

What kind of attacks are we facing? Do we need swords for this battle?



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Introduction

Hello, this poster is on our research topic of the security and privacy protocols and issues of a smart grid. Using cyber security, cryptography in understanding how blockchain influences utilizing bitcoin in a system.

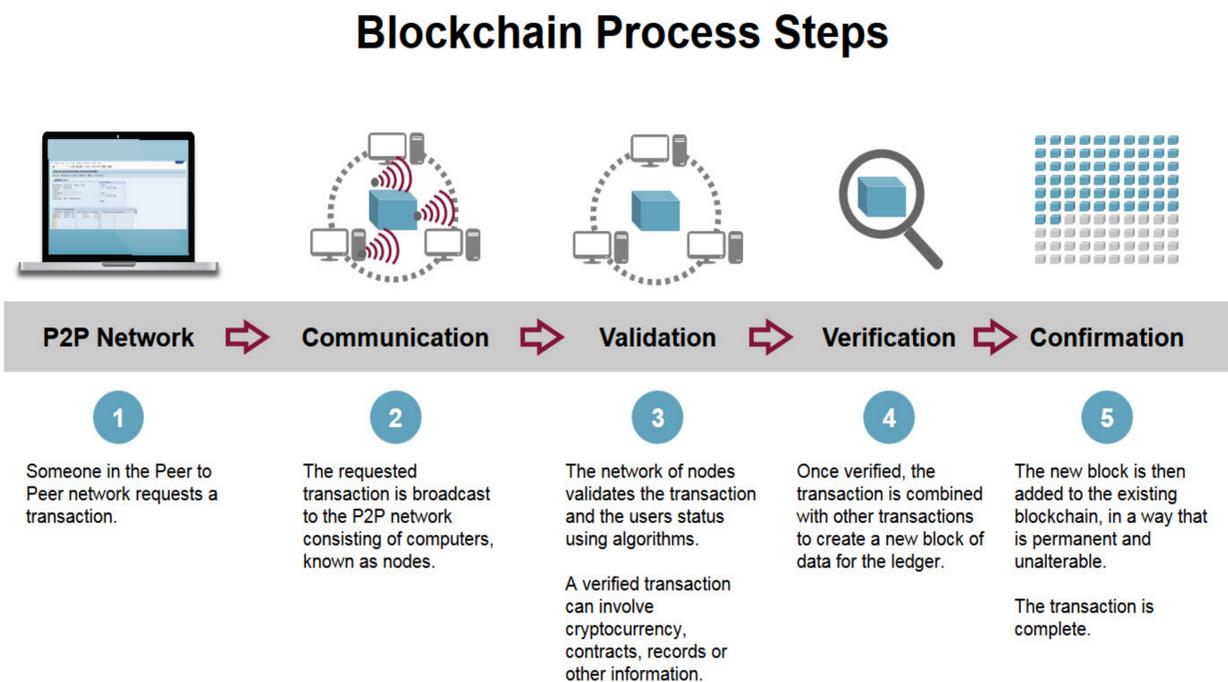
How it works is, in a smart grid there will be many errors of undergoing troubleshooting. Having a massive database of a grid can get difficult to protect. The application of Bitcoin was the idea of using Bitcoin's interface to having a different approach to development. A bitcoin is a digital wallet of your money that can process every transaction publicly on a blockchain. A blockchain is a directory of all the transactions of a bitcoin that uses cryptography to protect it so each block does not get removed or changed.

Methodology & Approach

When utilizing bitcoin there are drawbacks to the open attacks of securing the network. Crimes of hacking and stealing information can happen. Money laundering allows hackers to manipulate and steal money by making it legal. Hackers will break-in to wallets eventually gaining the user's private and public key, to access to their wallets.

- We started with how to get and find adequate research on the topic using Google Scholar and DBLP
- The research article "Making Bitcoin Legal" was assigned to us to get an idea of topic and allow us to raise questions

What actually happens when there's a security or privacy attack in a smart grid?



We wanted to center the process of a blockchain to emphasize on the main procedure of a bitcoin. The bitcoin goes through a process of encrypting cryptography in the transaction so it can be decrypted once the process has been completed. Though this process can be manipulated by money laundering. Yet a blockchain has cyber layers to expand privacy while giving copies of any transaction to and from the sender.

Conclusions

The results of this research was not focused on due to the approach of the research. During the research process of conversing with our mentor it was mainly brief readings. Though our mentor gave a discussion in a meeting that we leave the results out.

In a closing bitcoin has advantages and disadvantages to its use in a smart grid. Bitcoin can make it easier for energy trading/consumption, real time status of blockchain transaction as well as decentralized network. The blockchain increases the amount of security by the resilience of hacking into the chain. Overall if a smart grid developer would incorporate bitcoin, it's system will have a higher operation in cryptography, user privacy and cyber security.

Future Activities

- This research continues with Dr. Vishwanathan's graduates students research team at NMSU
- Research will be ongoing remotely during STEMAP +
- Addressing the findings of newer challenges of bitcoin

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