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# What is Ethereum?

Ethereum, often referred to as a groundbreaking advancement in blockchain technology, is a decentralized, open-source platform that enables the creation and execution of smart contracts and decentralized applications (DApps). Launched in 2015 by the visionary programmer Vitalik Buterin, Ethereum offers a unique ecosystem that extends beyond mere cryptocurrency transactions.

### Key Features of Ethereum:

1. **Smart Contracts:**  
   Ethereum introduced the concept of smart contracts, which are self-executing contracts with the terms directly written into code. These contracts automatically facilitate, verify, or enforce the negotiation and performance of agreements, thereby eliminating intermediaries and increasing trust between parties.
2. **Decentralized Applications (DApps):**  
   Ethereum serves as a platform for the development and deployment of DApps. These are applications that run on a network of computers, ensuring no single entity has complete control over them. DApps span a wide range of sectors, from finance and gaming to supply chain management.
3. **Ethereum Virtual Machine (EVM):**  
   The Ethereum Virtual Machine is a runtime environment that executes smart contracts and DApps. It provides a sandboxed environment for code execution, ensuring security and preventing malicious code from affecting the entire network.
4. **Ether (ETH):**  
   Ether is the native cryptocurrency of the Ethereum platform. While Bitcoin primarily serves as a digital currency, Ether has a dual role: facilitating transactions and acting as "gas" to power computations and execute smart contracts on the network.
5. **Decentralization and Consensus:**  
   Ethereum employs a consensus mechanism called Proof of Stake (PoS), transitioning from the energy-intensive Proof of Work (PoW) mechanism. PoS ensures network security by requiring validators to lock up a certain amount of Ether as collateral, thereby reducing the need for massive computational power.
6. **Upgradability:**  
   Ethereum's upgrade-friendly structure allows for the implementation of improvements through a series of hard forks. This ensures that the platform can evolve to meet changing demands and challenges.
7. **Interoperability:**  
   Ethereum is designed to work seamlessly with other blockchains, fostering interoperability and enabling the exchange of assets and data between different blockchain networks.