



eMudhra - PKI Based Applications

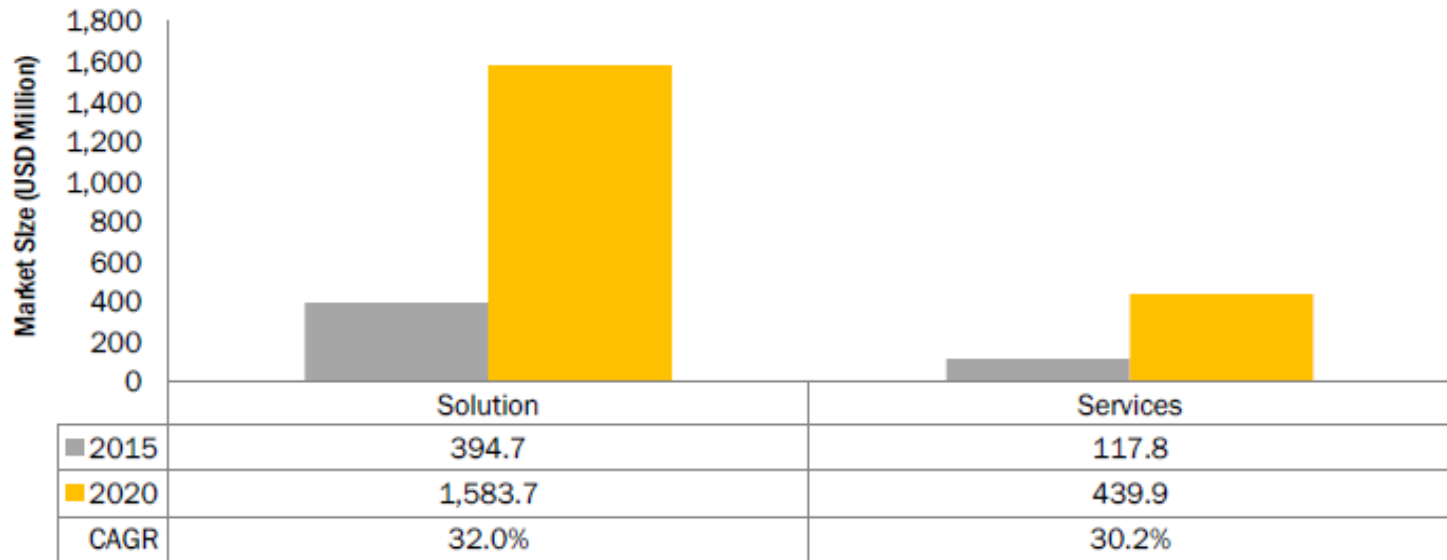
International Conference on PKI & its applications
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- Key Issues / Risks involved in e-commerce are Identity & Authenticity.
- Digital Certificates are issued under PKI.
- PKI binds Identity & Public Key together. Public key is always associated with a private key in subscriber custody.
- Private Key generates unique signature for particular transaction/document, which can be verified only with associated Public Key.
- This solves the problem of Identity & Authenticity, and can be used in any application.



Hence, the usage is unlimited!

DIGITAL SIGNATURE (BY COMPONENT) SNAPSHOT, 2015 VS. 2020



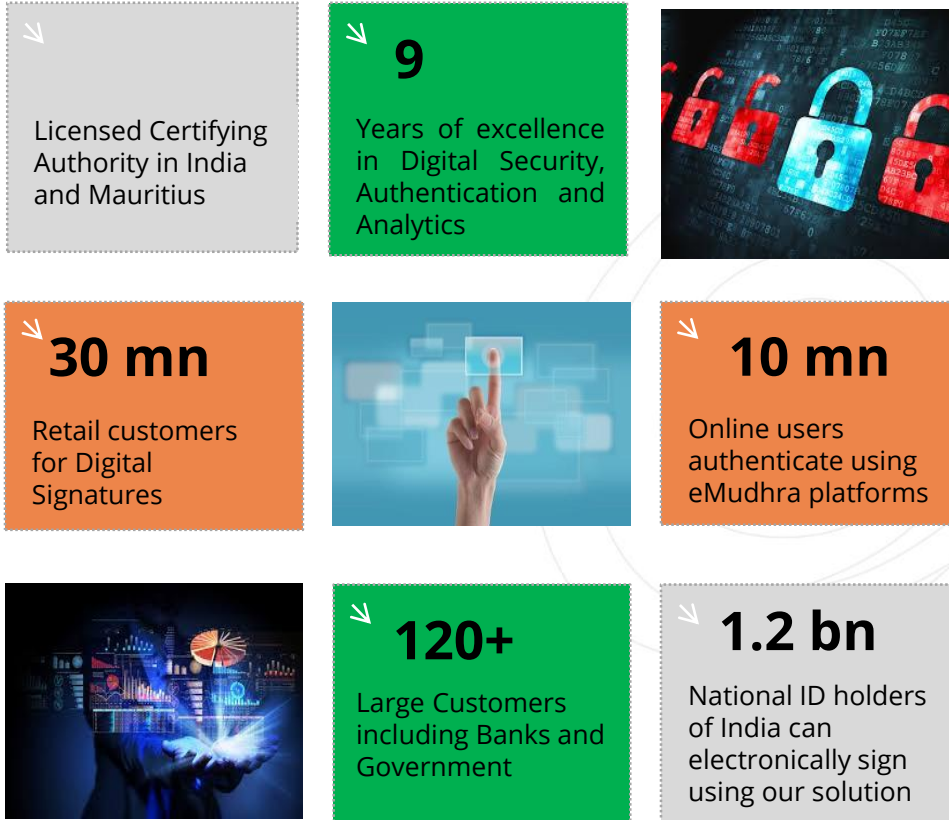
The PKI market is USD 500mn and expected to grow at 32% CAGR over the next years to USD 2bn



PKI Technology is still in growth stage giving lot of opportunities to all players in PKI space.

- Key Observations for PKI:
 - **CAGR of 32%** providing significant growth opportunities globally
 - **Digital Transformation and Going Paperless** is key priority for Governments and Enterprises
 - **Enhanced online security** requirements in line with increasing cyber frauds
 - **United Nations Model Law** has resulted in legislation for Digital Signatures using PKI being passed in most countries
 - eMudhra has built a whole **range of applications** around PKI to facilitate online customer interactions

Introducing eMudhra



• Clients

- Over 25 large Banks in India
- 75% of top companies in BFSI/Capital Markets

• Partnerships

- Key e-Govt initiatives – India Stack, e-Sign, Digital Locker, Goods and Service Tax
- Samsung/Adobe/Intel partnership to drive ecosystem

• Presence

- 22 Offices in India
- Global presence – USA, Singapore, Dubai and Mauritius

• Awards

- United Nations Award Winner for Bridging Digital Divide
- Gartner recognized for Text Analytics



eMudhra has a global presence with own offices in USA, Singapore, India and UAE and a network of over 50 channel partners

Securing Transactions with PKI

Digital Signature Issuance

- Issuance of digital signature certificates to individuals (usage Income Tax, MCA etc.,).
- Issuance of SSL's to websites.

Electronic Signature Issuance (eSign)

- National-ID based KYC and Signing of documents.

As a Certifying Authority, eMudhra issues over 12 million digital signatures/eSign yearly (3x the global volume of SSL's issued every year)

Enabling Applications with PKI

emAS

- Enables Digital Signature and other forms of authentication for Banks, Financial Institutions, Government.

emSafe

- Enables secure & encrypted data storage

emCA

- Enables Certifying Authority setup on - cloud or on premise.

All these applications developed with own R&D.

eMudhra provides consulting, deployment and management of secure digital identity and transaction management platforms for Enterprises

Paperless Office

Paperless Office Suite (emSigner)

- Enables workflow with secure digital signature .
- Easy Verticalisation for department specific workflows – Human Resources, Legal, Finance, Customer Onboarding, Lending etc.,
- Integrated with ERP products including SAP, Peoplesoft, Oracle Business Suite.
- Suitable for any Industry.

Enabling people, device and application authentication and signing on cloud or on premise for secure identity and transaction management using PKI

Cloud or Enterprise Certifying Authority

Cloud & Mobile

People
Authentication

Device
Authentication

Application
Authentication

Paperless Office

Plug and Play Universal Authentication Server

○ Digital Signatures

Issuance of digital signatures to individuals as a Certifying Authority in India and Mauritius

○ Internet of Things

Device certificates for strong authentication using PKI

○ emAS

Plug and play universal authentication platform for risk based and adaptive authentication

○ emSigner

Cloud based verticalized paperless office solution to go paperless

○ Application Certificates

SSL, Code Signer, Document Signer certificates

○ emID

Citizen e-ID projects
Electronic Signatures based on National ID

○ emCA

Enterprise PKI implementation on cloud or in enterprise for issuing/managing digital signatures

○ emSafe

Secure signing, storage and retrieval of data.

E-Governance



Use of National ID and Digital Signatures to make government to citizen interactions paperless.

Use cases include birth and other certificates, e-Voting, e-Stamping, employment, transport, public distribution system etc.,

Banking/NBFC

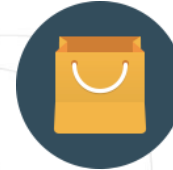


Enhancing cyber-security framework through deployment of PKI platforms.

Digital Transformation and going paperless for retail/corporate customer interaction.

Behavioral analytics of customers for risk based authentication.

Capital Markets



Paperless customer onboarding using digital signatures for trading, demat operations.

Automation of institutional client interaction using digital signatures.

Enterprise



Enterprise paperless office for HR, Finance, Legal and other workflows.

Enterprise risk authentication through behavioral analytics.

Social Media/Email monitoring and predictive insights.

- Leveraging National ID based KYC and Digital Signatures to drive country- wide digital transformation and offer paperless, presence-less transactions.
 - Paperless customer onboarding to facilitate easy access to Banking, Capital Markets
 - Transforming Payment Systems to accept digitally signed payment instructions for Cheques, Direct Debit Mandates (ACH)
 - Enabling Digital Contracts (e-Stamping + e-Sign to eliminate paper) without the need for physical signatures
 - Government to Citizen Services – Issuance of various certificates (birth, license etc.) through paperless customer interaction.
- Combining the power of Behavioral Analytics in Authentication to reduce fraud
- Internet of Things security platform and framework for global markets.
- Blockchain systems with digital signatures for identity based distributed ledgers

- Digital Transformation has resulted in following benefits to our customers:
 - Increased customer base.
 - Faster account opening and activation using our paperless solutions
 - Greater Client satisfaction.
 - Higher degree of confidentiality and straight through processing.
 - Standardized operating process.
 - Significant cost reduction including customer acquisition cost.
 - Reduced logistics and storage costs.

Thank You

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