BLOCKCHAIN APPLICATIONS AND INTEROPERABILITY

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Why do we need Blockchain?
Blockchain

Distributed Append Only Ledger

Hash Storage

Chronological Ordering

https://blockchaindemo.io
Applicability of Blockchains

- Tamper Resistant / Data Verifiability
  - Storage of information where data integrity is at most important
    - Certificates, votes, land records …

- Chronological Ordering
  - Land records

- Double Spending
  - Assets – singular

- Distributed
  - Availability, Data integrity
Applications

- Document Verification
- E-Voting
- Supply Chain Management
- Land Records
- Consent Management
- …
Value addition of NBF Components

Multiple Level Security Assurance
- Hardened Blockchain Platforms
- Smart Contract Security
- Secure API to access Blockchain
- Blockchain Specific Security Audit

Skillful Human Resource
Requirements Across the Layers
- Network Setup (Distributed Nodes)
- Smart Contract Programming
- Blockchain Platform Specifics
- Blockchain <=> Web / Mobile

Lack of Technological Support
- Government Depts. keen to Adopt
- Quick demonstration of Value Addition
- Faster Implementation of Applications
- Domain Experts <=> Technology Experts
Why Interoperability?

- BCT Apps working in Silos
- Scalability
- Communication for normal legacy applications with BC Application
Mechanisms to Achieve Interoperability

- Notary
- Oracles
- Bridges
- Cross Chains
- API
Existing Platforms

COSMOS

POLKADOT

CACTUS

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Research Opportunities

- Simplified mechanisms for interoperability
- Scalability
- Performance
- Security & Privacy
THANK YOU