

Availability

Objectives

- Understand what availability is
- Discuss how availability is achieved
- Discuss, through example, how it is applied

FIPS 199

- U.S. federal government special publication that outlines the standards for security categorization of Federal Information and Information Systems
- Breaks down categorization of information
- Based off FISMA compliance – Federal Information Security Modernization Act

Definition

- Definition according to Title 44 of the U.S. Code: “Ensuring timely and reliable access to and use of information”
- In layman’s terms: The ability to ensure systems remain available and functioning
- The “A” in the CIA triad has also been used with accounting but we talking about the classic “A” - availability

How it applies?

- How do we use this term?
- Each time we discuss any IT service or system and assess security, we must look at each of the 3 principles
- FIPS 199: “A loss of availability is the disruption of access to or use of information or an information system.”

Example - 1

- Healthcare information – duty is to keep information available in case it is needed.
- This is built into the security law
- If a doctor needs access to a patient's medical records and can't get to them because a computer system is down, could you have a life and death situation?

Example - 2

- Not so common sense
- Availability could be used to make the case for backups and redundancy
- We run 4 data centers. Where do you think the information is stored? Only in one?
- How many backups do we have?

Examples of how we use it everyday

- RAID
- Server clustering
- Using load balancers to keep data going to available servers

Why do we need this?

- On 10/21/2016 a massive denial of service attack was launched against Dyn DNS
 - Took out a majority of websites on the east coast
 - Tens of millions of addresses coordinated to attack the key infrastructure on the internet
- What about the stock market?
- Your bank information?

Major failures

- Large scale DDoS attacks
- Mirai botnet
- Fake news?