

## **LEVERAGING BLOCKCHAIN TECHNOLOGY TO ASSURE SECURITY OF SDN**

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Software-defined networking is a new way of managing how computer networks behave, it gives more ability to manage the network nodes, facilitates policies enforcement, provides more speed in applying configurations on network nodes, it has one point of controlling which is laying in the control plane represented by the controller which is the only brain for the network which provides flexibility and single point of administration but, in the same time this situation from a security point of view this could be a single point of failure so, as restriction of the control in the network by the control plane is a good security feature, it could also open new security challenges and here comes our research secure software-defined networks in order to assure the security of computer networks in general. We propose a whole suite of algorithms and methodologies incorporated with each other in one framework called the Hydra, to help securing the control plane of the SDN represented by the controller or multiple controllers; one of the ideas for proposed for our research is to use blockchain for securing the connection between multiple controllers which is called east-west API, since that blockchain can provide decentralization for SDN which its best features is the centralization and it is also one of the main security challenges in case if the centralization point was jeopardized. In this article we try to show how it is nearly possible to implement and use blockchain-based technologies and methods to secure the east-west API connection from some famous attacks like man in the middle attack MITM.

**Keywords:** *software-defined networks, blockchain, application programming interface, hash function, cryptocurrency.*

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