IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 2, May 2023

An Information Centric Network for Distributed Registery with Content Unique Identifier (DID) and Verifiable Credentials

Prof. Aravinda Thejas Chandra[1], Chandan R[2], B Kiran[3], Hemanth Kumar N[4]
Associate Professor, Department of Information Science and Engineering[1]
Students, Department of Information Science and Engineering[2,3,4]
S. J. C. Institute of Technology, Chickballapur, Karnataka, India

Abstract: *Decentralised Identifiers (DIDs), a new self-manageable method of authentication that is currently being standardised by the World Wide Web Consortium (W3C), are new standards for Content Unique Identifiers. Verifiable credentials (VCs), another ongoing standardisation (by the same W3C working group) that permits private and secure proofs of attribute ownership, are closely related to DIDs. Both of these methods rely on a central immutable decentralised registry (such as a blockchain or peer-to-peer network) where crucial meta-data is stored. Using the newly developing paradigm of Information Centric Networking (ICN), we design, construct, and evaluate a secure DID/VC registry service. The "search by name" feature of ICN, together with a secure protocol, are combined with the decentralised nature and our goal is to achieve technique for keeping in sync copies of an object at several locations. Our design has little network cost and provides quick lookup speeds because to ICN's built-in multicast and caching functionality.*

Keywords: DID registry, publish subscribe, privacy, and identity management

REFERENCES

[1]. (2019) W3C Credentials Community Group. Decentralised Identifiers: A Primer. [Online]. accessible at https://w3c-ccg.github.io/did-primer.

[2]. N. Fotiou, V. A. Siris, G. Xylomenos, G. C. Polyzos, K. V. Katsaros, andG. Petropoulos, ‘‘Edge- ICN and application to the Internet of Things,’’in Proc. IFIP Netw. Conf., Jun. 2017, pp. 1– 610.23919/IFIPNetwork-ing.2017.8264880.

[3]. A quick introduction to NDN dataset synchronisation (NDN Sync), by T. Li, W. Shang, A. Afanasyev, L. Wang, and L. Zhang, appeared in the proceedings of the IEEE Military Communications Conference (MILCOM), in October 2018, pp. 612–618.

[4]. B. Lantz, B. Heller, and N. McKeown, ‘‘A network in a laptop: Rapid prototyping for software-define networks,’’ in Proc. 9th ACM SIGCOMM Workshop Hot Topics Netw., New York, NY, USA, 2010, p. 19.

[5]. B. Pfaff, J. Pettit, T. Koponen, E. Jackson, A. Zhou, J. Rajahalme, J. Gross,A. Wang, J. Stringer, P. Shelar, K. Amidon, and M. Casado, ‘‘The designand implementation of open vswitch,’’ in Proc. 12th Symp. Netw. Syst. Des.Implement., Oakland, CA, USA, 2015, pp. 117–130.

[6]. Unbounded HIBE and attribute-based encryption, by A. B. Lewko and B. Waters, in Advances in Cryptology—EUROCRYPT (Lecture Notes in Computer Science), vol. 6632, edited by K. G. Paterson, Springer, Tallinn, Estonia, 2011, pp. 547-567.

[7]. "Space/time trade-offs in hash coding with allowable errors," B. H. Bloom ACM Commun., vol. 13, no. 7, 1970, p. 422-426.

[8]. D. Longley and M. Sporny. 1.0 Linked Data Proofs. [Online]. Available at: https://ld-proofs.w3c-ccg.github.io.

[9]. M. Sporny, n.d. Data Model for Verifiable Credentials 1. [Online].Verifiable claims data model is accessible at https://www.w3.org/TR/.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 2, May 2023