Efficient Network Administration for Smart Grid Data Center

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Abstract—Nowadays, the smart grid systems, which are intelligent electrical grid systems, are being installed in the real world. According to the statistics, about 79 million Advanced Metering Infrastructure is deployed in the United States and these devices generate terabytes to petabyte levels of electricity data. As IT technology developed, the energy provider can get beneficial information by processing the data in the way such as Machine Learning or Deep Learning. So smart grid administrator utilizes a data center to store the energy data and to process them. The amount of power data is increasing rapidly and the type of power data becoming more and more diverse. In addition, as computing power improves, a lot of advantageous applications such as blackout prediction is developed. In the smart grid, the importance of the data center becomes higher and higher. However, the traditional data center is designed in strict. Because the traditional data centers are designed by vendors, the operations of each component of centers are ineffective on the smart grid system. So in this paper, we applied the Software-Defined Data Center, which controls the data center in a virtualized and programmable manner, to operate the data in a more flexible and interoperable way.

Keyword— SDDC, SDN, Smart Grid, Network Slicing, Access Control

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