



R3* and Intel® – Working to Bring Blockchain Value to Financial Services

Blockchain security and scalability specifically for financial services.



Blockchain's ability to disrupt value chains in finance and other industries will be one of the key emerging IT industry trends on 2018. And Corda is now one of three blockchain platforms overshadowing all others.

– Gartner* March 2018 report
"Blockchain Trials Across Industries
Show a Market in Transition."

Blockchains function as distributed ledgers that decentralize and distribute transaction data across a network of computers. The transaction data is arranged sequentially in blocks that use cryptographic validation to chain themselves together. Each entry into the ledger is irreversible, and anyone with access to the ledger can see exactly the same transaction history as anyone else. Each block references and identifies the previous block through what is called a hashing function; this forms an unbroken chain.

The value of blockchain lies in its digital audit trail, which provides an authoritative and incontrovertible record of events, as well as in its ability to provide a secure platform for exchange while reducing the cost and complexity of transactions. This, in turn, reduces the need for intermediaries and third-party verification.

R3* and Corda Enterprise*: Blockchain for business

R3 is building blockchain technology to transform the way the world does business. In 2016, R3 launched Corda, an open source blockchain platform that enables direct transaction between parties in strict privacy. Using smart contract and blockchain technology, Corda allows existing business networks to reduce transaction and record-keeping costs and to streamline business operations. Corda was designed to meet the highest standards of the most complex and highly regulated industries in the world. Corda Enterprise was developed to meet the specific needs of the enterprise market.

Corda is available as open source software, and R3 will soon release an enterprise version that offers access to a vibrant network of interoperable applications for finance and commerce. Corda Enterprise harnesses the most appropriate elements of traditional blockchain technology and fine-tunes them for commercial use. The addition of Corda Enterprise to the platform expands the universe of institutions who can now benefit from Corda.

Corda Enterprise uniquely solves two challenges prominent across all enterprises who want to leverage blockchain technology: privacy and interoperability. Privacy has been an issue for blockchain technology since the release of Bitcoin* in 2008. Bitcoin uses provenance to show that the asset being acquired has value. That means that historical transactions on Bitcoin are publicly available to anyone on the network. This approach is fundamental to verifying transactions on the Bitcoin and other public cryptocurrency networks, but it can create problems for a regulated banking network where historical transactions must be kept private.

With Corda Enterprise, data is shared at the level of individual deals, agreements, trades or contracts; only the transactions needed to verify provenance are shared, and no more. Privacy does not come at the expense of interoperability of Corda Enterprise nodes. Corda Enterprise retains this privacy but allows any node to transact without creating islands of assets or liquidity issues.

Corda and Intel® SGX

The desire for business confidentiality exists at all levels of the financial system and is a requirement of regulators. R3 places great importance on regulatory engagements and works in close collaboration with regulators and central banks across the globe. Privacy has been a focus of Corda's design from the beginning.

Corda utilizes Intel® Software Guard Extensions technology (Intel® SGX) to help address the privacy needs of the world's regulated financial systems. Intel SGX is an Intel architecture extension designed to increase the security of application code and data, using a private area of execution called an enclave. With Intel SGX, Corda encrypts the entire ledger when it is stored, which prevents people from browsing blockchain transaction history. For the purposes of determining provenance of an asset, Corda unencrypts only the relevant portion of the ledger within a private Intel SGX enclave, where only authorized software can view the data. Not even the owner of the machine can see the data.

This approach allows R3 to address the data privacy requirements of customers and regulatory bodies while still delivering the programmatic verification of transactions enabled by blockchains.

Corda Enterprise is designed to support Intel SGX, the capability will be available upon commercial release planned for late 2018. Please contact R3 for release dates and features.

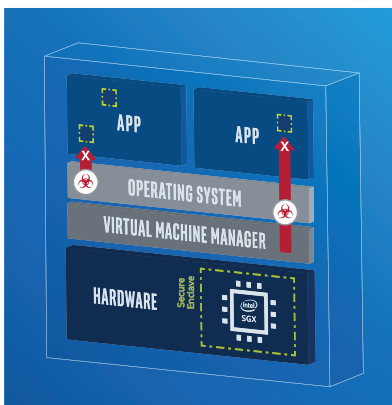


Figure 2: Intel® SGX



Example: Bringing enterprise blockchain to all industries

Marco Polo* is a trade finance industry initiative being developed by TradeIX* in conjunction with 20 of the world's foremost financial institutions and R3. It's focused on creating a more efficient, secure and profitable platform for banks and corporations involved in global trade finance.

Marco Polo benefits include:

- Dramatically lowered back-office costs for trading parties and their financiers
- Eliminated operational friction
- Reduced fraud and compliance risk
- New revenue streams
- Entirely new ways of managing and financing trade

This initiative leverages cloud and APIs, and intends to enhance existing ERP workflows by adding a working capital application to Dynamics* AX.

Finastra* launched one of the first production blockchain applications for syndicated lending communications. Fusion LenderComm* reduces the friction of information exchange between agent banks and lenders, driving transparency and efficiency in the syndicated loan market. Fusion LenderComm is clear evidence that the blockchain hype will soon be replaced with live solutions that respond to specific business use cases.

About R3

R3 is an enterprise software firm working with a network of over 200 financial institutions, regulators, trade associations, professional services firms and technology companies to develop on Corda, its blockchain platform designed specifically for businesses. R3's global team of over 180 professionals in 13 countries is supported by over 2,000 technology, financial, and legal experts drawn from its global member base. R3 is backed by investment of USD 122 million from over 40 firms. Corda is the outcome of over two years of intense research and development by R3 and its members and meets the highest standards of the financial services industry, yet is applicable to any commercial scenario.

Learn More

For more information about Intel and blockchain, visit intel.com/blockchain

For more information about R3 visit: r3.com

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