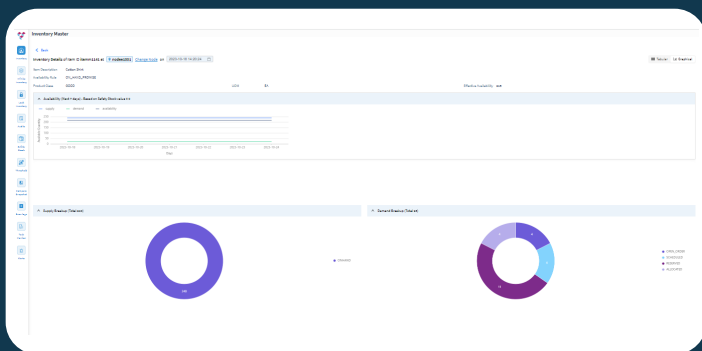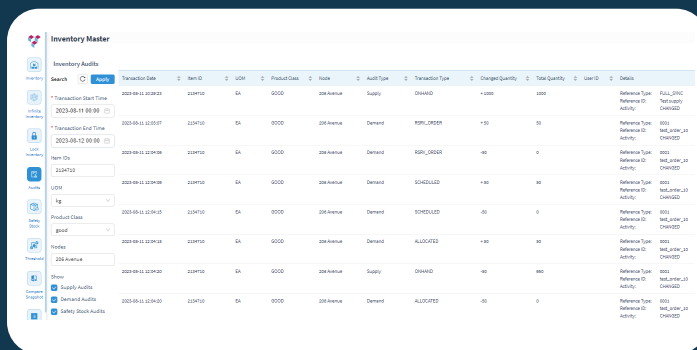# Inventory

Built for Scale

Our inventory solution was designed for true composability. There are 3 separate microservices that can run independently or as a composite. A key aspect of our solution is decoupling the ATP and demand/supply updates to address performance issues we see with other inventory solutions.

World Class Traceability

A dedicated microservice for snapshot audit, visibility, and reconciliation (SAVR) that works like a time machine for your inventory data. Logging down to the lowest level possible with incredible search capabilities. The SAVR service will dramatically reduce troubleshooting time spent in this domain.

Case Benefits/ Proof Points:

Reduce inventory by 2-3%

Higher accuracy and real time information improves your buying and markdown decisions ultimately leading to lower inventory levels. One of the largest discount retailers in the world is leveraging our inventory microservice.

Reduce IT enablement and support costs by up to 50%

20% reduction in infra costs through improved technologies and scaling. The consolidation of inventory into a single domain, code base and team will drive support costs and increase speed to market.

Store fulfillment productivity gains of up to 10%

As inventory accuracy improves the store fill rate goes up. Reducing No picks and corresponding research activities has a material impact on associate productivity.
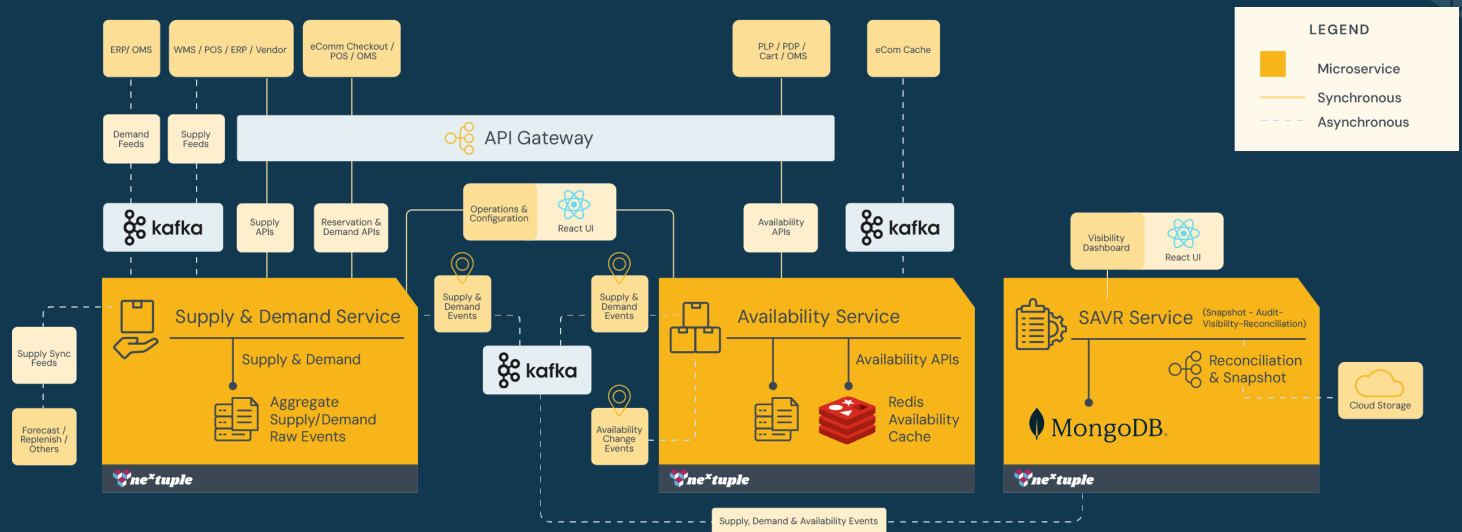
Drive inventory accuracy cancels down by 50%

A leading wholesale club is driving reduced inventory cancels because of improved accuracy achieved with the new system.

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Architecture

LEGEND
- ■ Microservice
- — Synchronous
- --- Asynchronous

Diagram labels: ERP/ OMS, WMS / POS / ERP / Vendor, eComm Checkout / POS / OMS, PLP / PDP / Cart / OMS, eCom Cache, API Gateway, Demand Feeds, Supply Feeds, kafka, Supply APIs, Reservation & Demand APIs, Operations & Configuration, React UI, Availability APIs, Supply & Demand Events, Supply & Demand Events, Visibility Dashboard, React UI, Supply Sync Feeds, Supply & Demand Service, Supply & Demand, Aggregate Supply/Demand Raw Events, Forecast / Replenish / Others, kafka, Availability Change Events, Availability Service, Availability APIs, Redis Availability Cache, SAVR Service (Snapshot – Audit- Visibility-Reconciliation), Reconciliation & Snapshot, MongoDB, Cloud Storage, Supply, Demand & Availability Events, ne×tuple

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Functional Features:

On-Hand Tracking

- Tracking On-hand inventory
- By Product Class, Inventory States
- Stores, DCs, FCs, DSVs, Market Place
- Infinite inventory
- Inventory Segmentation (Sales Channels, Customer Segments and Supply Types)

Safety Stocks

- SKU/Node level
- Multiple levels (SKU, Dept, Location type etc.)
- External service; Safety stock feed
- Safety stock override (ignore)
- Dynamic (AI/ML) Safety stocks

Reservations

- Node level, Node Group, Global
- Soft Reservations w/expiry
- Hard reservations
- By reservation ID

Available to Promise

- SKU/Node level
- Network Availability / Future availability
- ATP with Global Safety stocks
- Geo, SLA based availability

Integrations & Caching

- Node, Network level cache, Distributed Caching
- Inventory Full/Delta Syncs
- File processing, Batch feed
- Subscribe to OMS Demand updates
- Error handling & out of sequence handling
- Publish ATP Changes (thresholds based)

Performance Benchmarks

- Get ATP at 29ms for P95 with 16.1k TPS
- Create Reservation at 210ms P95 with 300 TPS
- Full Synch supply at 26ms P95 with 7.4k TPS

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