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Executive Summary

2018 Blockchain for Libraries National Forum

While technological change is rapid and unceasing, it isn't that often that something truly novel emerges, something that is fundamentally new and different in the world of the digital. Most new digital services or techniques are enhancements of previous work, evolutionary and predictable at least in scope if not in exact form. In 2008, something new and different did enter the world, and it's anonymous creator called it Block Chain. While it's true that blockchain leverages well understood digital technology such as hashing and encryption, and that philosophically it shares a lineage with Merkle Trees, it is safe to say that nothing like it had taken root and really worked prior to the Bitcoin white paper and initial mining event that began the era of blockchain.

It's been a decade since the inception of the first public blockchain system, and yet it's only in the last 3-4 years that the excitement for blockchain-based services has really caught fire. There are more companies than ever attempting to cash in on the blockchain hype cycle, and separating the serious from the hucksters is nearly impossible without serious study and some time in the field. The promise of blockchain is large, even if it is not quite as large the 2017-2018 media coverage and corporate press releases might lead one to believe.

One of the reasons that it's taken so long to see the potential of a distributed system like Blockchain is that it wasn't until 2014-2015 that people started seeing the decentralized database nature of a public blockchain system as a platform for the creation of user-facing services. It seems obvious in retrospect, but it took several years for programmers to see blockchain systems as possible answers to the current centralized state of web properties. This centralization, driven by market capture and the network effect, have cause the existing World Wide Web infrastructure to be far more centralized in actual use than it was originally planned in theory. Several

multinational companies control the vast majority of services that people consume online, and those services are as fragile as they are critical to most people's experience of the Web. When something like Facebook or Amazon goes down, huge swathes of web content die with them.

The promise of blockchain isn't the current state of its use. A few hundred Initial Coin Offerings and a half-dozen obscure services do not a revolution make. But the new architectures that systems inspired by blockchain are using, that the concepts behind blockchain enabled, are likely to make a huge difference to the world over the next decade. Having a Web that is increasingly difficult to censor, one that defies local control and enables a truly robust set of distribution and archival tools for digital content, is one that is better for both producers and consumers.

From my perspective as a librarian, these systems will be significantly better than the existing infrastructure we use. The services that are emerging from this initial round of decentralization like DAT and Matrix are extremely exciting as they point in the direction of a Web that is far less fragile than the one we have now.

So where do Libraries intersect with this new world of decentralized services and protocols? I think there are at least three areas that libraries and librarians should be watching:

1 - When new decentralized services launch, we should be watching them carefully and using them where they are beneficial to our specific needs. Services that provide significant advantages technologically, economically, and perhaps even socially/politically should be adopted where possible. It is completely reasonable to watch and wait a bit, to ensure that libraries aren't going down technological dead-ends in their choices. Staying informed in community uptake of these services will help libraries judge when to jump in.

2 - At the protocol level, it's possible that the development of new tools by librarians could be assisted by using new decentralized systems. The decision to build using a particular set of tools is one that should be made judiciously and carefully, but library developers should be

watching services like IPFS, DAT, and even Ethereum as platforms upon which new and different sorts of information systems could be instantiated.

3 - At the social level, libraries should be supporting these new decentralized tools as a supporting effort of an informed democracy. I've written about this aspect of decentralized services before (for BoingBoing, How libraries can save the Internet of Things from the Web's centralized fate; <https://boingboing.net/2016/03/28/how-libraries-can-save-the-int.html>) and feel strongly that because libraries are a cornerstone for creating an informed citizenry, and an informed citizenry is necessary for a functional democracy, libraries should be assisting in providing access to those tools that also promote those ideals. Where libraries can provide anti-censorship, open, community-controlled informational systems and services, I would count it a good.

Blockchain and decentralized systems afford libraries easier, more trustworthy, and more secure ways to track digital provenance, store metadata, access secure authentication tokens, verify transactions, run decentralized data stores, and more. Over the next 5 years, I think we will see a multiplicity of services offered that use blockchain or a similar decentralized technology stack, and if libraries aren't paying attention, we risk not only being late adopters, but possibly missing our opportunity to be a vital and driving part of this new Decentralized Web.