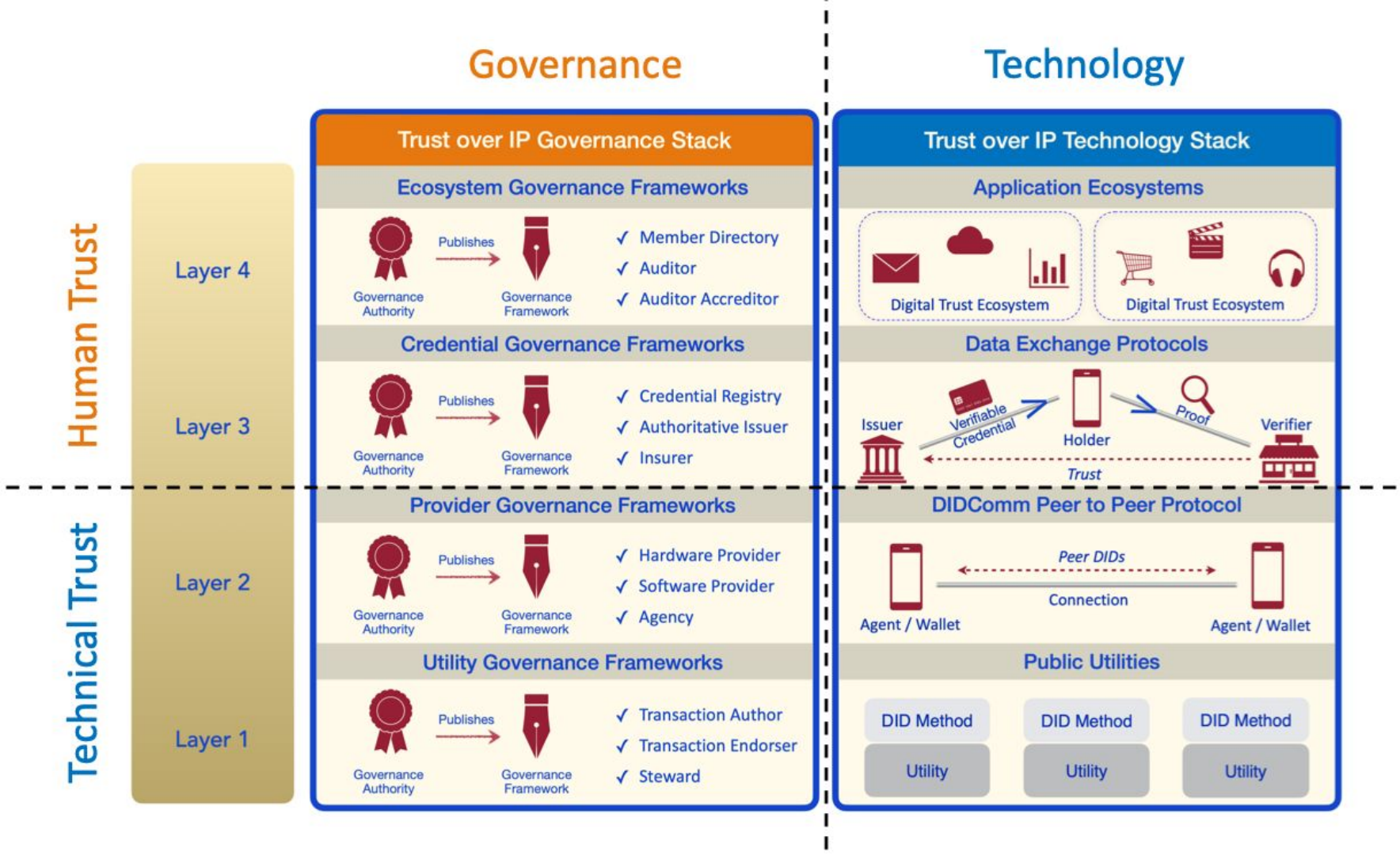
  will explain the unique way in which trust registries integrate the two halves of the ToIP stack, i.e., bring together the technical “tools” with the governance “rules”.

Part Five:
Governance Frameworks and Trust Registries

To be both interoperable and trusted, the Good Health Pass digital trust ecosystem needs governance

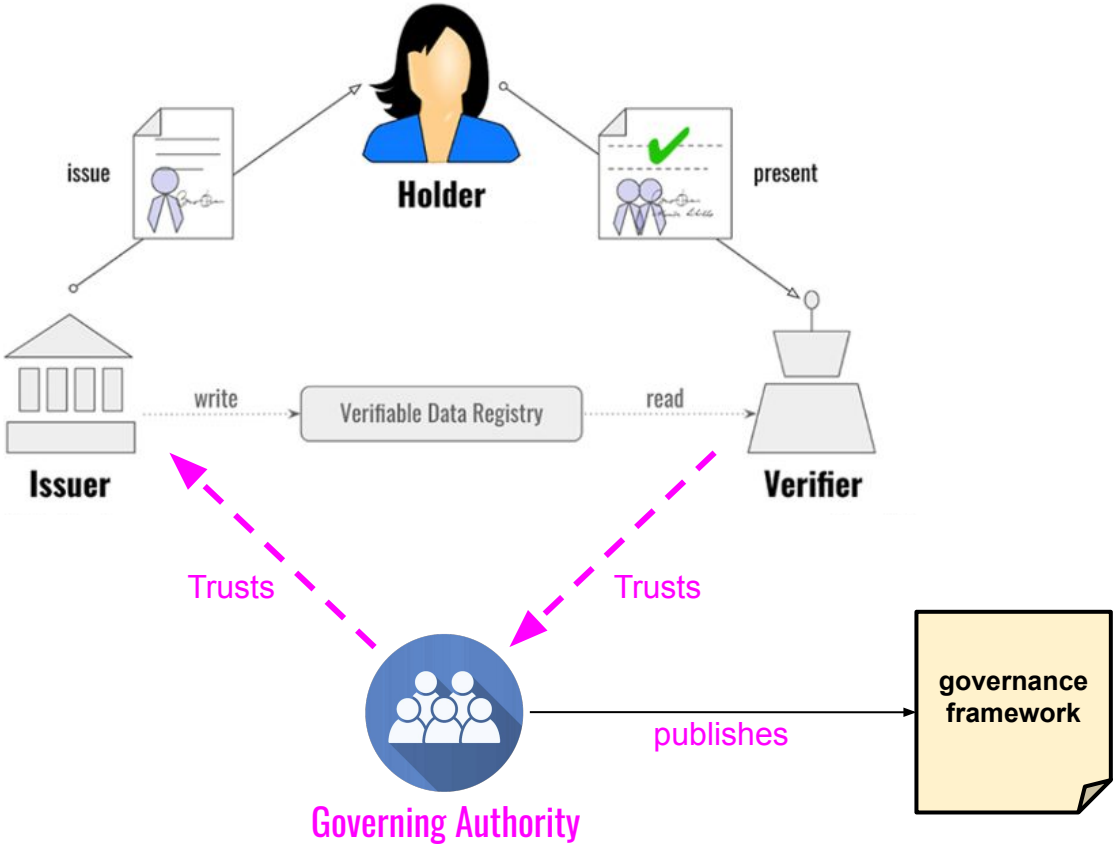
See *Recommendation #9: Governance and Trust Frameworks* and *The Good Health Pass Ecosystem Governance Framework*


Governance
Technology
Human Trust
Technical Trust
Layer 4
Layer 3
Layer 2
Layer 1
Trust over IP Governance Stack
Ecosystem Governance Frameworks
Publishes
Governance Authority
Governance Framework
✓ Member Directory
✓ Auditor
✓ Auditor Accreditor
Credential Governance Frameworks
Publishes
Governance Authority
Governance Framework
✓ Credential Registry
✓ Authoritative Issuer
✓ Insurer
Provider Governance Frameworks
Publishes
Governance Authority
Governance Framework
✓ Hardware Provider
✓ Software Provider
✓ Agency
Utility Governance Frameworks
Publishes
Governance Authority
Governance Framework
✓ Transaction Author
✓ Transaction Endorser
✓ Steward
Trust over IP Technology Stack
Application Ecosystems
Digital Trust Ecosystem
Digital Trust Ecosystem
Data Exchange Protocols
Issuer
Verifiable Credential
Holder
Proof
Verifier
Trust
DIDComm Peer to Peer Protocol
Peer DIDs
Connection
Agent / Wallet
Agent / Wallet
Public Utilities
DID Method
DID Method
DID Method
Utility
Utility
Utility

The role of a governing authority is to be responsible for developing, publishing, and maintaining a governance framework

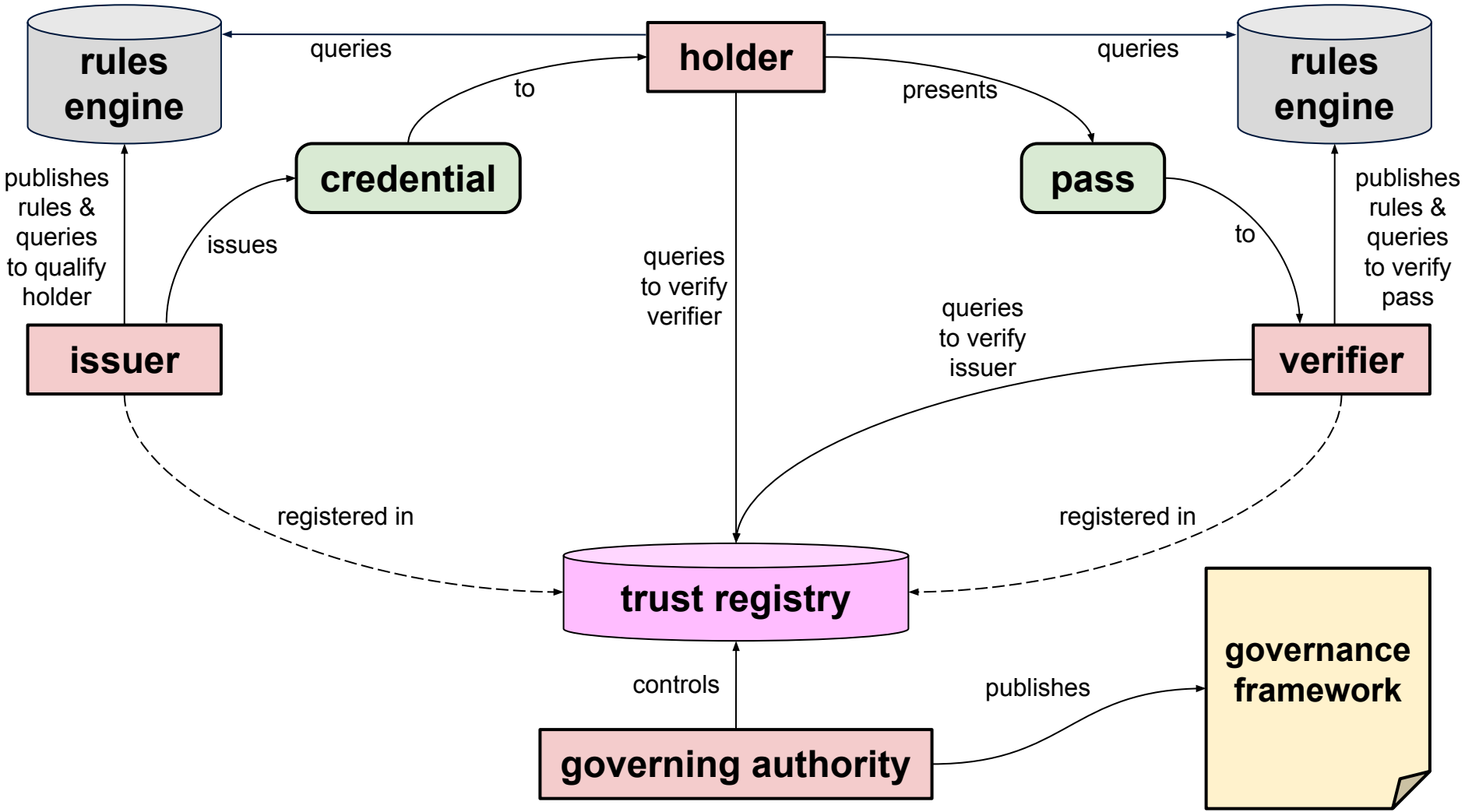
See *Recommendation #9: Governance and Trust Frameworks*
and *The Good Health Pass Ecosystem Governance Framework*

The governance trust diamond



To interoperate across trust boundaries, ecosystem members need to be able to quickly and securely verify who is authorized to do what— this is the role of a trust registry

See *Recommendation #8: Trust Registries*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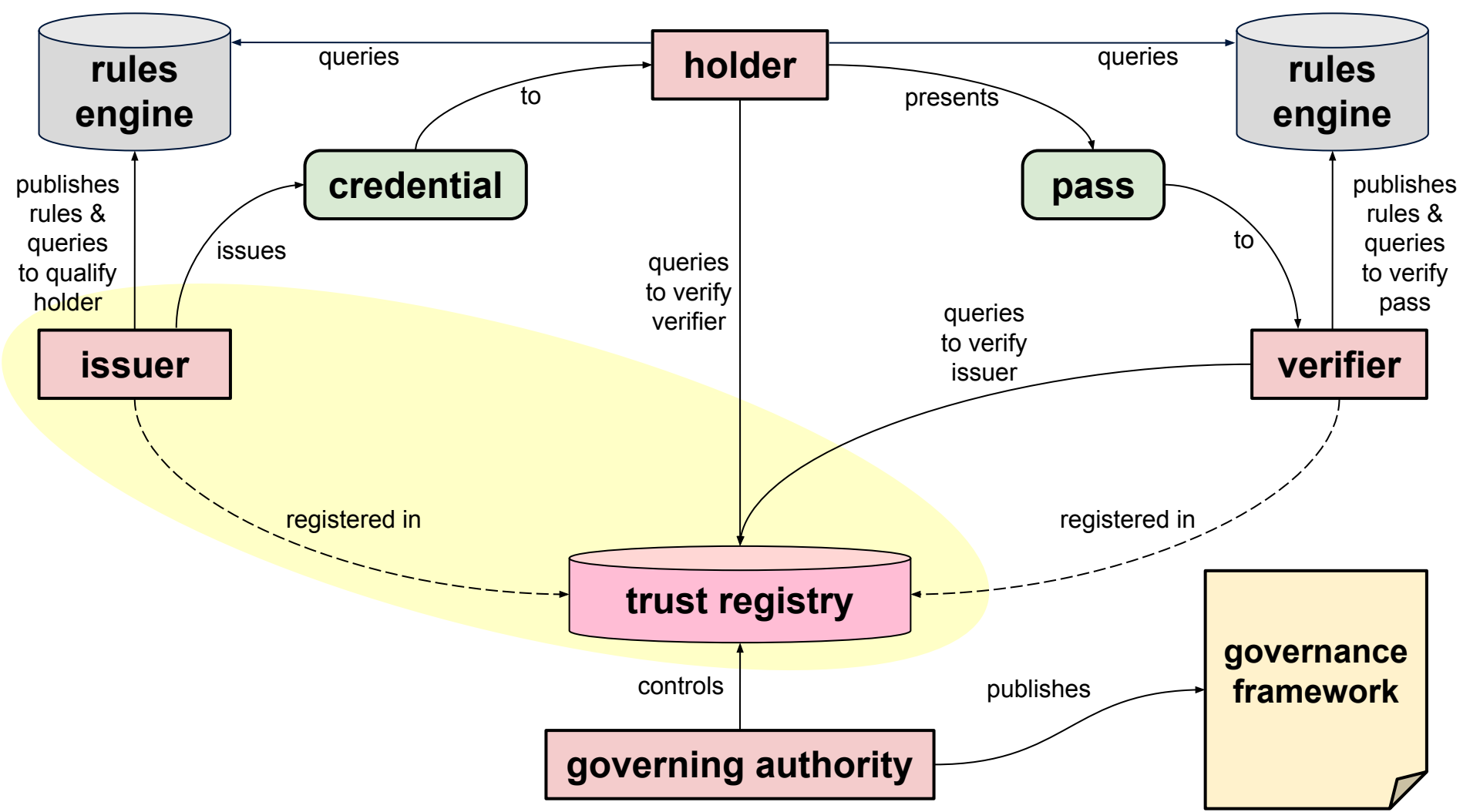
queries to verify verifier
to
publishes rules & queries to verify pass
queries to verify issuer
issuer
verifier
registered in
registered in
trust registry
controls
publishes
governance framework
governing authority

The trust registry maintains a list of all authorized issuers in its ecosystem and the types of credentials and passes they are authorized to issue

See *Recommendation #8: Trust Registries*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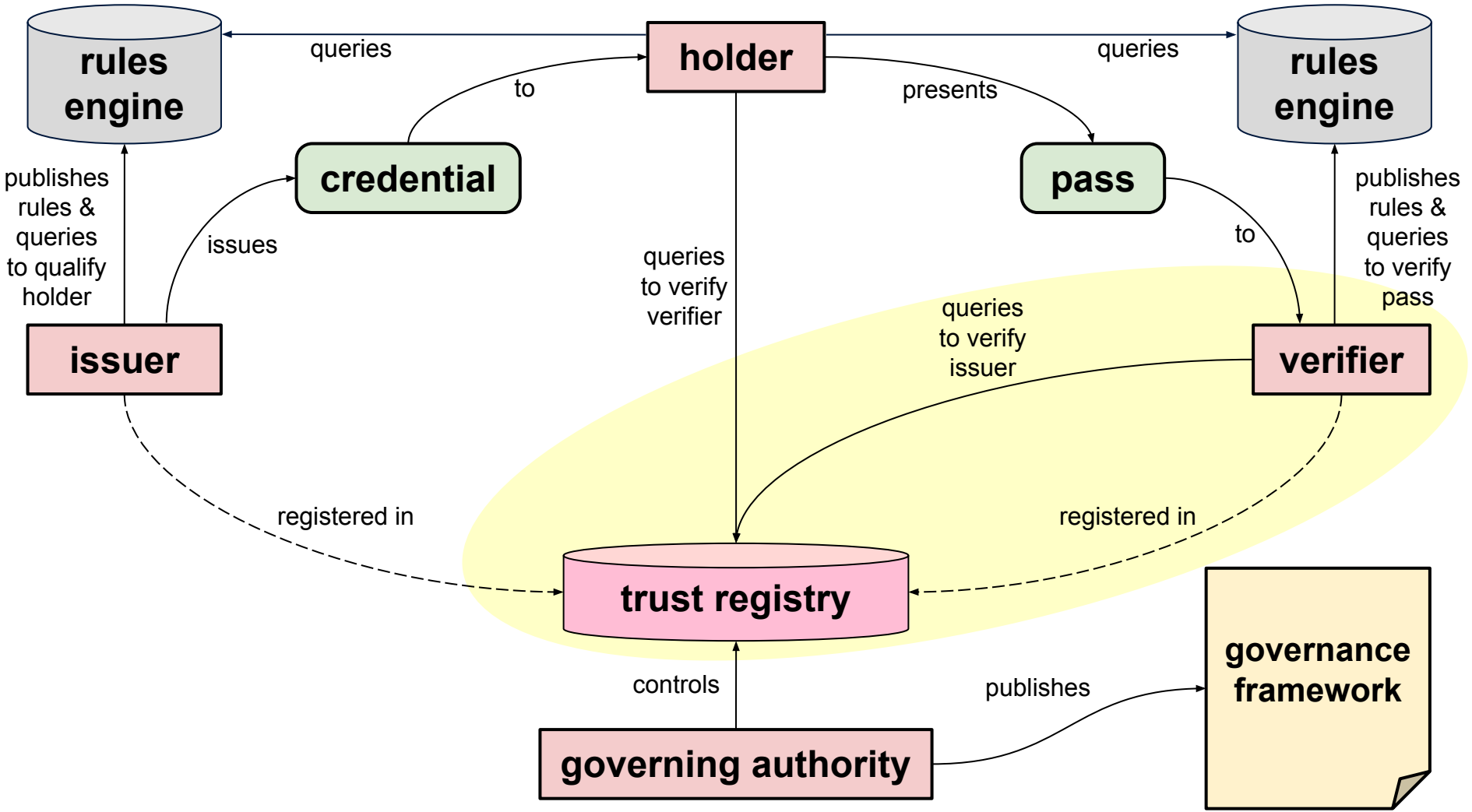
A verifier can use the issuer DID and type URI embedded in every GHP-compliant credential to query the trust registry whether the issuer is authorized

See *Recommendation #8: Trust Registries*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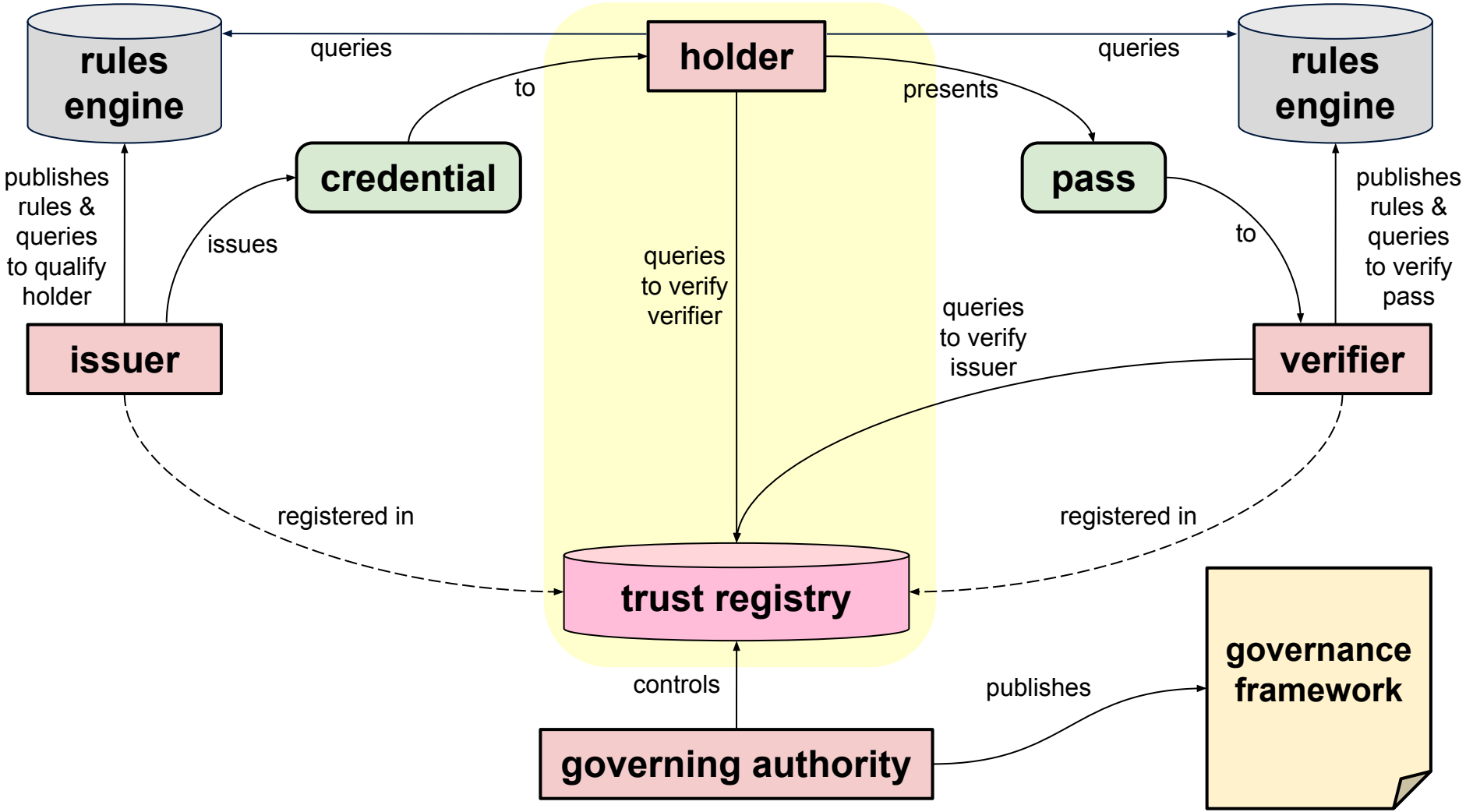
Some governance frameworks also require verifiers to be authorized—in this case, a holder can query the trust registry to “verify the verifier” before sharing any data

See *Recommendation #8: Trust Registries*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Final note: another option for trust verification is chained credentials—where a governing authority issues a VC authorizing the issuer and the issuer chains it to the VCs issued to holders

See *Recommendation #8: Trust Registries*

For more about credential chaining, see the Authentic Chained Data Container (ACDC) Task Force in the ToIP Technical Stack WG

See *Recommendation #8: Trust Registries*

Special Topic - Trust Registries

- **Lucy Yang, Community Director of Covid Credentials Initiative (CCI) and staff at Linux Foundation Public Health (LFPH)**
  will explain the business reasons why trust registries are at the core of the LFPH's Global COVID Certificate Network (GCCN) project.

LF DEEP LEARNING

Global COVID Certificate Network

June, 2021

THE LINUX FOUNDATION

Global COVID Certificate Network (GCCN)

A Linux Foundation Public Health initiative to enable interoperable and trustworthy verification of COVID certificates between jurisdictions for safe border reopening.

GCCN will support Global COVID Certificates (GCC) that apply to three use cases: vaccination, recovery from infection, and test results.

We work with governments and industry alliances, software vendors and systems integrators, supporting organizations, and the broader LFPH community to jointly develop a trust registry network, a complete set of toolkit to build COVID certificate ecosystems and a vendor network for GCCN.

Current state of COVID certificates - EU leads the way

- EU recently set the pace for COVID certificates by launching the **EU Digital COVID Certificate**: the EU **Gateway** and the **national certificate systems** of Member States.
- This Gateway is a centralized repository for public keys, a system designed to be the root of trust between EU member states.
- This Gateway provides a flexible framework for member states to decide how to create their own trust registry of authorized issuers and verifiers while enabling them to verify certificates issued from other member states.
- The EU eHealth Network provided guidelines for the development of the Gateway and national certificate systems.

Challenges being brought up after the EU announcement

- There is a lack of a global trust architecture, a framework that enables verifiers in one jurisdiction to make a decision about whether or not to accept a certificate signed by another jurisdiction.
- Government policy makers and technology teams don't have enough clarity about how to build and manage COVID certificate systems.

Given these challenges, we asked:

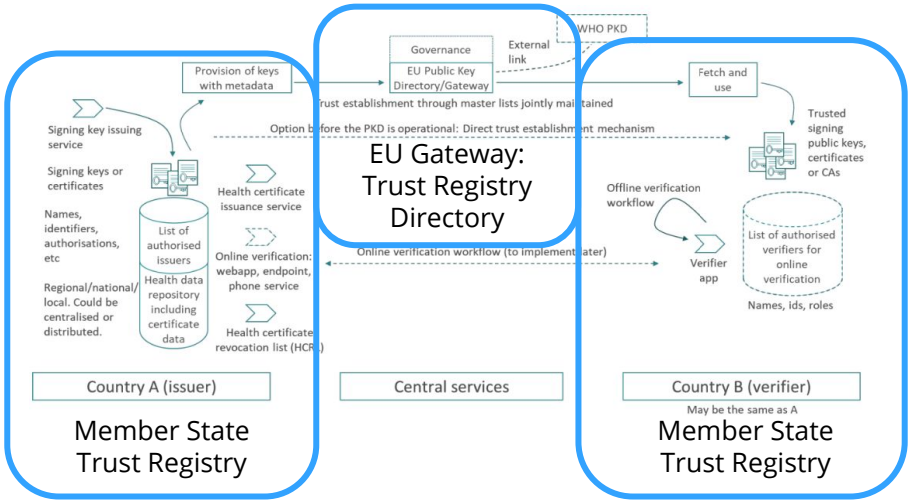
- As a global organization building open source software for public health, what can we do to reopen borders in an interoperable and trustworthy manner?

LFPH created GCCN to address these challenges

(1) Trust Registry Network - Interoperable Trust/Key Management

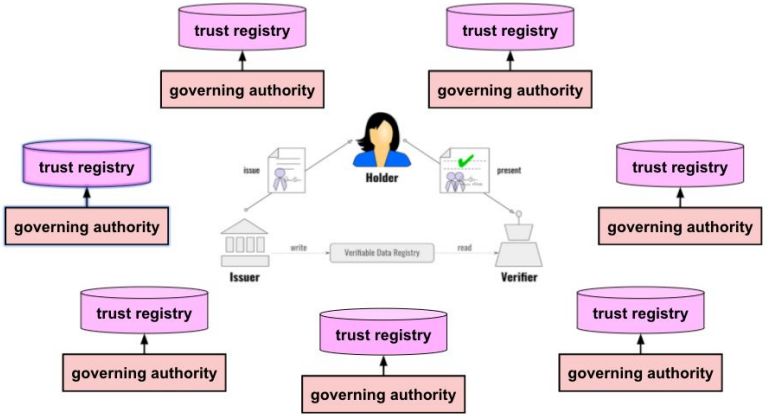
- There is a way for the various trust registries in every jurisdiction to find each other and decide whether to accept each other's certificates
- There is a way to look up data on who is doing what, and a way to contact them
- LFPH will facilitate the development of a trust registry protocol that allows everyone to talk to each other
- LFPH will set up a lightweight initial governance and will facilitate entities in the network to self govern moving forward.

LFPH created GCCN to address these challenges



EU: Trust and interoperability through centralized key management

GCCN: decentralized key management and interoperable trust registry protocol



LFPH created GCCN to address these challenges

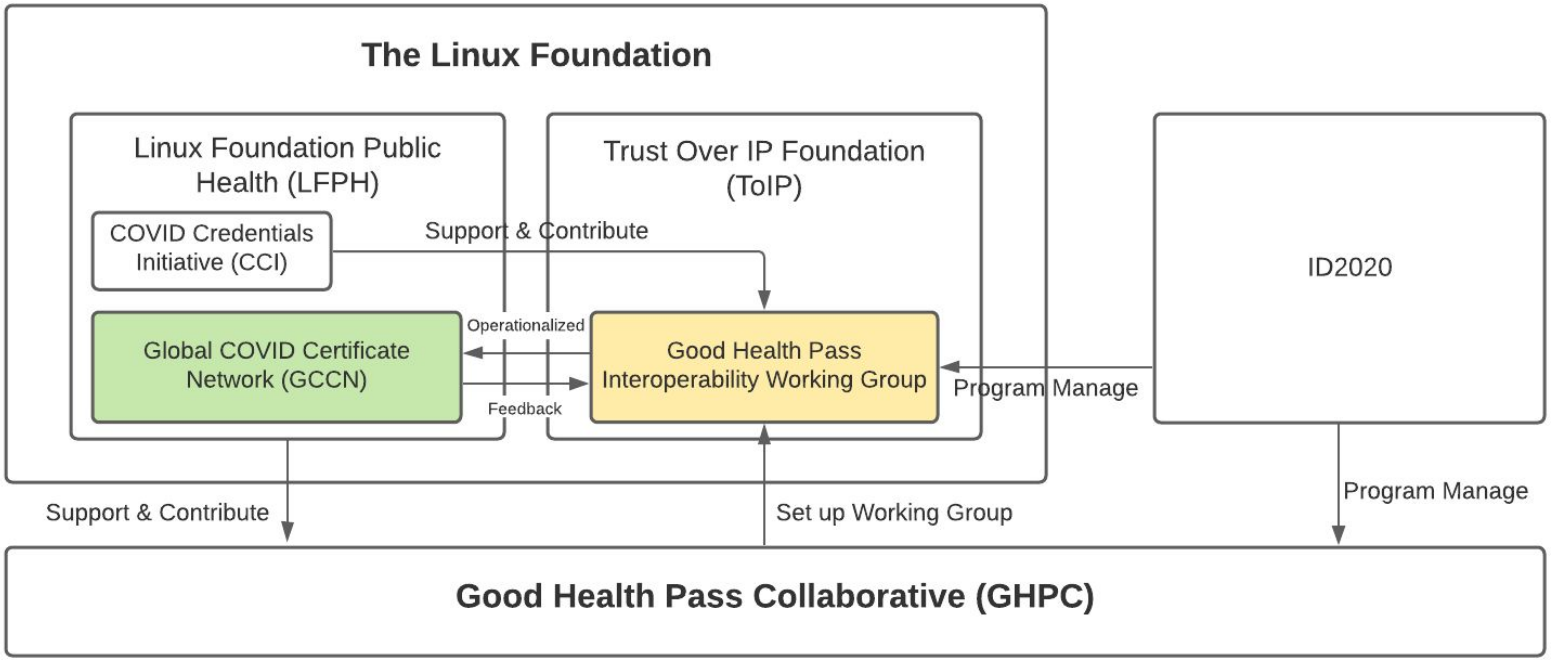
(2) A Complete Toolkit to Build Certificate Ecosystems - Interoperable & Privacy-Preserving Credential Verifications

- Governance framework template.
- Schema definitions and minimum datasets: vaccination, recovery, test results.
- Technical specifications: credential formats and signing protocols, QR code specifications, certificate applications, etc.
- Implementation guides and open source reference implementations
- Implementation and governance guidance

(3) Vendor Network

- We are building a directory of vendors who can competently work on these kinds of projects, so that governments and institutions can more easily get running.

GCCN builds off the GHP Blueprint Recommendations



GCCN next steps

- **Technical Development**
  - Work with communities to define the MVP for GCCN based on the GHP Blueprint and collaboratively develop the technical documents and codebases.
- **EU Collaboration**
  - Collaborate with relevant EU institutions to explore and create conversion mechanisms between the EU Digital COVID Certificate and new and existing COVID certificate ecosystems through GCCN.
- **Interoperability Pilots**
  - Get key existing implementers to set up interoperability among each other through GCCN.

How to get involved

To receive frequent updates on GCCN, sign up for email communication here.

Government agencies or industry alliances that already running or are looking to launch a COVID certificate ecosystem for border reopening should reach out to us at info@lfph.io.

Implementers of existing COVID certificate ecosystems focused on reopening borders can reach out to us at info@lfph.io and join our Slack #gccn stay up-to-date and #cci to exchange experiences with other implementers.

Developers can contribute to the reference implementations by joining our Slack #gccn and getting involved with LFPH's two COVID credentials projects: Cardea and Medcreds.

Special Topic - Trust Registries

- **John Walker, Community Architect of CCI and staff at LFPH**,
  will explain how GCCN is tackling the task of offering a global directory of trust registries for COVID-19 certificates.

Global COVID Certificate Network (GCCN)

Trust Registry Network Starting Definition

The GCCN Trust Registry Network is an online resource that provides human and machine readable information pertaining to it's network entries (participants). Network participants consist of public and private sector entities providing the issuance and/or verification of digital or digitized paper Certificates, Credentials or Passes required for use by jurisdictions to allow free and safe movement within or across locales.

The GCCN Trust Registry Network participants will provide users with qualitative information regarding the validity of any network entry

a. Network participant onboarding
b. Out of band - KYC, GCCN governance vetting
c. Human and machine readable attributed definitions
d. Support pre-operational discovery lookup of 'who should I trust?'
e. Qualitative description of each entity listed

GCCN Trust Registry Network Proposed Profile

a. A named established entity
    i. Physical and Digital points of contact
    ii. Named entity operating the entry ‘network’
    iii. List / Definition of trust roles supported
    iv. Relevant industry classifications or certifications of entry
b. Operating model for the entry - self described
c. A description / qualification of the the onboarding and vetting processes
d. Governance
    i. Named governing entity(s)
    ii. Link to governance ‘document’
    iii. Qualitative evaluation of
    iv. Machine readable to governance framework link
e. Security Profile / Compliance
f. Network / Geographic footprint
g. Types of identifiers / certification supported:
PKD | DID | Signed credential
    i. Issuance and Revocation capabilities
h. Service Endpoint(s)
    ii. Registration
    iii. Query API endpoint
i. GCCN status
    iv. GCCN KYC vetted
    v. Operating status
    vi. Operating dates

The GCCN Trust Registry Network - Candidate Directory Entries

Trust Entity	Type	Trust Roles Supported
GCCN Trust Registry Network	A directory of trust networks	Meta
CommonTrustNetwork	A network of issuers and verifiers - common verification format	Issuer / Verifier App
New York State	A jurisdictional authority listing Issuers and providing a verification format-	Issuer / Verifier App
EU eHealth Gateway	A directory of legally bound issuers and verifiers	Meta / Issuer / Verifier App
AOKPass	A network of issuers and verifiers - common verification format	Issuer / Verifier App
State of California	A jurisdictional authority listing Issuers and providing a verification format	Issuer / Verifier App
IATA	A network of issuers and verifiers - common verification format	Issuer / Verifier App
Walmart	A commercial / professional reference registry	Issuer / Verifier App

GCCN Trust Registry Network Attribute Definition

Network Entry Identifier	Unique ID	
Entity Name	String	Entity's provided legal name representation
GCCN Status	Active / Not Active	
GCCN KYC Confirmed	Yes / No	Out of band process to be defined
Level of Assurance		(eiDAS)
Legal Entity Identifiers	[Array of entries]	GLEIF , other
Root of trust URI	string	X.509 or DID
Trust Type	X.509 / DID / other	
Service Endpoint	DID / URI / URL	
Ecosystem Governance URI	URI / URL	Link to ecosystem governance
Governance Framework	URI / URL	Link to entity's gov framework
Trusted By	[Array of entries]	other GCCN Trust Registry Network entries attesting to trust in entity
Compliance Certifications	[Array of entries]	Jurisdiction or Industry compliance certification URI, URL
Classifications	[Array of entries]	Name value pairs of classifications and classification value. E.g. NAICS:01234
Meta tags	[Array of entries]	Meta tags defined by each entry
Text Description	string	Entity description

GCCN Trust Registry Network - Starting Definition

Summary Points

a. The lack of existing full featured Trust Registries open for discovery and queryable ‘evaluation’ makes the task of bootstrapping a network of such entries more difficult
b. GCCN will have to pursue engaging the ‘trust network’ candidates to determine how/ if it’s possible to interact with each in order to access information relevant for network entry updates
    i. Discovery is required to determine if ‘trust network’ parties are willing to provide this information
c. Access to a form based representation of entries sufficient to start
    i. Human readable as a web based form
    ii. Machine readable as json document

Open Conversation

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