
# Devvio Security OS

## KEY FEATURES

Devvio's Blockchain represents state of the art security technology.

The Devv Blockchain is Byzantine Fault Tolerant. It is distributed and all transactions are assured through a consensus protocol.

Where most security approaches look to harden central points of failure, with Devvio's Security OS, there is no central point of failure.

Every Communications and IoT device has its own identity, and messages in and out of every device are cryptographically secured.

The Devv blockchain can support tens of millions of transactions per second.

Devvio can maintain both short-term and long-term storage for an immutable record of transactions. This provides full backups, disaster recovery, and prevention of ransom attacks.

Devvio's security OS delivers best in class security benefits, solving the major problems facing cybersecurity professionals today. For over three decades, Byzantine fault tolerance (BFT) has become the gold standard for security in distributed systems. As the name suggest, Byzantine fault tolerance means that a system can tolerate (i.e. still achieve consensus in the presence of) Byzantine faults – the category of faults where nodes may be malicious. In effect, this means that there is no central point of failure, and even if a number of servers in a network are compromised, the system as a whole maintains its integrity and security. Devvio enables the deployment of a Byzantine Fault Tolerant security backbone across the entire communications and IoT network providing security solutions that enable identity, authentication, resiliency, the reliability of information, and surety of access to communication networks and digitized assets.

## Devvio – Enabling the Security of Communications and IoT Networks

One of the largest challenges in the entire Communications and IoT space is security. There are gaping security holes right now across many Communications and IoT implementations. With Devvio's highly scalable and inexpensive solution, the innate security and immutability of blockchain can now be applied to Communications and IoT to provide security. Enterprises and Governments must protect their data, contracts, files, devices and networks, but also maintain privacy, authenticate identity, prevent theft/spoofing, and develop governance for Communications and IoT device control and coordination. These requirements are necessary whether in a large-

Devvio's Security OS provides a cost-effective solution even at scale.

Devvio's technology and patents enable a combination of both hardware and software security validation that assures hardware assets have not been counterfeited or tampered with at the chip level and throughout the communications value chain.

Devvio provides a backbone for designing and implementing shared operational and technical frameworks.

Devvio implements shared frameworks that adhere to regulatory requirements.

One of Devvio's key enabling elements is the patented ability to implement, manage and scale independent shards horizontally without sacrificing global state management.

Data can be encrypted on both public and private shards, and references to off-chain data can be maintained on-chain.

Devvio Security OS provides integrated hardware and software security across devices to assure device identity in the network.

Devvio Security OS allows Integration with private and public blockchains, permissioning and data access across multiple private and public networks, called shards, and integration with other databases and other blockchains, providing ease of onboarding and integration.

Devvio Security OS provides for multiparty integration with incumbent systems, and management of security and granular permission settings across parties.

scale factory environment, a remote field operation with low bandwidth for connectivity, or within a smart home or retail context.

Additionally, blockchain innately provides a solution in which no central authority oversees the verification of transactions. Instead, transactions are cryptographically secured and then are validated through an independent consensus algorithm. This is important as it provides a trustless solution in which many different companies or partners can all work together on the same platform, share the same data structures, and coordinate across a wide variety of technical implementations, while still maintaining privacy. Blockchain has not been able to be effectively applied to Communications or IoT use cases because of cost and throughput requirements, but Devvio's solution, for the first time, gives a practical solution to using blockchain at the scale required for real-world global deployment. Devvio has built a large patent IP portfolio around the security capabilities and enabling technology in this space.

## Ensuring Hardware Security throughout the Communications Value Chain

Devvio's technology and patents enable a combination of both hardware and software security validation that assures hardware assets have not been counterfeited or tampered with at the chip level. Devvio's technology ensures that hardware private keys cannot be copied in the manufacturing process and that they have not been duplicated or reverse engineered outside of the manufacturing process. This ensures that a chip's identity cannot be compromised. This protection moves up the value chain providing the same assurances at the module, device, system and network level providing a communications security platform that includes not only the data and information integrity but also the identity and integrity of the end points at the edge of the network.

## Devvio Immutability

Devvio's ability to create a blockchain ledger that will remain a permanent, indelible, and unalterable history of transactions is a definitive feature that is a key benefit for security systems. Additionally, Devvio's immutable records are distributed and held across multiple computers.

Companies and Governments spend trillions of dollars on cybersecurity solutions meant to keep outside prying eyes from accessing sensitive data. But rarely do they adequately ensure that data has not been manipulated, replaced, or falsified by a company, government, employees, or intruders. In many cases, we have come to simply trust that the data is correct given user permissions. In reality, however, we cannot prove — methodically or mathematically — that information in a standard application database

## KEY BUSINESS BENEFITS

Devvio Security OS can deliver best-in-class BFT solutions at a cost and scale that drives strong ROI for enterprise use cases.

Devvio is able to support greater control, granularity and trust to data and asset sharing. This will represent a core catalyst for Communications and IoT business models involving broader ecosystems and will solve some of the most pressing issues for the future of Communications and IoT networks.

Devvio can extend a best-in-class Security overlay for all extended solutions including IoT, Financial Services, Payments, Compliance, Identity, Mobility and Supply Chain.

Devvio provides security solutions that enable identity, authentication, resiliency, information reliability, and assured access to communication networks and digitized assets.

Data coming from devices can be verified as being authentic, and can be stored on an immutable ledger, providing valuable proof of provenance.

Devvio's solution allows privacy to protect an enterprise's private data even while engaging in multiparty collaboration.

Devvio's security OS has EU GDPR compliant mechanisms.

Devvio's identity solution users are in control of the use of their identity, and entities that rely on the identity representations can be assured, through a highly secure system, that third party verifiers have verified an identity to the level they report.

has not been tampered with. Additionally, cybersecurity attackers can often hide their tracks and many cybersecurity attacks lead to ransoms in order to restore a hijacked system.

Devvio's blockchain implementation brings an unprecedented level of trust and disaster recovery to the data enterprises use on a daily basis — immutability and decentralization provide full data integrity and disaster recovery. With blockchain, Communication and IoT networks can prove to their stakeholders that the information they present and use has not been tampered with, while simultaneously transforming the audit process into an efficient, sensible, and cost-effective procedure.

## Devvio Best-in-Class Scale

One of the top technical challenges facing Blockchain technology deployment is the ability to scale and do so at an effective price point while maintaining security. These requirements are foundational to running secured networks in mission-critical, high-risk and high data volume (sometimes low-bandwidth) environments. Devvio has solved the sharding problem, enabling horizontal scaling and therefore a solution for scaling challenges.

## Devvio Interoperability

The ability to securely and reliably interconnect multiple networks is a challenge in the Communications and IoT realm. Although blockchain is not innately a data integration tool, distributed ledgers are inherently designed to offer shared visibility of data. Thus, Devvio's blockchain technology provides for new levels of interoperability. Devvio enables seamless interoperability solutions, easily integrating existing traditional databases with our blockchain platform. Devvio's solution provides a backbone to support connection and cooperation across established technologies, with quick onboarding of traditional data and intuitive integration with existing processes using tools such as our RESTful API.

## Multiparty Collaboration

While interoperability is typically viewed as a technical or standards hurdle between data sets, devices, networks, etc., it is also a deeply ingrained cultural hurdle. Traditional business instinct is competitive, proprietary and walled off, and is not interdependent or shared. This friction has challenged the current Communications or IoT market as traditional product-based business models are being forced to data-driven service-based business models, which inherently require an ecosystem to deliver. The level of collaboration required for the successful and sustainable deployment of modern communication networks is significant. The range of interactions between previously

disparate parties will continue to grow. Devvio protects these disparate parties. Blockchain will not only allow all participants to come together but will also provide for integrations with new laws, rules, liability frameworks, standards, and processes. Like Communications and IoT, the potential value of any blockchain configuration is a function of the “network effect” where the number of participants is a large part of the value of the network as a whole. Devvio’s technology enables a multiparty system that will represent a core catalyst for future Communications and IoT business models. Devvio’s technology allows broader ecosystems and solves some of the most pressing issues for the future of Communications and IoT networks.

## Regulatory Compliance

Devvio’s Security OS has regulatory and compliance mechanisms that can be implemented and automated to ensure requirements are met and recorded on an immutable ledger both inside and across jurisdictional boundaries. A highly secure and immutable record of all transactions, where all participants’ interactions are cryptographically secured, provides an ideal system for auditing and compliance.

Devvio’s Security OS also works within important regulatory contexts including the EU General Data Protection Regulation (EU GDPR), Payment Card Industry Data Security Standard (PCI-DSS), and numerous breach notification laws. Various organizations such as the Center for Internet Security (CIS) and U.S. Department of Defense also have recommendations for security configuration best practices in which Devvio’s technology enables compliance. The importance of flexible security controls cannot be overstated as new regulations are being released and existing regulations are constantly evolving around the most valuable asset of many organizations – their data.

## Identity and Access Management

With Devvio’s identity solution users are in control of the use of their identity, and entities that rely on these identity representations can be assured, through a highly secure system, that third party verifiers have verified an identity. In Devvio’s paradigm, it is the control of identity information, rather than the information itself, that becomes important, which is the future of identity across the globe. This Devvio identity is then the foundation for providing Access Management (AM) capabilities. Devvio AM enables the process of identifying, tracking, controlling and managing authorized or specified users' access to a location, system, application, or any IT instance or physical structure. It is a broad concept that encompasses all policies, processes, methodologies and tools to maintain access privileges within an IT and physical environment.