PKI in Action

How It Ensures Data Integrity and Authentication.

PKI

PUBLIC KEY INFRASTRUCTURE
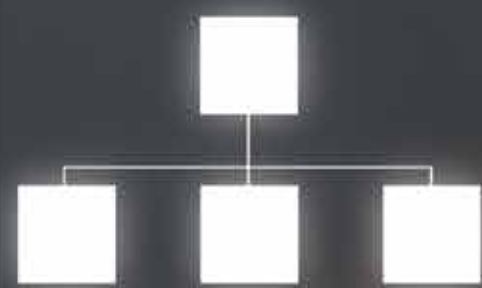
eMudhra
Trust Delivered

What is Public Key Infrastructure (PKI)?

Definition

✦ PKI is a framework of hardware, software, policies, and procedures that enable secure electronic communications.

Core Functions

✦ **Authentication:** Verifies the identities of entities.

✦ **Data Integrity:** Ensures data remains unchanged during transmission.

✦ **Confidentiality:** Protects sensitive data from unauthorized access.

✦ **Non-Repudiation:** Provides proof of origin and prevents denial of actions.

PKI

PUBLIC   KEY   INFRASTRUCTURE

![emudhra Trust Delivered logo]

Why PKI is Essential

Growing Cyber Threats

✦ With the rise in cyberattacks, PKI ensures robust security.

Trust in Digital Interactions

✦ Builds a secure foundation for online transactions and communications.

Compliance Needs

✦ Meets regulatory requirements for secure data handling.

How PKI Ensures Data Integrity

Digital Signatures

✦ Uses the sender's private key to "sign" data.

✦ Verifies the data's authenticity and ensures it hasn't been altered.

Hashing

✦ A unique hash value is created for the data.

✦ Any change in data invalidates the hash, signaling tampering.

Encryption

✦ Secures data during transmission to prevent unauthorized access.

How PKI Enables Authentication

Certificate Authorities (CAs)

✦ Trusted entities that issue digital certificates to verify identities.

Client and Server Authentication

✦ Ensures mutual trust between communicating parties.

Document Signing

✦ Guarantees the signer's identity and the authenticity of the document.

eMudhra's Role in PKI

eMudhra is a global leader in digital trust solutions, offering end-to-end PKI services.

PKI Offerings

emCA:

✦ A robust certificate authority platform that enables issuance, renewal, and management of digital certificates.

✦ Quantum-ready PKI to ensure future-proof security.

Automated Certificate Lifecycle Management (CLM):

✦ Reduces risk of outages by automating PKI operations.

✦ Provides real-time monitoring of certificate statuses.

Compliance and Standards

✦ Adheres to global standards such as **NIST PQC, GDPR, SOC 2 Type 2, and ISO certifications.**

Trusted Globally

✦ Powers **secure communication** for the *world's second-largest electric vehicle manufacturer.*

✦ **Ranked #1** in *"Identity and Digital Trust"* by **IDC** in India.

Benefits of eMudhra's PKI Solutions

✦ Ensures end-to-end security and data integrity.

✦ Automates certificate management, reducing operational overhead.

✦ Scales seamlessly across industries like finance, healthcare, and automotive.

✦ Future-ready with quantum-resistant solutions.

Partner with eMudhra today and take the first step toward uncompromised digital trust.

Visit us at www.emudhra.com to learn more!