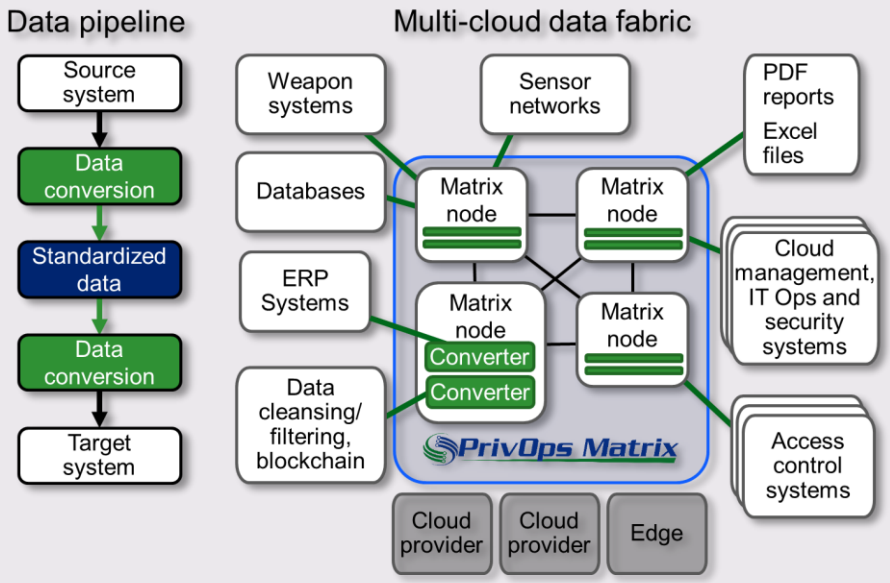
The PrivOps Matrix: Platform Overview

The PrivOps Matrix data fabric is an open platform for optimizing the sharing of data between heterogeneous digital systems and across domains.

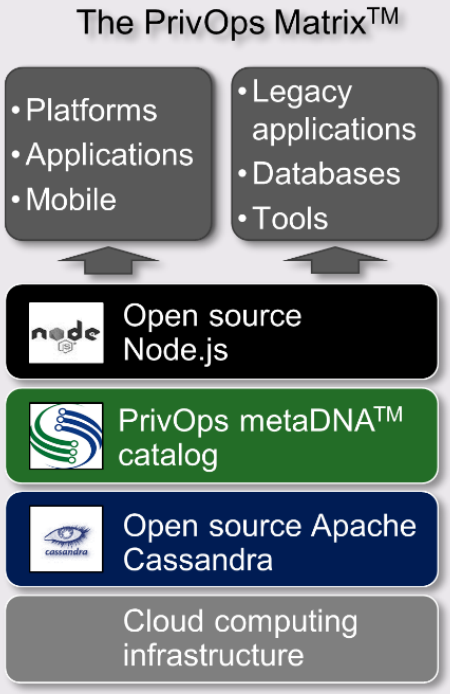
The PrivOps Matrix consists of a combination of open source components, the metaDNA™ Catalog and an associated Agile methodology. Unlike proprietary approaches from vendors with expensive solutions that create complexity, the PrivOps Matrix creates a best-of-breed approach to data integration with an open, scalable, and agile hot-pluggable platform. Point-to-point and enterprise service bus integrations don't scale and are difficult to support; the PrivOps Matrix's multi-cloud distributed fabric architecture minimizes rework and maximizes re-use with widely used open source components, making it much easier to source talent, implement, and support.



Traditional IT technology procurement works against modularity. Simply put, it is in the financial interest of large Commercial Off-the-Shelf (COTS) vendors to create proprietary data structures and interfaces that make it difficult to be replaced when contracts end. For that reason, any attempt at creating a modular, agile information supply chain for IT modernization requires open source as the central element of its architecture, so we designed the PrivOps Matrix data fabric as an entirely open system that makes next generation COTS and custom software hot-pluggable as part of an information supply chain.

The multi-cloud data fabric is built from four components:

- Integrates with cloud infrastructure from providers such as Amazon and Microsoft as well as on-premise infrastructure
- Apache Cassandra is an open source distributed database that provides massive scalability and resilience with its distributed architecture. It also provides native compatibility with a large ecosystem of open source tools like Apache NiFi and Apache Atlas.
- Node.js is an open source software platform that scales integration and development with thousands of free connectors and modules
- The PrivOps Matrix software with metaDNA™ accelerates and scales the automation, protection, and control of data. Although the Matrix software is the only non-open source component, we provide the source code, and access to the raw data structures; this makes the data fabric an entirely open system that serves as the foundation for a best-of-breed, agile approach to data fabric platform development.

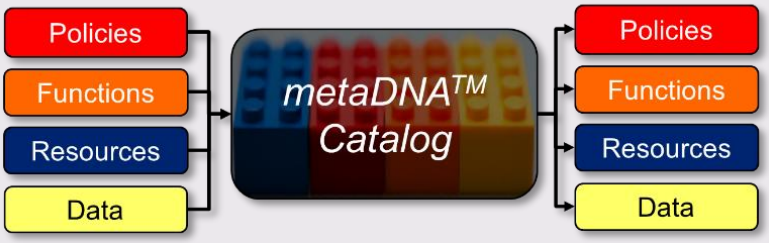


The key innovation in the Matrix data fabric is the patented metaDNA™ Catalog.

Just as biological life is built from structures defined by standard sets of genes composed of reconfigurable DNA molecules, modular "digital molecules" are combined from the metaDNA™ catalog to create "digital genes" — recipes for building microservices, applications, integrations, and information supply chains. This catalog is then distributed across clouds and traditional data centers to create the PrivOps Matrix data fabric. The PrivOps Matrix data fabric is composed of integration connector microservices that are constructed from digital genes in the metaDNA™ catalog with Node.js and an Apache Cassandra Node.js driver. Using Matrix software libraries, the connector microservices perform integration, automation, and Extract, Transform, Load functions to support the connector's assigned task. These connector microservices are then installed on containers, virtual machines, serverless instances, and/or physical servers, either directly or using container orchestration tools like Red Hat OpenShift or Pivotal Cloud Foundry. The appliance then connects to the Cassandra cluster which then connects to other clusters in other Matrix nodes. This distributed database architecture provides for resilience, data transmission, and other capabilities related to scaling and protection (e.g., encryption and access control).

The metaDNA™ Catalog

- Replaces the traditional 3-tier software architecture with a modular, distributed, cloud native system
- Breaks applications, data, workflows and infrastructure configurations down into reusable objects
- Unifies the integration, automation and governance of data, applications and infrastructure into a single tool



The PrivOps Matrix is applicable in many scenarios where data sharing and processing between systems is required, but one scenario stands out — the Virtual Data Lake. While analytics and AI initiatives promise to make smarter and faster decisions possible, data sprawl is an obstacle. Traditional data lake efforts typically fail because they are too complex, don't scale, and any operational benefit is years out. Using the PrivOps Matrix, companies apply an Agile methodology to create just-in-time access to data for analytics and data monetization. Unlike a traditional data lake, data is integrated, extracted, and cleaned only after mapping a data subset needed for a tightly defined business outcome.

Virtual Data Lake