<u>Lesson 5 - - Blockchain Intro</u>

Under the oversight of the Linux Foundation, a consortium of companies and communities started an Open Source project called Hyperledger to standardize and accelerate development and implementation of

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permissioned blockchain applications and solutions for businesses. Hyperledger projects focus on implementations of blockchain frameworks, tools, and modules that are offered to developers worldwide to use for free. The startups adopting this platform are side-stepping cryptocurrencies and are instead using blockchain technology to solve business problems.

As mentioned previously, some who have tried to understand the complexities of Bitcoin or Ethereum design, will readily admit they haven't even been able to find someone who can explain it to them. Feel free to take a look at the website of The Ethereum Foundation (www.ethereum.org) to test your technical acuity.

There are issues unique to blockchain implementations by cryptocurrencies that pertain to security in the way they use "miners" to maintain distributed copies of the public ledger. Also,since anyone can view a public ledger there will always be concerns regarding lack of scalability - the inability to handle large volumes of transactions concurrently.   Obviously,

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scalability isn't likely to be an issue for private ledger implementations (permissioned) where transaction volumes are low and entirely predictable.   Still, the biggest inhibitor to growth of ANY <u>distributed or decentralized</u> platform or application or computer network will likely be it's lack of scalability.

All blockchain implementations use encryption and are technically susceptible to a cryptography breach. Encryption that may considered bulletproof by today's standards could become less secure in the future as technology advances. For example, no one really knows the impact powerful quantum computers will have on cryptography.

The inability to scale up to handle increased demand is a real threat for any distributed application, whether blockchain-based or not. Obviously, if a cryptocurrency can't handle demand that would have serious ramifications including making the currency non-viable.

By 2018, after its first 8 years of existence Bitcoin only could complete 7 transactions per second. Ethereum's changes to the consensus algorithm and reducing the size of blocks yielded a 2 fold increase...13 to 15 transactions per second. Ripple XRP had become the fastest major cryptocurrency processing 1,500 per second. They all still have a ways to go to rival a company like Visa who reports its network can process 24,000 credit card transactions per second and averages 150 million transactions per day.