



Emerging Technologies and Regulatory Challenges

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Controller Certifying Authorities
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Information Technology (IT) Act, 2000



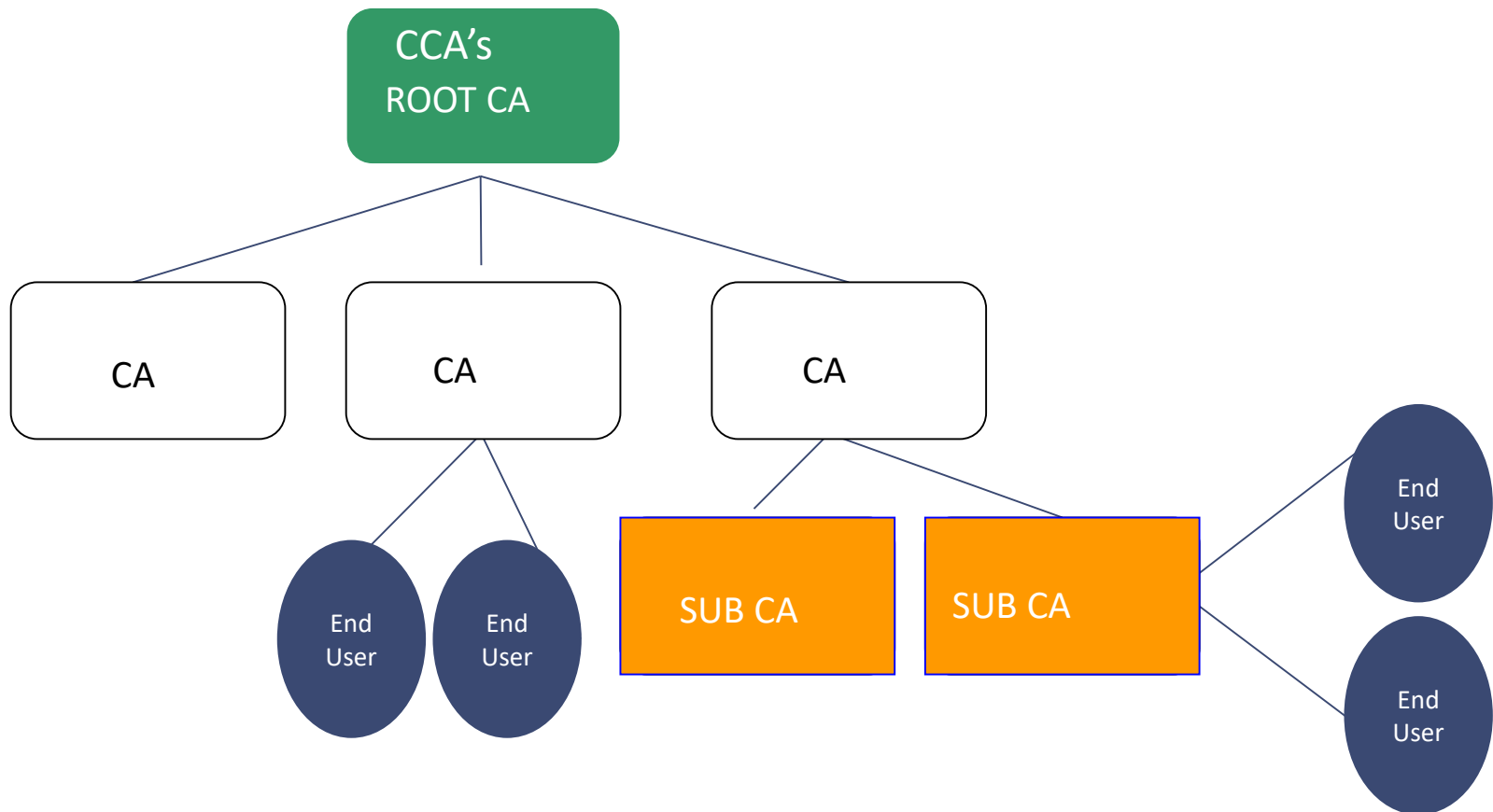
- The Information Technology Act 2000 facilitates acceptance of electronic records and digital signatures through a legal framework for establishing trust in e-Commerce and e-Governance.
- Technology specific digital signatures introduced for authenticity and non-repudiability of electronic transactions
- Digital Signature Certificates (DSC) to be issued by Certifying Authorities (CA)



Controller of Certifying Authorities

- CCA licenses Certifying Authorities (CA) to issue DSCs under the IT Act.
- Controller of Certifying Authorities (CCA) is appointed under Section 17 (Chapter VI – Regulation of Certifying Authorities) of the IT Act, 2000

Trust Hierarchy





Emerging Technologies

- **Block Chain**

Distributed database of records or public ledger of all transactions or digital events that have been executed and shared among participating parties

- **Internet of Thing (IoT)**

Interconnection of Things or Objects or Machines, e.g., sensors, actuators, mobile phones, electronic devices, home appliances, any existing items and interact with each other via Internet.



Block Chain implementation

- **Smart Contract**

Self-executing contracts with the terms of the agreement between buyer and seller being directly written into the computer program

Smart contracts permit trusted transactions and agreements to be carried out among disparate, anonymous parties without the need for a central authority



IoT implementation

- Smart City Project
 - Smart cities are communities that are building infrastructure to continuously improve the collection, aggregation and use of data; deploying low-cost sensors and WiFi –enabled smart devices.
 - Specific applications include Street and Traffic lights, Transportation, Parking, waste management, Energy usage and distribution, Traffic flow, etc.

Regulatory Challenges - Block Chain



- No legal framework regarding
 - Legal nature of blockchains and shared distribution ledger
 - Recognition of blockchains as immutable and tamper-proof nodes
 - Legal validity of financial instruments issued in blockchain
 - Smart Contract
 - Use of blockchain as a valid regulatory registry for Internet of Things



Thank you