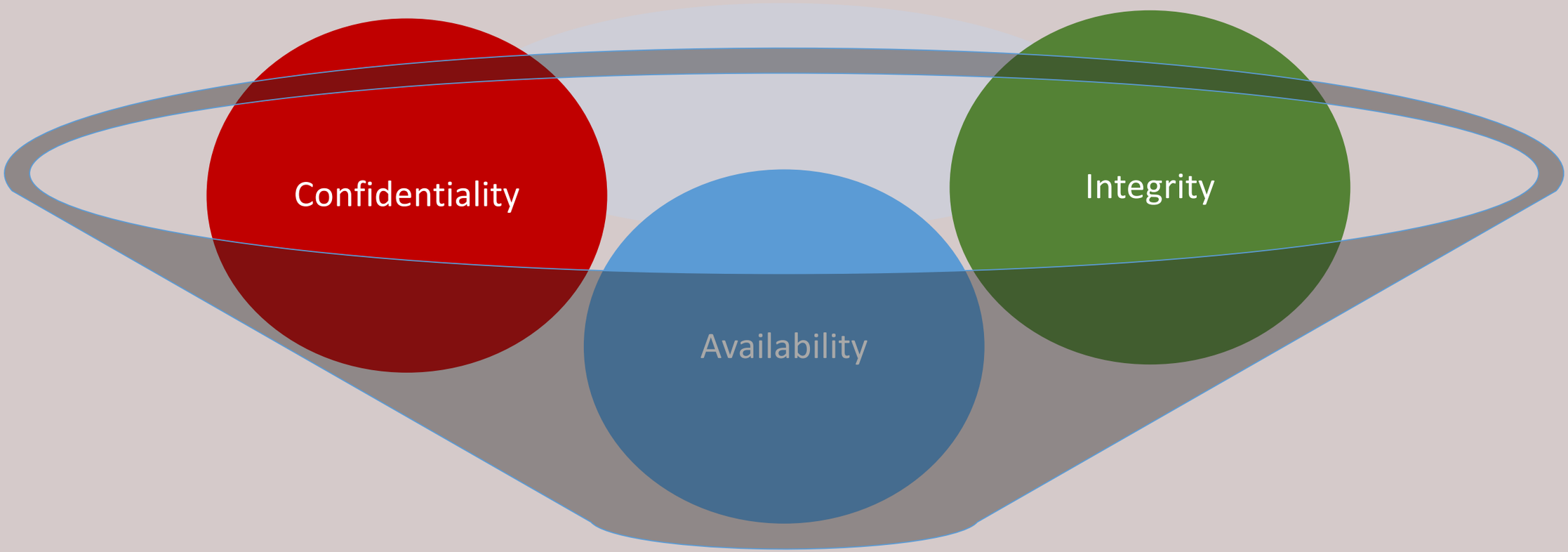
JASON DION
TRAINING THE CYBER SECURITY WORKFORCE

Security Triad (CIA)

THREAT MANAGEMENT

COMPONENTS OF SECURITY (CIA)



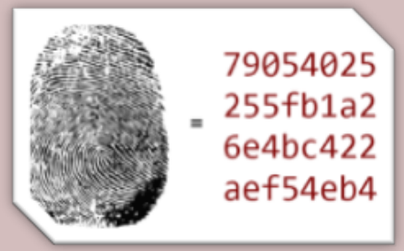
Information Systems Security,
Data Security, and Services

CONFIDENTIALITY

- How secure is the information?
- How secure does the data need to be?
- Best methods
  - Physical Protections
    - Locked doors, fences, security guards, security cameras, safes, …
  - Electronic Protections
    - Encryption (storage and in transit), passwords, firewalls, two-factor authentication, …
- Failure of confidentiality occurs if someone can obtain and view the data

JASON DION
TRAINING THE CYBER SECURITY WORKFORCE

INTEGRITY



- How correct is the information?
- Has the data been modified during retrieval, in transit, or in storage?
- Best methods
  - Hashing of files and information
  - Checksums during data transmission
- Failure of integrity occurs if someone modifies the data being stored or when it is in transit

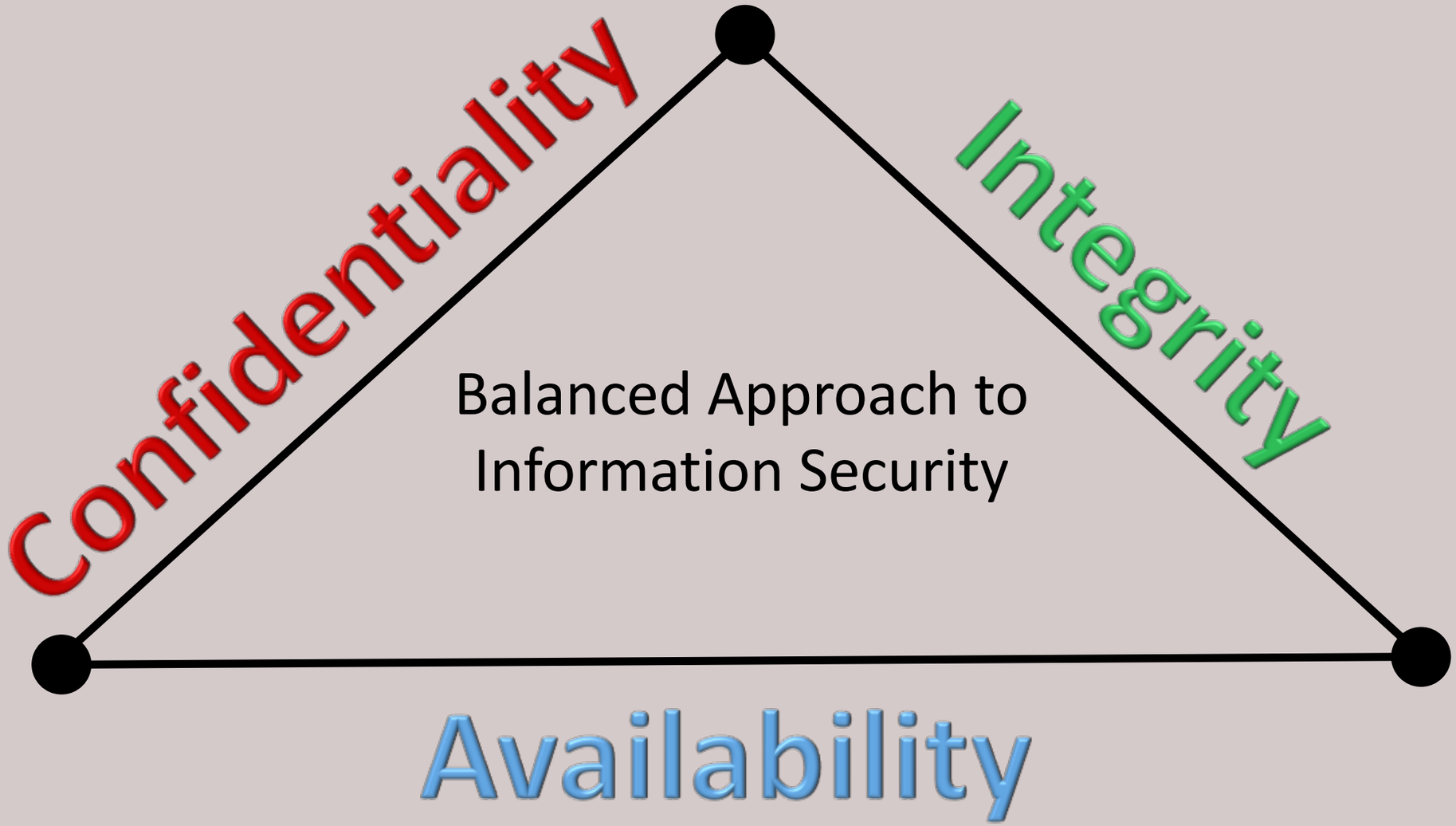
JASON DION
TRAINING THE CYBER SECURITY WORKFORCE

AVAILABILITY

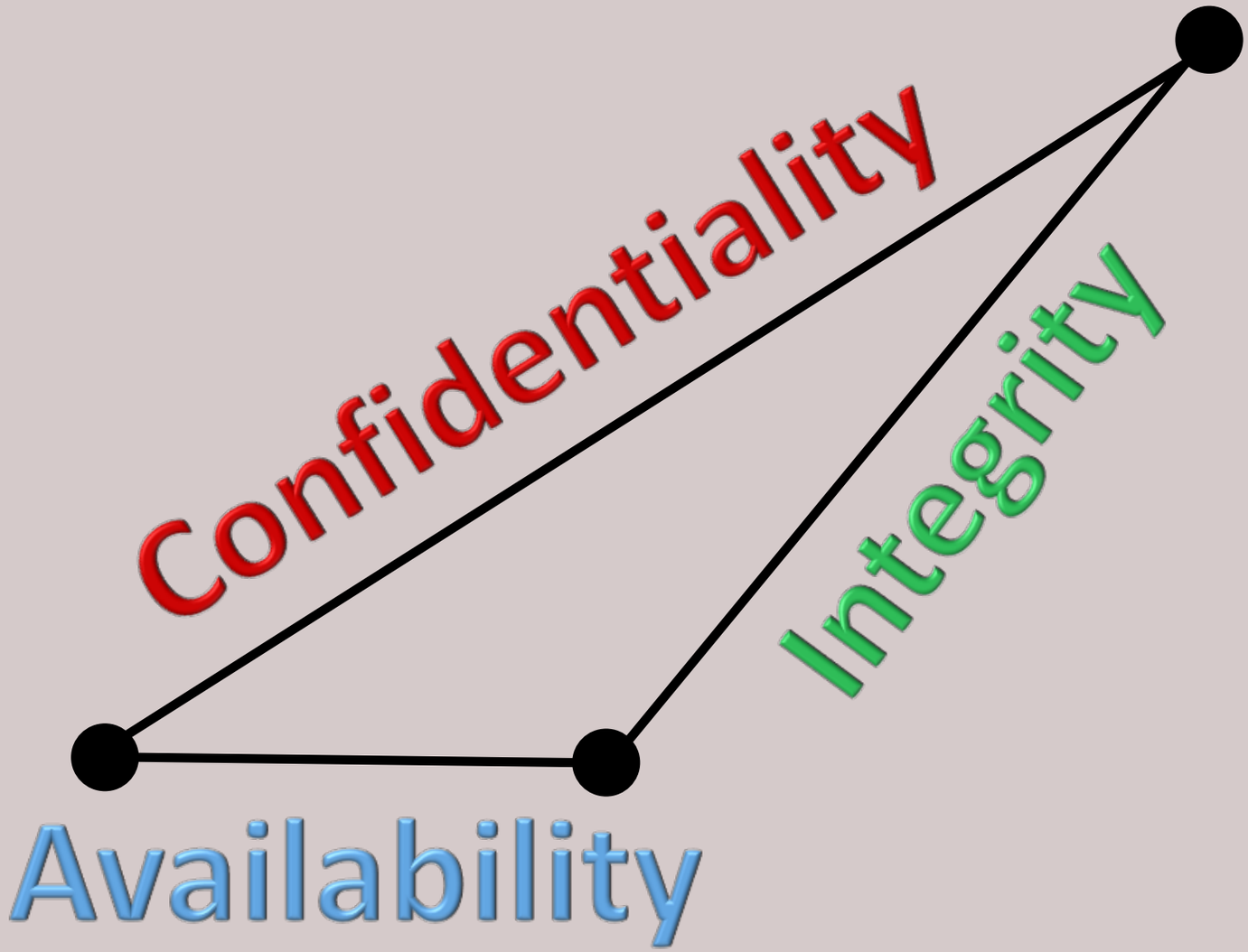
- How much uptime is the system providing?
- Is the data accessible by users at all times?
- Best methods
  - Redundancy in the system design, including components and data paths
  - Backup strategies and disaster recovery plan
- Failure of availability occurs if the data cannot be accessed by the end user

JASON DION
TRAINING THE CYBER SECURITY WORKFORCE

APPROACHES TO THE SECURITY



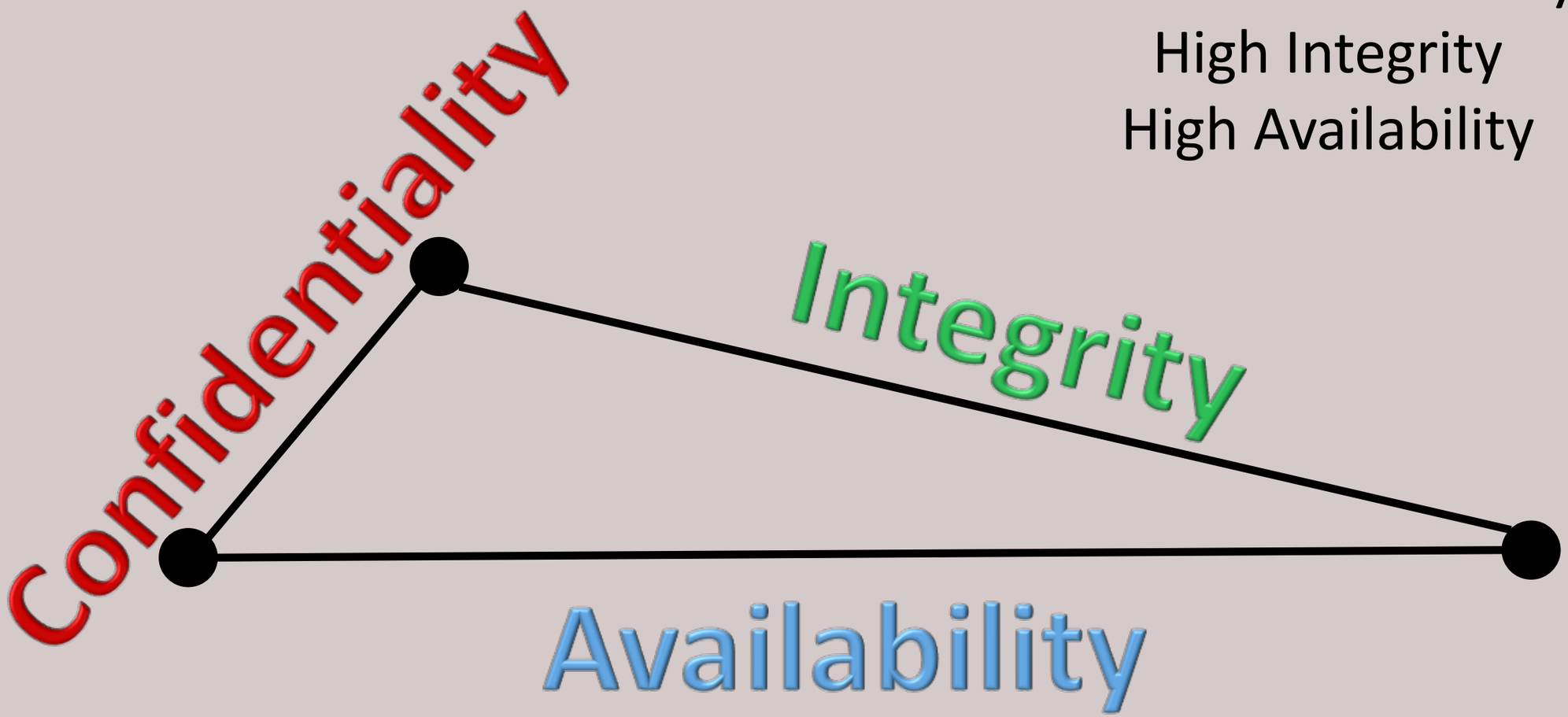
APPROACHES TO THE SECURITY



High Confidentiality
High Integrity
Low Availability

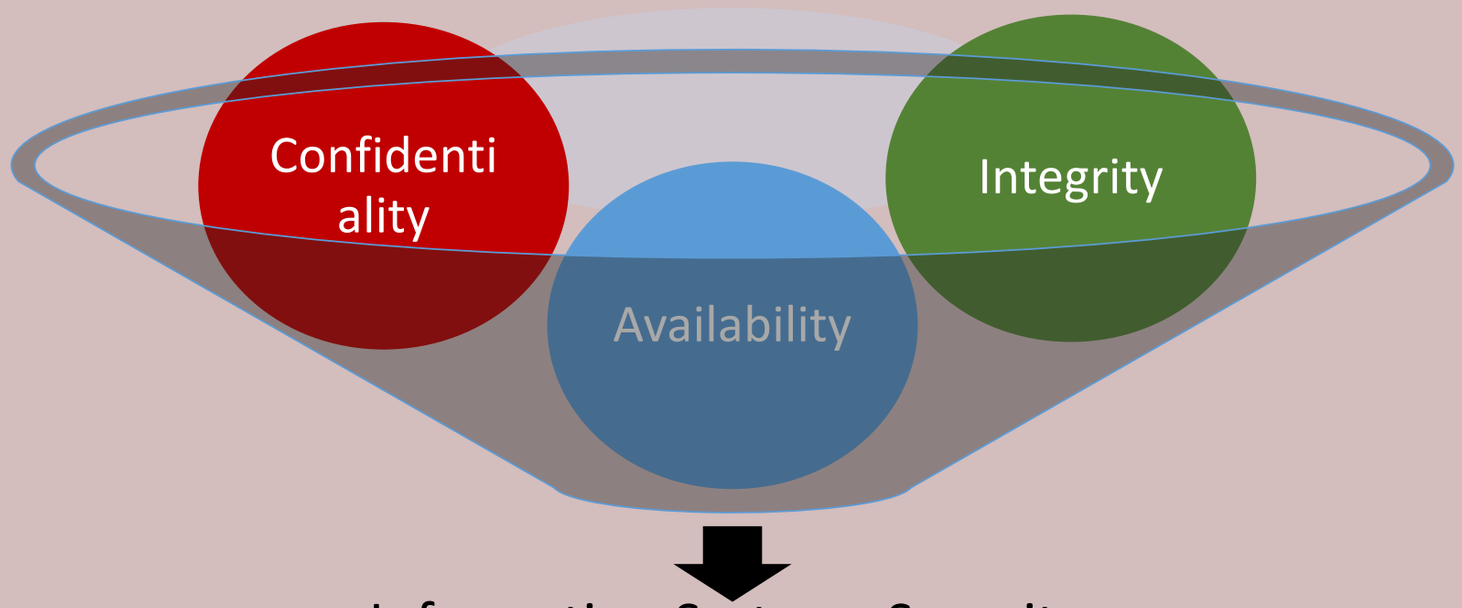
APPROACHES TO THE SECURITY

Low Confidentiality
High Integrity
High Availability



IMPORTANCE OF CIA TRIAD

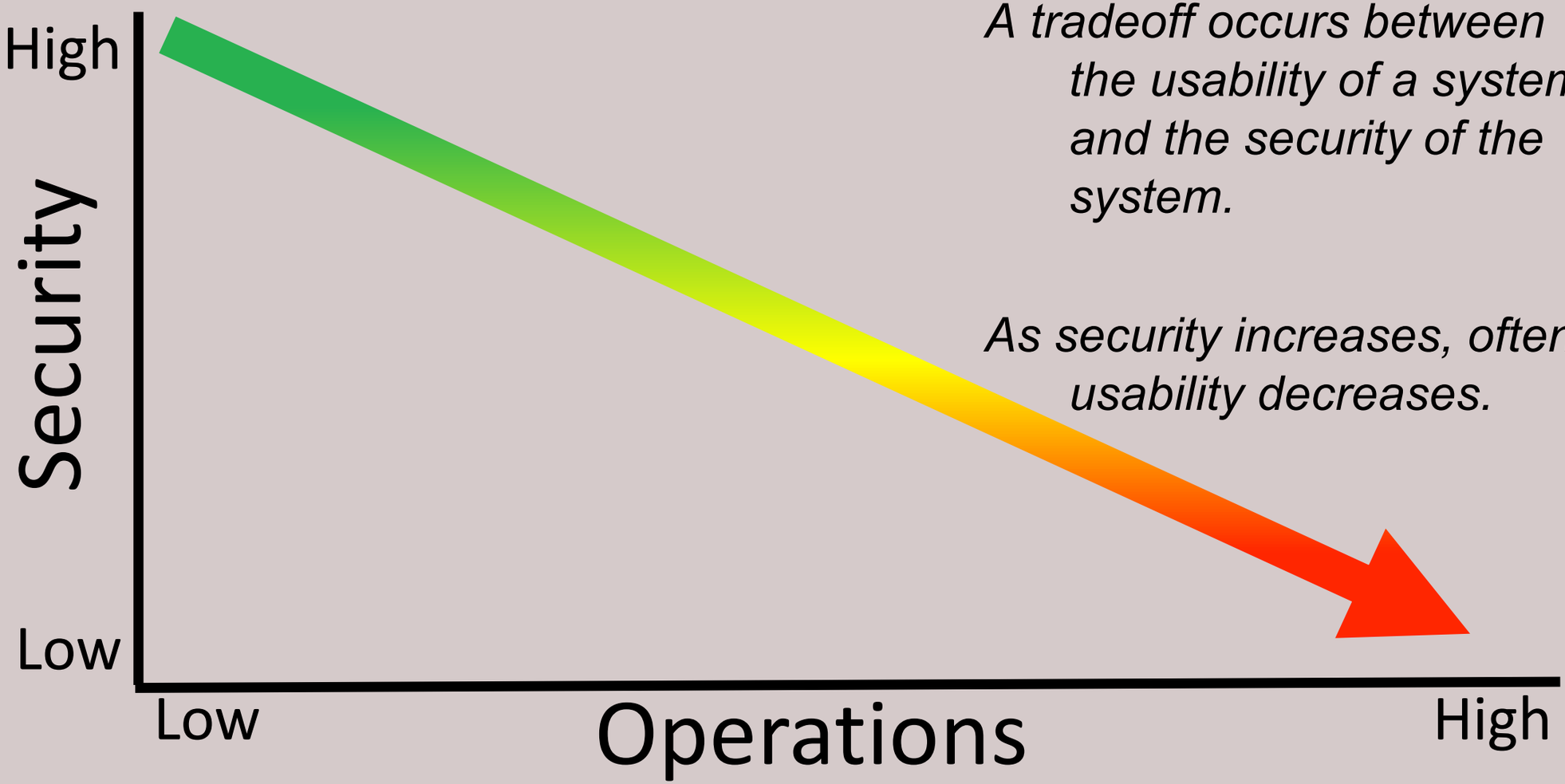
- Cybersecurity analysts characterize risks, attacks, and security controls by assigning them to one or more of the CIA goals



Information Systems Security,
Data Security, and Services

JASON DION
TRAINING THE CYBER SECURITY WORKFORCE

SECURITY VS OPERATIONS



A tradeoff occurs between the usability of a system and the security of the system.

As security increases, often usability decreases.