SCADA Systems: Vulnerabilities and Blockchain Technology

Gandharv Kumar, Jatin Chawla, Vimmi Malhotra

Dronacharya College of Engineering, Gurgaon, Haryana, India

Abstract: *One of the most crucial components of industrial operations is SCADA systems. Prior to SCADA, industrial process monitoring and control had to be done by plant staff using selection switches, pushbuttons, and knobs for analog signals. Relays and timers were utilized to help with supervision as production increased and sites spread farther apart. With the development of technology and the introduction of network-based protocols, these systems got more dependable, quick, and troubleshooting became simpler. Indeed, vulnerabilities accompany growth, which was nothing new for SCADA. The security of these systems was put at risk by the IP protocols. The attack by the Stuxnet virus may serve as an example of the destruction that SCADA might suffer at the hands of cyber predators. This essay examines SCADA systems' definition, applications, and protocol usage.*

Keywords: SCADA systems, Vulnerabilities, blockchain technology, decentralization

REFERENCES

[1]. Stephen Kaisler, Frank Armour, J. Alberto Espinosa, William Money, "Big Data: Issues and Challenges Moving Forward", IEEE, 46thHawaiiInternationalConferenceonSystemSciences, 2013.

[2]. Sam Madden, "From Databases to Big Data", IEEE, Internet Computing, May-June2012.

[3]. KapilBakshi, "ConsiderationsforBigData:ArchitectureandApproach", IEEE, AerospaceConference, 2012.

[4]. SachchidanandSingh, NirmalaSingh, "BigDataAnalytics", IEEE, InternationalConferenceonCommunication,Information&ComputingTechnology(ICCICT), Oct. 19-20, 2012.

[5]. F.N. Afrati and J.D. Ullman. Optimizing joins in a map-reduce environment. In Proceedings of the 13th EDBT, pages99–110, 2010.

[6]. S.Babu.TowardsautomaticoptimizationofMapReduceprograms.InProceedingsofthe1stACMsymposiumonCloudcomputing, pages137–142, 2010

[7]. A.Floratou et al . Column-Oriented Storage TechniquesforMapReduce.Proceedings oftheVLDB, 4(7), 2011.

[8]. C.T.Chu, S.K.Kim, Y.A.Lin, Y.Yu, G.R.Bradski, A.Y. Ng, and K. Olukotun. Map-reduce for machine learningonmulticore. pages 281–288. MITPress, 2006.

[9]. J. Dean and S. Ghemawat. Mapreduce: simplified data processing on large clusters.

[10]. R.GrossmanandY.Gu.Dataminingusinghigh-performancedata clouds:experimentalstudiesusingsector and sphere. In KDD '08: Proceeding of the 14th ACM SIGKDDinternationalconferenceonKnowledge discovery anddatamining, pages920– 927, NewYork, NY, USA, 2008. ACM.