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Research Paper on Salesforce Security Management

Alfred Desa

Abstract: ***In today's digital world, businesses depend heavily on cloud platforms to store and manage data. Salesforce is one of the most popular cloud-based CRM systems used globally. However, as data moves to the cloud, security becomes a major concern.***
Salesforce Security Management provides multiple layers of protection such as authentication, authorization, encryption, and monitoring to ensure data safety. This research paper explains each security mechanism in detail with simple examples, making it easy to understand how Salesforce protects sensitive data from cyber threats.
Keywords: Salesforce, Cloud Security, CRM, Authentication, Authorization, Encryption, Data Protection, Cybersecurity

I. INTRODUCTION

Cloud computing allows companies to store data online instead of on local computers. Salesforce helps businesses manage customer data like:
Customer names
Phone numbers
Purchase history
 Example:
A company stores customer details in Salesforce. If security is weak, a hacker could steal this data and misuse it.
That's why Salesforce Security Management is important. It protects data using multiple security layers.
Shared Responsibility Model
Salesforce → protects servers, infrastructure
Company (User) → manages users, passwords, access
 Example:
Salesforce locks the building, but you must lock your office room.

II. LITERATURE REVIEW

Research shows that:
Most data breaches happen due to human mistakes
Weak passwords and wrong permissions are common issues
Organizations like:
Cloud Security Alliance
NIST
recommend:
Strong authentication
Data encryption
Regular monitoring
 Example:
If an employee shares their password, even the best system can be hacked.

III. SALES FORCE SECURITY ARCHITECTURE

Salesforce uses Defense-in-Depth, meaning multiple layers of protection.

A. Physical Security

This is the security of data centers.

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Biometric locks
CCTV cameras
Security guards
 Example:
Like a bank locker room where only authorized people can enter.

B. Infrastructure Security
Data is stored in multi-tenant environment
Each company's data is separated logically
 Example:
Like different flats in one building — same building but separate homes.

C. Network Security
HTTPS (secure connection)
Firewalls
IP restrictions
 Example:
Only devices from office IP can access Salesforce.

D. Application Security
Protects against:
SQL Injection → hacker tries to access database
XSS → malicious scripts
CSRF → fake requests
 Example:
A hacker tries to enter "admin login" using code — Salesforce blocks it.

IV. IDENTITY AND ACCESS MANAGEMENT (IAM)

A. Authentication (Who are you?)
Verifies identity.
Types:
1. Username + Password Example: Gmail login
2. Two-Factor Authentication (2FA)
Example: OTP sent to mobile
3. Single Sign-On (SSO) Example: Login with Google
4. Biometric Example: Fingerprint login

B. Authorization (What can you do?)
After login, controls access.
Components:
Profiles Defines basic permissions
Example: Salesperson can view customers
Roles Hierarchy-based access
Example: Manager can see employee data
Permission Sets Extra permissions
Example: Temporary admin access
Sharing Rules Share data manually
Example: Share client record with another team

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C. Multi-Factor Authentication (MFA)

Adds extra security layer.
 Example:
Password + OTP
Password + fingerprint
Even if password is stolen, account stays safe.

V. DATA SECURITY MECHANISMS.

A. Data Encryption

Encryption = converting data into secret code.
Types:
Data at Rest Stored data encrypted
Example: Database encryption
Data in Transit Data moving over internet
Example: HTTPS lock icon

B. Field-Level Security

Controls specific fields.
 Example:
Employee can see name
But NOT salary

C. Object-Level Security

Controls objects like:
Accounts
Contacts
 Example: Intern cannot access “Finance” object

D. Record-Level Security

Controls individual records.
 Example: Salesperson sees only their customers

E. Data Masking

Hides sensitive data.
 Example: Real: 9876543210
Masked: 98XXXXXX10
Used in testing.

VI. MONITORING AND AUDITING (DETAILED)

A. Audit Trail

Tracks changes.
 Example: Admin changed password policy → recorded

B. Login History

Tracks:
Login time
IP address
 Example: Login from unknown country → suspicious

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C. Event Monitoring

Tracks user behavior.

 Example: User downloads 1000 records → alert

D. Real-Time Alerts

Instant notifications.

 Example: Multiple failed logins → admin alerted

VII. COMPLIANCE AND GOVERNANCE

Salesforce follows:

GDPR → protects user privacy

ISO 27001 → security standards

HIPAA → healthcare data protection

 Example:

A hospital using Salesforce must follow HIPAA rules to protect patient data.

VIII. THREATS AND VULNERABILITIES (DETAILED)

Common Threats

1. Phishing Fake email asking password
2. Weak Password Easy password like 123456
3. Insider Threat Employee misuses data
4. Misconfiguration Wrong permissions

Risks

Data theft

Unauthorized access

API attacks

IX. SECURITY BEST PRACTICES (DETAILED)

Enable MFA

Use strong passwords

Limit access (least privilege)

Monitor activity regularly

Restrict IP access

Encrypt sensitive data

 Example:

Give employee only required access — not full admin rights.

X. CASE STUDY

A company had:

Weak passwords

No MFA

 Result: Unauthorized access happened

Solution:

Enabled MFA

Restricted access

Monitored login

 Result: Security incidents reduced by 70%

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XI. ADVANTAGES

Strong multi-layer security
Easy scalability
Trusted globally
Advanced monitoring

XII. LIMITATIONS

Complex setup
Requires skilled admin
Costly advanced features
Human errors possible

XIII. FUTURE TRENDS (DETAILED)

AI-based security detection
Zero Trust Model (verify every access)
Blockchain security
Automated compliance
 Example:
AI detects unusual login automatically and blocks it.

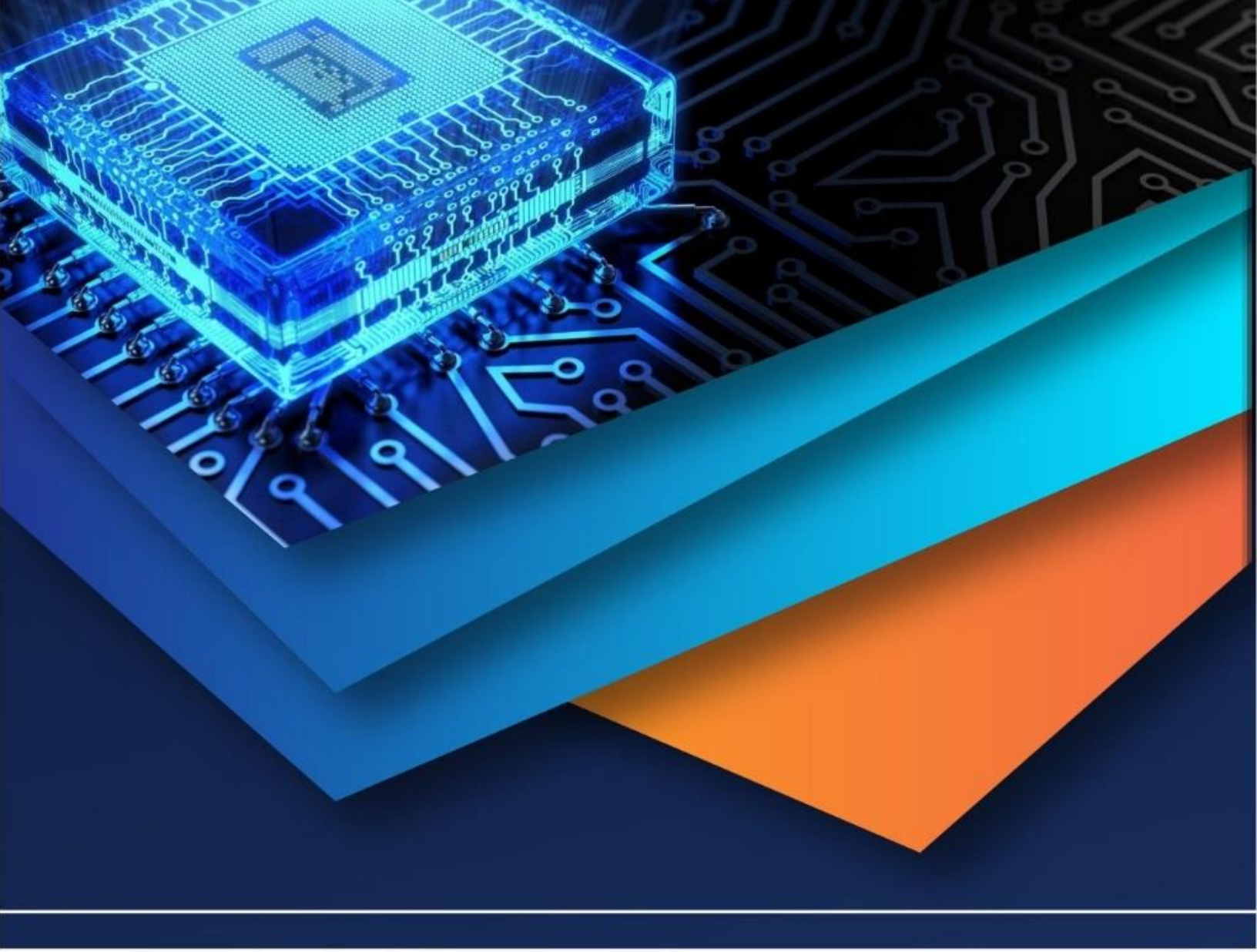
XIV. CONCLUSION

Salesforce Security Management is essential for protecting cloud data. It uses multiple layers like authentication, encryption, and monitoring to ensure safety.
However, security is not automatic — organizations must properly configure and monitor their systems.

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