

Cybersecurity

4.6.2 – Multifactor Authentication (MFA)



Multi-Factor Authentication

- More than one factor
 - Something you know
 - Something you have
 - Something you are
 - Somewhere you are
- Can be expensive
 - Separate hardware tokens
 - Specialized scanning equipment
- Can be inexpensive
 - Free smartphone applications



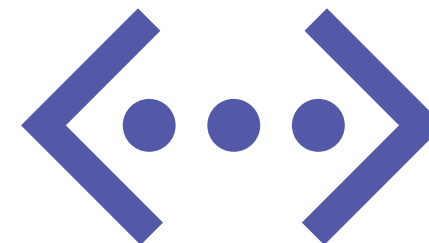
Implementing MFA

- Two or more distinct forms of identification
 - Security is enhanced by adding layers beyond traditional username and password
 - If one factor is compromised additional factors add a layer of protection
 - Often required by regulatory standards
- Examples include:
 - Biometrics
 - Authentication Tokens
 - Security keys



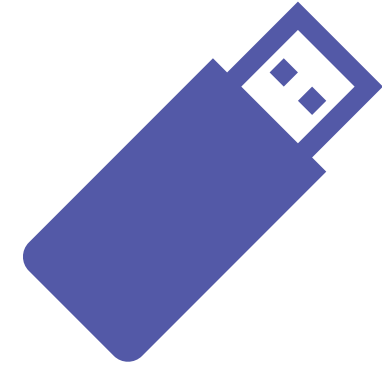
Something You Know

- Password
 - Secret word/phrase, string of characters
 - Very common authentication factor
- PIN
 - Personal Identification Number
 - Not typically contained anywhere on a smart card or ATM card
- Pattern
 - Complete series of patterns
 - Only you know the right format



Something You Have

- Smart card
 - Integrates with devices
 - May require PIN
- USB token
 - Certificate is on the USB device
- Hardware or software tokens
 - Generates pseudo-random authentication codes
- Your phone
 - SMS a code to your phone



Something You Are

- Biometric authentication
 - Fingerprint, iris scan, face scan, voiceprint
- Usually stores a mathematical representation of your biometric
 - The actual fingerprint isn't usually saved
- Difficult to change
 - You can change your password
 - You can't change your fingerprint
- Used in very specific situations
 - Not foolproof



Somewhere You Are

- Provides a factor based on your location
 - The transaction only completes if you are in a particular geographic location
- IP address
 - Not perfect, but can help provide more info
 - Works with IPv4, not so much with IPv6
- Mobile device location services
 - Geolocation to a very specific area
 - Must be in a location that can receive GPS information or near an identified mobile or 802.11 network
 - Not a perfect identifier of location
- On-premises
 - Must be on-site to log into a system

