***Q: How did you discover the enormous potential of blockchain?***

A: I had been working in cloud computing for seven or eight years and saw what a tremendous impact cloud had on the technology industry. I started surveying emerging technologies so I could pinpoint the next major trend. When I discovered blockchain, I had the same type of immediate, visceral reaction that I had experienced with cloud. Clearly, blockchain would have a profound influence on technology and business—and its potential for transformation could possibly have an even greater impact than cloud computing.

***Q: How do you see business benefiting from blockchain?***

A: Blockchain provides a single version of the truth—one that’s unchangeable. Let’s say you have a blockchain in the insurance industry for auto claims. The participants might include the insurance companies, claims adjusters, auto body repair shops, attorneys and so on.

Without a blockchain, those entities might share information by fax, mail or phone—all methods that are prone to errors. Maybe the auto body shop faxes a repair estimate for USD 4,000 to the insurance company. But the person who receives the fax mistakenly types USD 3,000 into the computer system. That error is propagated through the claims process until it’s discovered and later corrected.

With a blockchain, manually reentering information into each distinct system isn’t necessary. Each party in the blockchain can see and validate against a single, trusted version. As a result, the blockchain provides a level of transparency that can reduce errors and eliminate the need for time-consuming reconciliation.

***Q: How does a blockchain enhance trust among organizations?***

A: Consider an example from the financial services industry. A lender’s mortgage rate might equal the prime rate plus a certain percentage. A dishonest lender might try to claim that the prime rate has risen since the borrower began the application process and try to affix a higher rate to the mortgage. With a blockchain, all of the participants can see the actual data from any particular date. You can’t change that data and attempt to dupe one of the participants.

***Q: Why should organizations integrate mainframe systems into blockchains?***

A: Blockchains are revolutionizing the relationships among businesses, and organizations that use mainframes for transaction processing and other critical operational workloads can definitely benefit. [Connecting mainframes to blockchains](https://www-03.ibm.com/systems/z/solutions/blockchain-transactions/index.html) helps extend business operations to new processes, partners and ecosystems. Blockchains are expected to open up a range of new possibilities for enhancing value of mainframes. At the same time, mainframes can enhance the power of blockchains they are connected to.

***Q: What are the advantages to using cloud technologies with mainframes for blockchains?***

A: For one thing, you don’t need a cloud environment to participate in a blockchain, but cloud computing can make participation much easier than traditional, on-premises solutions. Basically, a blockchain is a network across a large number of nodes. Each participant needs a node, which is the entry point into the blockchain.

Keep in mind that a *chain* is only as strong as its weakest link, which is equally true of blockchains. If one node has performance, scale or security problems, they can impact the other nodes. Cloud integration helps ensure a more consistent level of security and blockchain performance across nodes. If your organization can set up a secure, isolated node in a cloud, you can save time and money.

Integrating the mainframe into that cloud-enabled blockchain helps organizations capitalize on a secure transactional environment in the same mainframes that most organizations are using today to process their business transactions. The data is then in a great location to apply analytics and generate insights that can be immediately integrated into their operations through future blockchain transactions with the other participants.

***Q: What are the key steps or best practices organizations should follow when they want to integrate with a blockchain?***

A: Organizations need to focus on three distinct aspects of integration: technical, transactional and organizational integration. For technical integration, they need to understand how to format blockchain transactions, how to submit identities and so on. All of the classic IT challenges apply to blockchain as well.

Organizations then need to decide what kinds of business transactions will be part of the blockchain, and how to define them. For example, an insurance company might decide that a claimant’s name, policy ID number and policy limits are all important bits of information that are part of a transaction.

And for organizational integration, each participant in the blockchain has to make sure that it can integrate with the other participants. In the case of an insurance blockchain, it might involve modifying the definition of a transaction to accommodate additional elements required by other participants. For example, an auto body repair shop might want to include additional information. So, the participants have to define the totality of the transaction and make sure that everyone’s requirements are met.

***Q: What are the most important considerations CTOs need to be aware of before integrating with blockchains?***

A: They have to decide whether a particular use case makes sense for a blockchain. A blockchain is a good approach when you have a complex value chain, with several participants, and your goals are to speed up processes, improve data consistency and strengthen trust. They should not integrate with a blockchain just because they want to find a way to use a new technology. A blockchain can be a powerful solution, but organizations should use it only when they have challenges that aren’t addressed well by existing technology.