IBM LinuxONE and IBM Z offer the perfect platform for highly-secure, flexible and adaptable blockchain applications that ensure trust and cooperation between enterprises and their business partners resulting in their customer confidence. IBM Z has a proven track record for trusted IT systems in organizations within multiple industries. With pervasive encryption, your enterprise will meet the strictest regulatory requirements.

IBM's High Security Blockchain Network (HSBN) is available as a cloud service, directly exploiting advanced LinuxONE hosting characteristics significantly lowering the entry price for new blockchain systems. Organizations have the choice of starting with this cloud offering, implementing blockchain applications on premise with LinuxONE or Linux on IBM Z. IBM is uniquely positioned to help you deliver successful blockchain implementations, based on extensive contribution to the Hyperledger Project within industry expertise and with cloud-based and on-premise solutions for blockchain application hosting.

Market

- **Worldwide Double-digit Blockchain Growth Forecasted**. $2.9B in 2019 and by 2022, at an impressive 76% CAGR reaching $12.4B. **Industries.** BFSI will lead in spending followed by manufacturing and resources sector (driven by discrete and process manufacturing), distribution and services sector (led by retail and pro services). [1]

- **Major Drivers**. Blockchain technology provides transparency, immutability, security, privacy, cross-border/faster transactions *and* reduced TCO. Some sectors of BFSI and Retail and Wholesale markets have already adopted Blockchain. Blockchain platform software spend will be the largest category besides services category and one of the fastest growing categories along with security software.

IT Challenges

- Do you have challenges with requiring asset-tracking capabilities to demonstrate asset and information provenance across the supply-chain?

- Does your organization require highly secure network communications?

- Do you have a set of assets that require management tracking, timeliness and security within that business network?

- Are you an industry that struggles with meeting regulatory and contractual agreements along with a high degree of collaboration with business partners?

Use Cases

- Enterprises have proven to have fewer transactional disputes and faster settlements in promoting freer flow of capital and resolution between parties.

- LinuxONE and IBM Z clients are using an agile, highly secure approach to integrate transactional processes within their business value chain.

- Industries that facilitate and secure global trade by real-time access to a single, verified version of an asset, contract or transaction. This results in a near frictionless process while eliminating manual processes with secure, trusted document digitization and workflows.

Why Choose IBM Blockchain?

- ➢ **Pervasive encryption enables 100% of data stored on the mainframe to be encrypted simply and easily, requiring no further analysis of data.**

- ➢ **Highly secure for on-or-off premise.** System Z is EAL5+, common criteria, FIPS-140 compliant, CPACF and tamper-proof Crypto cards. HSBN – Secure Service Container offers protection against misuse of privileged user credentials, protection for malware and of peers from one another in LPARs. Protect data in flight when connecting Blockchain network with SoR and Application SDK.

- ➢ **IBM's Blockchain is built upon the Linux® Foundation Hyperledger Project Fabric**. This offers you the assurance of an open, governed community advancing blockchain technology as an enterprise-class, cross-industry open standard for distributed ledgers.

IBM

Security is of utmost importance when moving and processing data–whether on or off premise or moving to the cloud. Various cloud providers do not offer the depth and breadth of security products and solutions that IBM offers on a global scale. IBM Secure Service Containers prevent system admins with access to the hardware from disabling the restrictions as it's possible in other environments, e.g. no access to the data store, no ability to modify code in the container, and all data leaving the container is encrypted. IBM Blockchain encrypts all data on the disk, only the machine hardware has the keys—there are no keys accessible to privileged users. Only authorized APIs are available (not the underlying software). IBM Blockchain Platform on IBM Cloud Private leverages collections of Helm Charts, with the latest version of Hyperledger Fabric on Kubernetes to deploy common blockchain runtime components, e.g. peers, ordering service and certificate authorities (CAs) in on-premise environments; especially for clients who want to keep workloads in-house.

Overview

Ethereum was founded in 2014 and built on crowdfunding. Ethereum is an open-source project built by many people around the world and uses a similar incentivized infrastructure to Bitcoin's, based on the Ether currency within the Azure platform. It executes on every node in a global peer-to-peer network to keep consensus across its blockchain on its Ethereum Virtual Machine (EVM). Ethereum is an open blockchain platform with a programming language that allows developers to create decentralized applications. It is a platform for different types of smart contract applications, including cryptocurrencies and marketplaces among others.

IBM Differentiators

- Juniper assessed 17 blockchain vendors, scoring their level of agility, presence and innovation, on the complexity of their blockchain solutions and prospects in the field. It ranked the 5 leading vendors in the space: "The research stated that IBM has established itself as the leading provider of blockchain technology; combining agnostic blockchain solutions, extensive commercial deployments and high-profile partnerships". [1]

- Ethereum is account-based Vs. transaction output-based blockchain. Currently uses proof-of-work consensus, but is developing alternatives. Forks create security problems, the fewer nodes a network has (when validators leave the system), the less secure it is from takeover attempts. Forks can also create opportunities for replay attacks, where a valid transaction on one fork can be repeated on the other, wreaking havoc in the system. [2]

- Oracle's Blockchain Applications Cloud is composed of numerous blockchain-enabled, niche solutions that integrate with the core ERP, EPM, SCM and HCM suites. They include numerous applications Intelligent Track and Trace, Lot Lineage and Provenance, Intelligent Cold Chain and Warranty and Usage Tracking.

- Microsoft partnered with blockchain technology provider Digital China and cloud managed service provider Hot Cool to bring their inorganic blockchain to the financial, e-commerce and entertainment industries

Key Takeaways

- IBM security is built into every level of the mainframe's structure, including the processor, O/S, communications, storage and applications. Enterprises looking for cloud deployment options for specific security functionality, especially SIEM, governance and internet/network fraud prevention, should put IBM on their short list of vendors for consideration.

- Whether you're considering an operating system upgrade, platform change or acquiring a new LinuxONE and/or IBM Z machine, IBM Systems Service and Support can help you plan, install, configure, migrate and test the new environment. Deploying a private cloud and/or hybrid cloud requires a roadmap for future growth and plans for cloud expansion—this includes a trusted, highly secure, organic platform—IBM Z and LinuxONE Systems and security.