

The background of the entire page is a close-up, high-contrast photograph of a green printed circuit board (PCB) with intricate silver-colored traces and components. A large, solid green diagonal shape cuts across the upper left portion of the image. The SiXworks logo is positioned in the upper left, with 'SiXworks' in white and 'an IBM Company' in a smaller white font below it. A large green hexagon is located in the center-left, with a smaller green hexagon below it, connected by a thin green horizontal line. The main title 'Data-Centric Interoperability' is written in large, bold letters, with 'Data-Centric' in green and 'Interoperability' in white. At the bottom left, there are three small green hexagons and a small green circle, each preceded by a green dot.

SiXworks
an IBM Company

Data- Centric Interoperability

Improve information exploitation.

Enhance information protection.

Reduce information exposure.

Data-centric Interoperability (DCI)

- Data-centric Interoperability (DCI) complements the approach to that of Zero Trust, a strategic approach to cybersecurity eliminating implicit trust.
- It re-focusses the security perimeter to the individual data object level.
- Incorporates fine-grained access control to enable enhanced information exploitation opportunities.
- Enables efficiencies in information exploitation, providing significant cost-saving possibilities whilst also improving access and sharing.
- Enables data to 'protect itself' through cryptographic techniques, reducing reliance on infrastructure protection.

To our knowledge, this experiment was the first time that we had US and UK users sharing data on the same C2 application at the same time, on different networks, at secret with no gateway. That's quite an accomplishment.

UK MOD Joint Warfare Development Officer

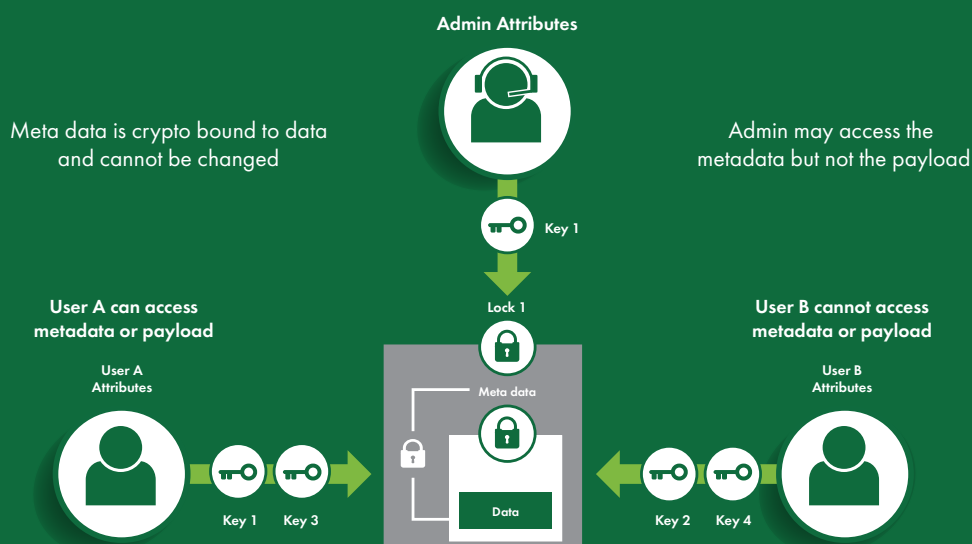


Figure 1: Control of data with DCS

The Why

Traditional approaches to information protection necessitate building and maintaining systems that segment and protect information based on the sensitivity to which it pertains to satisfy risk appetites. This method is complex, costly, and time-consuming. However, there is a complementary solution.

Data-centric Interoperability (DCI) enables the reconsideration of this approach and facilitates the protection of the data at the object and resource level based on the characteristics that it possesses. It allows for the design and construction of systems where information and services are able to cohabit, with multiple sensitivities present within a Single Information Environment (SIE).

Traditional so-called 'Network-Centric' Security (NCS) system design drives significant cost and time into Information Technology programmes, and inhibits information exploitation.

NCS systems are built from a fortress paradigm, with protection measures predominantly applied at the borders. Through the utilisation of Zero Trust architectural design.

From a 'Cloud first' perspective, DCI enables the owners of data to have assurance that the data retains protection when the owner is no longer the custodian.

DCI assists with compliance with regulations such as the General Data Protection Regulation (GDPR) and the Health Insurance and Portability Accountability Act (HIPAA) by reducing the risk of data compromise. It mitigates the risk of the insider threat and user error, which can often be the cause of data compromise, through the constraints imposed by data permissions accessibility and on the ability to access it and have knowledge of it.

Data centrality at first glance may appear to be a simplistic and currently adopted approach to information security as it utilises many of the mechanisms currently deployed. However, the integration of these disparate capabilities and the creation of self-protecting data is a paradigm shift in the information security sphere.

SiXworks is at the forefront of the DCI revolution, providing subject matter expertise and thought leadership to an international community of adopters. We are uniquely positioned to assist with your Zero Trust and data-centric journey with a proven track record in design and delivery for a number of key customers.

The Challenge





The What



Data-centric Interoperability is enabled through the application of subject (users) and resource (files/applications) attributes to make access control decisions related to information exploitation, accessing a file, or sending/receiving an email for example.

Simplistically, DCI is enabled through the combination of three technical capabilities or elements:

Marking

Tagging, or labelling of data (marking attributes stored as metadata) which then allows it to be controlled – SECRET RELEASABLE NATO e.g.

Access Control

The control of access through Attribute-Based Access Control (ABAC) based on the attributes of the resource (data or services) and the subject (either Person Entities (PE) and Non-Person Entities (NPE)) – UK National with Security Cleared vetting for example accessing the example resource in (1).

Encryption

The creation of a DCI object that contains the properties that allow it to be controlled (the metadata) that have provenance (integrity) through cryptographic bidding, and the data itself which is able to protect itself through symmetric encryption, enabling confidentiality.

DCI implementation can be a key enabler for cloud migration or adoption, where data owners are no longer the custodians of their data. Organisations and data owners can tag, encrypt, revoke, expire, and audit access to data, even after content has been accessed or has left the organisation's systems.

The How

Data-centric Interoperability is no longer a theoretical possibility, it is a proven capability, being deployed by organisations globally to improve information use, reduce risk, and deliver efficiencies.

SiXworks has a broad range of skills and expertise in both zero trust and data-centric implementations and is uniquely positioned to facilitate these transformative capabilities. Partnering with industry visionaries, such as Virtru, to deliver and integrate best-in-class solutions with a proven history of protecting and sharing sensitive data for key customers within the UK Defence sector.

Next Steps

Contact your SiXworks representative to learn more about how Data-centric Interoperability can enable greater information exploitation within your organisation and with your partners whilst enhancing your Information Security posture, reducing your costs, and improving your compliance to regulations.



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