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Multi-Factor Authentication

With the recent influx of sensitive information being exchanged through unsecure networks, there is a higher demand for the detection and prevention of unauthorized usage to ensure confidentiality. Multi-factor authentication (MFA) is a security system that creates various layers of identification to avert unauthorized access. MFA uses a combination of the following categories: something you know (e.g., username, password, pin), something you have (e.g., smart card), and something you are (e.g., fingerprint, retina scan, voice sample). Compared to traditional authentication process MFA provides a higher level of security.

The goal of this project is to prepare a study of the various methods of multi-factor authentication mechanisms currently in use. With that in place, a detailed benefits and drawbacks study will be conducted and compared to create a solid risk assessment. Then appropriate applications for the compared MFA methods will be identified under the confidentiality, integrity, and availability (CIA) triad. The final result will be a software prototype that can be used by security-operations teams to recommend authentication protections that are appropriate to the system being protected.