SRI VENKATESWARAA
COLLEGE OF TECHNOLOGY
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GITATHON
SVCT-BLOCKCHAIN CLUB

ETHEREUM BLOCKCHAIN AND SMART CONTRACTS

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B.TECH AI&DS

TOPICS INCLUDED:

1.INTRODUCTION
2.UNDERSTANDING BLOCKCHAIN
3.THE ETHEREUM ECOSYSTEM
4.SMART CONTRACTS
5.ETHEREUM VIRTUAL MACHINE (EVM)
6.DECENTRALIZED APPLICATIONS (DAPPS)
7.ETHEREUM GAS AND TRANSACTIONS
8. CHALLENGES AND SCALABILITY
9. USE CASES OF ETHEREUM
10.SECURITY ND AUDITING
11.FUTURE OF ETHEREUM
12.CONCLUSION

BINANCE

INTRODUCTIO N:

Ethereum is a decentralized blockchain and development Platform. It allows developersto build and deploy applicatons And smart contracts

Ethereum enables building and deploying smart contracts And decentralized applications (dAPPS) without downtime, Fraud,control or,interference from a third party

Understanding Block chain:

.Block chain is a dencentralized, immutable ledg that Records transactions act a network of computers. It Securtity and transparency by utilizing cryptographic techniques

. Block chain Technology is advanced database mechanism That allows transparent information sharing within a Businesss network…

Ethereum: The Go-To Blockchain Technology for Business Solutions

Flourishing Ethereum Ecosystem: A Six-Year Snapshot

8,670
Nodes Running on Ethereum Network

150M+
Total Unique Addresses

116M+
Total Ethereum supply

3,000+
Total Dapps

500K
Daily Active Dapp Users

9.3M
Total Eth Locked in DeFi

Global Processes
1.183M Transactions/Day

Tens of Thousands of Developers
Growing Global Community

Stats as of July 15, 2021

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We Make the Impossible, Possible.

www.systango.com

OVERVIEW OF ETHEREUM 1.0

Ledger Type:
Public

Cryptocurrency:
Ether

TPS:
15/sec

Consensus Mechanism:
PoW

Created By:
Vitalk Buterin

Inception Year:
2013

Managed By:
Ethereum
Enterprise Alliance

Founding Firm:
Ethereum Foundation (Non-profit)

Distinction:

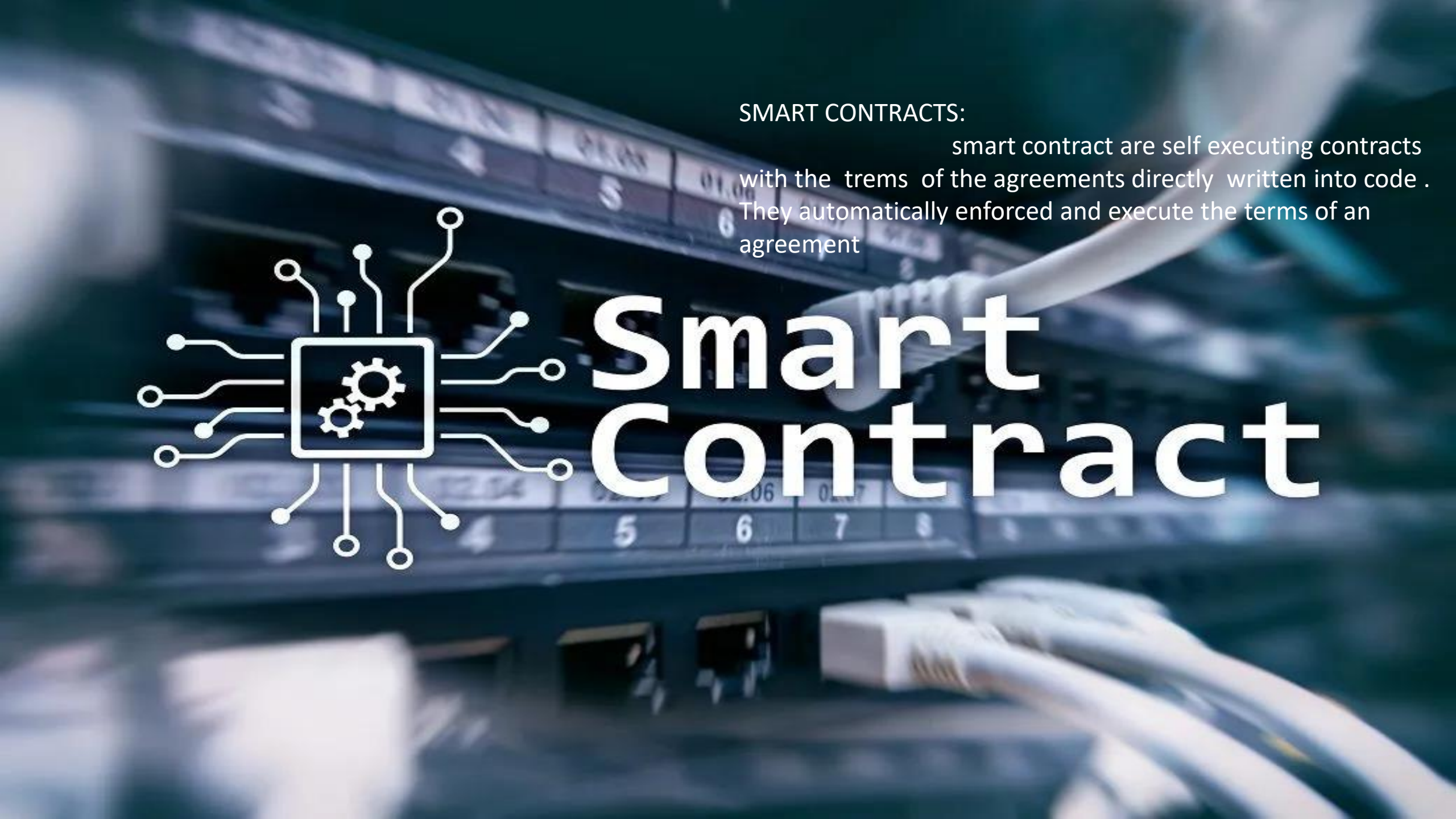
Large Network
Continuous innovations
Switching to Proof of Stake

The Ethereum Ecosystem:

Etherum is a decentralized platform that enables the creation of smart contracts and decentralized applications (dAPPS) . Its native cryptocurrency is native cryptocurrency is called Ether.

SMART CONTRACTS:

smart contract are self executing contracts with the trems of the agreements directly written into code . They automatically enforced and execute the terms of an agreement

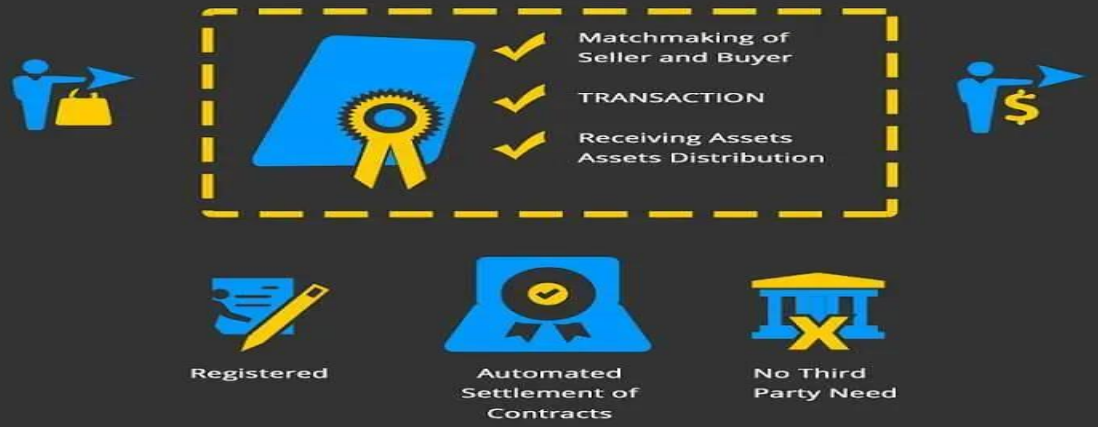


The Future of Smart Contracts

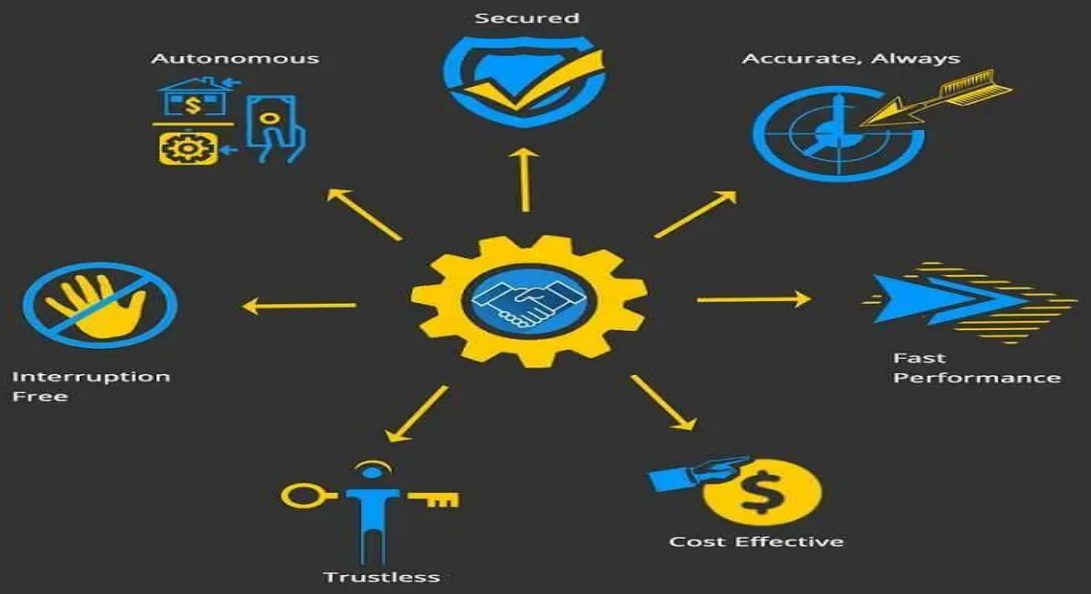
1. Smart Contract Explained

- A contract is created between two parties
- Both parties remain anonymous
- The contract is stored on a public ledger
- Some triggering events are set i.e. deadlines
- The contract self-executes as per written codes
- Regulators and users can analyze all the activities.
- Predict market uncertainties and trends

2. How Do Smart Contracts Work?



3. Smart Contracts Benefits



4. Smart Contracts Use Cases

BeOne
Integrated Ecosystem Protocol in One Network

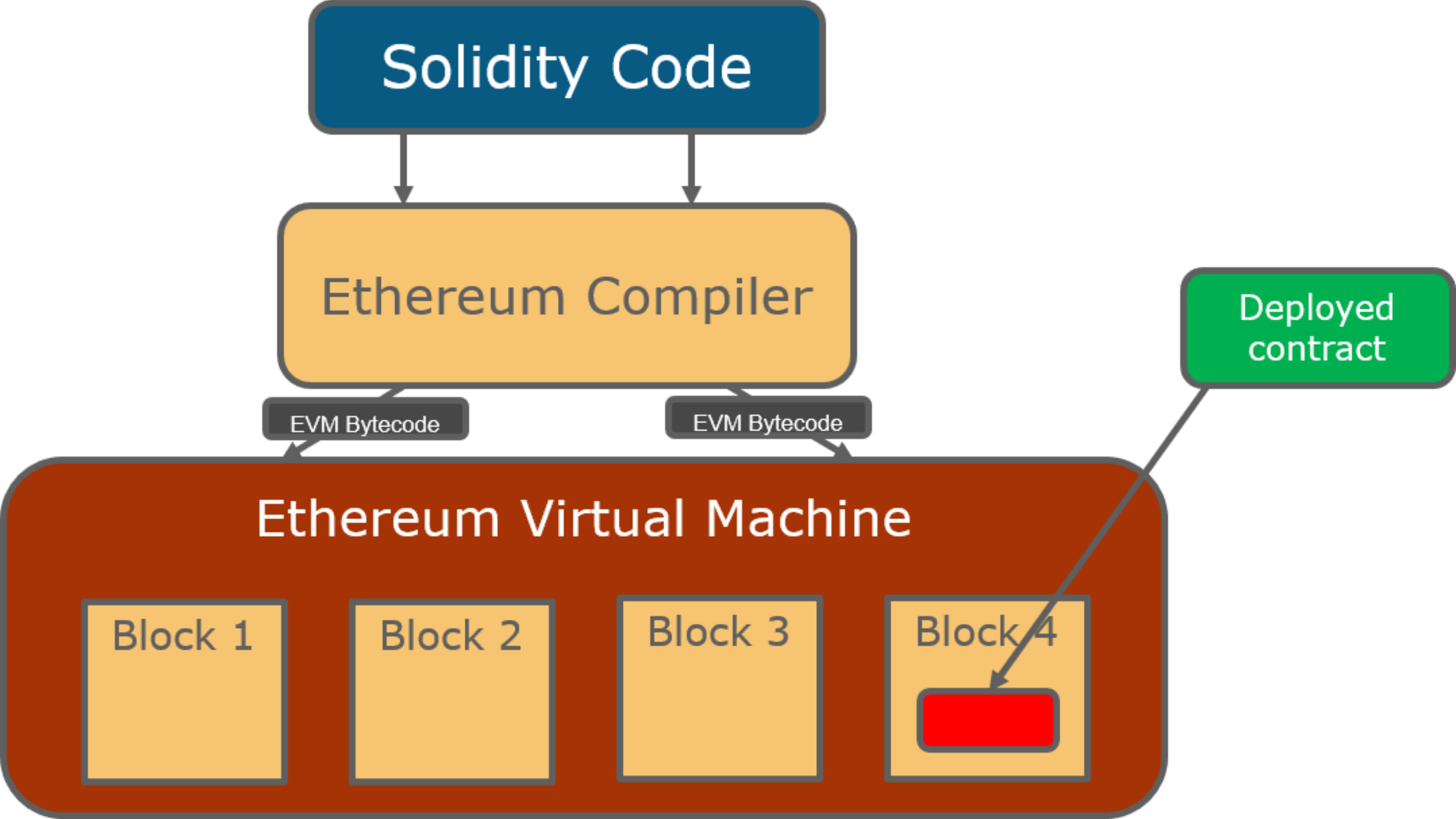
ETHEREUM VITRUAL MACHINE

ETHEREUM VIRTUAL MACHINE (EVM):

The Ethereeum virtual Machine is the runtime environment for smart Contracts in Ethereum. It enables the execution of smart contract code in a secure and deterministic manner.

www.beonechain.com

www.salmonation.com


Solidity Code
Ethereum Compiler
EVM Bytecode
EVM Bytecode
Deployed contract
Ethereum Virtual Machine
Block 1
Block 2
Block 3
Block 4


Decentralized Apps(dApps)

Structure of a Transaction

- Transaction
  - Recipient
  - Nonce
  - Gas Price
  - Gas limit
  - Value
  - Data
  - Signature

CHALLENGES OF BLOCKCHAIN

Lack of privacy

Critics of public blockchains say because everyone can download a blockchain and access the history of transactions, there is not much privacy. In private blockchains, nodes must be granted access to participate, view transactions, and deploy consensus protocols.

Fake block Generation

Miners create new blocks on the chain through a process called mining. In a blockchain every block has its own unique nonce and hash, but also references the hash of the previous block in the chain, so mining a block isn't easy, especially on large chains.

Lack of scalability

Scalability, whether in a financial context or within the context of business strategy, refers to an organization's ability to grow without being hampered by its structure or available resources when faced with increased production.

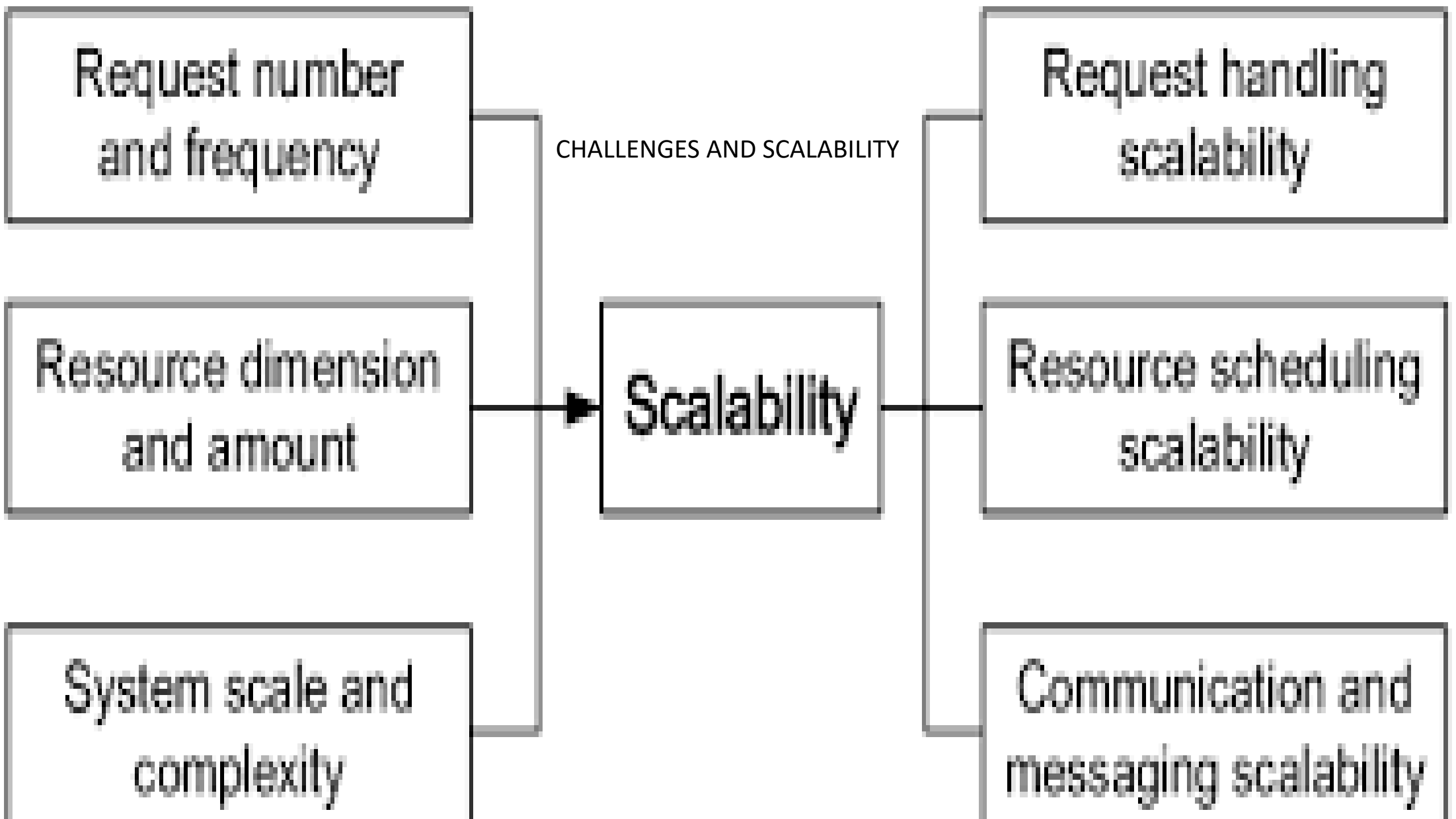
High energy consumption

One of such issues is the energy consumption. Blockchains are found to consume exorbitant amount of energy because of the algorithm followed for its creation. This paper explores the blockchain technology and the impacts of energy consumption due to the technology used.

High latency

In cryptocurrencies, latency can refer to two different time delays. The first is the latency in the network of a blockchain, and the second is the latency on an exchange. Blockchain network latency is the time between submitting a transaction to a network and the first confirmation of acceptance by the network.

USE CASES IN ETHEREUM:


Request number and frequency
Resource dimension and amount
System scale and complexity
CHALLENGES AND SCALABILITY
Scalability
Request handling scalability
Resource scheduling scalability
Communication and messaging scalability

A BEGINNER'S GUIDE TO ETHEREUM

What is the difference between Ethereum and Bitcoin if they are both distributed public blockchain systems?

was created to run "non-paper" dollars - digital currency.

was created to establish decentralized apps.

The main digital currency of Bitcoin platform is bitcoin.

On Ethereum users mine Ether.

TRASTRA

A BEGINNER'S GUIDE TO ethereum

INTRODUCTION

Over the last few years, developers have begun using Bitcoin's underlying technology - the Blockchain - for creative new applications. Ethereum is a next-generation platform that allows anyone - both developers and consumers - to easily take advantage of decentralized networks and realize the benefits of blockchain technology.

What are Decentralized Networks?

Decentralized networks redistribute functions and powers away from a central server, enabling peer-to-peer communication.

Advantages:
- No central point of failure
- Highly reliable
- Cost-effective

BitTorrent, used for file sharing, is an example of a decentralized network.

The Blockchain

Most networks function using a central authority to make final decisions. The blockchain, a type of decentralized network, is able to make agreements across the whole network, without any central authority.

Bitcoin uses Blockchain technology to record and verify transactions without the need for a central bank.

ENTER ETHEREUM

Ethereum's vision is to decentralize the internet by creating a platform where applications can be built and run on a decentralized network. Ethereum is fast and flexible without the inherent limitations of the Bitcoin protocol.

Think of Ethereum as a "world computer".

"What Bitcoin does for payments, Ethereum does for anything that can be programmed"

Mist

Mist will be Ethereum's end user interface to bring blockchain technologies to non-technical users.

It will include a catalog for decentralized applications and an assortment of other tools.

Mist will work similar to app stores and browsers that consumers are already familiar with.

Ether

Ether is the native token of Ethereum, and serves two key purposes. First, by requiring applications to pay ether for every operation they perform, broken or malicious programs are kept from running out of control. Second, ether is given as a reward to those who contribute their resources to the decentralized network.

Ether: The "fuel" that runs the Ethereum network

What will Ethereum be used for?

Decentralizing Existing Services

Services that are traditionally centralized can be decentralized using Ethereum. This will lead to reduced costs and fees by connecting individuals directly and removing 3rd parties.

Imagine a service like Uber or eBay without a company in the middle collecting fees!

Bringing Science Fiction to Life

Using Ethereum, IBM and Samsung worked on a proof of concept where a washing machine could:
- order its own detergent when it runs out
- call its own repairman when it breaks down
- do the laundry when electricity is cheapest!

Unimagined Possibilities

The creators of the internet didn't anticipate social media or cloud computing. We have no way of predicting which breakthrough technologies will be born on the Ethereum blockchain!

What is being built on Ethereum?

There is a rapidly growing ecosystem being developed. Here are a few notable projects:

MAKER — Autonomous bank & market maker.

Slock.it — Rent, sell or share anything, without a middleman.

uport — Cryptographic digital identity solution: relocates trust to peers.

augur — Decentralized prediction market platform.

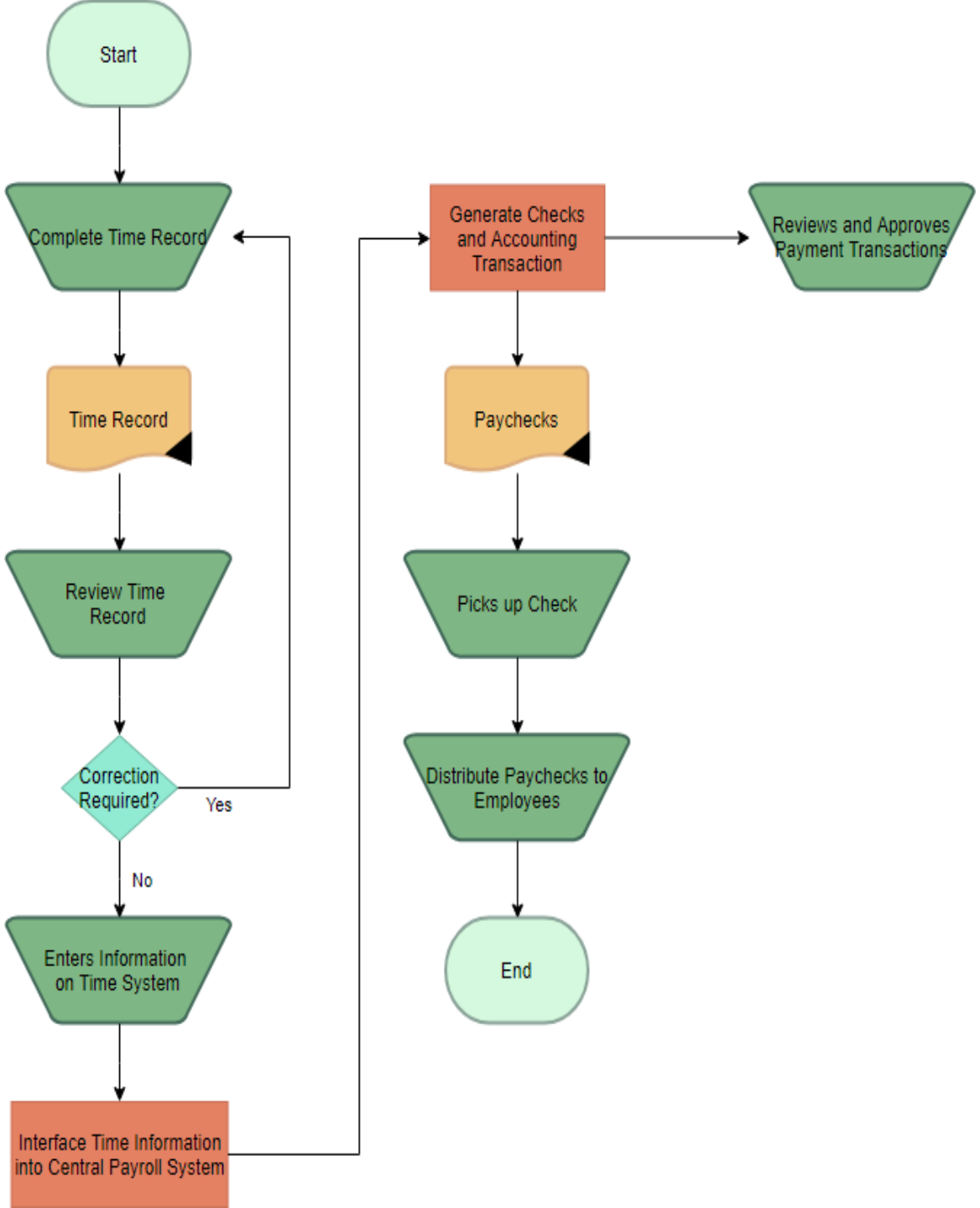
Funding the Vision

On July 22, 2014, the non-profit Ethereum foundation launched a public crowdsale of Ether. The funds collected have helped carry out the development of the project. The sale lasted for 42 days and raised 31,591 BTC, or $18,439,086, making it (at the time) the largest completed crowdfunded project of all time.

Crowdsale Numbers

42 Days	31 Thousand BTC Collected	$18 Million Equivalent
5th Largest Crowdfunded Project in History (current)		9 Thousand Participants

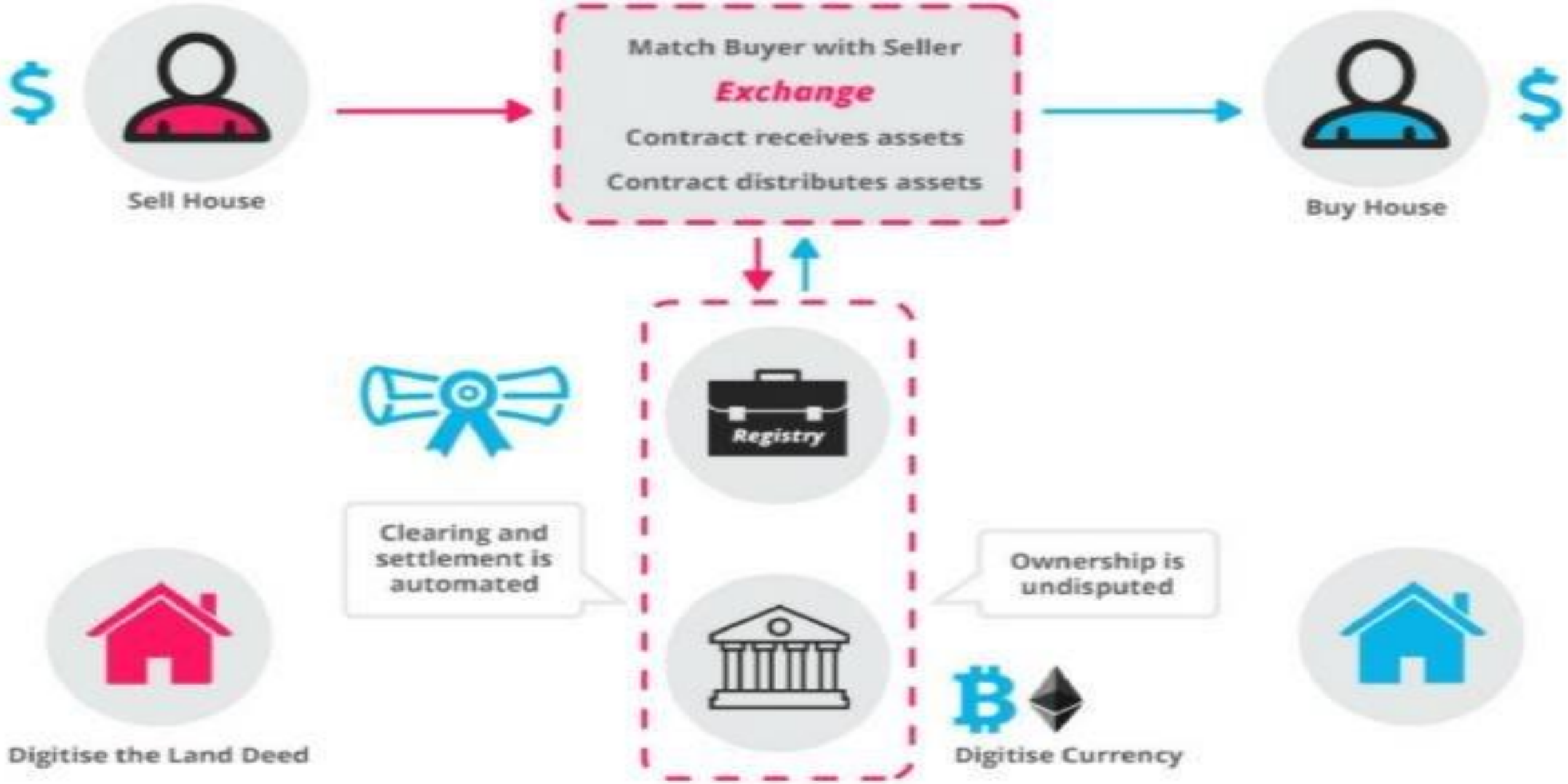
Ethereum Software Release Dates


Start
Complete Time Record
Time Record
Review Time Record
Correction Required?
Yes
No
Enters Information on Time System
Interface Time Information into Central Payroll System
Generate Checks and Accounting Transaction
Reviews and Approves Payment Transactions
Paychecks
Picks up Check
Distribute Paychecks to Employees
End


Smart Contract Audit
and Security

How Smart Contracts Works

Blockgeeks



ooodlesBlockchain

Ethereum Enterprise Industrial Use Cases

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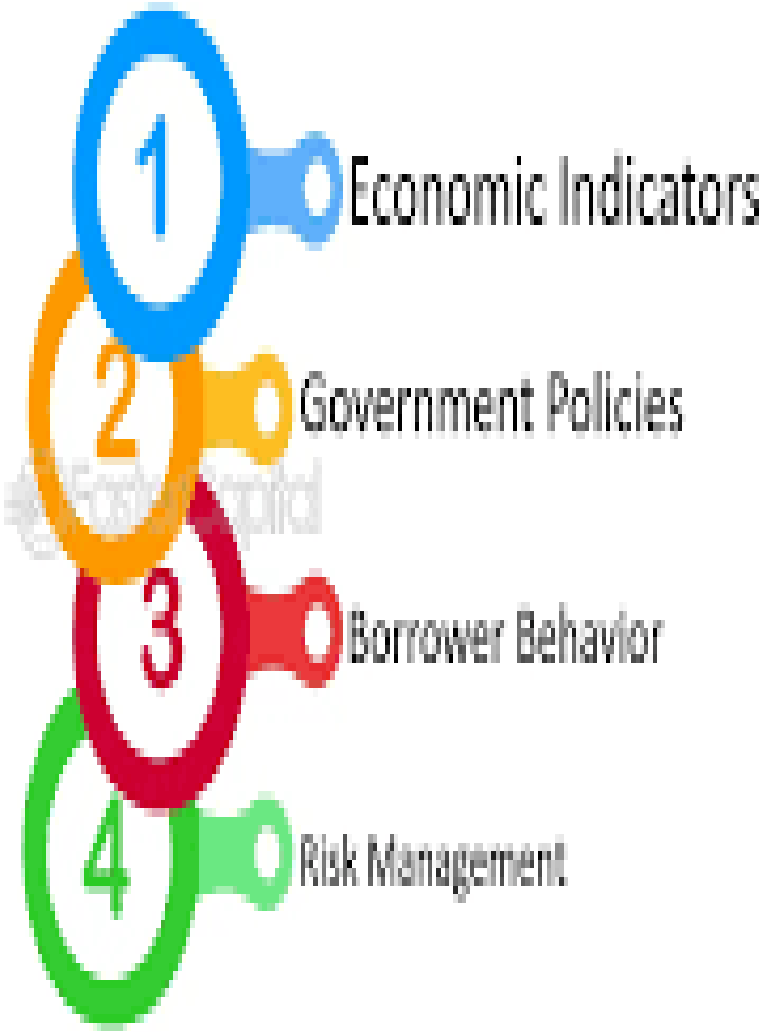
CONCLUSION:

In conclusion , Ethereum has redefined the landscape of blockchain technology with its innovative approach to smart contracts and decebtralize applications. Its impact will continue to shape the future of various industries….

ethereum

Conclusion and Future Outlook



THANK YOU ALL!!!!!!!!!

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