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CIA Triad Framework and Decoding Authentication vs Authorization

The CIA Triad and the concepts of authentication/authorization makeup the backbone of modern information security practices.

CIA Triad: Core Security Principles

The CIA Triad represents three fundamental parts of information security. The first part is "Confidentiality". This protects data privacy and sensitive data from unauthorized access. It does this through programs like two-factor authentication and biometric verification (Chai). Another part is "Integrity", which ensures data accuracy and trustworthiness by making sure it can not be changed by unauthorized people (Chai). This is successful through using blockchain technology for transactions and version control systems for document management. The third part is "Availability," which maintains reliable access to systems and data. It does this through DDoS protection for banking websites and redundant cloud servers for e-commerce platforms (Fasulo, 2024).

Authentication vs Authorization

While often confused, these security processes serve very distinct functions. Authentication basically asks the question 'Who are you?" It verifies user identity through different means like passwords/PIN combinations and biometric scans (A vs a, 2023). Another authentication method is security tokens and OTPs (A vs a, 2023).

Authorization asks the question "What can you do?" It determines user access privileges through different ways like file permissions in operating systems and Role-Based Access Control in enterprise systems (A vs a, 2023).

Conclusion

The CIA Triad guides security strategy, while authentication and authorization enforce technical controls. Confidentiality relies on strong authentication to prevent unauthorized access. Integrity uses authorization to prevent unauthorized modifications. Availability requires both concepts to balance access with protection. A bank's encrypted customer portal uses multi-factor authentication to verify users before allowing transaction authorization, while keeping 24/7 availability through redundant servers. As you can see these security fundamentals work together to ensure proper safety.

Works Cited

Fasulo, P. (2024, December 5). *What is the CIA triad? definition, importance, & examples*. SecurityScorecard. https://securityscorecard.com/blog/what-is-the-cia-triad/

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