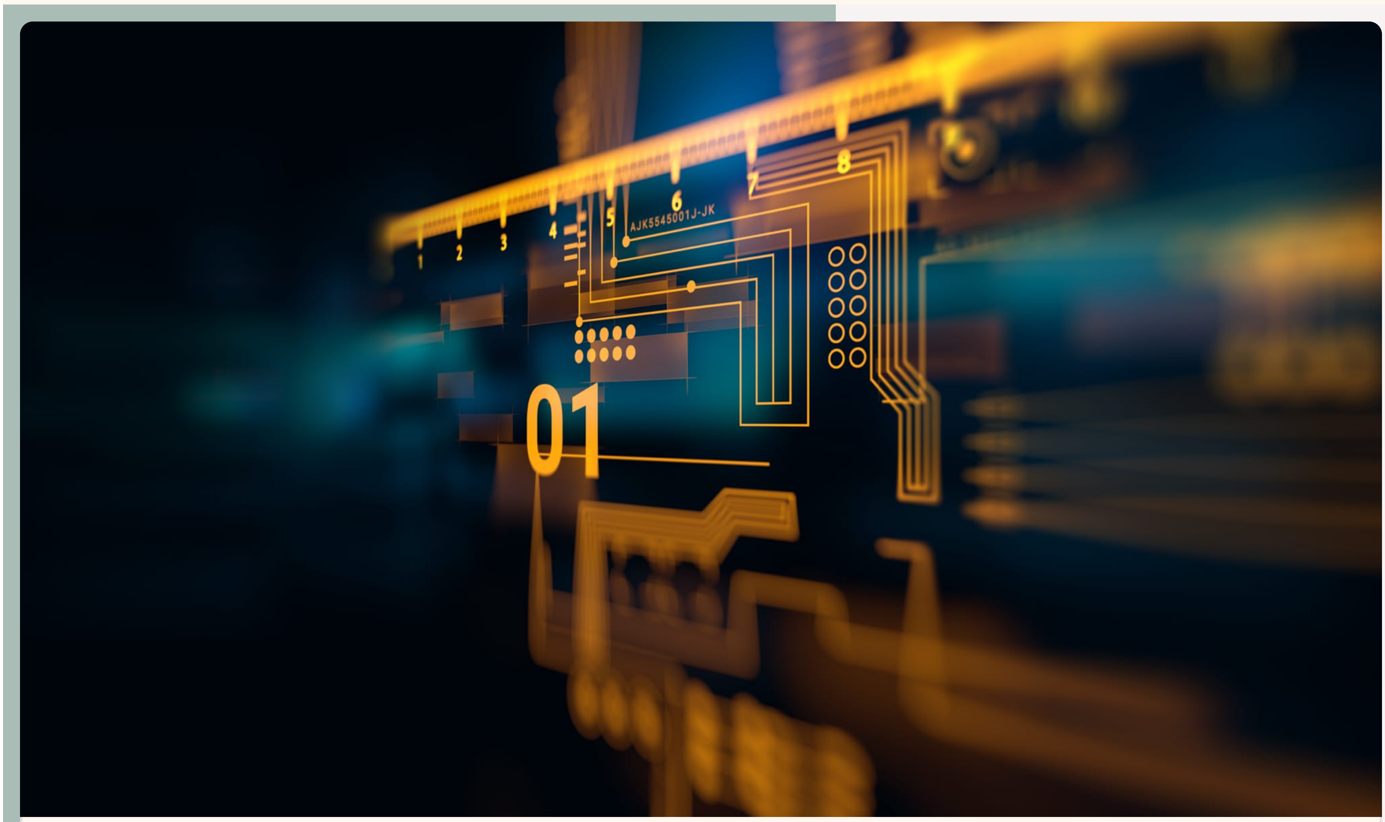


Security in Distributed Computing

Ensuring the protection and integrity of data in distributed computing systems.

1 Data Encryption

Use strong encryption algorithms to safeguard data from unauthorized access.

2 Access Control

Implement granular access controls to restrict user privileges and prevent unauthorized actions.

3 Secure Communication

Employ secure protocols and encryption methods to protect data transmission between nodes.

by Ranjeet Kaur
Last edited less than a minute ago

Firewall Protection

Prevent unauthorized access and monitor network traffic to detect and block potential threats.

Types of Firewalls

- Packet Filtering
- Proxy
- Stateful Inspection

Benefits

- Network Segmentation
- Malware Defense
- Policy Enforcement

Best Practices

- Regular Updates
- Strong Rule Configuration
- Monitoring and Logging

Types of Attacks

Distributed Denial-of-Service (DDoS)

Overwhelm a system with abnormally high traffic, rendering it inaccessible.

Man-in-the-Middle (MitM)

Intercept and alter communication between two parties without their knowledge.

Phishing

Trick users into revealing sensitive information through fraudulent emails, websites, or messages.

Authentication Mechanisms

Passwords

Most widely used authentication method, but susceptible to brute-force attacks and password guessing.

Multifactor Authentication

Adds an extra layer of security by combining multiple authentication factors like passwords, tokens, and biometrics.

Biometrics

Uses unique physical or behavioral traits to verify identity, such as fingerprints, face recognition, or voiceprints.

Data Encryption

Protect sensitive data by converting it into an unreadable format that can only be deciphered with the correct decryption key.

1

Encryption Algorithms

Use industry-standard algorithms like AES, RSA, or ECC to ensure secure encryption.

2

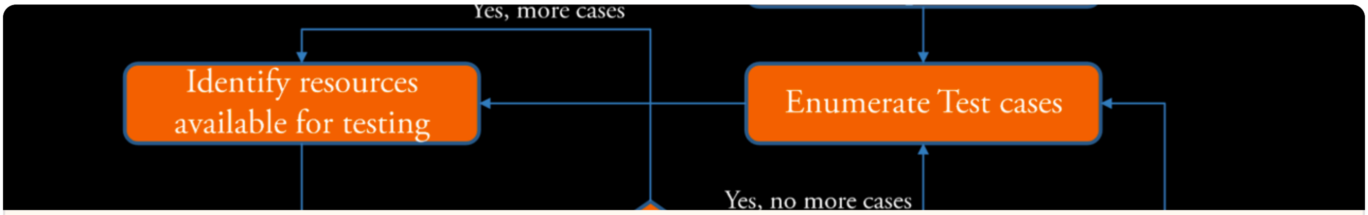
Key Management

Implement proper key generation, distribution, storage, and rotation to maintain the confidentiality of data.

3

End-to-End Encryption

Encrypt data throughout its entire journey, from the sender to the recipient, to protect against interception.



Vulnerability Assessment

Identify weaknesses and vulnerabilities in the system through regular automated and manual security assessments.

1

Penetration Testing

Simulate real-world attacks to uncover vulnerabilities and validate the effectiveness of security measures.

2

Code Review

Thoroughly analyze application code to identify potential security flaws and vulnerabilities.

3

Security Audits

Systematic evaluation of security controls, policies, and procedures to ensure compliance and identify areas for improvement.

Security Incident Response

Plan

Develop an incident response plan outlining the roles, responsibilities, and actions to be taken in the event of a security incident.

Contain

Isolate the affected systems or networks to prevent further damage and limit the impact of the incident.

Investigate

Conduct a thorough investigation to determine the cause of the incident and gather evidence for remediation and legal actions if necessary.

Malware Detection and Prevention

Deploy security measures to detect, prevent, and remove malicious software threats.

1

Antivirus Software

Regularly update and scan systems for malware, viruses, and other malicious programs.

2

Intrusion Detection Systems (IDS)

Monitor network traffic and identify patterns or anomalies that may indicate a security breach.

3

Behavioral Analysis

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