

From: [Delak, Katya M. \(Fed\)](#)
To: [Evans, Heather M. \(Fed\)](#); [Yaga, Dylan J. \(Fed\)](#); [LaSalle, Connie \(Fed\)](#); [Regenscheid, Andrew R. \(Fed\)](#)
Cc: [Sedgewick, Adam \(Fed\)](#)
Subject: Re: Web3
Date: Thursday, March 10, 2022 3:52:42 PM

I should also add that public key cryptography and digital signatures tend to be applicable in this space, and so the work of the crypto group is salient. And post-quantum encryption has the potential to be.

From: Evans, Heather M. (Fed) <heather.evans@nist.gov>
Date: Thursday, March 10, 2022 at 3:49 PM
To: Delak, Katya M. (Fed) <katya.delak@nist.gov>, Yaga, Dylan J. (Fed) <dylan.yaga@nist.gov>, LaSalle, Connie (Fed) <connie.lasalle@nist.gov>, Regenscheid, Andrew R. (Fed) <andrew.regenscheid@nist.gov>
Cc: Sedgewick, Adam (Fed) <adam.sedgewick@nist.gov>
Subject: RE: Web3

Thanks!

From: Delak, Katya M. (Fed) <katya.delak@nist.gov>
Sent: Thursday, March 10, 2022 3:42 PM
To: Evans, Heather M. (Fed) <heather.evans@nist.gov>; Yaga, Dylan J. (Fed) <dylan.yaga@nist.gov>; LaSalle, Connie (Fed) <connie.lasalle@nist.gov>; Regenscheid, Andrew R. (Fed) <andrew.regenscheid@nist.gov>
Cc: Sedgewick, Adam (Fed) <adam.sedgewick@nist.gov>
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I feel like the data flows question that often comes up in the context of Web3 is identity – that is anonymity and protection of PII. How this plays with open data flows is probably specific to just those sorts of questions. But there is a question of trying to integrate data flows by using distributed ledgers for manufacturing, and the issue of IP might come up here. I have only seen this raised very briefly and only once, and I have not been following this space. But it does suggest that the answer to your first question is possibly “yes”.

What Dylan alludes to as far as attestations can answer your second question in part – we have a group working on standards for Zero Knowledge Proofs as ways to provide attestations without forfeiting granular data. If you also consider general blockchain and distributed ledger technologies as falling into the Web3 category, yes, we’ve been following those developments in ISO and Dylan and others have published some papers on this stuff. Other work is in progress.

The issue is that right now the ‘killer app’ for Web3 appears to be cryptocurrency and decentralized finance. Aside from a paper Peter Mell and Dylan are developing on stablecoins, the work we’ve been doing is separate from that space.

From: Evans, Heather M. (Fed) <heather.evans@nist.gov>
Date: Thursday, March 10, 2022 at 3:07 PM
To: Yaga, Dylan J. (Fed) <dylan.yaga@nist.gov>, LaSalle, Connie (Fed) <connie.lasalle@nist.gov>, Delak, Katya M. (Fed) <katya.delak@nist.gov>, Regenscheid, Andrew R. (Fed) <andrew.regenscheid@nist.gov>
Cc: Sedgewick, Adam (Fed) <adam.sedgewick@nist.gov>
Subject: RE: Web3

Thanks Dylan!

So from a Commerce perspective, does this push us into an awkward tension in terms of trying to push for open data flows and support industry?

Also is NIST working on components that will be part of Web3? (OK well actually I assume the answer is yes here, but if you could shed light on what's in scope let me know)

From: Yaga, Dylan J. (Fed) <dylan.yaga@nist.gov>
Sent: Thursday, March 10, 2022 2:51 PM
To: Evans, Heather M. (Fed) <heather.evans@nist.gov>; LaSalle, Connie (Fed) <connie.lasalle@nist.gov>; Delak, Katya M. (Fed) <katya.delak@nist.gov>; Regenscheid, Andrew R. (Fed) <andrew.regenscheid@nist.gov>
Cc: Sedgewick, Adam (Fed) <adam.sedgewick@nist.gov>
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I can do some a quick one by contrasting it with Web1 and Web2.

Web1: The “static” web – back in the ‘90s – basic webpages that interlinked to others and provided text, and images. Little to no interaction with the user. To have a web presence you had to setup a website somewhere, develop it yourself. Everything was difficult to find, very little in the way of user-data being put onto the web. At this point, only the very tech savvy “own” the internet.

Web2: The “interactive” web – in the 00’s – websites are becoming more interactive, content hosting providers start to spring up (YouTube, Facebook, etc); people began to put vast quantities of their own data into services; companies begin to utilize data to sell ads. Centralization of data into these hubs present a nice target for malicious users. At this point, large corporate entities “own” the internet.

Web3: The “distributed” web – as of now it is an unrealized idea, and still not very well formed. But it's a flipping of the internet's data structure – instead of everyone's data being hosted by centralized entities – individual users would retain their data. They could then have selective disclosure, and even just proofs and attestations about data rather than revealing the data itself. Instead of companies selling your data to others, they would need to provide incentive to you to access it. You can revoke access whenever you want. Your data also becomes more “portable” – so rather than having to set up 300 accounts on 300 services all with redundant information, you would have your information in some kind of “Identity hub” where each service is granted access to it. A lot

of these ideas propose the use of tokens and blockchain technologies to be able to solve. At this point, the users “own” the internet.

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From: Evans, Heather M. (Fed) <heather.evans@nist.gov>
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To: LaSalle, Connie (Fed) <connie.lasalle@nist.gov>; Delak, Katya M. (Fed) <katya.delak@nist.gov>; Yaga, Dylan J. (Fed) <dylan.yaga@nist.gov>; Regenscheid, Andrew R. (Fed) <andrew.regenscheid@nist.gov>
Cc: Sedgewick, Adam (Fed) <adam.sedgewick@nist.gov>
Subject: FW: Web3

Hi all –

You’ve been invoked. Can someone give me a idiot’s guide to Web3?

Thanks!

From: Sedgewick, Adam (Fed) <adam.sedgewick@nist.gov>
Sent: Thursday, March 10, 2022 2:21 PM
To: Evans, Heather M. (Fed) <heather.evans@nist.gov>
Subject: Re: Web3

I know next to nothing, but we have a few folks that I think are engaged: Connie, Katya, Dylan, Andy R.

From: Evans, Heather M. (Fed) <heather.evans@nist.gov>
Sent: Thursday, March 10, 2022 2:04 PM
To: Sedgewick, Adam (Fed) <adam.sedgewick@nist.gov>
Subject: Web3

What does NIST know about Web3? Apparently SGR is interested – I’ll pull together input with Sam.

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