Cybersecurity Challenges for Communications, Water, and Healthcare

By: Gerald Rigdon - 2023

In March of 2023, the White House released an update to our national strategic approach to cybersecurity (*National Cybersecurity Strategy*, 2023) which is a comprehensive agenda for fostering collaboration between the public and private sectors to secure the nation across the entire digital landscape and industry sectors. However, 6 months prior the White House had targeted communications, water, and healthcare which we will now examine more closely.

Communications

Communications networks are what connect the modern world. In more relatable terms one can think about their importance in the workplace. Per (Sujan, 2023) communications networks enable an efficient flow of information, enhanced collaboration, reduced ambiguity and misunderstanding, increased employee satisfaction, and employee alignment with organizational goals.

One recent example of a communications attack was the 2020 Twitter breach (*What Is a Cyber Attack?*, n.d.) which used social engineering to steal an employee's credentials and accessed Twitter's internal management system to hack the accounts of celebrities including Barak Obama, Jeff Bezos, Elton John, and Elon Musk. They subsequently used the stolen accounts to post bitcoin scams.

Water

Water is necessary for human life and modern water distribution plants deliver clean water to hundreds of millions of persons in the United States. Per (Seldin, J., 2023) there are over 150,000 public drinking water systems in the United States providing water to 80% of the population and over 16,000 waste-water treatment facilities providing service to 75% of the population. Unfortunately, the EPA has stated that only 20% have basic cybersecurity measures in place which has resulted in multiple attacks across California, Florida, Nevada, Maine, and Kansas.

In thinking about attack vectors, more and more water facilities use devices that are part of the Internet of Things. As stated in (Aslam, M., Tufail, A., Kim, K., Apong, R., Raza, M., 2023), water plants use such things as pressure meters, valves, flood sensors, advance pumps, controllers, contaminant sensors, etc., and as connected devices they are attack surfaces with potential vulnerabilities.

Healthcare

In 2017 a U.S. government task force, the HHS-Health Care Industry Cybersecurity Task Force or HCIC, generated a report and found healthcare to be in "critical condition" (*HSCC Cybersecurity Working Group Q3 2023 Progress Report*, 2023). From that came the emergence of the Healthcare Sector Coordinating Council or HSCC which works together with government and industry and continues to monitor HCIC recommendations and works toward moving the state of healthcare from “critical condition” to “stable condition” by pursing the following objectives:

- Defining and streamlining the governance for healthcare industry cybersecurity
- Increasing the security of medical devices and IT infrastructure
- Assisting the healthcare workforce to in cybersecurity awareness
- Increasing healthcare industry readiness through education and training
- Identifying ways to protect intellectual property from attacks and exposure
- Improving information sharing about industry cyber threats and mitigations

In my role as a consultant for local government interests I have prioritized the aforementioned cybersecurity concerns as follows:

1. Water – We have complete control over the water supply to the city of Mendota and hence will concentrate our focus on this area as our highest priority.

2. Healthcare – We have some local healthcare facilities and so can take limited action within our budget.

3. Communications – The city is dependent on neighboring larger infrastructure and has little control over broader communications and so this is our lowest priority.

References:

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