Current Affairs 20 August 2022

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India Blockchain Platform

Context:

Recently, India has made several efforts to become a digital society by building a large citizen-scale digital public infrastructure with a significant push from the government.

Relevance:

GS III: Science and Technology

Dimensions of the Article:

1. About Public Digital Infrastructure
2. About Web 3
3. About Blockchain
4. Applications of blockchains technology:
5. Challenges in Adoption of Blockchain Technology
6. The government initiatives related to Blockchains Technology:

About Public Digital Infrastructure?

- It refers to technological advancements that enable the collaboration, trade, and governance that are fundamental to the delivery of public and private services.
- To speed up interactions between people, markets, and the government, the Indian government and Reserve Bank of India (RBI) have been pushing simplification and transparency.
    - Since the launch of the Digital India project in 2015, modular applications based on Aadhaar, the Unified Payments Interface (UPI), and the India Stack have altered the payment system, provident fund, passports, driving licences, crossing tolls, and verifying property records.

Limitations:

- There is **no connection** between the various digital infrastructures currently in use.

- For them to communicate with one another and work together, **there must be a technical integration.**
- Information has to travel across multiple systems to complete the interaction, and rely on private databases, which makes the validation of data more complex as the network grows, driving up costs and creating inefficiencies.

About Web 3

- It is becoming increasingly essential for developing nations to iteratively build innovative solutions on top of existing digital infrastructure. We need resilient platforms, which may be based on the Web 3.0 architecture.

What is Web 3?

- The model, a **decentralized internet to be run on blockchain technology**, would be different from the versions in use, Web 1.0 and Web 2.0.
- The internet in Web 1.0 was mostly static web pages where users would go to a website and then read and interact with the static information.
- In Web 2.0 users can create content - primarily, a social media kind of interaction.
- In Web3, users will have ownership stakes in platforms and applications unlike now where tech giants control the platforms.
- Gavin Wood, founder of Ethereum, a block chain technology company, used the term Web3 first in 2014 and in the past few years many others have added to the idea of Web3.

Significance:

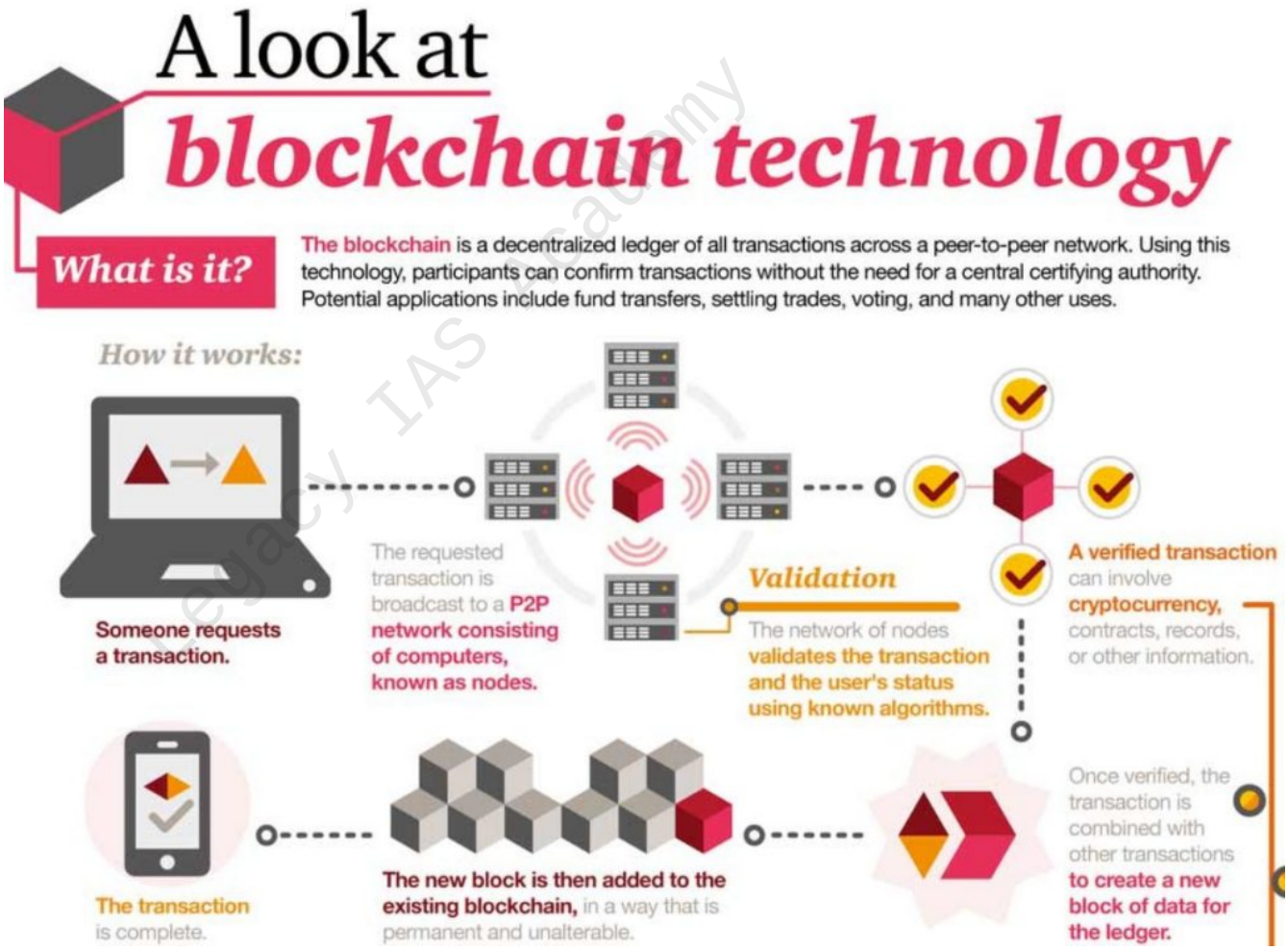
- With the incorporation of token-based economics, transparency, and decentralisation, the Web 3.0 architecture creates a new version of the Internet protocol.
- Non-fungible tokens, often known as NFTs, which stand in for physical assets or digital twins are also included.
    - Using a distributed token, a user can demonstrate ownership proof, tax information, and payment methods in order to enjoy all ecosystem benefits.
    - The blockchain records could be visible, compiled, and audited by the regulators in real time.

About Blockchain:

- Blockchain is a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system.
- A blockchain is essentially a digital ledger of transactions that is duplicated and

distributed across the entire network of computer systems on the blockchain.

- Each block in the chain contains a number of transactions, and every time a new transaction occurs on the blockchain, a record of that transaction is added to every participant's ledger.
- The decentralized database managed by multiple participants is known as Distributed Ledger Technology (DLT).
- The blockchain technology generally has key characteristics of decentralization, persistency, anonymity and auditability. With these traits, blockchain can greatly save the cost and improve the efficiency.



Global Adoption:

- Estonia, the world's blockchain capital, is using blockchain infrastructure to verify and process all e-governance services offered to the general public.
- China, launched BSN (Blockchain-based Service Network) to deploy blockchain applications in the cloud at a streamlined rate.
- In Britain, the Centre for Digital Built Britain is running the National Digital Twin program (NDTp) to foster collaboration between owners and developers of digital twins in the built environment.
- The Brazilian government recently launched the Brazilian Blockchain Network to bring

participating institutions in governance and the technological system that facilitates blockchain adoption in solutions for the public good.

Applications of blockchains technology:

- **Conducting Election:** Blockchain is a permanent cryptographic record that is stored in a distributed network. Unlike a record stored in one computer or server managed by the government, it is easy to detect if a record is tampered with or altered from its original submission because all other nodes in the network will have a copy of the original record.
- **Banking & Capital Market**: For efficient banking operations and efficiently using the KYC procedures offered by this technology. For instance
    - SBI leads as the first bank to use KYC and facilitate remittances based on blockchain. o Cross border remittances can be made faster and less costly.
    - Trade Settlement- Faster transfer of securities and payments and reduced trading cost by removing intermediaries.
- **Cybersecurity:** Sensitive data moved to the blockchain can effectively manage access by minimizing the risk of leaks to hackers. For instance The Block Armour solution is the company which ring-fences an organization's critical resources, securely providing access to authorized users and devices.
- **Healthcare and pharmaceuticals**: It involves a lot of sensitive clinical data which demands a secure and reliable system. For instance- Blockchain-enabled mobile platform "Health-Pro" to connect hospitals, insurance companies and host medical records of patients.
- **Agriculture:** The food supply chain is one characterized by asymmetry of information. The complex network comprises farmers, brokers, distributors, processors, retailers, regulators and consumers.
    - Improved data sharing will result in stakeholders getting their dues (particularly poor farmers with small land holdings) and consumers having control on food quality.
- **Telecom:** to eliminate spam calls and financial fraud by unregistered telecom marketers and open up new revenue streams for the telecom companies etc.
- **Governance:** Digital identities, maintaining digital certificates of citizens, monitoring welfare programs, tracking of health records of all citizens, cybersecurity of critical infrastructure etc are some of the key applications of Blockchain technology.
    - **E.g. Andhra Pradesh** has piloted two projects on managing land records and streamlining vehicle registrations. West Bengal has implemented Blockchain based issuance of Birth certificates to newborn.

Challenges in Adoption of Blockchain Technology:

- **Lack of Scalability** can put a strain on the adoption process, especially for public blockchains. The processing speed is way less than the traditional transaction networks.
- **Lack of interoperability:** Most of the blockchains present in the market work in silos.

With so many different networks and approaches, the blockchain space is in a state of confusion with no clear approach and a lack of standards do not allow different networks to communicate with each other.

- **Data Portability-** As with other record keeping systems, once data is logged in one system, transferring that data to a new system may be problematic.
- **Regulation-** Some technologies like the permissionless Bitcoin Blockchain bypass regulation completely to tackle inefficiencies in conventional intermediated payment networks. India is yet to implement clearly defined regulations on blockchain technology.
- **Lack of awareness**, high cost and limited availability of skilled workforce is also a major impediment in the development of blockchain technology.
- **51% attack:** It is a potential attack on a blockchain network, where a single entity or organization is able to control the majority of the hash rate, potentially causing a network disruption.

The government initiatives related to Blockchain Technology:

- Ministry of Electronics and Information Technology (MeitY) has supported a multi institutional project titled Distributed Centre of Excellence in Blockchain Technology with C-DAC, IDRBT and VJTI as executing agencies. Objectives of this initiative are
    - Evolving an ecosystem around R&D organizations, Government departments and Academia to foster Blockchain technology
    - Design, development and pilot deployment / prototyping of Blockchain based applications in the domains of Governance, Banking & Finance and Cyber Security
    - Conduct research to address the issues and challenges related to Blockchain usage in identified application domains
- **Ministry of Skill Development and Entrepreneurship (MSDE)** in partnership with NASSCOM has launched Future Skills platform. It focuses on 10 emerging technologies including Blockchain, Artificial Intelligence, etc.
- **Department of Science and Technology** has launched National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS). It has a roadmap to develop Blockchain, AI, Internet of Things, Big Data Analytics, Robotics etc.

-Source: Indian Express

Ban on VLC Media Player

Context:

The website of VideoLAN Client (VLC) Media Player has been banned in India.

- VLC states that according to its statistics, its website has been banned since February 2022 in India.

Relevance:

GS II: Government policies and Interventions

Dimensions of the Article:

1. What is VideoLan?
2. Reasons for Ban
3. In which situations can online content be blocked to the public?
4. What is the procedure for blocking access to content online?

What is VideoLan?

- VLC gained popularity in India in the late 90s when advancements in information technology led to the penetration of personal computers in Indian homes.
- It continues to be one of the most popular media players.
- Apart from being free and open source, VLC easily integrates with other platforms and streaming services and supports all file formats without requiring additional codecs.

Ban on VLC:

- Although the VLC website has been blocked, users may still download the VLC software from the Google Play and Apple Stores.
- Concerning the restriction on the VLC website, civil society organisations have regularly submitted Right to Information (RTI) requests to the Ministry of Electronics and Information Technology (MeitY).
    - But the Ministry has consistently responded to these requests by saying that "no information is available."
    - A message reading "The website has been prohibited as per order of Ministry of Electronics and Information Technology under Information Technology Act, 2000" was visible when the website was previously visited.

Reasons for Ban:

- Report from cybersecurity firm, Symantec, in April 2022 suggested that **Cicada, a hacker group allegedly backed by China, has been using the VLC Media Player to deploy a malicious malware loader**.
- VLC website has been banned; its app is available for download as the app stores' servers where the mobile apps are hosted are considered safer than servers where the desktop versions are hosted.

In which situations can online content be blocked to the public?

There are two routes through which content can be blocked online —

Executive route:

- Given the reach of the internet and its potential to cause significant harm to online users, governments across the world reserve the power to monitor and issue directions for regulation of the online content being available in their jurisdictions.
- The Government of India gets this power from **Section 69A of the Information Technology Act, 2000**.
    - **Section 69A** allows the government to direct an intermediary to "block for access by the public ….. any information generated, transmitted, received, stored or hosted in any computer resource" if it is "necessary or expedient to do so, in the interest of sovereignty and integrity of India, defence of India, security of the state, friendly relations with foreign states or public order or for preventing incitement to the commission of any cognisable offence".
    - **Section 69A draws its power from Article 19(2) of the Constitution** which allows the government to place reasonable restrictions on the fundamental right to freedom of speech and expression.

Judicial route:

- Courts in India, also have the power to direct intermediaries to make content unavailable in India to provide effective remedy to the victim/plaintiff.
    - **For example,** courts may order internet service providers to block websites which provide access to pirated content and violate the plaintiff's copyright.

What is the procedure for blocking access to content online?

- A detailed procedure for blocking content is provided by the Information Technology

Rules, 2009 (IT Rules, 2009) that have been formulated under **Section 69A of the Information Technology Act, 2000.**

- An important point to note is that **only the Central government** can exercise this power of directing intermediaries to block access to online content directly, and not the State governments.
- The procedure typically provides that Central or State agencies will appoint a **"nodal officer"** who will forward the blocking order to the "designated officer" of the Central government.
- The designated officer, as part of a committee, examines the request of the nodal officer.
- The committee comprises representatives from the **Ministries of Law and Justice, Information and Broadcasting, Home Affairs, and the Cert-In.**
- The creator/host of the content in question is given a notice to submit clarifications and replies.
- The committee then makes a recommendation on whether the request of the nodal officer should be accepted or not.
- If this recommendation is approved by the MeitY, the designated officer can direct the intermediary to remove content.

-Source: The Hindu

Lord Curzon

Context:

The Bardhaman municipality has decided to erect a statue of an erstwhile maharaja in front of the landmark Curzon Gate in the city.

Relevance:

GS I: History

Dimensions of the Article:

1. Who was Lord Curzon?
2. Why was he disliked then?
3. How and why did the partition of Bengal take place?
4. Consequences of the partition

Who was Lord Curzon?

- Born in 1859, George Nathaniel Curzon was a **British conservative politician** who was educated at the elite institutions of Eton and Oxford.
- He served as **Under-Secretary of State for India (1891-1892), and for Foreign Affairs (1895-1898), before being appointed Viceroy of India in 1899.**
- As viceroy, his administration was known for intense activity and emphasis on efficiency.
- He stated in his budget speech in 1904, **“Efficiency of administration is, in my view, a synonym for the contentment of the governed.”**
- Curzon created, a separate Muslim majority province of the North-West Frontier Province, sent a British expedition to Tibet, established a separate police service, and established the Archaeological Survey of India, in order to study and protect historical monuments.
- Early on in his career, Curzon earned some praise from his colonial subjects, for taking action against Europeans in a number of high-profile racist attacks against Indians.
    - In 1899, he punished white soldiers for raping a woman in Rangoon; he disciplined soldiers of the 9th Lancers for beating an Indian cook in Sialkot to death in 1902; and he tried unsuccessfully to get the Calcutta High Court to change the meagre punishment given to an Assam tea manager for murdering a “coolie”.

Why was he disliked then?

- A staunch imperialist, he took a series of extremely unpopular measures,
    - **The Calcutta Municipal Amendment Act 1899** : which reduced the number of elected representatives in the Calcutta Corporation;

    - **The Indian Universities Act (1904)**: that placed Calcutta University under government control
    - **The Indian Official Secrets Amendment Act (1904)** : that reduced the freedom of the press even further.
- Curzon believed that the Indian National Congress had lost its influence and appeal amongst the Indians, and in 1900 declared that the organisation was “tottering to its fall”.
- Ironically though, it was his biggest and most reviled decision — **to partition Bengal in 1905** — that led to a spurt in nationalist sentiment and revitalized the Congress.

How and why did the partition of Bengal take place?

- Calcutta was the capital of the British Raj, and Bengal Presidency was one of the largest provinces in India, populated by more than 78 million people, encompassing present day West Bengal, Bangladesh, Bihar, parts of Chhattisgarh, Odisha, and Assam.
- For long, the British had maintained that Bengal was too large to efficiently manage and administer; it was also believed that with Calcutta as the nerve centre of the educated nationalists, the resistance to colonial rule would only increase
- In July 1905, Curzon announced the partition of Bengal into two provinces.
    - **East Bengal and Assam,** with a population of 38 million, was predominately Muslim,
    - **While the western province, called Bengal,** was reduced to 55 million people, primarily Hindus.

Consequences of the partition

- Popular anger against partition had been brewing since the British announced their scheme, but grew into a stronger and more organized movement after it was implemented in 1905.
- In opposition to the partition, nationalist leaders organized a campaign of **boycott of British goods and institutions,** and encouraged the use of local products.
- After a formal resolution was passed at a meeting in Calcutta in August 1905, the **Swadeshi movement began**.
- Students were at the forefront of the movement, which was characterized by boycotts of British educational institutions and law courts, and large bonfires of imported cotton textiles.
- There was a surge in nationalist rhetoric, and the song **‘Bande Mataram’,** set to music by Rabindranath Tagore, became the informal anthem of the movement.
- The Swadeshi movement and boycott was not restricted to Bengal, and spread to other parts of the country, including Punjab, Maharashtra, and parts of the Madras Presidency.
- **A number of secret societies,** such as the **Anushilan Samiti of Bengal**, sought to overthrow British rule through violent means.
- Revolutionary groups used bombs, attempted to assassinate colonial officials, and

engaged in armed robberies to finance their activities.

- In 1905, Curzon resigned and returned to England after losing a power struggle with the commander-in-chief of the British Army, Lord Kitchener.
- The protests continued after his exit, and the colonial government **in 1911 announced the reunification of Bengal, and the capital of the Raj was shifted from Calcutta to Delhi.**

-Source: Indian Express