SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

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COIMBATORE-641 035, TAMIL NADU

DEPARTMENT OF COMPUTER APPLICATIONS

23CAT605 – WEB STACK DEVELOPMENT

## UNIT – I: OVERVIEW OF WEB TECHNOLOGIES & HTML 5

TOPIC: FEATURES OF WEB 3.0

Web 3.0 or Web3 is the third generation of the World Wide Web (WWW), which involves direct immersion into the digital world. Web 3.0 encompasses **individual control of personal data and the use of cryptocurrencies and blockchain.**

Decentralization

Decentralized web applications are a **key feature** of Web 3.0. The aim is to distribute and store data in decentralized networks. In these networks, different entities own the underlying infrastructure and the user pays directly to the storage provider to access that space.


Migration to the Decentralized Web
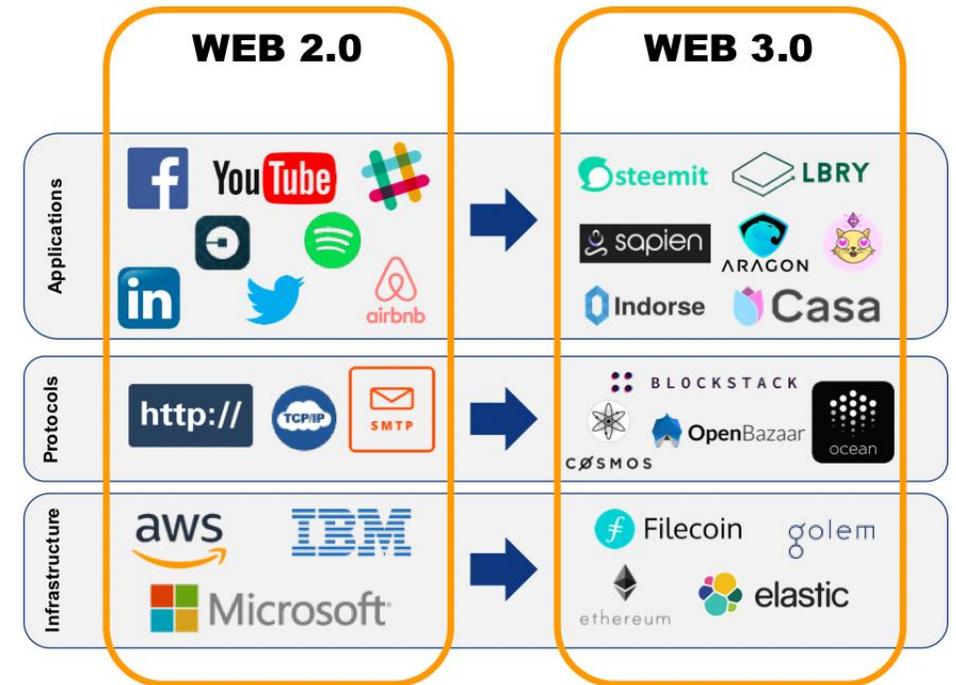
Trustlessness

In centralized web applications and services, users often need to place trust in a central authority to manage their data, transactions, and interactions. These central authorities have control over user data and they can manipulate the system's rules. The data may be subject to security risks or mismanagement, potentially resulting in the loss or misuse of user information.

In contrast, **Web3 introduces trustlessness, so users can engage in transactions and interactions without trusting any specific party.**
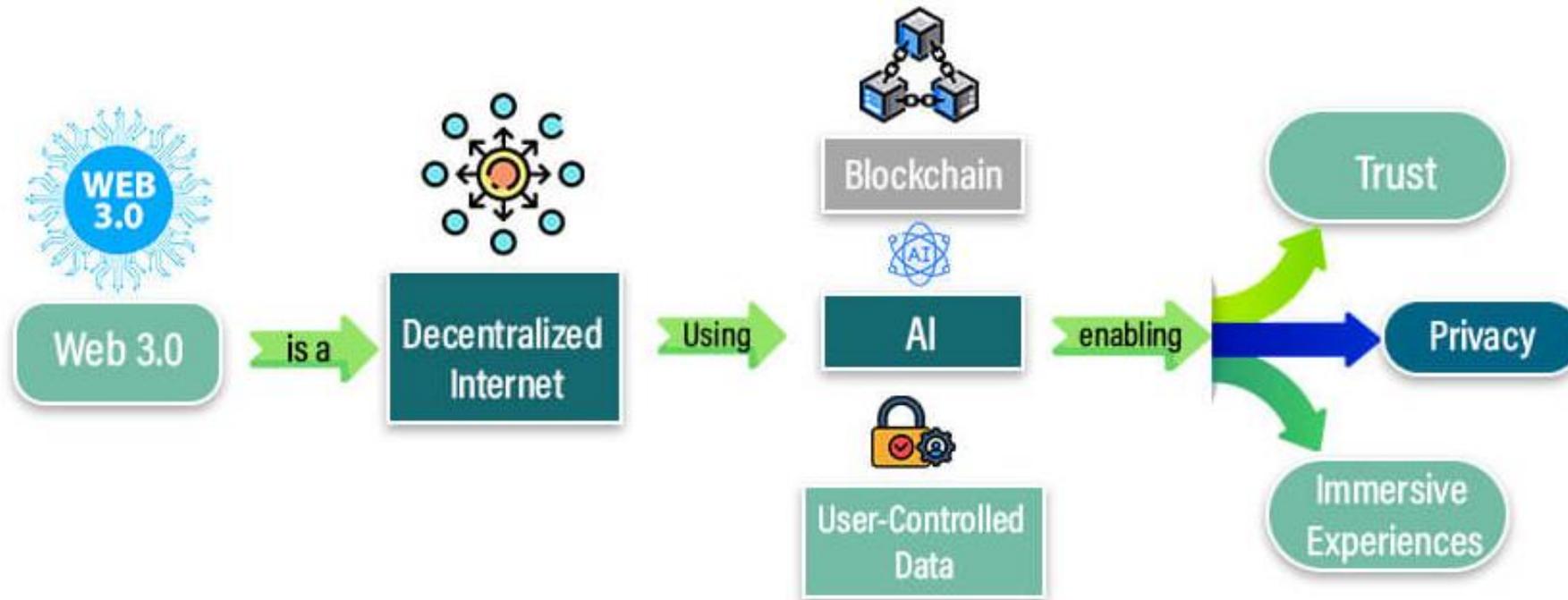
Semantic Web

Semantic web enables applications to **perform complex tasks by understanding the content and context of web data. It uses metadata and artificial intelligence to provide meanings (semantics) to user-generated data.** Web 3.0 aims to move more fully towards semantic web technologies currently found in some aspects of existing web technologies. For example, a search engine provides more accurate and contextually relevant search results, and intelligent agents assist users in performing tasks more efficiently.
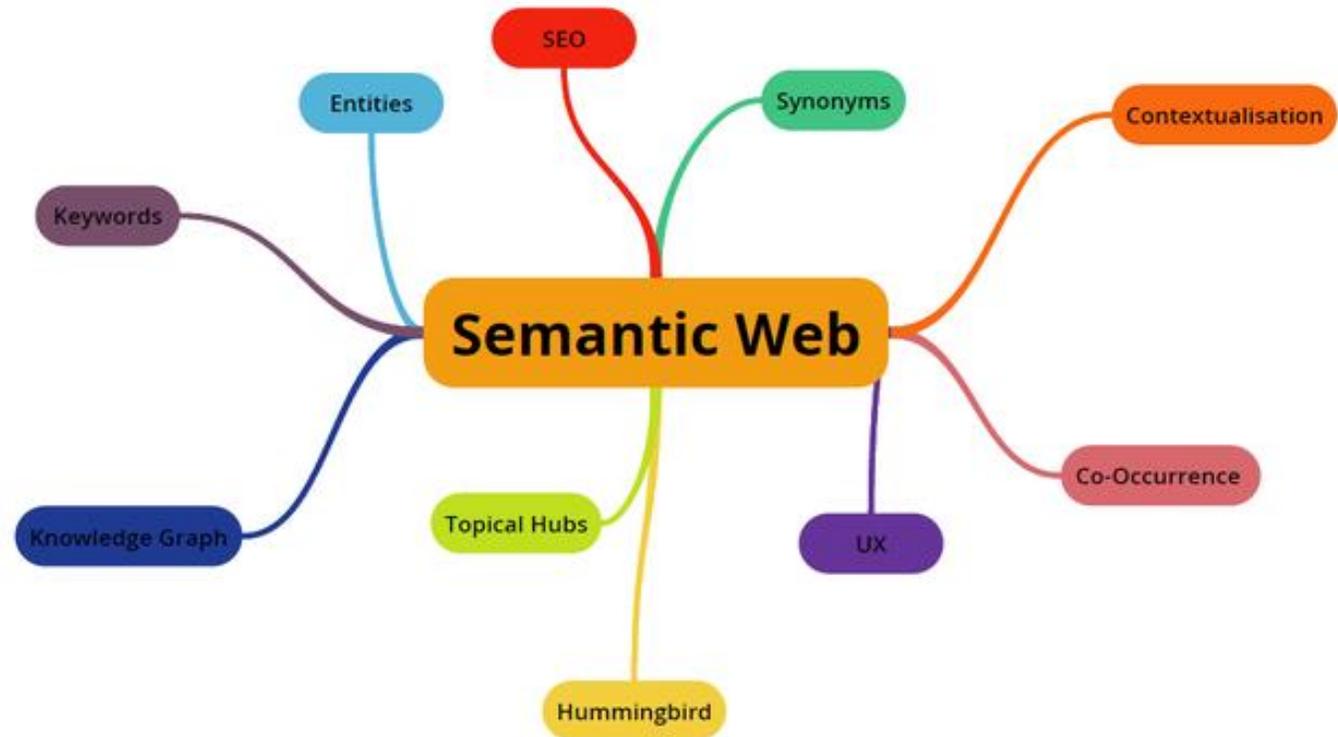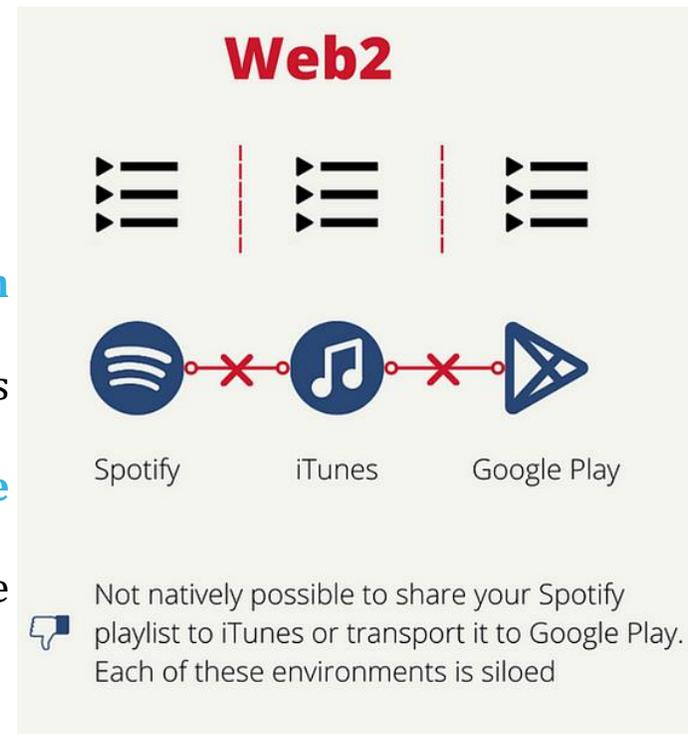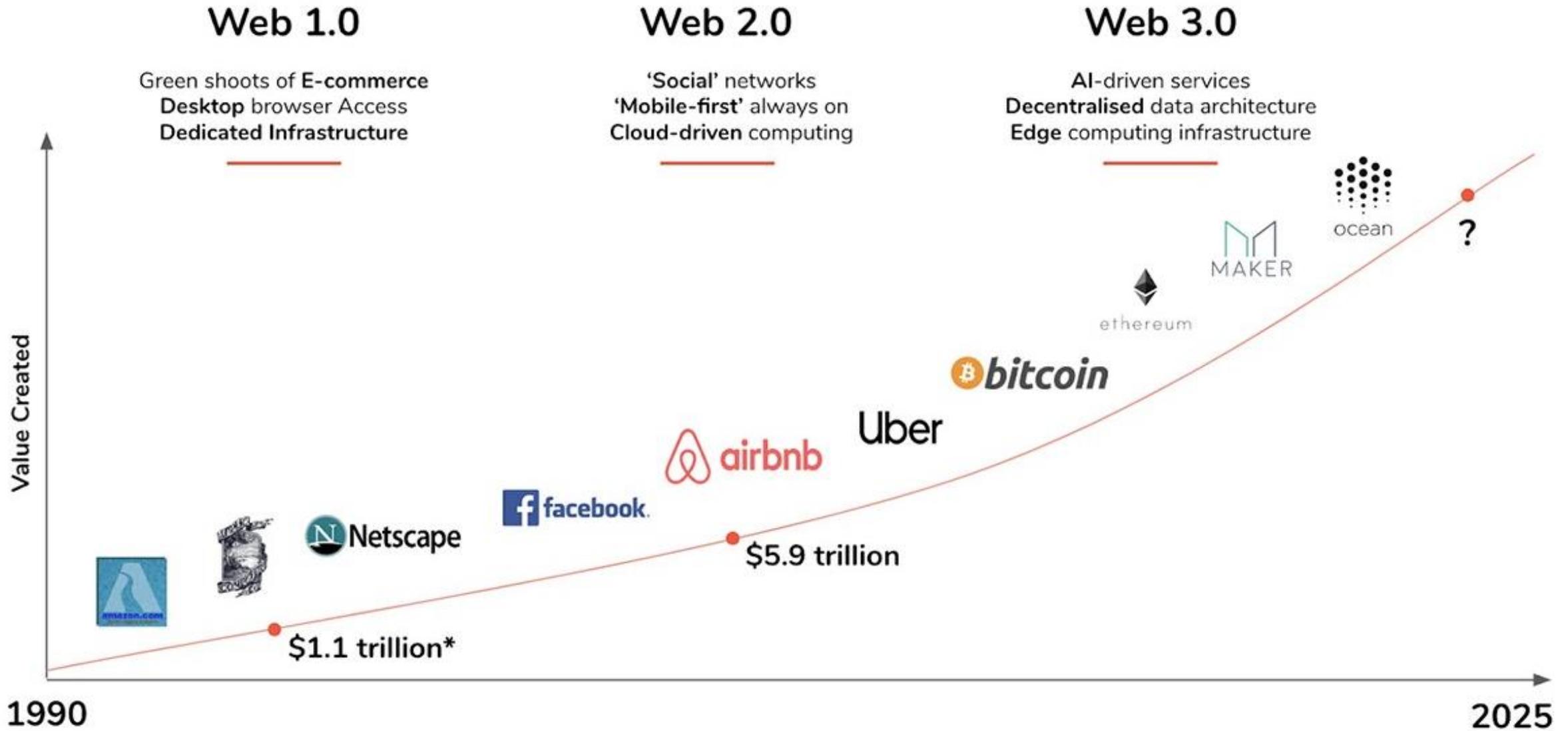
Interoperability

Web 3.0 aims to create more interconnections between diverse technologies, so data flows between different platforms without intermediaries. Interoperability makes **data portable** so users can seamlessly switch between services while maintaining their preferences, profiles, and settings.

At the same time, protocols that integrate a wide range of Internet of Things (IoT) devices expand the reach of the web beyond traditional boundaries. For instance, cryptocurrency technologies supporting borderless transactions allow value exchange across geographical and political boundaries.

Web2

Spotify   iTunes   Google Play

👎 Not natively possible to share your Spotify playlist to iTunes or transport it to Google Play. Each of these environments is siloed

Web3

Decentraland   OpenSea   Binance

👍 Using a crypto wallet, you can trade ETH from Binance, buy NFT wearbales on marketplaces like OpenSea and use your wearables in metaverse like Decentraland

Evolution of Web

WEB 1.0

- Basic Web pages
- HTML
- Ecommerce
- Java

1990 - 2005

WEB 2.0

- Social Media
- Global Internet Access
- Web Apps
- Data Monetization

2006 - Present

WEB 3.0

- NFTs
- Semantic Web
- Metaverse (AR & VR)
- Blockchains
- Artificial Intelligence
- Interoperability

Forthcoming

Features of Web 3.0

Artificial Intelligence

Computers can understand information like a human being with the ability of natural language processing

Enhanced Connectivity

Web 3.0 will use semantic metadata to provide users with better connectivity

Peer-to-peer Network

A decentralized network that will dissolve the need for a centralized authority

Ubiquity

Multiple devices can be connected through network and content can be accessed by various applications

Semantic Web

Better understands web content rather than focusing on just keywords & numeric values

3D Graphics

Utilizing virtual reality, more realistic & natural looking graphics can be extensively used

web 1.0	web 2.0	web 3.0
read-only decentralized	participatory centralized	no intermediary decentralized