



# Notes

Jun 4, 2026

# UNTP Testing Discussion

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Attachments  [UNTP Testing Discussion](#)

Meeting records  [Transcript](#)

## Summary

The session covered reference implementation updates and architectural shifts alongside defining protocols for continuous conformance validation.

### System Architecture Updates

The reference implementation migrated from a monolithic application to an API-driven architecture. Users are advised to adopt the 0.3 release tag for alignment with the stable version.

### Conformance Protocol Strategy

Algorithmic validation is required to prevent implementation falsification and ensure system integrity. Credential chain verification is essential for industry adoption.

### Validation Strategy Refinement

The group determined that small chunk validation is preferable to full graph traversal. This methodology aims to reduce friction when operating in complex real-world environments.

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# Decisions

## NEEDS FURTHER DISCUSSION

- **Permit classification requires further guidance** The classification of mining permits as either conformity credentials or digital identity anchors remains unresolved and requires the development and publication of formal guidance to reach consensus.

## ALIGNED

- **Graph-based conformance validation strategy adopted** The group aligns on the strategy that UNP conformance testing must incorporate graph validation (traversing linked credentials) rather than relying solely on single-credential verification to ensure real-time integrity and mitigate risks of falsified data.
- **Small chunk graph validation prioritization** The project will adopt small chunk graph validation as a guiding principle over full graph traversal to account for the complexity of real-world data.

We've **updated the Decisions section** using your feedback.

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## Next steps

- ☐ [Ashley Harwood] Share Architecture Docs: Provide supporting documentation regarding the new architecture and the reasoning behind the recent transition.
- ☐ [Ashley Harwood] Share Release Tag: Provide the 0.3 release tag link for the current reference implementation.
- ☐ [Patrick St-Louis] Review PR: Review the conformance assertion protocol pull request currently on GitLab.

- ☐ [Patrick St-Louis, Emiliano Suárez] Determine Next Steps: Discuss the internal next steps for the British Columbia project regarding the reference implementation.
- ☐ [Ashley Harwood] Create Issue: Raise a GitLab issue to initiate the collaboration on did web and web VH integration support.
- ☐ [Harley Thomas] Recruit Contributors: Recruit additional contributors to join the technical working group.
- ☐ [Zach] Publish Guidance: Finalize and publish the formal guidance regarding conformity credentials versus identity anchors.
- ☐ [The group] Post meeting availability: Share preferred meeting times and time zones in the tech working group Slack channel to facilitate scheduling.
- ☐ [The group] Review merge requests: Submit comments on the graph validation and assertion protocol merge requests located in GitLab to help move the work forward.
- ☐ [Harley Thomas] Schedule recurring meeting: Consolidate the provided availability times and create a calendar invite for the next recurring meeting.

## Details

- **Introductions and Meeting Context:** Patrick St-Louis, representing the government of British Columbia, Emiliano Suárez, Zach, Harley Thomas, and Adrienna Zsakay introduce their professional backgrounds regarding digital identity and the United Nations Protocol (UNP). Harley Thomas opens the discussion by highlighting the objective of determining how to verify if solution providers are conformant in real-time, referencing a draft pull request on GitLab for a "conformance assertion protocol" ([00:00:00](#)).
- **Procedural Agreement:** Following some initial friction regarding the meeting's purpose, the group agrees to allocate 20 minutes to address Patrick St-Louis and Emiliano Suárez's questions regarding the reference implementation before transitioning to the discussion on the conformance assertion protocol ([00:06:56](#)).
- **Reference Implementation Migration:** Patrick St-Louis details the work currently being done by the government of British Columbia to upgrade their deployment from version 0.6 to 0.7. Ashley Harwood and Zach explain that the system has undergone a fundamental architectural transformation, moving from a monolithic, configuration-based single-page application (used in version 0.1 and

0.2) to a production-grade, API-driven architecture in version 0.3, rendering previous deployments incompatible ([00:11:42](#)) ([00:18:17](#)).

- **Distinction Between Credential Types:** Zach clarifies that while Mines Act permits were initially implemented as conformity credentials, current guidance suggests they are better classified as digital identity anchors or authorizations. This reflects a shift toward defining conformity credentials specifically as third-party assessments against a standard, rather than simple government-issued authorizations ([00:12:56](#)).
- **System Component Overview:** The group identifies the core technical components of the current reference implementation as the VCKit (for key signing), the Identity Resolver (IDR), the reference implementation API/UI, and the Storage Service, which enables digital access control (DAC) to manage encrypted credentials ([00:24:47](#)).
- **Traversal and Access Control:** Emiliano Suñé and Ashley Harwood discuss the removal of the previous demo-style traversal functionality. They determine that while graph traversal is still possible in the new system, it is now managed via links within the credentials themselves, allowing for permissioned and tenanted access control rather than universal visibility ([00:26:52](#)).
- **did:webvh Integration:** Patrick St-Louis and Ashley Harwood identify that the reference implementation currently lacks support for did:webvh. They agree to collaborate via GitHub issues and potentially use a small Veramo adapter as a pathway to implement this feature in the future ([00:31:15](#)).
- **Version Control Guidance:** Ashley Harwood confirms that users should utilize the 0.3 release tag of the reference implementation, released two days prior, rather than the "next" branch to ensure alignment with the latest stable architecture ([00:34:28](#)).
- **Conformance Assertion Protocol:** Harley Thomas returns to the proposed conformance assertion protocol, which aims to create a registry of solution providers and a method to continuously verify their conformance. This includes the ability for providers to publish a document detailing their implementation for external verification ([00:35:22](#)).
- **Addressing Implementation Falsification:** Patrick St-Louis, Harley Thomas, and Zach discuss the risks of providers falsifying their conformance, often referred to as the "Volkswagen problem." The group concludes that while relying on good

faith is a factor, robust, algorithmic validation is required to ensure integrity ([00:36:33](#)) ([00:44:26](#)).

- **Importance of Graph Validation:** Zach emphasizes that UNP conformity requires verifying the entire chain of credentials—graph validation—rather than just isolated credentials. This is vital for real-world industry adoption, such as the Australian steel industry requiring verification that steel has been certified by an accredited body before acceptance ([00:41:17](#)) ([00:48:09](#)).
- **Synthetic Data for Testing:** The group discusses the necessity of using synthetic, realistic data to test implementations. Zach notes that while synthetic data is essential for demonstrating the technology to industry stakeholders, specific production-grade verification is required when the system is used in a live environment ([00:50:45](#)).
- **Future Meeting Cadence:** Patrick St-Louis and Harley Thomas agree to establish a bi-weekly, recurring meeting to continue these discussions and maintain alignment between contributors. Participants are requested to post their availability and time zones on the tech working group Slack channel to facilitate scheduling ([00:55:08](#)).
- **Graph Complexity and System Reliability:** Zach argues that getting the implementation right is essential to avoid technical drift. Patrick St-Louis voices concerns regarding the increasing size of graphs and the distinction between individuals controlling their own part of the graph versus issuing everything. They collectively emphasize that the system must be resilient, ensuring that if a single link or branch breaks, it does not invalidate the entire graph or stop the remaining graph from functioning ([00:58:07](#)).
- **Validation Strategy and Graph Traversal:** Patrick St-Louis and Zach conclude that "pass/fail" terminology is insufficient for their needs, preferring to view the process as a spectrum. Zach suggests that because real-world environments are complex, they should avoid full graph traversal and instead focus on "small chunk" graph validation as a guiding principle. The group anticipates that there will eventually be dozens of tests, allowing businesses to select the ones most relevant to their needs ([00:59:08](#)).
- **Real-World Data and Friction Reduction:** Patrick St-Louis clarifies that passing a test suite does not guarantee successful real-world business interactions or system interoperability. The primary objective of these initiatives is to reduce friction when moving into production with real-world data, acknowledging the complexity inherent in such environments ([01:00:14](#)).

- **GitLab Merge Requests and Follow-up:** Harley Thomas identifies two draft merge requests in GitLab that are closely related: the "graph validation" request, which has been available for a couple of months, and the "assertion protocol" ([01:00:14](#)). Harley requests that the participants review these, provide comments, and share their availability and time zones to facilitate scheduling a follow-up meeting ([01:01:06](#)).
- **Meeting Conclusion:** The participants express appreciation for the session, with Patrick St-Louis noting the value of seeing familiar faces. Zach acknowledges the challenges of managing time in committee meetings and thanks the group for their contributions, specifically mentioning a desire to highlight the work done by Ash. The meeting concludes with the participants sharing closing pleasantries ([01:01:06](#)).

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# Transcript

Jun 5, 2026

# UNTP Testing Discussion - Transcript

00:00:00

**John Phillips:** Oh, let's go Patrick.

**Patrick St-Louis:** Yes. Uh, thank you. So, yeah, I'm Patrick. I'm familiar with some of the people here. Um, I think I've worked with some of you a year about a year ago, maybe a bit more. Uh, so I'm here representing the government of British Columbia. Uh, so I'm a consultant based in the province of Quebec, Canada. Uh I was I started working with BC uh actually as part of their mining permit work. So we were looking at expanding a um credential for mining permits outside of the province of BC. Our efforts started with the W3C traceability specification and maybe some of you know this it was a credential community group uh effort. So we built a implementation for this. We passed I think 99.99% of their test. There were few very weird tests that I didn't didn't want to pass. They were very suspicious. Uh and then after that we decided that the traceability model was not really uh fit for our use case.

00:01:10

**Patrick St-Louis:** It was very OOTH based and you know client registration. And that's when uh Nancy introduced us to the UNP work. I believe this was very early in the UNP work. Uh I think just after the kickoff uh so we built an implementation for that as well. Uh I'll get into a bit more details about our implementation when we start the call. Uh but yeah, so I'm here now. Uh we just started work again with on working on the UNP things. We put that on pause for uh about a year, maybe a year and a half. Um and we are now resuming the work. So we're happy to be here and to get back in the loop of what's happening with 0.7. Uh Zach, I choose you.

**Harley Thomas:** You want me a

**Patrick St-Louis:** Take on mute.

**Ashley Harwood:** In a sec.

**Harley Thomas:** sec?

**Zach:** Sorry about that. Uh, hi. Hi, Patrick. Thanks. I've worked with everybody here. Um, uh, I'm Zach. I am the technical lead on the adoption group and the conformity group,

um, for UNP.

**00:02:27**

**Zach:** Uh I'm active in a number of large-scale UNP pilots and projects um and um keen to and also uh working closely. I'm also part of the UNP steering group uh and working on a project around uh UNP's long-term viability. Um and uh that the reason I bring that up is it's going to be part I think it's going to be part of this conversation. So um uh but we can get into the details when we get into the details. Uh I don't I joined late so I don't know who spoke. So maybe Ameliano next. Have you already introduced

**Emiliano Suñé:** Nope,

**Zach:** yourself?

**Emiliano Suñé:** that's right. Thank you. Hi, Emiliano. I work with Patrick. Uh, I'm actually in BC, so we're a few time zones away, but working on the same thing. I've been working on digital trust in since 2018, more on the digital identity side of things. Uh, but UNP kind of like shoehorned itself into my into my path as it is part of digital trust. Uh, I've been kind of like helping out a little bit.

**00:03:37**

**Emiliano Suñé:** Patrick when with the implementation we did more at an architectural level so I'm not as knowledgeable about the spec details as he is um but I know kind like a lot around digital trust and and whatnot and I'm currently working with Patrick on the next steps for of our UNP um implementation for British Columbia and I think the last one to go is Harley Adrian or Adriana See if the microphone works.

**Adrienna Zsakay:** Yeah, good morning. Can you hear me? Okay. So, uh, sorry,

**Zach:** Yep.

**Adrienna Zsakay:** it's 6:30 in the morning here and I'm still horizontal,

**Emiliano Suñé:** Yeah.

**Adrienna Zsakay:** so I hope you don't mind. So, I run a small company called Circular Economy Asia. Um, normally I'm based in Asia. I'm not a techie, but I have was the working group lead for communications and training and guidance. uh working groups that were active um in the last few months which has now ended after um Michael Shear took over. So I'm just here because I have a weakness in um tech and I need to improve that and because I'm interested in everything that UNP does.

00:04:54

**Adrienna Zsakay:** So thank you

**Harley Thomas:** Okay, last. Um, my name is Harley Thomas. Um, dayto-day I'm I work for a solution provider in Australian agriculture. Um, I first got exposed to the UNP with the Australian Agricultural Traceability Protocol, one of the first, I guess, deployments and pilots. That's how I met Ash and Zach. And I don't know how many years ago that was now. Two plus, two and a half, exact three.

**Zach:** two years

**Harley Thomas:** Two years ago. Um, ever since then, yeah,

**Zach:** ago.

**Harley Thomas:** I've really enjoyed working on the UNP. So now, um, I help lead the tech working group and then I'm on the steering committee as well. Um, separate to my role as a solution provider, I also do some work for, um, with the textile deployment as well of the UNP. Um, the reason why we've all on this this call today, I hope everyone doesn't mind me maybe kicking things off a little bit for the discussion, um, is that obviously there's great work that's been done on the testing, which I haven't been too heavily involved in. Um, but Steve Capel, who I believe we all know was, um, I guess pushing for some kind of resolution of how do you actually know if a solution provider is conformant in real time?

00:06:02

**Harley Thomas:** And there was this idea on the the UNP site about this agent that is crawling and verifying everything in real time as well. Um, in response to that, I put up a a draft PR or merge request on the GitLab just around what I called a conformance assertion protocol um, in draft for a reason. So, I'm not too sure if everyone's had a look or a chance to read it, but that's probably like the current state of my output for this particular topic of conversation as well. But yeah, I'm very much looking forward to understanding all of the great work that everyone's done and help out however I can as well. Um, we can allocate some time in the tech working group meetings to this as well and I'll try and rally some more troops on that end as well to try and get some work done. Um, but I guess yeah, Patrick, I was I'll throw to you. Get your hand up, but that's it from me really.

**Patrick St-Louis:** Yeah. Uh that's very good. So thank you all for introductions.

**00:06:56**

**Patrick St-Louis:** Uh this is really nice. Uh I want to get back to this conformance um scope. Uh I don't how do you call it the the pull request you did like conformance package or protocol?

**Zach:** assisted protocol is what he any comment on there

**Patrick St-Louis:** Yeah. Sorry. Sorry. The the word was okay.

**Zach:** this morning as well.

**Patrick St-Louis:** Um

**Zach:** So I want to maybe help refine thinking there.

**Patrick St-Louis:** okay. Um okay. So I just want to uh first say so I did reach out right on UNP to have a meeting. Uh I had a very immediate couple question to ask thing to check out. uh however we did have internal meeting uh before you know at BC before standing this and we did have this idea that maybe it would be nice to do a sort of shortterm uh task force right to around testing and conformance I don't know if this is the beginning of this uh it seems like you know I'm happy that we got to invite a few people however I would very much like if we could just uh before we get into further discussion there's a few very specific question that Emiliano and I had for the group uh mostly around the reference implementation and a bit what we've been asked to do.

**00:08:14**

**Patrick St-Louis:** So, we just like to address these first and then kind of follow on with

**Zach:** I don't think this is I don't think this is the the meeting for that Patrick.

**Patrick St-Louis:** other.

**Zach:** I think like I I think happy happy to like happy to take that a

**Patrick St-Louis:** Okay.

**Zach:** separate conversation and schedule something on on that. We can bring it up, but this group is very much around the

**Patrick St-Louis:** Are you okay?

**Zach:** conformity.

**Patrick St-Louis:** I thought you were being sarcastic. Are you actually saying we you won't answer our questions on this call?

**Zach:** Well, of course I'll answer of course I'll answer the questions,

**Patrick St-Louis:** Sorry.

**Zach:** but but we like one of the things that happens in these meetings is they're set up for a specific purpose.

**Patrick St-Louis:** So I so I reached out on Slack.

**Zach:** They then people

**Patrick St-Louis:** I wanted a meeting with Ashley and Harley and this is what came out of it. So we Emiliano and I are making time to come here. Uh we really need answers to our question and they are related to the reference implementation.

**00:09:06**

**Patrick St-Louis:** I would really appreciate if we can dive into those uh time box it to 20 30 minutes before we move on.

**Zach:** So Harley called this meeting and Harley called this about the conformity testing like conformity is like conform UNP conformity testing not P reference implementation testing and

**Patrick St-Louis:** Mhm.

**Zach:** and the reason I'm the reason I'm making this distinction is um I think it's important that um so it's from my perspective it's Harley's Harley's decision here uh as the sort of convenor of the discussion but I'm on a ton of these calls and people should and these are this is volunteer time um and that when we do go off topic, it can be really disruptive to what people are trying to

**Patrick St-Louis:** So I think there's a miscommunication.

**Zach:** achieve.

**Patrick St-Louis:** So again I posted on Slack with intention of meeting with Ashley and Harley to discuss the reference implementation. This meeting is what came out of

**Harley Thomas:** Yeah, I can I can clarify this as well. Um I tried to keep the meeting topic just as a test and discussion not either side specifically.

**00:10:18**

**Patrick St-Louis:** it.

**Harley Thomas:** Um I think in the email the slack message I said automated testing for solution providers both as a development tool which I guess the reference

implementation in the test suites fall under as well and then also as a way for the ecosystem continuously check conformance. So I think it might be appropriate for yeah 20 minutes to talk about questions that Patrick you have and then spend the rest of the time on the um conformity assessment protocol the draft PR. I've got up as well. I guess just really how we check performance in real time if that's okay with everyone.

**Ashley Harwood:** Yep.

**Harley Thomas:** Go for it,

**Patrick St-Louis:** Okay.

**Harley Thomas:** Patrick.

**Patrick St-Louis:** Um yeah. So um there's two things we are working on in BC. Two components. One of them it's called our UNP publisher. Uh so this is a software that we are building to enable uh at the moment regulator to publish information that they have such as mining permit information as a conformant conformity credential. Uh so we had initially built this component uh really based around this software that we had called orgbook as a sort of a verifiable credential publishing pipeline.

**00:11:42**

**Patrick St-Louis:** uh we are now making the scope a lot smaller really focus around UNV so that's one thing we have now the other thing we had uh we have this uh reference implementation that has been uh deployed uh it's currently using 0.6 six it was especially in the context of the critical raw material. Uh this was based around the test UNP which is the repo I want to talk about a little bit. Uh so we are now tasked with you know looking at that deployment what was done and bringing it up to speed to 0.7 hopefully. Uh so we did a bunch of work on there. Uh we came to the realization the testp project has changed. So there's the next branch uh and it seems like it's gearing up to go in a direction to be a 0.7 reference implementation. However, the architecture has uh slightly been altered. Uh so our questions are uh what is the short to mediumterm plan for this reference implementation? Is there anything we can do to help uh bringing it up to speed?

**00:12:56**

**Patrick St-Louis:** And what is the migration plan for people that had previously deployed the mock app with some sample credentials that have been provided so that we can uh

as much as possible seamlessly migrate toward this new architecture and if that's one of the plans of this uh so we can engage in testing and conformance protocols. Uh, yes.

**Zach:** Um there's some history here.

**Patrick St-Louis:** Luck.

**Zach:** Uh so one of the things you said and and there's been a number of dialogues that I think is helpful to share and John this is uh looking at you because you were part of them. Um and it goes around things like um MZAC permits. Um so when we initially uh developed the uh mines act permit original implementation we did implement them as uh conformity credentials. Uh there has been some additional thinking around that kind of authorization um that potentially they're not conformity credentials. They're more likely identity anchors. Um and that's an evolution that's occurred in and and we haven't yet sort of published the guidance from our meetings um on that. Um but that's kind of where um sort of the thinking around things like government authorizations are is moving.

**00:14:29**

**Zach:** So that's that's anformational thing. And so um and that's coming from the uh from work real real life work with both the head of the conformity group working UNP conformity working group. That's uh Brett. Um as well as sort of looking at because the conformity credential is really designed around third party attestations associated against a standard where a and you can kind of make the case that a minds act permit is a assessment against a regulation. Um but there's the discussion has been sort of moving that it's more like an authorization which is closer to an accreditation. Um and so we've got to write up that guidance but that's something that's anformational for for you.

**Patrick St-Louis:** Sorry, my my headset cut off for a second.

**Zach:** Um

**Patrick St-Louis:** Could you repeat uh what you said about conformity my permit

**Zach:** okay.

**Patrick St-Louis:** credential

**Zach:** um that and and this this guidance hasn't been published yet. So so it's it's it's this is kind of straight off the cutting room floor like we're we're we're kind of um but that it's more likely to use the form of a digital identity anchor as opposed to conformity credential because the conformity credential is designed coming out of the na a global conformity infrastructure.

00:15:54

**Zach:** So, and there's a real formal formalization of that. And so, um, things like my attack permit are closer to authorizations.

**Ashley Harwood:** What?

**Zach:** You're authorized to mine on that land. It is closer to an author, a digital identity anchor as opposed to a digitally conformity credential. Um, and this is coming from the global experts in UNP. And we've got to write up the guidance so people can can appropriately um respond.

**Patrick St-Louis:** from my limited anyway like sure we can discuss about what a permit is that's fine I mostly wanted to focus really on the reference implementation and how we can build we can bring up to speed our deployment with this new model uh I could get into uh talking about uh digital identity anchor. Like from my knowledge of the digital identity anchor, seems very odd for a permit to be a digital identity anchor especially as a regulator issued piece of uh

**Zach:** Yeah. And and there's a some subtleties there um that we need to write up um because it is

**Patrick St-Louis:** document

**Zach:** um the digital identity anchor is being expanded in kind of scope to be to be more focused on authorizations um where conformity credentials is really focused on assessments against the standards.

00:17:16

**Zach:** So it it has a really precise meaning that is important to uh and and

**Patrick St-Louis:** Wouldn't

**Zach:** there are going to be gray areas and I think people will pick on both sides of this.

**Patrick St-Louis:** like regulator issued standard that are being inspected against fit as a

**Zach:** Um,

**Patrick St-Louis:** conformity? I mean there's a standard, there's an inspection and there's a document that claimed these

**Zach:** well, so, so I I think that's where we have like I'm sharing with you kind of the

**Patrick St-Louis:** standards.

**Zach:** very the the the the state-of-the-art discussions on this. I've gone back and forth

on this myself. Um, I'm sharing I'm sharing this because we need to write it up.

**Patrick St-Louis:** Okay.

**Zach:** um it will be important for us to to to kind of align because of both uh your client's role in this ecosystem. Um so we we need to make sure that we we kind of get this right as a team and so that's why I'm

**Patrick St-Louis:** Huh?

**Zach:** bringing it up. I like I I've gone both like I I issu I I worked with you to say it's a a conformity credential when we built it the first time, right?

**00:18:17**

**Zach:** like I I I've I've I've I've been moved on this conversation and I'm bringing this up only so that we kind of uh go forward on the reference implementation side. Uh happy to hand over to Ash. Um, it's not the next branch anymore. So Ash, I'll leave it, but I'll I'll kind of hand over to you to kind

**Ashley Harwood:** Yes, thanks. Uh so a bit of history here.

**Zach:** of

**Ashley Harwood:** uh at the UNP's inception uh we needed a capability to demonstrate uh I think it was version 0.1 of uh UNP uh for a couple of uh proof of concepts that we were running uh within Australia specifically for the AATP uh as a result um we had built an application a um single page application that was based on a JavaScript JavaScript framework called React uh that uh piece uh that application uh was uh driven by a configuration file uh at build time. So basically we had a monolithic uh configuration file that defined all of the actors within the supply chain the data models in which um uh they were issuing credentials against the UNP data models that is uh and then connecting to uh the dependent services things like a verifiable credential uh issuing capability uh a storage capability to store the credentials once they've been issued uh and then also an identity resolver service such that we can publish links to the credentials and associate them uh with the identifiers

**00:19:56**

**Ashley Harwood:** uh that that credential um pertains to uh that uh was under development and is the system in which uh Patrick is referring to. Uh so I believe that was uh the 0.2 two uh release of the reference implementation uh which basically

meant that you could issue credentials and then verify them within the system. Do I have that correct

**Patrick St-Louis:** Uh I I think so I think so.

**Ashley Harwood:** Patrick?

**Patrick St-Louis:** Uh so what we had was like this dashboard with the different kind of uh entity

**Ashley Harwood:** Yes.

**Patrick St-Louis:** or organizations and main thing that was there is you could like traverse right you had your transformation event and you could just click and move around.

**Ashley Harwood:** Yes.

**Patrick St-Louis:** Yeah.

**Ashley Harwood:** Yes. So this was the uh human rendering of those credentials and then we could basically click uh on those

**Patrick St-Louis:** Yeah.

**Ashley Harwood:** links within those credentials and then go to the next credential and basically uh traverse the trust graph if you will.

**Patrick St-Louis:** Sorry.

**Ashley Harwood:** Yes. So that was the previous system.

**00:20:57**

**Ashley Harwood:** Uh now that system uh was not scalable uh and also uh unsecure. Um so the unscalable part is that we had a monolithic uh uh JSON file that contained on on the order of 20,000 lines maintaining that was not scalable at all. Uh and also uh that application was exposing secrets uh to the APIs that in which it was calling. Uh so the reference implementation has gone through a quite a dramatic um transformation. uh specifically moving away from a single page application uh to a set of APIs uh and then also uh the single application that consumes those APIs. So uh within that system, this is the current system that was uh that has just uh had a release uh for 0.3 um basically takes it from that static linear single config S spa uh to something that resembles a bit more of a a production grade system. um specifically uh it has been uh we have integrated an identity provider uh into this uh reference implementation. So that's for the APIs and also uh the SPA.

00:22:16

**Ashley Harwood:** Uh we have also um added things like logging and and and all that jazz uh and uh and and uh managing the the secrets like API keys and so on so forth appropriately. This is within the APIs themselves. um the the set of APIs that it expose uh we can issue 0.7 compliant credentials. Uh we can also validate uh in this case sounds like it pertains to yourself um is uh validate the conformity uh uh the conformity vocabulary links the schemes and also the criteria in which uh that dcc you're issuing uh pertains to or contains against a conformity vocabulary uh scheme as well or conformity scheme sorry terminology has changed quite a bit over the last a couple of months um and you're able to uh verify those credentials um within the reference implementation. Um so in terms of like a migration pathway, it's a replace replace replace the system that they're not compatible, right?

**Patrick St-Louis:** Okay.

**Ashley Harwood:** It's yeah a completely different architecture. Now the entire premise behind this also was to facilitate uh extensions as well.

00:23:38

**Ashley Harwood:** Um so this includes uh extending uh the render templates at runtime. Um uh also extending the data models as well. Um but also having a system where in which um the individual provisioning that system uh can expose uh these extensions and and render templates and so on so forth uh to the tenants within that system because it is a multi-tenanted system. um such that uh they can issue the credentials against the the the extensions or the UNP the core data models um but then also have the ability uh to add their own extensions their own render templates and and customize uh the things within the system at runtime as opposed to having to to reconfigure the system uh each time. Um so yeah on the migration path it's it's a it's a completely different architecture.

**Patrick St-Louis:** Okay.

**Ashley Harwood:** Yeah. Before I get into the short and medium term goals, um, any questions so far? What do you

**Patrick St-Louis:** Uh so so we deployed it right we deployed this application there's we have a total of

**Ashley Harwood:** think?

00:24:47

**Patrick St-Louis:** eight services that are deployed a lot of database uh so there's three uh obviously let's put keylo on the side for now but so there's the vk kit ther and the reference implementation these are like the three I would consider nitty-gritty UNP specific

**Ashley Harwood:** Yes.

**Patrick St-Louis:** things correct if I understand correctly VCKit is a sort of vermo

**Ashley Harwood:** Yes.

**Patrick St-Louis:** uh key signing thing uh the reference implementation it's kind of the UI for and the API for the reference implementation while the IDR that's the identity resolver

**Ashley Harwood:** Yes. Yes.

**Patrick St-Louis:** okay the

**Zach:** I would add that the storage service is an additional important component.

**Ashley Harwood:** Yes.

**Zach:** Um,

**Ashley Harwood:** No. No. It's um uh I think it is called storage service with within the configuration.

**Patrick St-Louis:** He

**Zach:** yeah, it's it's the storage service.

**Ashley Harwood:** Yes.

**Zach:** That's that's what uh enables um credential encryption and the ident the access control

**Ashley Harwood:** Yes.

**Patrick St-Louis:** okay.

**Zach:** stuff.

**Ashley Harwood:** Access control in that we can encrypt the credentials

**Patrick St-Louis:** Okay.

**Zach:** Yeah. Yeah.

**Ashley Harwood:** just

00:25:54

**Zach:** The digital access control is DAC is the frame in UNTP that I'm I'm referring

**Ashley Harwood:** yes that's correct.

**Zach:** to.

**Ashley Harwood:** Uh there is also the UNP sorry UNP playground as well.

**Patrick St-Louis:** Yeah. Yes.

**Ashley Harwood:** Yes.

**Patrick St-Louis:** Yeah.

**Emiliano Suárez:** Yeah.

**Patrick St-Louis:** That's kind of a separate optional thing.

**Emiliano Suárez:** Um yeah,

**Patrick St-Louis:** Yeah.

**Emiliano Suárez:** my question is kind of like a trying to understand and summarize what you what you said about changing the architecture and

**Ashley Harwood:** Yes,

**Emiliano Suárez:** what not. So we basically went from strictly a demo application to something that now the intention is could be brought to to production systems basically like a lot

**Ashley Harwood:** that's correct.

**Emiliano Suárez:** more structured and stable basically.

**Ashley Harwood:** Yes, there is still Yes.

**Zach:** It's intended to head in that direction.

**Ashley Harwood:** Yes.

**Emiliano Suárez:** Um yeah,

**Ashley Harwood:** Yes.

**Emiliano Suárez:** which the follow-up question maybe you were going to to answer like the follow-up question would be uh

**Zach:** Yes.

**Emiliano Suárez:** some of that um DPP traversal functionality that the previous um application had.

**00:26:52**

**Emiliano Suárez:** You could basically click through and drill through the the tree and figure out like you know the path from copper extraction to the battery or or vice versa. Is that something that you're planning on implementing again even this permissioned way or is that going to be something that gets dropped in favor of tenanted credential management

**Ashley Harwood:** So, so this is already possible, right?

**Emiliano Suárez:** basically

**Ashley Harwood:** This is in the control of the individual issuing the credentials. So all

we're doing there in terms of the traversal is adding a link to the the the subsequent credential or or the next node in in the graph if you will. Um so in terms of access control uh both the identity resolver service and also the reference implementation has the ability to handle uh encrypted credentials such that we can pass the key the decryption key uh through the chain uh and then subsequently uh unlock that uh that credential uh without uh publishing it um so so that it's publicly accessible right Um so yeah this is so it is possible um but it's uh it depends as to what links you're including uh within the payloads or the credentials that you're issuing that that's that's the mechanism in which facilitates this.

00:28:15

[illegible]

**Ashley Harwood:** Yep.

**Emiliano Suñé:** rules around security and access control. The traversal is not going to be like the demo. You can go anywhere. It's going to depend on the relationship you have between the the various actors whether you can see the the the leaf or not.

**Ashley Harwood:** Yes.

**Emiliano Suñé:** Okay.

**Ashley Harwood:** So, so

**Patrick St-Louis:** But we could if we want set it up so everyone can go anywhere,

## Ashley Harwood: just

**Patrick St-Louis:** right? Like we could just go in there create some kind of credential chain that everyone can explore, right? That that's

**Ashley Harwood:** yes,

**Patrick St-Louis:** possible.

**Ashley Harwood:** within the the credentials that you're issuing, not within the the reference implementation itself.

**Patrick St-Louis:** Okay.

**Ashley Harwood:** I might be I might be I'm not sure if you uh if BC Minds received the um the supply chain map updates where you could you had like a supply chain map and you could click through it.

00:29:07

**Patrick St-Louis:** Yeah, we we had this uh I forgot RBA I think like you have then you can click opens

**Ashley Harwood:** Yeah. Yeah. We don't Yeah.

**Emiliano Suárez:** Yeah.

**Patrick St-Louis:** it. Yeah.

**Ashley Harwood:** So

**Patrick St-Louis:** So what where where does that come from?

**Ashley Harwood:** we

**Patrick St-Louis:** Is that from the test to NTP repo or is this map generated somewhere else?

**Zach:** It's it's it's from the uh test UNP as well. Uh what we've done there is we've built additional um uh maps on top of images to build that out. Um so we can share that process too.

**Emiliano Suárez:** Mhm.

**Zach:** Um but that that's a that's a um handcrafted tool. We also have um as part of RBA created a um graph

**Ashley Harwood:** Yes.

**Zach:** traversal that reads the credentials and then sort of walks back um that we demonstrated there. Like there's a number of those tools as well um that those are not

**Patrick St-Louis:** And there they are in the report those tools.

**Zach:** in the tests UNP repeat at this point.

**Ashley Harwood:** Wait

00:30:05

**Zach:** Um there yeah we've been focused in the test UNGP

**Patrick St-Louis:** Okay.

**Zach:** on just getting to this point getting to the point where we can issue 0.7 compliant credentials in a robust way like that's been uh a huge effort from Ash over the last several months.

**Ashley Harwood:** a while. It's

**Zach:** Yeah. And so so um and and really the RBA tools um um were not um were built independently of the reference implementation. So there we we I don't think they have intention of commercializing them or anything.

**Emiliano Suárez:** Mhm.

**Zach:** So we may be able to bring them into the community, but I don't have that um we need to have that conversation with them.

**Patrick St-Louis:** Okay.

**Ashley Harwood:** Yeah.

**Patrick St-Louis:** Yeah, that's that makes

**Ashley Harwood:** So, yes. So, to achieve what you would like to achieve, um Patrick,

**Patrick St-Louis:** sense.

**Ashley Harwood:** it it seems feasible. um it just might not be presented as it currently is um in your existing system. Um but but it is achievable uh with with the the building blocks that that we're providing within the test UNTP repository.

**00:31:15**

**Ashley Harwood:** Uh also it's probably worth noting that um in your specific uh use case is that the reference implementation does not yet support uh did webvh. um it is on the road map but it is a low priority um because the uh dependent services need to be updated and and so on so forth and then integrated um but there is a pathway um to to um uh provide that integration and that support uh but it isn't the yeah short-term term path

**Patrick St-Louis:** Yeah, like that's something we could look So I was looking at it and my quickest kind of method was to create a very small web adapter for Veramo with web VHDS

**Ashley Harwood:** Yeah. So I have yeah so I have attempted to do this um so I have a branch I'll I'll shoot through a

**Patrick St-Louis:** and

**Ashley Harwood:** link to that branch adding that support for yeah already done I had to drop it um because of other priorities um so yeah there is a foundation there um yeah might

**Patrick St-Louis:** Yeah.

**Ashley Harwood:** get your feedback on that right because you're quite involved in that community um so yeah that that most certainly is the pathway right uh for in for for uh us right this is without bringing in some other verifiable credential service which there is an a a pattern to support other verifiable credential services within the reference implementation and is a part of the the adoption uh ramp as well.

00:32:44

**Ashley Harwood:** So the idea here is that uh users uh can use the provisioned services bundled with the reference implementation and then there's a small incremental um adoption ramp such that that by the end of it you can move off into your own stuff and and contribute back to

**Patrick St-Louis:** Yeah. And what's nice is uh so we have the web server component would pair

**Ashley Harwood:** the

**Patrick St-Louis:** very well in there because it takes care of storage, take care of security and you can just use did web, right? And you also happen to have a web VH next to your did web. So I think that's great for people to discover right you can start because if you if we start issuing with webb like you know not there yet right like a lot of people being introduced there they

**Ashley Harwood:** Yeah.

**Patrick St-Louis:** they need to ease into it like understand really well what did web is what how everything fits

**Ashley Harwood:** Yeah.

**Patrick St-Louis:** together uh but what would be nice about this little webpage server is it can just be used for did web right and it just needs a small adapter to publish your one log entry and that's it right you don't need to touch it again You can use the web.

00:33:47

**Ashley Harwood:** Yep.

**Patrick St-Louis:** So that's okay. That's

**Ashley Harwood:** Yeah, we can raise an issue and we can collaborate on that, right?

**Patrick St-Louis:** interesting.

**Ashley Harwood:** And and map that out uh if you'd like to. Um and then Yeah. Sorry,

**Harley Thomas:** Hey, just flagging the time guys.

**Ashley Harwood:** Ali.

**Harley Thomas:** We spent about 20 minutes on that.

**Ashley Harwood:** Sorry.

**Harley Thomas:** Are we good to go into the the next topic? Is that all right with everyone?

**Patrick St-Louis:** Uh I think that's okay for me. Yeah, I think we got a good picture enough to kind of have an internal conversation, Emiliano, and decide what the next

steps are.

**Emiliano Suárez:** Yeah.

**Patrick St-Louis:** Yeah,

**Emiliano Suárez:** Yeah. Yeah. Thanks, guys.

**Patrick St-Louis:** we can always communicate on Slack, right? Ashley,

**Ashley Harwood:** Yes.

**Patrick St-Louis:** you're available if we question on Slack GitHub

**Ashley Harwood:** Yeah. Yeah. Or GitHub issues, right? We we can Yeah.

**Patrick St-Louis:** if

**Ashley Harwood:** Slack also sent through the supporting documentation as well.

00:34:28

**Patrick St-Louis:** you

**Ashley Harwood:** So the the new architecture uh the reasoning why uh we've moved in this direction and then also that uh branch for did webb as

**Patrick St-Louis:** Yeah, I'd like to know which branch to use because we're using the next branch right now and I you maybe

**Ashley Harwood:** well zero. Yeah.

**Patrick St-Louis:** Oh,

**Ashley Harwood:** So the the uh you should be using the 0.3 uh release tag. Yep. I'll send that through as well.

**Zach:** Yeah.

**Patrick St-Louis:** okay.

**Zach:** And that was just released a couple two days ago. So like this is brand new.

**Ashley Harwood:** Yes.

**Zach:** Next was the right thing to be moving up till now.

**Harley Thomas:** Awesome.

**Zach:** Um but we tagged the release this week.

**Ashley Harwood:** Yeah.

**Patrick St-Louis:** Thank you very much for taking the time to answer our

**Emiliano Suárez:** Yeah, thank

**Ashley Harwood:** Let's see.

**Patrick St-Louis:** questions.

**Emiliano Suárez:** you.

**Harley Thomas:** Is my screen coming through?

**Patrick St-Louis:** Yes.

**Harley Thomas:** Perfect. So on the uh on the UNP site,

**Zach:** Yep.

**Harley Thomas:** there was this uh this couple of paragraphs here about having something around a continuous registrar agent.

**00:35:22**

**Harley Thomas:** I believe this was the work of off of Steve potentially, but it kind of breaks the

**Zach:** Absolutely.

**Harley Thomas:** convers where I guess

**Zach:** Absolutely was.

**Harley Thomas:** really what everyone was somewhat speaking around then was having a point in time and implemented driven way to verify your implementation as well. But then having some notion of an agent where it's more registered driven. So what are the registered solution providers and then what is the way that you can continuously verify that they actually are um conformant. Um so following on from from Steve's uh thinking I created a merge request on GitLab um where I put together I just called it a conformance assertion protocol. I'm not at all precious about the name, the architecture or anything like that at all. But really what I just tried to say was is there a way where solution providers can publish some document which is them claiming the different I guess functionality of the UNP that they implement and then a way to test it. So if you were that agent, you could have a look at that document and then actually execute those tests against the actual production um implementation.

**00:36:33**

**Harley Thomas:** So that merge request is on the GitLab. Um it has been up for about 2 weeks now as well. So I'm assuming maybe people have had a chance to read it. Um in retrospect of riding it, I've had one concern myself just around the ability for solution providers to falsify it. Um, I use like the Volkswagen example of when they uh, you know, they knew that the car was under test or changed performance and the emissions as well. If I'm publishing, you know, what endpoints need to hit to verify my my solution, I'll just, you know, maybe do a little bit of fudging in the back end to make sure the right result goes um, irrespective of what my actual production software is doing itself as

well. Um, and then obviously Zach has some really great insights on this as well. So, I guess Patrick, we'll throw it to you and then Zach, it would be cool if you could maybe outline your comment here in some more

**Patrick St-Louis:** Yeah. So I had uh worked with digital bazar in the past to build the

**00:37:23**

**Harley Thomas:** detail.

**Patrick St-Louis:** W3C test suite. So the BCDM 2.0, the Bitstring status list, the VC Jose ECDSA. uh I did help build this ecosystem and the way they do it you know you publish an implementation JSON for your implementation in the repo and it pulls for this. So what you just said about people kind of faking their way through is a real thing, right? And at the end of the day, uh, you know, you need to rely on good faith from people, right? So I see like when we have these reports for tests, right? It's a window of here are all the supporters that support this. If someone choose to lie and they get a contract based on these lies, I don't see who it's benefiting, right? like uh um and there's only so much you can do like you can try to go into like uh doing negative testing and doing some of these things. I think with UNP it's actually harder to fake it. uh because from what I understand well depending on what component you test but to test that you can issue a valid conformity credential uh it's valid or it's not right like you serve your conformity credential or your product passport the test suite can go fetch it and you know does it JSON schema doesn't match the proof doesn't match you know so so those are the things uh testing other components like for the link resolver and so on I'm not familiar enough yet to know the expected behaviors.

**00:39:03**

**Patrick St-Louis:** Um, yeah, some so I'd be happy like maybe in in other calls or uh today, well, probably not today. I think we have enough to discuss, but I could be happy to share some of the things that I wear a problem when designing these test suites uh interacting with software and so on. I'd be happy to do this because what you just mentioned this is uh it's a thought I've had many times. Uh I will be happy to have a look at the PR. Uh so you seem to define a credential. So people publish a credential for their implementation. Is that what I understood

**Harley Thomas:** Uh,

**Patrick St-Louis:** here?

**Harley Thomas:** more so just like a Sorry,

**Zach:** C can Yeah.

**Harley Thomas:** Zach. You go.

**Zach:** Can can can I kind of um interject here because I think there's actually an important nuance and Patrick

**Patrick St-Louis:** Yeah.

**Zach:** your work on VCDM2 and uh that testing is part of I mean when when uh is part of what's been implemented in the reference implementation to uh as part of uh UNP tests that exist today.

**00:40:09**

**Zach:** So uh we're leveraging all of that work already um in the testing of credentials. So when you uh you mentioned the test playground is kind of an optional thing. When you drop a credential in there and you get that uh confetti, it is te it is using the VCDM2 tests that you would have worked on. Um I actually think the important thing actually you want to correct me maybe we're not using

**Ashley Harwood:** Well, no, no, no, no.

**Zach:** them.

**Ashley Harwood:** It's it's it's in it's it's in it's inferred based on uh our software being

**Patrick St-Louis:** That's

**Ashley Harwood:** able to verify those credentials,

**Zach:** Okay.

**Ashley Harwood:** right?

**Zach:** Um But it it would have it would have it would have taken

**Ashley Harwood:** Yeah. So,

**Zach:** uh influence it would have been influenced significantly by it. Um but there's a difference I think that we need to pay attention to here between the testing of an individual credential and the testing of a set of linked credentials. Uh because UNP compliance is not just a single credential compliance. It's compliance with what the um the extension requires.

00:41:17

**Zach:** So, for example, um Harley, when we did, uh AATP and the digital livestock passports, we had to not only have um a digital livestock passport that described livestock, it also needed a unique identifier, which is an NLIS ID, which is different from other identifiers. And those things are important interactions because if you get a digital livestock passport from Australia that does not have an NL ID, it probably does not belong to an Australian cow. Um, and so that those things become an important part of the test suite. And one of the things that we're starting to see in commercial implementations is how do we help customers um pick products that have high quality verifiable information attached to them. the whole point of UNP. And so we're doing a project in steel at the minute where the Australian steel industry is wanting to say that Australian builders should buy steel that has been certified by an Australian accredited certifier, right? That that's the requirement that they that they want the uh builders to test against. And what that means is that there's a Jazz accreditation an identity identity anchor back to our first conversation but that there's a DIA issued by an organization called Jazzanss there's a DCC um issued by an organizations that's authorized by that accreditation by Jazzanss attached to the DPP there's kind of the thread of credentials attached to that and So from a algorithmic validation perspective if we're

00:43:00

**Patrick St-Louis:** Yes.

**Zach:** like I would suggest we want to follow the same thing because when I'm buying a product from a customer I want to know that it h it is a valid UNP that one of the tests I want to test is is the data a valid UNP one so that I know I can read it effectively um and so the test that UNP so what we're working with in this market is that the Australian steel industry not preference refencing any single organization. They're saying here's the rules that we're we think a customer should test and we're going to provide a test suite so that the customer can test that when they receive the product on site. So that moves the validation from a it it removes the in the verification of the validation from a third party testing um uh asynchronously to a real-time verification of the whole tree.

**Patrick St-Louis:** Interesting. So you am I understanding that there's a small desire that this protocol

**Zach:** Um,

**Patrick St-Louis:** here would be used in production. Is that what I'm understanding here? Like uh someone could use this test suite in production to validate credentials

they receive.

**00:44:26**

**Zach:** yes. Absolutely.

**Patrick St-Louis:** Okay, that's

**Zach:** Yes.

**Harley Thomas:** I guess what exactly what you were saying just saying though is that more around like the graph validation which funnily enough

**Zach:** And

**Patrick St-Louis:** interesting.

**Harley Thomas:** there's another draft merge request for as well um which is

**Zach:** It is my view is that's that you it's always going to be graph validation these

**Harley Thomas:** a

**Zach:** types of things always going to be graph validation and and the graph validation addresses some of

**Patrick St-Louis:** Yeah.

**Zach:** the um uh uh uh the v addresses the volkswagen problem right because you're using it at the time you're driving not at the time the test is

**Harley Thomas:** but I think to like the original notion of having this agent I'll laugh whenever I say

**Zach:** occurring.

**Harley Thomas:** the word um looking at the registrar of registered solution providers how do they know I completely agree if you have like the product identifier you can verify the graph and

**Zach:** they they've still got to publish like the implementer has got to say got to have a some sort of like in order to get the UNP issued conformity credential that is that says they're UNTP compliant they've got to be there they've got to have met a certain set of

**00:45:35**

**Harley Thomas:** Yes.

**Zach:** rules and a certain set of rules includes interoperability testing so they will have to have a sample credential that that every time they update they get a new one because they'll want it to be valid for the credentials they're issuing doing in production, right?

Like um and the um key um concept there is it's not just the technical implementation that we want from these impleers. We also want them reporting on their progress. We probably also need a code of conduct, right? Because this is UNP stuff. like if you're messing with the sustainable development goals, we're probably going to not allow you to claim you're UN compliant. um like there's there's a number of things that kind of like like it's not just the technical implementation here that I think means that you are maintain your UN conformity like and so in my mind the conformity group Brett's group is going to have to define the rules that says here's what it means to be UNP compliant and then from a tech perspective we need to figure out how to implement those rules

**Patrick St-Louis:** Yeah.

**00:46:46**

**Patrick St-Louis:** So it sounds to me like there's a place somewhere to define a resolver algorithm somewhere in the spec.

**Zach:** Oh,

**Patrick St-Louis:** And maybe this is it right now, right? Like a sort of pseudo code for a resolver of what you should do if this happens, you know, raise this problem or not. A lot of specs do this so that people have something to follow. uh and you could base this test against uh what we did at the the WTC test is we took every single normative statement in the specification and then we wrote test cases for them. Right? So uh when you have a normative statement like a must or required it needs to be testable otherwise why why do you have that right? uh and then it it needs to be also uh realistic right so um I'm wondering if along with this conformity assertion protocol there should be a resolver algorithm published somewhere that says this is the algorithm that you need to implement when you resolve something and it's also what other resolver will do when they you know resolve your stuff uh and this could kind of be the skeleton for whatever the test client is going to do, right?

**00:48:09**

**Patrick St-Louis:** Does that bring does that resonate?

**Zach:** Yeah. So I just want to there's probably one word there that I want to clarify.

**Patrick St-Louis:** Uh

**Zach:** It's it's beyond just the resolver. It's it's the graph traversal I think is the way we

want to talk about it because the result one piece of it and

**Patrick St-Louis:** yeah. Yeah. Yeah. Yeah. I'm expecting like when I say resolver like if I have a credential I say

**Zach:** yeah

**Patrick St-Louis:** whatever maybe resolvers are portals but whatever consumer of the credential the algorithm they need to go through to say like yes I accept this

**Zach:** yes that's right and and and Patrick this is from my perspective an a huge uh

**Patrick St-Louis:** right

**Zach:** hugely important piece of of what this needs to be from an adoption perspective. Uh because if we can get buyers to be running the checks, then there's demand for this protocol. Um but if if buyers aren't checking for this stuff, nobody cares. Like and and and and suppliers won't implement.

**Patrick St-Louis:** Yeah.

**Zach:** like I'm just like and and so this kind of pattern of helping the buyer like so the the scenario that we're working on in in in the steel sector is working with a big builder and saying hey wouldn't it be nice that when you receive steel on site you scan the barcode and

**00:49:28**

**Zach:** not only do you get the product features and you know where to put it you also get your um carbon footprint you get your you get validation that it has the test certificates you get all of the data And we're going to and the industry is going to maintain the tests so that you don't have to do that on your own.

**Harley Thomas:** So Zach, do do you still agree with the notion that if I'm a solution provider,

**Zach:** Charlie

**Harley Thomas:** I should publish some statement of saying this is what I've implemented off the UNP and give anyone the way to verify my solution. And are you just saying that verification should include graph verification as a part of

**Zach:** I I think it I think it's two things.

**Harley Thomas:** that?

**Zach:** I think it's um they need to publish here's how you verify and here's my uh UNP conformity credentials that says that I've published that in a that is

**Harley Thomas:** Yep.

**Zach:** compliant with UNP requirements. Um because one of the things we have from a a UN perspective is we need to uh report on impact and so we need our impleers to tell

us how much they're using the stuff and how effectively and so part of there's there's additional requirements that people need to maintain to in order to maintain their UN um conformity

**00:50:45**

**Harley Thomas:** Yeah. So, in terms of act like just in terms of action items for this, it sounds like maybe a like some kind of task force would be good for this specifically, but if if I update this to address graph validation as well, I can do that. I have immediate questions like if we use Australian livestock as the example um like what is the livestock ID that I use? Every ID that's issued for livestock has to actually relate to an actual cow here in Australia. So how do I have like a mock one as a part of the um the

**Zach:** So, so in invalidate so invalidation Um my view is there will always be a

**Harley Thomas:** validation

**Zach:** reference implementation that has synthetic but realistic data that is designed for showing industry how to use the how how to how to implement the tool and how to test the the scenario. Um and so there needs to be synthetic realistic

**Harley Thomas:** Okay.

**Zach:** examples for every implementation.

**Patrick St-Louis:** Yeah. So that's a bit why I was asking earlier if you plan to use this in production because I think this is a big difference, right?

**00:51:48**

**Patrick St-Louis:** like uh if I'm depositing an implementation and I want to show that I'm conformant with VCDM I'm not going to use my production software right I'm going to deploy like a test suite type test environment thing right so I think uh being

**Zach:** That's

**Harley Thomas:** H.

**Patrick St-Louis:** very clear about what is expected as implementation here I think yes synthetic data that looks real is a good thing uh but then you

**Harley Thomas:** Okay.

**Patrick St-Louis:** won't like to Harley's point like you won't be able to look up that identifier in a database and make sure it's real, right? Because it's synthetic.

**Zach:** That's not but that's not that's not its job, right? Um that's that's the there's two

jobs here. One is the job that says you've met the conformity requirements like and this go this is how conformity works in general, right? You get your conformance on a annual or quarterly or otherwise basis but then there's additional detail that you give to your customer to prove that you've maintained that conformity. Right? So if we think about steel, uh ACS is our Australian structural steel certification authority.

00:52:53

**Zach:** They they authorize a company every year, but attached to every beam of steel is a mil test certificate that says it passed the structural steel requirements. And so what we're talking about is kind of that same kind of model is that when I'm sending a passport from my system, when I'm publishing a passport from my system so that it's available to to so my customers can make it available to their customers.

**Patrick St-Louis:** Another

**Zach:** Um it's attaching that sort of uh conformity requirements so that people can validate in their own interest. Now will everybody validate? No. But for people who care, they will. And that and if they don't pass, it's an immediate issue.

**Emiliano Suárez:** Um I'm just trying to follow along here but to me if I'm if I'm understanding correctly and I think you mentioned like it's really two problems. One is like from the point of view of the consumer of the credential being able to go through it validate that is like formally correct and extract the data that they need and that's like the job site receiving them the steel and whatever and on the flip side it is more and maybe this this is what the assertion protocol was focusing on.

00:54:08

**Emiliano Suárez:** uh it's like more of a kind of certification similarly to how companies do ISO to say like I follow this process correctly so I'm certified that the output that I produce based on certain inputs follows a specific standard this is more of like a really more like a test suite like type of thing saying I'm generating credentials that like match what you're expecting to read so you will be able to traverse them and find the information, not necessarily with production data. This is what Patrick was saying, but like with based on certain inputs, what comes out is correct. So that's kind of like a division test of

**Zach:** Yeah. Yeah. Yeah.

**Emiliano Suñé:** sorts,

**Zach:** So that integration test is how you get your UNP conformity credential.

**Emiliano Suñé:** right?

**Zach:** And how your customer knows you're still compliant when you actually ship data and are actually using it

**Emiliano Suñé:** Because they can ask it.

**Zach:** in real life is through they they can well I think in order to be

**Emiliano Suñé:** They can ask for it.

**Zach:** conformant we're going to say you need to publish the test suite so that your customers can validate that in real time.

**00:55:08**

**Zach:** Like I think we need to just like we need to create my view is this this creates a ratchet where conformity like it's it's hard like what we need to make is it it's easier and more efficient and cheaper for everybody if they maintain if it's easier if it if if compliance is maintained because as soon as it's as soon as as I mean we all know about tech drift if we don't get a a red flag on a test test case when we're committing a new piece of code we're not going to notice.

**Patrick St-Louis:** Yeah. Um, okay. So, the first thing I want to address, uh, so I see where we're coming the end of the hour. Uh, do we want to make this a recurring meeting? like is this the start of some kind of ongoing effort uh that we want to repeat bi-weekly maybe or what kind of cadence we want to do? I'm just saying like are we leaving this call and then we're that's it and we try to schedule other calls or do we want to make this

**00:56:04**

**Harley Thomas:** No, we've got other there's other interested people in contributing to this.

**Patrick St-Louis:** a

**Harley Thomas:** So, I think a fortnightly call is very much

**Patrick St-Louis:** okay I can probably attend bi-weekly right I think weekly is a bit much like I do have

**Harley Thomas:** warranted.

**Zach:** Yeah.

**Patrick St-Louis:** a lot of uh community calls I attend uh bi-weekly I think is a reasonable pace at least for me um and you know I'll be attending ing this as as long as uh BCG gov is doing development on this definitely. Uh so we have a shortterm crunch that we're going to be doing for UNP

**Emiliano Suárez:** Mhm.

**Patrick St-Louis:** stuff. Uh so I'm happy to help uh in the meantime and make sure we are in sync. Uh so that's for me uh you know

**Harley Thomas:** Well, if everyone could uh on the tech working group Slack channel, if you could just drop a time and a time zone that would typically work for you and I'll try to harmonize it. There might be two groups because I think there is some people in India that are very interested in doing this that might not be able to align with our particular time zones as well.

**00:57:08**

**Harley Thomas:** Um, and then I'll get that into everyone's calendars or publish a a Google calendar and go through that horrific experience again of trying to figure out how to do that.

**Patrick St-Louis:** Oh yeah. Yeah. Uh yeah and again like I apologize uh at the beginning like I really wanted to get these discussion

**Harley Thomas:** Um,

**Patrick St-Louis:** like these are uh for internal things we because we need to plan and know a little bit what's happening. uh we are interested in the broader uh discussion around interoperability and testing uh just you know we had our immediate needs right now and our our question has been answered so I'm quite happy for this

**Harley Thomas:** The apologies is with me, Patrick and Zach. Sorry,

**Patrick St-Louis:** yeah

**Harley Thomas:** I this was just meant to be a broad tested discussion and talking about the the test suite itself and then the

**Zach:** Yeah. And I ap I apologize too. I'd been very much in the So from my perspective,

**Harley Thomas:** yeah

**Zach:** this algorithmic validation is the the lynch the the keystone of this whole effort.

00:58:07

**Zach:** Um, and so like if we get it right, it it creates a real strong adoption pathway. And if we don't get it right, I think it just creates um technical drift.

**Patrick St-Louis:** Yeah, I do have concerns.

**Harley Thomas:** Well,

**Zach:** Um,

**Patrick St-Louis:** Uh my concerns are uh these graphs can get very large. I think we everyone in the call acknowledged it.

**Zach:** yeah. Oh, yeah.

**Patrick St-Louis:** And so there's this thing about like if I'm making my own implementation and I'm basically controlling the graph, right? I'm issuing everything and then I pass versus in the real world where I might only control my part of the graph, right? And I I think the caution we need to make is not make this whole system fail because one of the link broke, right? Like if one company breaks uh doesn't mean your credential is no longer valid. So I think there's a bit of a a scale, right? uh and if I branch off in a direction of the graph and it's broken well you know I can go no further in that direction but it doesn't mean that the rest of the graph is invalidated.

00:59:08

**Zach:** Yeah.

**Patrick St-Louis:** So my only nuance I would want to add is it's not like a pass fail kind of thing I think we're doing it's more of a uh looking for the right term a

**Zach:** I I Yeah.

**Patrick St-Louis:** spectrum of

**Zach:** And and Patrick, what I imagine is there will be dozen like in real life there will be dozens of tests and people in their businesses will pick which ones they care about. And so past fail is probably the wrong language to use because people don't can't accept fail but it might be pass or like and so I I do think that's an important nuance. Um and I also think small the small graphs small

**Patrick St-Louis:** Yeah.

**Zach:** chunk chunks of graph validation as opposed to full graph traversal is going to be a second kind of guiding guiding principle here.

**Patrick St-Louis:** Interesting.

**Zach:** Um because if you try to like the world is too messy to have a full draft traversal

**Patrick St-Louis:** Oh yeah. Yeah. Like I I think Yeah.

**Zach:** like

**Patrick St-Louis:** Well, that's just the unity pal. I think we need to not get stuck in our perfect, you know, perfect map of how everything's going to work.

**01:00:14**

**Patrick St-Louis:** Uh I think yeah, just realizing the world is messy. Uh you know, I think uh but I think we're all pretty realistic on this. That's just the distinction I make between like I have a a software ready to be

**Zach:** Yep.

**Patrick St-Louis:** tested and I have my production you know test. Like it's not because I'm passing the the test suite and this other person is passing the test suite that automatically we'll be able to uh you know do business and everything's going to go well. Like the goal is to reduce the friction uh when we actually want to move in the real world. But when we move to real uh data, real world, there's like so much to take into account. But yeah, I think we're we're all aware of this and this seems to be a pretty good

**Zach:** Yep.

**Harley Thomas:** Well, thanks everyone for your time. There are two draft merge requests in the GitLab.

**Patrick St-Louis:** awesome

**Harley Thomas:** Uh the graph validation which has been there for a couple of months and then the assertion protocol.

**01:01:06**

**Zach:** I'll look for the graph as

**Harley Thomas:** Yeah. So, it sounds like they're they're quite related after the the outcomes of this. So, please uh slash and burn.

**Zach:** well.

**Harley Thomas:** leave your comments on it as well and and we'll get it going. And uh I'll follow up with a meeting invite for everyone.

**Patrick St-Louis:** Awesome.

**Harley Thomas:** If you could just please on this like just let me know your times and time zones and I'll try and find the best

**Patrick St-Louis:** Awesome.

**Harley Thomas:** overlap.

**Patrick St-Louis:** This was really good.

**Zach:** Yeah.

**Patrick St-Louis:** Good to see some familiar

**Zach:** Yeah. And and Patrick,

**Patrick St-Louis:** faces.

**Zach:** I want to apologize as well at the beginning. I just get on so many of these meetings and they go in different directions. I I like you and I are both on lots of committee meetings and so you try

**Patrick St-Louis:** Yeah.

**Zach:** to Yeah.

**Patrick St-Louis:** I I wanted to make sure we could like put the little

**Zach:** Yeah. And and I want to talk I wanted to like we want to answer your questions. I wanted Ash to brag about all the great work he's done.

**Patrick St-Louis:** Perfect.

**Harley Thomas:** Beautiful.

**Zach:** Like I didn't want to say no, but I also didn't want us to to to to get off the wrong wrong not achieve what we needed to here. So uh all good. Excellent.

**Harley Thomas:** Thanks everyone.

**Zach:** Good.

**Harley Thomas:** Have a great day or evening.

**John Phillips:** Thanks guys.

**Transcription ended after 01:02:10**

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