IFERP connecting engineers... developing research

Tech News

Freeze yourself, it is a glorious initiative by IFERP in establishing a professional network around the world to discuss, share and innovate cutting-edge technologies to add value to society. IFERP shares the tech news to keep the members up to date with the latest technology news and research work in different sectors.

Blockchain: The New Trust Paradigm

Blockchain technology has the potential to revolutionize interactions between governments, businesses and citizens in a manner that was unfathomable just a decade ago. Though very often grouped with technologies such as artificial intelligence or Internet of Things, the technology is unique in its foundational nature.

It's a chain of blocks linked together using cryptography. It was invented in 2008 by Satoshi Nakamoto to the public transaction ledger of cryptocurrency called bitcoin.

Cryptocurrency is the combination of altcoins and crypto tokens. It is a standard currency which is used for payment transactions on blockchain. The most accepted cryptocurrency is Bitcoin. Coins are currencies that can be used for buying and selling products. You can buy a token with a coin, but not vice versa.

Coin operates independently, while token has a specific use in the project's ecosystem. This tech allows digital information to be distributed, but not copied means, when new block is created it doesn't replace the block rather append new block in the chain.

TRON is one of the largest blockchain-based operating systems in the world.TRX is the Cryptocurrency based on Tron blockchain.Tron (TRX)=0.015048 USD (May 2020). Ethereum is an open source, public, blockchain-based distributed computing platform and operating system featuring smart contract functionality. ETH is the cryptocurrency. Ethereum (ETH) = 209.23 USD (May 2020). Compare this to a real time payments system e.g. Visa which is capable of processing more than 50,000 transactions per second. To put in context, the most commonly used blockchain platform, Ethereum is striving to reach 3,000 transactions per second from the current level of a few hundred transactions per second.

It is a secure & shared storage of records. Every record is linked with previous using cryptographic techniques. Information is shared with participants having access in real time. It allows software code execution called smart contracts. Their operation can be represented using finite state machines. Software code is deployed and executed on Blockchain. Every execution step is logged and can be tracked. Blockchain creates trust by acting as a shared database, distributed across vast peer-to-peer networks that have no single point of failure and no single source of truth, implying that no individual entity can own a blockchain network, and no single entity can modify the data stored on it unilaterally without the consensus of its peers.

India's Digital Foundational Infrastructures:

Aadhaar is the world's largest identity database with more than 1.2bn biometric identities with more than 25 million authentications per day..

Unified Payments Interface (UPI) is world's most sophisticated digital payments system with 1.3bn transactions processed in December 2019.

Goods and Services Tax Network (GSTN) has more than 400 million returns filed and more than 800 million invoices uploaded.

The need for creating a permanent trusted digital record for the asset can't be emphasized enough. One of the key features of blockchain is the immutability i.e. irreversible representation of the state of an object. If consensus can't be reached on the state of the object / transaction through trusted sources i.e. disputed land records, a block representation of that object / transaction is not feasible. While permissible blockchains can handle more volume than public blockchains, the limitations of processing time still remain.

Benefits of blockchain used in Indian enterprise would include better contract management and procurement, greater accountability and quality control across supply chains and decentralization of authority in decision making. Despite the recent technological advances, blockchain technology still has limited processing power, which makes it difficult to perform large number of transactions simultaneously. Blockchain shouldn't be seen as an alternative to databases and shouldn't be used for storing private/proprietary information. It is best suited for transaction records. The power of blockchain solutions is to act as source of trust, transparency and audit ability. Hence they are suited for process flows with multiple entities. The foremost requirement for a blockchain based solution to be appropriate is the need for reducing intermediaries (entities / brokers / processes).

Dr. Anuj Kumar Gupta
Professor & Head, CSE Dept.
Chandigarh Group of Colleges, Landran, Punjab

info@iferp.in | info@iferpmembership.in | 044 - 4291 8383
www.iferp.in | www.iferp.in/plan-scientific-conference.php | 044 - 4958 9038

IFERP, Rais Towers (2nd Floor), 2nd Avenue, Anna Nagar,
Chennai, Tamil Nadu - 600040
Published by Technoarete Publishers