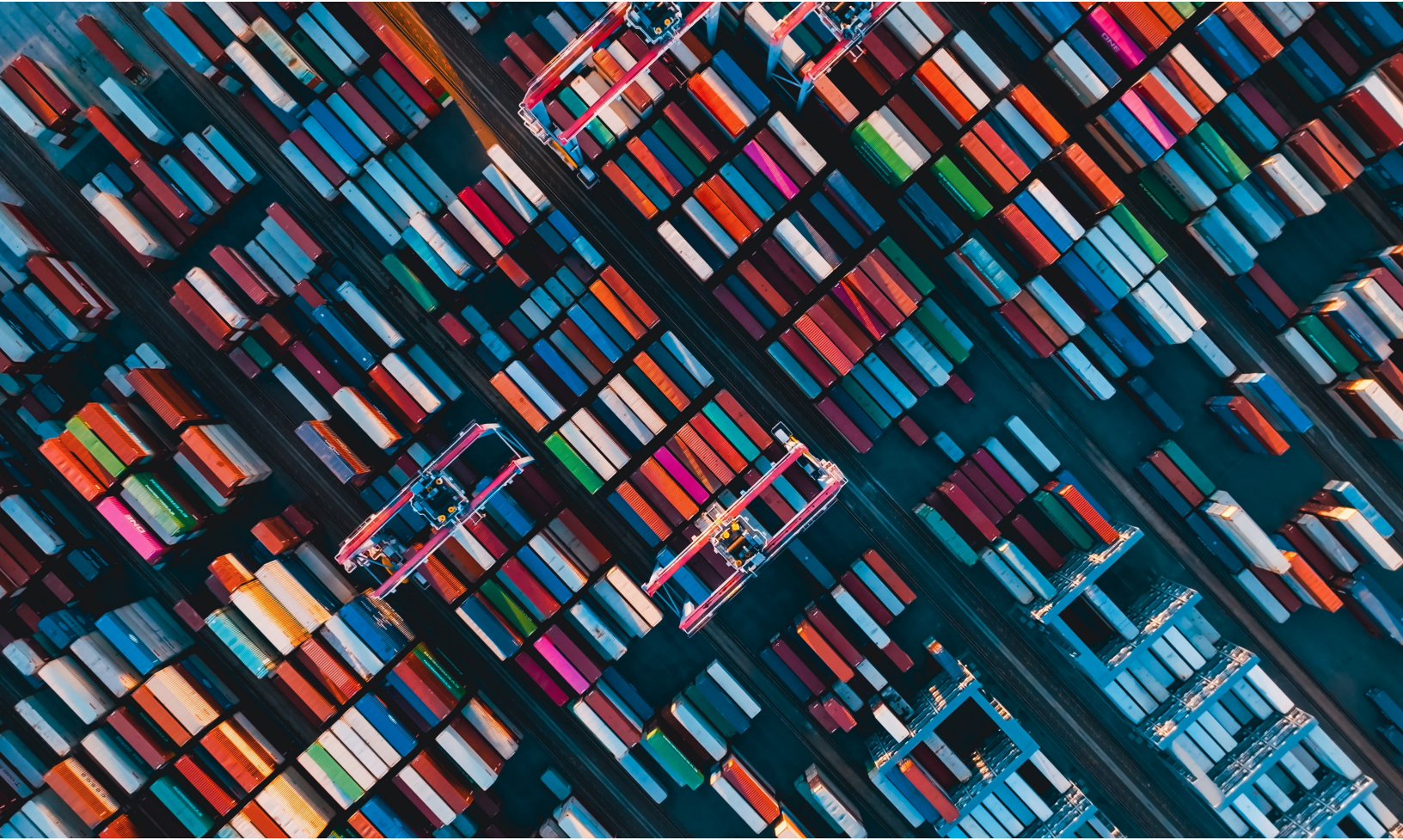


InterSystems Supply Chain Orchestrator

Technology Guide



**Enabling Systems Integrators and Application Software Developers
to Deliver Highly Customized Intelligent Supply Chain Applications**

SUPPLY CHAIN ORCHESTRATOR IS DESIGNED TO BE USED AS A FOUNDATION FOR SUPPLY CHAIN SOFTWARE FIRMS TO DEVELOP HIGHLY CUSTOMIZED SUPPLY CHAIN OPTIMIZATION APPLICATIONS AND TO BE EASILY CUSTOMIZED BY SYSTEMS INTEGRATORS FOR EACH CUSTOMER AND USE CASE

Introduction

Data is the lifeblood of every supply chain organization; as data grows, so too does the prevalence of data silos. Organizations are striving to gain a competitive edge, deliver value to customers, reduce risk, respond more quickly to the needs of the business, and out-innovate the competition, but accessing, integrating, and leveraging data from internal and external data sources is a challenge.

Most companies today have many systems in place to support their supply chain practices, such as ERP, OMS, TMS, WMS, etc. One common challenge frequently faced is the lack of end-to-end supply chain visibility due to siloed data captured by each system. When supply chain disruptions take place, the resolution may depend on different systems working together and sharing real-time data across systems.

Supply chain organizations need easy access to a single view of accurate, current, consistent, and trusted data. However, the increasing complexity and number of data sources and data volumes make this difficult to achieve in practice.

This technology guide is intended for systems integrators and application software developers that require a proven supply chain decision intelligence platform that can be easily customized for their customers' specific challenges, to optimize supply chain operations in response to real time supply chain disruptions, while complementing all of their customers' existing applications and data silos. Learn how InterSystems Supply Chain Orchestrator™ provides four embedded technologies acting as one platform, within one product, to accelerate time to value and lower total cost of ownership.



A Smarter Approach to Data Management

Traditional supply chain technologies and applications cannot keep up with the demands of modern supply chains.

Most supply chain applications are fit for purpose to address only one or a few segments of the end-to-end supply chain and are not designed to accommodate real-time, unplanned disruptions. Even newer control tower software applications, while providing overarching visibility, do little to inform supply chain managers how to best deal with real-time disruptions as they occur, while minimizing the impact to the business and to their customers.

A data fabric is a new, much-needed architectural approach that is providing organizations with visibility and access to data from across the entire business, without the limitations typically associated with prior approaches. Data fabrics can integrate, transform, and harmonize data from disparate sources—on demand—to make it usable and actionable for a wide range of business applications. However, real time end-to-end visibility is just part of the solution. A smart data fabric incorporates a

wide range of analytics capabilities, including data exploration, business intelligence, natural language processing, complex business rules, machine learning, and generative AI capabilities directly within the data fabric. This enables organizations to:

- Gain new insights and power intelligent and prescriptive services and applications
- Arm supply chain managers with insights into what may occur (e.g., a supplier likely to miss OTIF SLAs)
- Gain a set of data-driven prescriptive actions to remedy disruptions and the tradeoffs associated with each suggested option

Smart data fabrics allow applications and line-of-business personnel to access information from source systems on demand, as needed, eliminating the latencies usually associated with packaged applications, data lakes, data warehouses, data marts, ETL, and manual techniques. Data that resides in different applications, silos, and sources inside and outside the organization can be accessed, integrated, harmonized, and analyzed as it's accessed, without the need to create yet another copy of the data. It is a fundamentally different approach that is bringing proven and measurable business benefits to virtually every industry.

Smart data fabrics offer tangible benefits by streamlining data management, enhancing decision-making, and improving operational efficiency. Gartner predicts that data fabric deployments will quadruple efficiency in data use ¹.



Supply Chain Orchestrator Cuts Through Complexity

Supply Chain Orchestrator is designed to be easily customized by systems integrators for each customer and use case, and to be used as a foundation for supply chain software firms to develop highly customized supply chain optimization applications. It provides a connective tissue to integrate disparate data sources, sense disruptions, and provide actionable, predictive, and prescriptive insights in real time to support various applications and scenarios. It is applicable to any industry and a wide variety of connected, analytical, machine learning and generative AI use cases, from pharmaceuticals to manufacturing to fast-moving consumer goods.

Supply Chain Orchestrator is built on **InterSystems IRIS®**, an industry leading, proven data platform that is used by thousands of enterprise organizations around the world. InterSystems IRIS is a complete, cloud-first data platform that delivers a **smart data fabric architecture** to make it easier to build and deploy high-performance, ML-enabled applications that connect data and application silos.

¹ Gartner Insights, Striving to Become a Data-Driven Organisation? Start With 5 Key D&A Initiatives, <https://www.gartner.co.uk/en/information-technology/insights/data-and-analytics-essential-guides>

ALTERNATIVE
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Powered by InterSystems IRIS, Supply Chain Orchestrator provides many of the functional capabilities required for these types of intelligent, connected applications. In contrast, alternative approaches typically require provisioning, implementing, integrating, and managing many different data management technologies, increasing cost and complexity.

Application developers can accelerate time to value by integrating the physical elements of **logistics, fulfillment, warehousing, and freight** so everything works together to deploy, manage, scale, and **optimize your supply chain**.

InterSystems Supply Chain Orchestrator provides a connective tissue to integrate disparate data sources, sense disruptions, and provide actionable, predictive and prescriptive insights in real time to support various applications and scenarios. It is ideal for systems integrators and application software developers to deliver highly customized intelligent, connected supply chain applications to meet the varied needs of their customers.



Supply Chain Orchestrator Functional Components

Supply Chain Orchestrator provides a comprehensive framework which includes the following built-in supply chain accelerators that speed and simplify the development of custom applications:

- Extensible supply chain data model
- Built-in supply chain analytics cubes
- Key performance indicator (KPI) framework
- Automated issue detection
- Issue lifecycle management
- Advanced analytics for issue resolution
- Supply Chain APIs

Extensible Supply Chain Data Model

All supply chain solutions require some kind of supply chain data, from master data (such as products or customers), to transactional data (like orders or shipments), to IoT data (such as temperature readings in a cold chain).

To help accelerate application development, an extensible canonical data model is provided to capture common supply chain data sets, from first mile to last mile, which provides:

- Common supply chain entities, such as suppliers, purchase orders, inventories, carriers, etc.

- Common properties of each entity, such as dates associated with an order, names and addresses of customers, etc.
- Relationships between business entities, such as shipment to orders, inventory to products, etc.
- Keys and indices of each business object.
- Data model API where the API is provided as live documentation of the data model.

Despite commonalities between different supply chains, each supply chain is unique in some way, thus making every business' use case unique. There can never be a “one-size fits all” data model that will meet the needs of all types of supply chains. Therefore, it is important that the canonical supply chain data model can be extended or customized to meet the needs of each specific use case. The data model provided by Supply Chain Orchestrator supports the following features:

- **Custom data attributes:** Custom data attributes can be added to any existing data objects in the model. This can be done by customizing a data object class or simply through an API call.
- **Custom data objects:** If the canonical data model does not provide the business entity required, a new object can be created. A new data object can be created through a new class definition, or simply by making an API call.
- **API support for data model extensions:** As mentioned above, APIs can be used to add custom attributes or to create new custom objects. APIs are also provided to inspect the current data model details: what objects are system defined and which ones are custom; what attributes are defined for each object; and which ones are custom attributes.
- **API support for data access:** Once the data model is extended, APIs can be used to access the extension by adding data to the extended data model, query data based on custom attributes or on custom objects, or other CRUD operations on the data anywhere in the extended data model.
- **Upgrade safe:** Any extension of the data model will be preserved during Supply Chain Orchestrator upgrades, even if the canonical data model is enhanced in a new release. No additional data migration step is required for upgrades.

Built-in Supply Chain Analytics Cubes

With embedded analytics and a canonical supply chain data model, clients can get immediate value from their supply chain data once loaded, such as business intelligence dashboards or reports. With a smart data fabric architecture, there is no need to move the data from a transactional schema to an analytics schema, and analytics cubes can be defined directly on the supply chain data model. To speed this up even further, data cubes for key supply chain data objects, such as orders, shipments, inventories, and issues are prebuilt frameworks within Supply Chain Orchestrator. These cubes can be used for configuring custom dashboards, generating business intelligence (BI) reports, or used by other supported BI tools.

The data cubes provided out of box can be extended with new measures or dimensions, based on data model extension or customization. But new cubes can also be configured independently.

In addition to the common BI and reporting usages, cubes are also used by Supply Chain Orchestrator as the foundation for its KPI framework.

Key Performance Indicator (KPI) Framework

Many supply chain activities are driven by key performance indicators (KPIs), which can be used for many different purposes such as tracking business objectives and goals or detecting risks in a supply chain. Conceptually, there are many common supply chain KPIs, such as on-time in-full (OTIF) orders or aging inventory, but the actual logic behind these KPIs can still vary from business to business. Supply Chain Orchestrator offers a KPI framework that can be used to configure KPIs based on a client's specific logic.

The KPI framework allows clients to define KPIs with the following details:

- **KPI logic:** For example, the logic for the definition of “late” for a late ship order KPI.
- **KPI dimensions:** If a client is interested in learning late ship orders by country and by products, the KPI definition can include country and product as KPI dimensions.
- **KPI thresholds:** Two KPI threshold values can be defined for each KPI, watching threshold and warning threshold.
- **KPI value type:** Two types of values can be used for a KPI, raw value (such as count of late orders, or sales revenue dollar amount), or a percentage value (percentages of orders that are late).
- **Issue flag:** A KPI can be used to autogenerate issues for any data records to meet the KPI condition. For example, one can make late ship order KPI to be an issue-generating KPI, so any orders shipped late will have an issue generated and tracked in the system.

For issue-generating KPIs, additional properties can be defined related to the generated issues, such as:

- Default severity and urgency values
- Default business process used to run issue analysis

One KPI definition will combine raw supply chain data together with analytics cubes, client logic, business rules, and business processes to identify business challenges and provide actionable insights.

Automated Issue Detection

Supply chain disruptions and risks are modeled as issues in Supply Chain Orchestrator. Issues can be automatically generated based on KPIs, triggered from business processes, or imported from external systems. Once an issue is saved in Supply Chain Orchestrator, its lifecycle can be managed within the system, including setting issue status, running issue analysis, providing actionable insights, etc.

Supply Chain Orchestrator also provides out-of-box issue analysis to help clients understand issues in different categories, business impacts by different type of issues, and statistics on issue status.

Advanced Analytics for Issue Resolution

A key part of issue lifecycle management is issue analytics, which can provide insights to the following about an issue:

- **Severity level:** How big an impact it is for the business?
- **Urgency level:** How time-critical is the issue? Root cause analysis, e.g., what triggered the problem?
- **Impact analysis:** What would the impact of this issue be if it is not properly addressed?
- **Prescriptive actionable insights analysis:** What are the recommended actions to mitigate the risk of the issue and related business impacts?

Although the analysis of each business challenge is different, Supply Chain Orchestrator provides the key infrastructure and framework to simplify the development or configuration of related business processes and business rules for the above analysis needs, making it ideal for both systems integrators and application software developers.

**SUPPLY CHAIN
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PROVIDES THE KEY
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SUPPLY CHAIN ORCHESTRATOR PROVIDES ALL OF THE KEY DATA MANAGEMENT CAPABILITIES THAT ARE REQUIRED, IN A SINGLE, EXTENSIBLE PLATFORM, BUILT FROM THE GROUND UP, ON A SINGLE ARCHITECTURE

Supply Chain APIs

APIs are provided for accessing all supply chain orchestrator features, including:

- Data model APIs for model discovery and model extension.
- Data access APIs for data managements including create, read, update, and delete (CRUD) operations on any supply chain data and search capabilities. All data access APIs support user defined pagination and sorting, which simplifies the work of related UI developments.
- KPI-related APIs, including listing defined KPIs, creating new KPIs, getting a KPI value or values, getting a list of data records associated with a KPI, etc.
- An API for issue management, including new issue creation, search/retrieve issue details with analysis results, run issue analysis, and closing issues.

In addition to the supply chain-specific APIs listed above, Supply Chain Orchestrator also provides many other APIs for different aspects of the data platform.



Foundational Data Management Capabilities

A key differentiator — and benefit — of Supply Chain Orchestrator is that it provides all of the key data management capabilities that are required in a single, extensible platform, built from the ground up on a single architecture. This eliminates the need for systems integrators and application software developers to implement, configure and integrate, requiring potentially dozens of different data management services.

Consistent Data

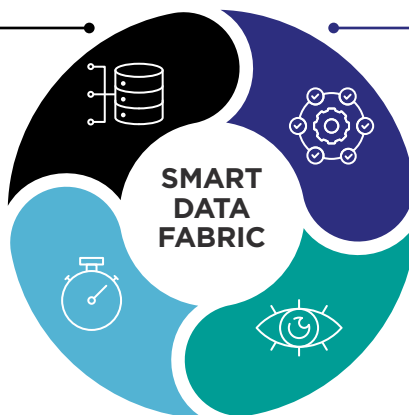
Multi-Model DBMS

Harmonize and normalize disparate sources and formats—relational, non-relational, streaming, etc.—for consistent and accurate data representation

Real-Time Data and Analytics

Multi-Workload DBMS

Ingest, process, and analyze data in real time without delay and at scale, without moving or copying the data for analysis



Intelligent Processes

Interoperability

Enable seamless, accurate, connected supply chain orchestration and AI-enabled intelligent business processes

Actionable Insights

Advanced Analytics

Real-time advanced analytics—BI, ML, AI, NLP—for descriptive, predictive, and prescriptive insights in the moment

InterSystems Supply Chain Orchestrator Differentiation

Supply Chain Orchestrator provides the following foundational data management capabilities to speed and simplify the development and deployment of highly customized intelligent supply chain applications.

Connect and Collect

Supply Chain Orchestrator provides a low-code approach to data and application integration that supports connect and collect approaches. The connect approach enables applications to access information on demand, without creating additional copies of the data. Alternatively, with the collect approach, data can be stored within the Supply Chain Orchestrator multi-model, multi-workload database, and applications can leverage either or both approaches for the highest performance and resource efficiency.

High Performance, Multi-Model, Multi-Workload Database Management

At the core of Supply Chain Orchestrator is an ultra-high-performance, multi-model (any data, any type), multi-workload (real time transactional-analytical) database management engine that supports vertical and horizontal scalability. It ingests, processes, and stores event and transactional data at high rates while simultaneously processing high volume analytic workloads involving historical and real-time data, including ACID-compliant transactions.

Multi-Model

Within the Supply Chain Orchestrator database, data is stored once and can be accessed as tables, objects, documents, key-value pairs, or multidimensional arrays without duplicating data or executing performance-killing mapping between models. All access methods can be used simultaneously on the same data with full concurrency. This pure approach to multi-model database management allows developers to use the most appropriate model types for their applications within a single environment rather than implementing and integrating different database management software to manage different models.

Multi-Workload

Supply Chain Orchestrator is optimized for real-time applications that require high-throughput data ingestion with high-performance, concurrent analytics at scale. It is deployed in mission-critical supply chain applications that must have the capacity to ingest millions of records per second while simultaneously querying and analyzing the incoming data in real time.

Scalable Technology

Supply Chain Orchestrator enables applications to scale efficiently to meet the needs of any application – horizontally through sharding and our distributed caching architecture and vertically through parallel SQL queries. Whether it's high volumes of concurrent users, high rates of streaming data, a massive dataset to analyze, or all at the same time, Supply Chain Orchestrator scales out to a distributed architecture on affordable and commodity hardware to reduce total cost of ownership.

THE ABILITY TO HANDLE BOTH “CONNECT” AND “COLLECT” WITH A SINGLE PRODUCT PROVIDES THE FLEXIBILITY THAT ORGANIZATIONS NEED TO MEET DYNAMICALLY CHANGING SUPPLY CHAIN DATA MANAGEMENT REQUIREMENTS



**COMPARED WITH
ALTERNATIVES, ONE
ORGANIZATION FOUND
THAT INTERSYSTEMS
PROVIDED A 9X
PERFORMANCE
IMPROVEMENT USING
ONLY 30% OF THE
INFRASTRUCTURE**

Supply Chain Orchestrator also enables horizontal scaling of data through sharding — splitting up very large databases onto multiple machines. Queries are run in parallel on each shard, and the results are aggregated before being returned to the user.

Vertical scaling takes advantage of bigger, multicore machines through the efficient and fully automated use of parallelization, which enables organizations to right-size infrastructure resources in the cloud to achieve optimal price-performance ratios. Scaling vertically can be powerful, but has its limits: extremely large multicore machines can become cost prohibitive, both in the cloud and on premises.

Consistent Distributed Cache

Supply Chain Orchestrator supports seamless and independent scaling of data and application workloads through distributed cache clustering powered by InterSystems Enterprise Cache Protocol (ECP). ECP enables horizontal scaling of the number of users by caching data on application servers. User queries are satisfied from the local application server cache, if possible, retrieving data from the data server only if necessary. ECP automatically synchronizes the data and is entirely transparent to users and applications, providing superior performance and resource efficiency as workloads increase.

Sharding and ECP are transparently combined so applications can handle large volumes of data and high volumes of compute workloads efficiently and independently.

ECP eliminates the complexity typically required to handle scaling data, application, and user workloads horizontally in clustered environments while guaranteeing consistency across the cluster. All of this is handled automatically by Supply Chain Orchestrator.

Embedded and Open Analytics

Supply Chain Orchestrator provides a range of powerful, built-in analytics capabilities that run directly on the data stored in its database, without moving the data to another environment, guaranteeing low latency and high resource efficiency. Users gain rapid access to insights to optimize their response to supply chain disruption in real time.

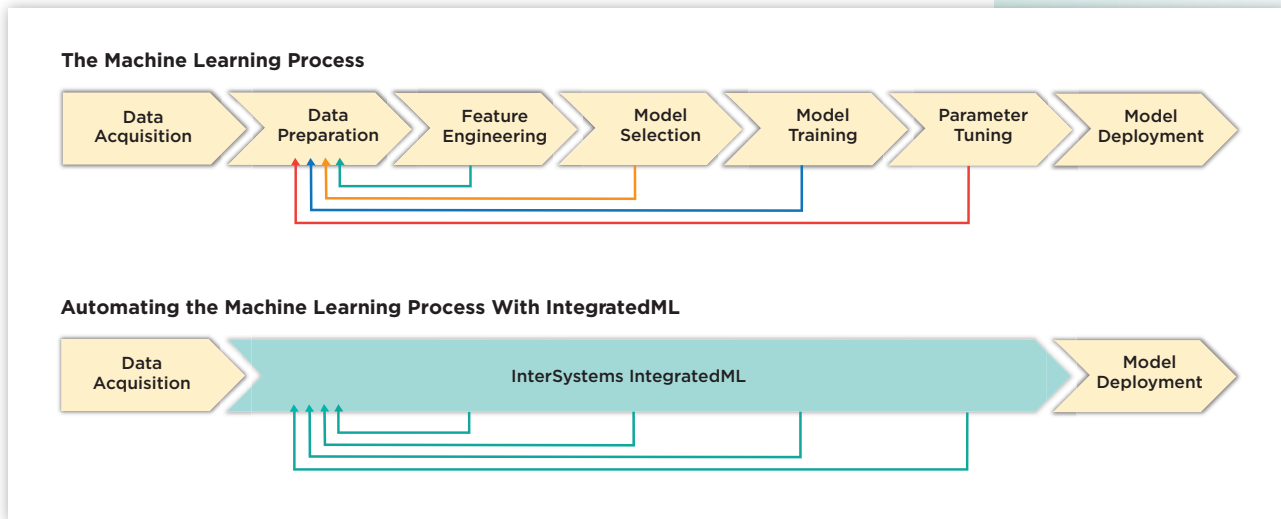
Supply Chain Orchestrator also supports third-party analytics tools, so data scientists can continue to use whatever tools work best for them, directly on the data in the platform.

Machine Learning for SQL Developers

InterSystems IntegratedML® brings the power of machine learning (ML) to SQL developers. With three simple SQL statements, users can create and train ML models on their data and then use those models to make predictions and deliver prescriptive options. This built-in AutoML capability dramatically increases the productivity of SQL developers, and enables data scientists to focus on only the most complex problems, without having to worry about data access or model deployment.

Generative AI

Supply Chain Orchestrator provides the capabilities to build and deliver a wide range of generative AI use cases. Built-in functionality converts chunks of data, as well as user queries, into vectors that are stored natively in the Supply Chain Orchestrator database. Built-in vector search capabilities return the vectors that most closely match the queries, which are then converted back into content. These data-augmented queries can then be submitted to any public or private



Supply Chain Orchestrator enables applications to seamlessly execute ML models directly on the data, in response to real-time events and transactions, without extracting or moving any models or data.

large language model (LLM), such as Llama or OpenAI, to power many different generative AI scenarios and workflows within applications.

There are many attractive generative AI use cases in supply chain, especially within the use cases of demand forecasting, logistics, and risk management. According to IDC's Future Enterprise Resiliency & Spending Survey (Wave 2, 2023), 40% of supply chain organizations are already investing in generative AI. Incorporating these capabilities into software applications and client projects can be an ideal way to differentiate from traditional applications and capture additional market share.

Business Intelligence (BI)

Supply Chain Orchestrator provides fully integrated support for BI modeling, analysis, and end-user dashboards. A Supply Chain Orchestrator BI model runs directly on transactional data and any other connected data. The integration capabilities within Supply Chain Orchestrator ensure that the database is always up-to-date, and eliminate the need for extract, transform, and load processing to bring in data from

external sources. Drag and drop capabilities enable non-technical users to examine the data at any level, performing complex queries with ease. Supply Chain Orchestrator dashboards provide a way to display live business metrics and give users options to explore and change what is displayed.

InterSystems BI uses selective cube build, which makes it much faster to add measures and dimensions to a build, without taking down the cube. By eliminating the need to rebuild the cube each time, hours to days of time can be saved depending on the size of the dataset.

Adaptive Analytics

InterSystems IRIS Adaptive Analytics is an add-on component that provides business users with self-service analytics capabilities to visualize, analyze, and interrogate data from multiple sources in a consistent format. Its semantic layer and drag-and-drop data modeling capabilities allow business users to interactively explore the data to make timely and accurate business decisions.

Columnar Storage

Supply Chain Orchestrator supports both row and columnar storage simultaneously on the same data. Columnar storage provides order-of-magnitude faster analytical queries compared to traditional row storage. Such queries typically aggregate data over very large tables and involve filters and groupings on one or more columns. By laying out the table data by column rather than by row (which works best for transactions on a handful of rows at a time), it dramatically reduces the amount of I/O required to run queries and exploits modern chipset-level optimizations called single instruction multiple data (SIMD) to further improve performance as part of vectorized query processing. That means that in addition to I/O reductions, traditional bottlenecks such as unpacking values and memory access no longer constrain performance, and operations are only bound by the number of CPU cores the system can access.

Reporting

Supply Chain Orchestrator enables the creation of pixel-perfect forms and reports in a variety of formats. It supports the scheduling, exporting, and embedding of reports in customer and partner applications.

Application Development Support

Supply chain applications and solutions depend on the access to real time data, integration with other supply chain systems, utilization of various analytics tools, and client-specific business logic to deliver value to the clients. InterSystems Supply Chain Orchestrator provides not only the

technology components needed in a smart data fabric architecture, but also a diversified development environment which further simplifies the development process and adapts to the tools and languages developers are already using.

Unified, Low-Code Development Environment

Supply Chain Orchestrator includes a unified graphical and code-based environment that streamlines development and maintenance of sophisticated data- and analytics-intensive supply chain applications that connect data and application silos.

Developers can use graphical and drag-and-drop editors to design integration flows and business processes to incorporate business rules and human workflow, and to define data and message transformations. Supply Chain Orchestrator seamlessly manages all connection states, connection adapters, message queues, and payloads between external applications and systems.

The platform provides a consistent representation of diverse programming models, programming interfaces, and data formats to simplify development of applications that access and share data across the supply chain continuum. Its visual trace capability enables developers to track the behavior of messages to and from the application, thus simplifying debugging and diagnosis, lowering development costs, and accelerating time to market.

Client-Side Development

Supply Chain Orchestrator supports client-side development using many popular development technologies, including Java, C#/.NET, Node.js, Python, and InterSystems ObjectScript, for the greatest flexibility in supporting a wide range of developers and existing applications. ObjectScript is a high-performance, flexible object programming language optimized for developing complex data- and analytics-intensive applications with InterSystems Supply Chain Orchestrator. ObjectScript classes can be exposed through built-in libraries to Python, Java, .NET, C++, JavaScript, and many other languages.

Server-Side Development

Server-side development provides the highest performance since the applications run close to the data. Supply Chain Orchestrator supports server-side application development with Python and ObjectScript. Developers can build applications in either or both programming languages, choosing whichever language is best for the application. Python and ObjectScript code execute within the Supply Chain Orchestrator kernel on the server for extremely high performance.



WRITE ONCE, DEPLOY
ANYWHERE: SUPPLY
CHAIN ORCHESTRATOR
RUNS IN THE CLOUD,
ON-PREM, HYBRID, OR
MULTI-CLOUD

Message Management

Messages are automatically saved and can be easily audited and visually tracked. This eliminates the need to develop additional application logic to monitor inbound/outbound traffic, queues, and message volumes; for persisting historical message content; for message resending, rerouting, alerting, and event logging; or even for coordinating multiple simultaneous threads of executing process logic.

Full Life-Cycle API Management

Supply Chain Orchestrator provides full life-cycle API management capabilities that support discovering, consuming, routing, throttling, securing, logging, monitoring, and monetizing APIs to support a modern microservices approach to development.

Extensibility

Integration capabilities are flexible and extensible. In addition to its built-in integration capabilities, Supply Chain Orchestrator supports the incorporation of existing integration components written in Java, .NET, and Python, enabling developers to build and integrate custom inbound and outbound adapters that can be called at runtime and can send messages to other components.

Flexible Deployment

Supply Chain Orchestrator can be deployed on major cloud platforms, in private clouds, on premises, in multi-cloud and hybrid environments, and as a fully managed service, enabling systems integrators and software developers to meet the varied needs of their customers with a single API. It also provides the flexibility to easily change infrastructure providers without rewriting applications.

Security

Supply Chain Orchestrator provides a strong, flexible, consistent, and high-performance security infrastructure while minimizing its burden on application performance. This security architecture is based on authentication, authorization, auditing, and database encryption.

- **Authentication:** InterSystems supports multiple authentication mechanisms, including two-factor authentication.
- **Authorization:** Using InterSystems system management portal, system administrators can easily assign and manage role- and application-based resource access privileges.
- **Auditing:** InterSystems products record all system and application events in an append-only log, which can be queried using SQL or a reporting tool.

Database encryption: Supply Chain Orchestrator supports data encryption at rest and in motion. To protect entire databases, it offers block-level encryption.

Application Partner Use Cases: UST

UST is an IT service company specializing in supply chain for large, global clients. Two of their products, UST Optum and UST Omni, are powered by InterSystems Supply Chain Orchestrator. In the two use cases below, UST leverages Supply Chain Orchestrator to deliver measureable benefits to its customers. the Supply Chain Orchestrator architecture.

UST Optum: Supply Chain Optimization as a Service

Powered by Supply Chain Orchestrator, UST OPTUM provides planners and supply chain managers with actionable, data-driven options to optimize a wide variety of supply chain scenarios. The API and standards-based integration capabilities provided with Supply Chain Orchestrator enable UST to easily connect OPTUM to back-end systems such as enterprise resource planning, human resources, and procurement systems, and offer composable optimization solutions that extract unconstrained plans from existing systems, optimize them using real-time signals, and create constrained plans that enable customers to best deal with real-time events and disruptions.

For example, UST OPTUM ensures that production lines have the right amount of safety stock, with optimized routes, prices, and other elements as supply and demand changes occur. It can leverage well-known, proven, and trusted public-domain optimization models and run them directly within Supply Chain Orchestrator, leveraging best-of-breed industry solvers, and removing customer objections to using black box algorithms.

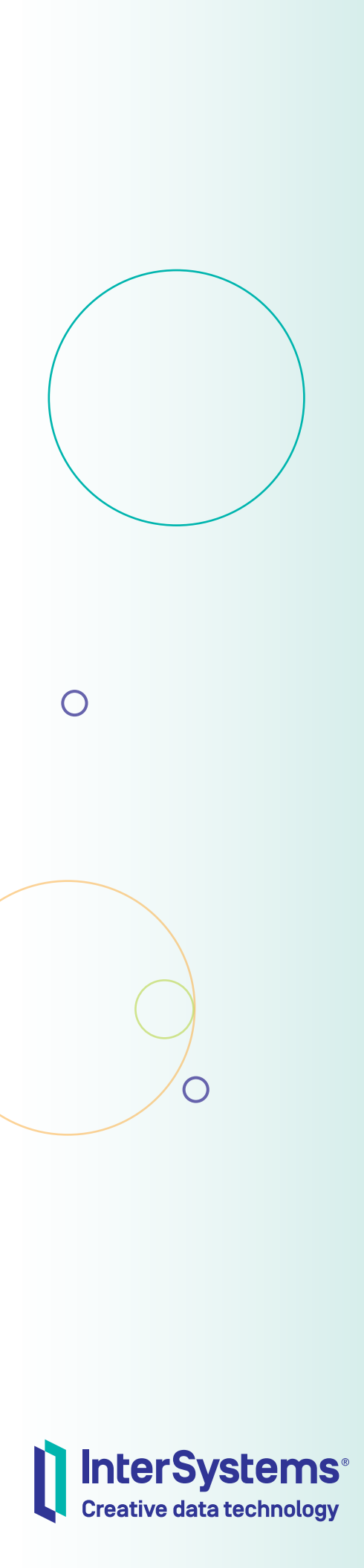
UST Omni: Supply Chain Visibility

UST Omni is an application that provides consolidated end-to-end visibility across customers' entire supply chains. Using InterSystems machine-learning technology, it senses and resolves problems before they arise, allowing key supply chain decision-makers to be proactive in supply chain orchestration.

“Our customers have been able to cut inventory by 10% and improve customer service by 15%. InterSystems technology really serves as the brain behind UST Omni. Nobody understands the power of predictive analytics better than InterSystems,” says Jonathan Colehower, global head of supply chain management practice at UST.

**“OUR CUSTOMERS
ARE GETTING 80% OF
WHAT TRADITIONAL
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OFFER AT 20% OF
THE COST, WITH
IMPLEMENTATION
COMPLETED IN JUST A
FEW WEEKS”**

*Balaraj Pudota, Senior Vice
President of Supply Chain
and SAP Practice, UST*



Why Supply Chain Orchestrator

Supply Chain Orchestrator is a powerful solution for technology partners and systems integrators.

As supply chain organizations are faced with increasing amounts of data, the challenge lies in breaking down data silos and achieving end-to-end visibility. With a focus on real-time data sharing and trusted insights, Supply Chain Orchestrator empowers organizations to optimize their supply chain operations, respond more quickly to disruptions, and enhance overall efficiency.

By seamlessly integrating disparate data sources, Supply Chain Orchestrator empowers decision-makers, driving better outcomes and delivering value to customers. Its embedded technologies act as a single capability, streamlining processes and reducing total cost of ownership. For those navigating the complexities of supply chain management, Supply Chain Orchestrator provides one reality of the supply chain, powered by unified data.

Learn more at InterSystems.com/SCpartner.

About InterSystems

Established in 1978, InterSystems is the leading provider of next generation solutions for enterprise digital transformations in the healthcare, finance, manufacturing, and supply chain sectors. Its cloud-first data platforms solve interoperability, speed, and scalability problems for large organizations around the globe. InterSystems is committed to excellence through its award-winning, 24/7 support for customers and partners in more than 80 countries. Privately held and headquartered in Cambridge, Massachusetts, InterSystems has 36 offices in 25 countries worldwide. For more information, please visit InterSystems.com/SupplyChain.