Abstract

Smart city, cloud, IoT are some buzzwords in recent times. Study shows that more than two billion connected things are deployed in the smart cities across the world. But such a vast number also exposes these systems to vulnerabilities that can be exploited by hackers and other malicious actors. The smart city offers technology where service providers use various ICT (Information and communication technologies) to create more effective urban organizations that can improve the quality of human life. The emerging IoT based architecture is the foundation of a smart city. IoT enabled sensors, networks, and interfaces also make vulnerability window wider. This paper explores current challenges considering the characteristics of smart city, threat vectors that can lead systems in the fatal situation and the security approach that can be considered while building smart cities.

References

1. Department of Economic and Social Affairs, World Urbanization Prospects: The 2014
Developing Secure Smart Cities: Overviews and Challenges

Revision, Highlights. New York, NY, USA: United Nations Population Division, 2014.

2. I. Yaqoob et al., “Internet of Things architecture: Recent advances, taxonomy, requirements, and open challenges,” IEEE Wireless Commun., vol. 24, no. 3, pp. 10–16, Jun. 2017.

3. L. Tan and N. Wang, “Future Internet: The Internet of Things,” in Proc. 3rd Int. Conf. Adv. Comput. Theory Eng. (ICACTE), vol. 5, Aug. 2010, pp. V5-376_V5-380.

4. R. Kitchin, “The real-time city? Big data and smart urbanism,” GeoJournal, vol. 79, no. 1, pp. 1–14, 2014.

5. Zhang, Kuan, Jianbing Ni, Kan Yang, Xiaohui Liang, Ju Ren, and Xuemin Sherman Shen. "Security and privacy in smart city applications: Challenges and solutions." IEEE Communications Magazine 55, no. 1 (2017): 122-129.

6. R. Kitchin, "Getting smarter about smart cities: Improving data privacy and data security," Dept. Taoiseach, Data Protection Unit, Dublin, Ireland, Tech. Rep., 2016.

7. S. Finster and I. Baumgart, "Privacy- aware smart metering: A survey," IEEE Commun. Surveys Tuts., vol. 16, no. 3, pp. 1732_1745, 3rd Quart., 2014.

8. Dattana, Vishal, Kishu Gupta, and Ashwani Kush. "A Probability based Model for Big Data Security in Smart City." In 2019 4th MEC International Conference on Big Data and Smart City (ICBDSC), pp. 1-6. IEEE, 2019.

9. Qiu, Jinglin, Xueping Liang, Sachin Shetty, and Daniel Bowden. "Towards secure and smart healthcare in smart cities using blockchain." In 2018 IEEE International Smart Cities Conference (ISC2), pp.

10. https://gcn.com/articles/2019/12/17/sase-smart-city-security.aspx

11. Sookhak, Mehdi, Helen Tang, and F. Richard Yu. "Security and Privacy of Smart Cities: Issues and Challenge." In 2018 IEEE 20th International Conference on High Performance Computing and Communications; IEEE 16th International Conference on Smart City; IEEE 4th International Conference on Data Science and Systems (HPCC/SmartCity/DSS), pp. 1350-1357. IEEE, 2018.

12. Dattana, Vishal, Kishu Gupta, and Ashwani Kush. "A Probability based Model for Big Data Security in Smart City." In 2019 4th MEC International Conference on Big Data and Smart City (ICBDSC), pp. 1-6. IEEE, 2019.

13. Qiu, Jinglin, Xueping Liang, Sachin Shetty, and Daniel Bowden. "Towards secure and smart healthcare in smart cities using blockchain." In 2018 IEEE International Smart Cities Conference (ISC2), pp.

14. https://iot-analytics.com/wp/wp-content/uploads/2016/08/List-of-640-IoT-projects-min.png

15. https://discoperi.com/wp-Content/uploads/2018/11/0_gE2znOBV4dVY-u_.png

16. https://42xtjqm0qj0382ac91ye9exr-wpengine.netdna-ssl.com/wp-content/uploads/2017/12/Smart-City-Threats-and-Countermeasures-1024x576.png.

17. https://www.marketsandmarkets.com/Market-Reports/iot-smart-cities-market-215714954.html

18. https://www.visualcapitalist.com/anatomy-smart-city/

Index Terms

Computer Science Security
Keywords

Cybersecurity, Security of smart city, IoT-cyber security, Data security