Introduction

IBM is currently and intends to remain the worldwide market leader in enterprise blockchain business networks. To date, the company’s “IBM Blockchain Platform” has been offered as a cloud-based Platform-as-a-Service (PaaS) that runs on backend IBM’s LinuxONE servers, providing clients with a managed, full stack supporting numerous live production networks. IBM has just announced, however, that it will greatly expand its blockchain deployment options by making the solution available:
1. Across multiple platforms;
2. Within private clouds; and,
3. Across multiple clouds (blockchain solutions that can work with other vendors’ public cloud environments, beginning with AWS. Others will follow).

What this means for IBM Blockchain customers is that they will now have more flexible deployment options to address data residency requirements and will be able to work with their choice of Infrastructure-as-a-Service (IaaS) providers without being locked into a single vendor. Customers can have a copy of the ledger on their own infrastructure and grow their consortia with members operating in numerous environments.

Background

IBM built its reputation in the computing industry on transaction processing—processing sales orders, airline reservations, payrolls, credit card transactions and executing hundreds of other types of transactions. IBM’s systems, software and services businesses all have their roots in traditional transaction processing.

The traditional approach to transaction processing, however, has some limitations. Hackers and malicious insiders can pose a major threat if they manage to hack into an enterprise transaction processing system. Reconciliation of records can be problematic because parties that conduct transactions often keep separate ledgers—and those ledgers need to be reconciled after a transaction has occurred. And some transactions require too much human intervention or become unnecessarily process-intensive to be ideally efficient.
Background Continued

Blockchain, an approach to processing transactions that involves linking records (blocks) together cryptographically, represents the future of transaction processing. Using blockchains, enterprises can structure transactions that are immutable – improving transactional security by eliminating the ability to tamper with transactions. Information policies enable only those with access privileges to view transaction information. Consensus needs to be reached to complete a transaction.

Hyperledger Fabric, the open-source blockchain framework from the Linux Foundation and IBM utilizes its own solutions, can be used to build blockchain networks; to govern blockchain interactions, and to provide business rules that allow transacting partners to confidently process transactions – increasing trust in the legitimacy of applications, while eliminating the need for separate ledgers by creating a common, shared system-of-record.

Bringing blockchain to the enterprise computing marketplace

From a development perspective, blockchain applications are structured in containers (software bundles that consist of an application, all of its dependencies, libraries, binaries, and configuration files). By containerizing applications, the underlying differences in OS distributions and hardware/software infrastructure environments are abstracted and overcome. These blockchain containers are managed by open source “Kubernetes” which provides governance facilities for container deployment, maintenance and scaling.

IBM’s initial offering was the “IBM Blockchain Platform” which is structured to allow customers to easily form blockchain ideas into smart contracts(code); and then rapidly create a blockchain network to deploy that code. The IBM Blockchain Platform saves time in blockchain solution deployment and management through its development, network governance and operational tools, all of which are protected by IBM’s highly secure cloud environment.

IBM’s Blockchain Platform is perfect for clients who wish to run their blockchain networks within the IBM Cloud Platform-as-a-Service (PaaS) environment. But what about customers who want direct, on-premise control of their blockchain environment – or that are facing government regulations that require that data be kept on-site? This is where IBM’s new flexible deployment options come into play.

The company recently announced “IBM Blockchain Platform for IBM Cloud Private,” based upon open source Kubernetes. With this offering, IBM customers can set up, operate and grow blockchain networks smart contracts and applications on their infrastructure of choice, such as highly secure LinuxONE and IBM Z® servers, which offer the highest levels of encryption commercially available for sensitive data on a blockchain network.
Bringing blockchain to the enterprise computing marketplace cont.

The offering uses Hyperledger Fabric open-source components and is fully interoperable with the IBM’s Blockchain Platform-as-a-Service offering. In the not-too-distant future, IBM will offer Secure Service Containers within this environment – a security offering not matched by its competitors.

IBM also announced “IBM Blockchain Platform for AWS,” a Quick Start template designed to enable clients to deploy distributed peers on the AWS Cloud, and store ledger data on their AWS infrastructure.

Why deploy with IBM?

There are three answers to this question: hardware, software and services.

From a hardware perspective, we believe (as we stated in this report) that IBM, with its LinuxONE platform, offers the best hardware platform in the industry for running blockchain. In short, LinuxONE offers a different type of processor that is extremely well suited to processing Linux workloads. Additionally, it is better at processing variable workloads than x86 servers due to significantly more cache and a concept known as “stacking.”

The LinuxONE environment is also highly scalable (up to 170 cores), has a massive dedicated I/O subsystem (up to 640 co-processors), can support up to 8,000 virtual machines; can exploit up to 32TB of main memory; and, has on-chip cryptographic accelerators delivering performance gains to the encryption and hashing functions in blockchain workloads.

For customers who wish to deploy blockchain on x86 and other system types, IBM’s new Blockchain Everywhere initiative also makes this possible.

From a software perspective, the IBM Blockchain Platform is open source-based (Hyperledger Fabric, Kubernetes.) But extensions to LinuxONE give the platform performance, scalability and security advantages over other blockchain PaaS offerings. For instance, the IBM LinuxONE crypto co-processors offload a lot of security processing overhead; elliptical curve technology streamlines the processing of digital signatures; and Hypersocket technology speeds data transfer.

From a services perspective, IBM has deep technical and business/industry expertise, with leadership in convening, designing, developing, and implementing blockchain production networks. Overall, IBM has more than 1600 blockchain practitioners working globally who are available for industry client engagements, helping scale clients’ blockchain POCs/pilots to production networks.

Also worth mentioning: IBM customers can access a large catalog of blockchain containers that can enable them to modify and launch blockchain applications more quickly.
Summary Observations

Clabby Analytics believes that blockchain is the next generation of transaction processing – offering significantly improved security, increased trust in the legitimacy of applications and opportunities for greatly streamlined process flow. IBM understands this and is strategically committed to the success of this technology.

What is important to recognize is that IBM is taking an open source approach, where possible, to extend its blockchain offerings. The company wants to build interoperable blockchains that fully open the possibilities of the technology to its customers – not proprietary blockchains that lock them into working with IBM alone. IBM’s enhanced IBM Blockchain Platform offerings for IBM Cloud Private and AWS prove this point.

Our position that IBM’s LinuxONE platform is the best platform for processing blockchain transactions in the industry should not be taken lightly. We expect some benchmark information comparing LinuxONE to x86 architecture to be released soon – and believe LinuxONE’s performance advantages should be “very impressive.” Add to this the other advantages in security, availability and scalability – and IBM’s architecture and solutions should be the obvious choice for enterprise blockchain deployments.