

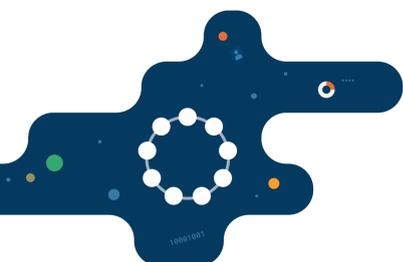
Real-Time Inventory Reconciliation



Sedona Systems and DataStax Joint Solution delivers real-time inventory accuracy to CSP provisioning, operations & engineering

Mind the Gap: Designed Network versus Functioning Network

In the sprawling networks built by Communications Service Providers (CSP), there is a troublesome disconnect between the network as it functions, and the network as it is designed and documented in inventory databases. Ideally, when the offline inventory system is updated, it is expected that the network will be configured or modified to match the information in the inventory database. CSPs know all too well that this is rarely the case as the network is dynamic and manual updates simply cannot keep up. Discrepancies are especially challenging when the network includes merged and acquired assets.



Furthermore, network devices have their own way of identifying their ports, connections, circuits, etc. Each vendor's equipment generates logs, alerts, notifications and other information based on its innate hardware ID. Typically, this information resides in multiple, distributed systems per vendor or per network segment. It is a constant challenge to correlate it all and to get an end-to-end picture.

For example, a simple and common human error, such as forgetting to update the database after a link router change or a card replacement will result in missing and inaccurate information in the inventory database. Subsequently, when an alarm comes in, the alarm system will not be able to parse the incoming data and correlate it with the documented inventory because the field says one thing and the inventory database says another. Unposted alarms are just one example of database discrepancies. We could list many more.

Operating in Sync

Each discrepancy between the deployed network and the inventory database costs the CSP time, money, and the risk of customer dissatisfaction. As CSPs manage the network, provision new services, disconnect a customer, repair an outage, etc. all of their internal databases, tools, and systems are based on how the network is supposed to look and function (per inventory database) rather than how it looks and functions in reality. To remedy this situation, CSPs need to:

1. Make sure the inventory database perfectly matches the deployed and functioning network at all times,
2. Have accurate inventory data easily accessible to network management, operations, provisioning, and marketing systems that require it.

To achieve these goals requires a lot of real-time synchronization between network topology and business systems. What's more, SDN automation and orchestration cannot be called upon to solve this problem. SDN controllers cannot supplant inventory systems and in fact, *may amplify the effects of a flawed inventory system.*

Solution: Automated, Real-Time Reconciliation in a Cutting-Edge Inventory Database

Sedona Systems and DataStax have teamed up to provide network inventory accuracy to every internal CSP system that needs it. The joint solution comprises DataStax NoSQL Database and Sedona NetFusion Network Intelligence and Automation Platform in a fully integrated and automated constellation.

DataStax NoSQL Database

Inventory databases can be notoriously difficult to query and work with. CSPs whose network is built from mergers and acquisitions manage multiple inventory databases – each in its own operations silo. DataStax NoSQL Database (DSE) allows CSPs to consolidate all their network data into one, graph-based database that is easy to query and scales up and down in the cloud or on premise without limit.

DataStax Database(DSE) helps operators and developers with challenges around the need to handle unpredictable amounts of data. DSE provides the ability to enable Graph, Analytics, Search for critical use cases and a smooth migration to the cloud for existing NoSQL workloads or legacy workloads. It provides developers freedom, speed, and flexibility to adapt to data requirements.

It provides compelling operational advantages and savings with the ability to scale "out" horizontally across Multiple Cloud platforms, on prem — or add less expensive servers without having to upgrade. They can scale to handle more data or hold a single, large database within a highly distributable cluster of servers. *Sedona NetFusion uses a graph database natively. As such, DataStax Enterprise naturally complements Sedona NetFusion platform and vice versa.*

Sedona NetFusion Network Intelligence and Automation Platform

The Sedona NetFusion platform assures that the inventory data inside the DataStax database is accurate and current at all times. Sedona NetFusion automatically discovers all network ports, inventory, circuits, and long-haul channels, as well as the intricate connectivity across multiple layers and domains in the network and maps them into a live model of the network. The real-time, multi-layer, multi-vendor, multi-domain inventory data from Sedona NetFusion feeds directly into DataStax Enterprise, allowing CSPs to easily organize and reconcile any disconnects with a few simple queries.

Benefits

Shorten the Service Provisioning Cycle

Traditionally, new services are designed against offline inventory systems, followed by a cycle of manual review to ascertain that all needed elements are in the network, and are not being used, and are available or not reserved for future use. While parts of this review cycle may be automated, there is no systemic solution for reconciling what's in the network and what's in the inventory database. Often, site inspections are required, adding to costs and delays. Real-Time Inventory Reconciliation drastically shortens this cycle by setting up data queries and feeds used in the M2M service provisioning workflow, and reconciling any inventory discrepancies as they occur in the provisioning process.

Prevent Failures and Outages

When the inventory database is not up to date, a disconnect order could potentially cut off the wrong customer. Real-Time Inventory Reconciliation allows the CSP to check and verify that the correct customer is being disconnected before the order is executed. The solution allows CSPs to query the potential fallout from a disconnect order and warns the disconnect engineer when the information in the inventory database does not match the data from the deployed network. Such sanity check measures within the customer disconnect process can prevent costly failures and outages.

Discover Untapped Opportunities - Capacity Planning/Usage

A large Fortune 100 Technology company needed a hosted solution with zero setup, zero downtime that gave customers real-time insights of their capacity from anywhere at any time. Besides the fast, secure and scalable connectivity solution, this needed a highly scalable, available, reliable and performant data layer that could extend to support the machine learning needs. DataStax Enterprise was the perfect choice as traditional data management solutions failed to provide single pipeline/practices between development and production, single infrastructure to run analytics jobs, and single layer to handle different types of data.

DataStax was able to partner with the company to provide a cloud-native SaaS application that uses machine learning to proactively monitor and measure the overall health of customer's storage environment through intelligent, comprehensive, and predictive analytics. These storage systems are part of the customer's data center and run several key workloads - providing near real-time insights around configuration, capacity, performance and protection aspects of the system and its supporting

workloads. These insights help customers with capacity planning and usage decisions. The service is always-on so customers can get these insights anytime from anywhere (via desktop or mobile application with in-app or email based notifications) and is currently processing 2 trillion bytes of data per day performing 5 million checks across thousands of customer systems managed globally.

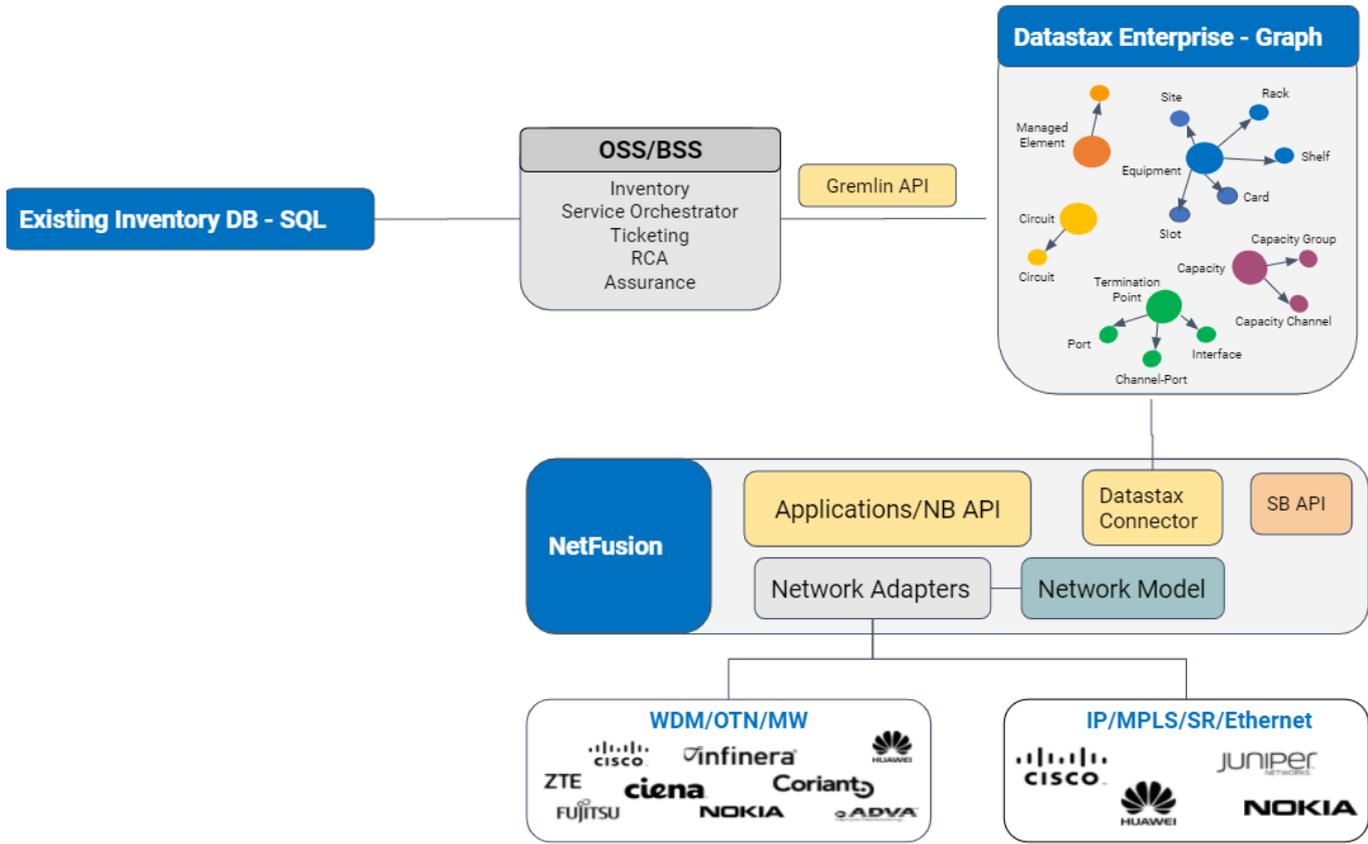
It Just Works – the value of pre-integration

Sedona Systems and DataStax have done the heavy lifting for you by fully integrating and automating the process of continuous network discovery to real-time inventory database. Sedona discovers all vendors, all devices, all layers and all domains, and maps the connectivity between them. No matter how diverse your vendor deployments, or how expansive and distributed your network, Sedona NetFusion provides a complete and accurate picture of the network and feeds that data into the DataStax NoSQL database. No on-site integration or development or changes in network configuration are needed.

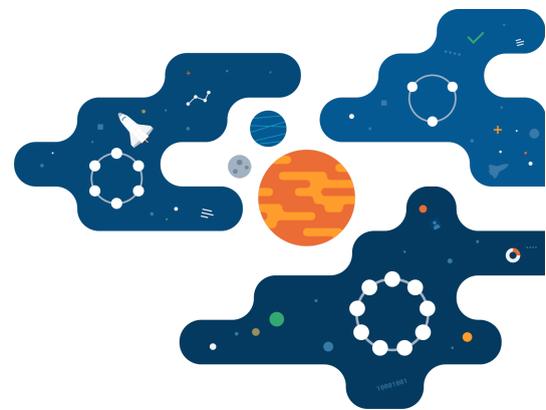
As a carrier grade NoSQL database with zero-downtime, DataStax offers a masterless design and is engineered for the most demanding high-scale, high-throughput scenarios such as this where writes and updates to data often rapidly exceed the capability of other technologies to keep up.

So instead of spending hours on offline, siloed inventory, DataStax database gives you answers in milliseconds and provides alerts within the CSP system or application you are using. Common queries and data flows for recurring processes can be automated through M2M APIs that save time, assure accuracy and eliminate surprises when provisioning services, repairing failures, fulfilling orders, etc.

With Sedona Systems and DataStax joint solution, CSPs can automate manual processes that are time-consuming and prone to error. Best of all, they can check, verify and enforce the actions of each process within the systems and applications themselves. The result is that every process that requires inventory data becomes much more efficient and reliable.



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About DataStax

DataStax is the open, multi-cloud stack for modern data apps. DataStax gives enterprises the freedom of choice, simplicity, and true cloud economics to deploy massive data, delivered via APIs, powering rich interactions on multi-cloud, open source and Kubernetes.

DataStax is built on proven Apache Cassandra™, Apache Pulsar™ streaming, and the Stargate open source API platform. DataStax Astra is the new stack for modern data apps as-a-service, built on the scale-out, cloud-native, open source K8ssandra.

DataStax powers modern data apps for 500 of the world's most demanding enterprises including The Home Depot, T-Mobile, Intuit and half of the Fortune 100.

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About Sedona Systems

Sedona Systems is the creator of NetFusion, a transformative network intelligence & automation software, powered by unique network-derived service-to-fiber visibility. NetFusion automatically discovers the packet and transport layers (L0-L3) of service provider networks, as well as cross layer connections, and performs deep analytics to optimize and automate network control. With multilayer awareness and multi-vendor, multi-domain support, Sedona's applications boost effective WAN capacity, ensure network resiliency, enable new services, and accelerate the path to SDN benefits.