

## Case Study C

# COMMON DATA FABRIC FOR DEFENSE INTELLIGENCE

In September of 2018, the U.S. Department of Defense (DoD) Under Secretary of Defense for Intelligence (USDI) provided direction for a new Distributed Common Ground/Surface System (DCGS) Common Data Fabric (CDF). This pioneering data fabric initiative will serve as the cornerstone of an integrated DoD IT strategy focused on achieving “architectural superiority” in support of future DoD Joint Operations across the globe. To establish and maintain architectural superiority, the CDF aligns with the core objectives of the broader U.S. National Defense Strategy (NDS) to effectively position the DoD to “leverage commercial technologies and innovative solutions” to rapidly deliver more agile operational architectures and outcomes for the warfighter.

With years of experience applying the latest commercial technologies to the most challenging DoD and Intelligence Community (IC) mission threads, Volant was selected as the DoD’s trusted partner in defining and delivering the first CDF capabilities for the DCGS Family of Systems (FoS). These CDF prototypes provide the DoD with the foundational data fabric capabilities and data architecture concepts needed to shape the larger defense IT strategy for years to come, thereby providing the architectural superiority necessary for our warfighters to persevere over any U.S. adversary.

## The Challenge

Over time, data has accumulated throughout the DoD enterprise without an ability to effectively discover, retrieve, and share between Services and with our Partner Nations (PNs), resulting in stand-alone data “silos”. These data “silos” are applications (data storage coupled with processing capability) with “hard-wired” point-to-point interfaces that only deliver data across specific system boundaries as required. The gradual implementation of these interfaces has produced an intricate, fragile, and inflexible method of data sharing incapable of responding to today’s rapidly changing requirements increasingly being driven by the DoD Joint Information Enterprise (JIE).

As depicted in Figure 1, breaking down entrenched monolithic data “silos” and making data freely available to the greater DoD JIE is one of the core tenets of the CDF. A common data sharing strategy enables fielded applications to take full advantage of innovative and immersive technologies to include cloud-computing artificial intelligence (AI), data augmentation, and big data analytics. As detailed in the aforementioned memo, USDI has conveyed guidance to help realize architectural superiority by providing the warfighter with:

**01**  
Rapid access to data

**02**  
Improved data integration

**03**  
Improved sharing of data sources

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**Change the way we approach today’s commercial technology environment.”**

*U.S. Department of Defense Under Secretary of Defense for Intelligence*

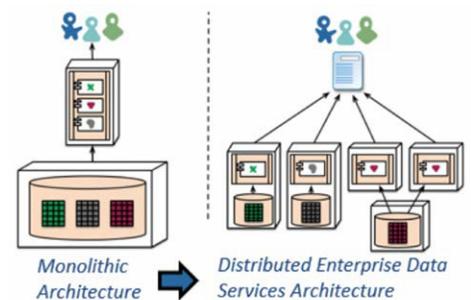


Figure 1. – Towards a Shared Vision of Distributed Enterprise Data Services

Source: <https://www.martinfowler.com/articles/microservices.html>

## Our Approach

Volant has always been at the forefront of applying the latest commercial technologies in support of the DoD and IC mission space and is actively working with the government to identify and deploy best-of-breed tools, technologies and processes to prototype the CDF. Volant is leveraging a Hadoop-based commercial big data platform (Kafka, Hive, HDFS, HBase, Accumulo, Knox, Ranger and Atlas) to perform data management activities. Data management at the enterprise level is a function that is not performed today.

The CDF is a pathfinder effort to understand what is entailed in performing this function. Data onboarding and the onboarding of consuming systems to the CDF Prototype is a first step in creating a common data management platform.

CDF intends to enable architectural superiority by increasing the speed of access to data and normalizing the API set by which it can be requested. CDF evaluates all datasets as data. It makes no differentiation based upon metadata, formats, etc.

The CDF will improve interoperability by enabling data reciprocity among fielded applications and enabling a common data sharing policy, community data sharing standards, and a data governance framework. By automating machine-to-machine data management policies, the interoperability of CDF-connected applications will improve. Consumer applications that meet minimum policy specifications for access to CDF hosted datasets will have access to that data, without restrictions or additional steps to overcome.

When building out the CDF prototype, Volant will avoid using unique protocols and disparate interfaces to ensure that all data requests throughout DoD may use the same interface. No organization will have to learn a myriad of processes and get permissions from offices of primary responsibility.

For more information contact us at **(571) 210-0030** or **info@volantco.com**

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## Volant will ensure that the enterprise benefits of the CDF include:

01

**Data reciprocity among fielded applications**

02

**Normalization of data via commercial APIs that are well understood and documented**

03

**Access to, and security of, the data will be the responsibility of the CDF and not managed by applications**  
*(separate the data from applications)*

04

**Data is location agnostic with a single provider and consumer for enterprise data**

05

**Common security standards across the entire fabric to include automated governance and compliance**