CSCI – 5409 – Advance Topic in Cloud Computing

Assignment – 3
Graduate Student Paper Review
Topics: Open cloud related topics, Blockchain and Cloud Computing

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Note: There were some papers for which I was not able to provide the link hence I have attached all the research papers along with the report as the zip file.

PAPER REFERRED : BLOCKCHAIN BASED CLOUD COMPUTING: ARCHITECTURE AND RESEARCH CHALLENGES

What is the research question posed by the paper, and what approach did the author take to answer the question? Finally, what were the key finding of the paper?

The paper emphasis more on the question that how the architecture of cloud computing would be would look like if it is merged with the Blockchain Technology. The paper explains the reason why we should consider using Blockchain technology alongside cloud computing.[1] As they started with the cloud computing and then firmly shifted towards blockchain and explained that how blockchain could change the way we are working on cloud. The major finding of the paper was the architecture which they developed to integrate Blockchain Technology with Cloud Computing.[2]

In your opinion, what was the most exciting or meaningful thing you learned from the paper? What is it? Why is it exciting or essential? How will/can you apply that knowledge in this course or your work?

The most exciting part of the paper was the section in which they were listing that how blockchain could support cloud computing and how both technologies could complement each other out. Majorly they emphasised more on four domains, Interoperability, Data Encryption, Service level agreements and Cloud data management. According to the author's view blockchain could complement the cloud development in the way that all the drawbacks or the concern regarding the cloud services and trust issues could be solved in one go and it could be the best-balanced version of cloud which would put the security at the topmost point. The characteristics of this new cloud storage would be, usability, trust, security, scalability, data management and many other.[1]

The knowledge which I gain through this research paper could help me understand the reason why AWS is trying to shift most of the cloud backed services on the contract systems as in future if they need to do the transition from the existing architecture to the hybrid architecture these contracts could be directly swapped in with ERC-20 or similar kind of contracts.[3]

If you were going to write a detailed report on this topic, what would you read the following paper, and why would you read it?

Following the steps which are provided in this paper, I would get the workflow or the roadmap for the further development in this domain. In the next work or the future work, I would prefer to explore the bigger picture of decentralization and cloud with blockchain as that could be a small step forward with regard to the paper but It could potentially make a big difference.

As there was a discussion about having an intelligent algorithm which could deal with the issues of memory allocation and the blockchain and cloud services hence I would read this paper, "Dorri, Ali & Kanhere, Salil & Jurdak, Raja. (2018). MOF-BC: A Memory Optimized and Flexible Blockchain for Large Scale Networks. Future Generation Computer Systems. 92. 10.1016/j.future.2018.10.002."[4]

REFERENCES:

[1] C. V. N. U. B. Murthy, M. L. Shri, S. Kadry and S. Lim, "Blockchain Based Cloud Computing: Architecture and Research Challenges," in IEEE Access, vol. 8, pp. 205190-205205, 2020, doi: 10.1109/ACCESS.2020.3036812.

[2] Jinglin Zou, Debiao He, Sherali Zeadally, Neeraj Kumar, Huaqun Wang, and Kkwang Raymond Choo. 2021. Integrated Blockchain and Cloud Computing Systems: A Systematic Survey, Solutions, and Challenges. ACM Comput. Surv. 54, 8, Article 160 (November 2022), 36 pages. DOI:https://doi.org/10.1145/3456628

[3] Han S, Chen Z. Cloud Computing Big Data Application Research Based on Blockchain Technology. Journal of Physics: Conference Series. 2021;1992(3):032037. doi:10.1088/1742-6596/1992/3/032037

[4] Dorri, Ali & Kanhere, Salil & Jurdak, Raja. (2018). MOF-BC: A Memory Optimized and Flexible BlockChain for Large Scale Networks. Future Generation Computer Systems. 92. 10.1016/j.future.2018.10.002.