

Leveraging a Logistics Control Tower

to Achieve End- to-end Transportation
Insight, Actionability, and Autonomy

How the entire logistics network gains more visibility, control, and unlocks enormous value

Transportation Management Solutions (TMS) have been around for more than 25 years, but as globalization, outsourcing and specialization have increased, more complex opportunities to optimize logistics performance and reduce costs are emerging. Shippers are relying heavily on logistics solutions as well as their 3/4PL partners to increase competitiveness, attain a global view of supply network activity, and pursue complex opportunities to maximize logistics performance and efficiencies.

DIGITAL SUPPLY & LOGISTICS NETWORK PLATFORM

One Network's Logistics Solution Suite has industry-proven success across manufacturing, retail, CPG, food service, automotive, healthcare, pharmaceutical, high tech, aerospace, logistics, and government sectors while empowering logistics partners to better serve their customers. Shippers and 3PL's are using the One Network Logistics Solution, to rapidly achieve accurate real-time information, optimization, and collaboration across a diverse set of trading partners and their systems. One Network optimizes, automates and tracks execution of the entire inbound and outbound logistics lifecycle, from order to delivery, for a global, multi-modal network with thousands of transportation providers. To enhance the customer-driven business network, the One Network platform brings unprecedented resiliency, efficiencies, and shared business benefits for the entire Logistics network of shippers, 3PL's, carriers, and service providers.

Poor supply chain visibility has always posed serious challenges for logistics service providers and shippers:

- It is expensive. 3/4PLs often struggle with enabling advanced visibility for their Shipper customers, which can often result in highly manual analytics and reporting processes to meet service levels and the customer's freight visibility expectations.
- Shipment tracking data is distributed across many systems and parties within the Shipper organization and across 3PL, Carrier and customer trading partners. Logistics Service Providers and Shippers do not have the time or resources to establish and maintain integration capabilities or data security policies across such a diverse set of systems and parties.
- Limited-to-no ties between orders and shipments exacerbates the ability to prioritize shipments based on the contents of a shipment and order. In some scenarios, the logistics service provider will expedite orders that are not necessarily time-critical to a customer's operations, raising premium freight costs. In other scenarios, priority shipments are not managed early enough, resulting in a late delivery and potential loss in sales or operational delays for the customer.
- Freight markets are volatile and 3PLs and Shippers need a flexible way to secure reliable low-cost capacity with fluctuating Carrier rates while establishing themselves as

KEY OPERATIONAL BENEFITS:

- A comprehensive supply chain and logistics model that represents all parties, the network and processes from planning through execution delivers real-time management of all supply chain activities
- The ability to identify in real-time issues impacting performance and resolve quickly
- Advanced analytics, reporting & insight leveraging a single version of the truth (SVOT) drive improved carrier, supplier, and personnel performance
- Ability to mitigate knock-on effects
- Detailed tracking of transactional and resolution history for continuous improvement
- Detailed tracking and tracing of products ensures promises and commitments are met
- Support carrier loyalty in a time of driver shortages and carrier rate volatility
- 3PLs can unlock new sources of revenue across your customer base by offering new services and levels of visibility

KEY FINANCIAL BENEFITS:

- 30-50% reduction in premium freight costs across auto-industrial segments
- 10-40% reduction in overall annual transportation costs across all industry segments
- 2-10% increase in equipment utilization across all industry segments
- 10-30% inventory reduction across healthcare, CPG, retail and auto-industrial segments
- 12-50% reduction in manual planning, scheduling and execution management overhead
- 1-8% improvement in inbound delivery performance and outbound customer service levels

a shipper-of-choice. The combination of market volatility and non-contracted Carrier relationships means that Carriers are less willing to support complex integration efforts with multiple data connections in order to provide real-time visibility.

These challenges have made real-time logistics visibility nearly impossible for 3PLs and Shippers. As a workaround, companies are making huge investments to set up Logistics

“One Network has successfully allowed Albertsons’ to streamline and centralize our transportation and appointment scheduling functions. We have benefited by reducing labor costs, improving our supply chain predictability and visibility, and reducing overall transportation costs.”

– VP of Transportation, Albertsons

Control Tower services that ultimately require trained personnel to provide the right level of visibility and performance.

THE NEED FOR A NEW PARADIGM

Legacy TMS platforms, as we know, often lack the foundation necessary to achieve the next level of logistics visibility and performance. Shippers often rely on a 3PL partner who in turn, may have an internally developed TMS solution or a TMS software partner they leverage for the customer’s specific requirements. However, traditional systems, with their data silos, lead to incomplete and stale data, poor visibility, poor decisions, and weak optimization -- supported by a great deal of manual labor.

What is needed is a network-based solution that can leverage real-time data shared across functional areas inside and outside of the 3PL and Shipper organizations. A multi-party logistics control tower meets these requirements, combining and coordinating all parties and systems around a real-time, single version of the truth (SVOT), eliminating blind spots, and providing a solid foundation for optimization, decision-making, collaboration and automation.

This enables parties (internal and external) to work together around shared objectives and with a shared, common view, to gain better insight into the factors impacting cost and service, and providing a platform for collaboration and execution.

KEY BENEFITS OF A MULTI-PARTY LOGISTICS NETWORK AND CONTROL TOWER

The results 3PLs and their Shippers can achieve with a multi-party logistics control tower are unmatched. Companies are using the One Network platform to achieve:

- A comprehensive supply chain and logistics model that represents the parties, network and processes from planning through execution, and can be adapted to fit specific customer needs
- World-class planning and transaction execution capabilities that drive the optimization and management of end-to-end logistics and broader supply chain activities
- Integrated planning, transaction execution & real-time tracking of internal and external supply chain activities associated with relevant parties
- The ability to identify issues in near real-time as exceptions impacting performance, while communicating and managing exceptions using processing engines
- Advanced analytics & insight into SVOT and performance issues through reporting and analytics that drive improved carrier, supplier and personnel performance
- Ability to react quickly to address performance issues and mitigate knock-on effect
- Detailed tracking of what is being done to manage and resolve exceptions
- Continuous improvement to predict and avoid issues
- Support for carrier loyalty in a time of driver shortages and carrier rate volatility
- 3PLs can unlock new sources of revenue across your customer base by offering new services and levels of visibility

Other benefits include:

- **Improved Service Levels:** Transportation providers are often challenged to justify late pickups or deliveries to their end clients, while Shippers struggle with understanding the root-cause of poor performance. A multi-party network solution aggregates real-time order-shipment visibility with powerful analytic tools to monitor and track carrier and supplier performance. This enables improved on-time pickup/delivery performance without an increase in labor requirements.



FIGURE 1: Logistics Control Tower value ladder

VALUE LADDER

LEVEL 4: AUTONOMOUS NETWORK CONTROL

- Intelligent Agents and planning engines optimize and automate processes.

LEVEL 3: COLLABORATIVE MULTI-PARTY ACTIONABILITY

- Collaborative workbenches and suggested resolutions support decision-making.

LEVEL 2: REPORTING & ANALYTICS

- Operational Dashboards
- Command & Control Monitoring
- Operational Dataviews
- Data Warehouse
- Enterprise Data Slice

LEVEL 1: END-TO-END LOGISTICS VISIBILITY

- Status & Events Tracking
- Milestone Processes
- Exception-Based Monitoring

- **Operational Excellence:** Operational excellence has a significant impact on financial performance and customer satisfaction. Operational excellence in logistics can be defined as the efficient and cost-effective flow of goods and information—across multiple parties (suppliers, shippers, carriers and 3PL providers). Logistics visibility should provide order status at pickup and delivery sites, and enroute visibility, all the way through to financial settlement.

REQUIREMENTS OF A MULTI-PARTY CONTROL TOWER PLATFORM

In order to get the maximum value from a logistics control tower, it should be built on solid underpinnings that support end-to-end visibility, monitoring, execution and collaboration. The control tower should rest on a platform that meets the following requirements:

- **Connects all parties seamlessly** with a robust permissions framework to protect all parties' confidential data.
- **Establish the order-to-shipment relationship** across the value-chain.
- **Built on a multi-party master data model** that supports a single version of the truth on a multiparty network.
- **Provide robust integration services** across multiple companies, systems, and processes.
- **Exploit the latest technologies** such as artificial intelligence to optimize and secure the supply chain.
- **Include advanced analytics capabilities to detect and predict issues** where focus is on effectively managing the exceptions.

- **Serve as a system of engagement and an operational system of record** with a rich and accurate representation of internal and external supply chain activities.

A LOGISTICS CONTROL TOWER ON A MULTI-PARTY PLATFORM

Leveraging a solid platform architecture, a Logistics Control Tower will successfully incorporate all the processes and activities, across a network of parties and systems, throughout the lifecycle of a shipment. One Network's solution not only offers robust visibility across international and domestic transportation processes, but also provides three additional levels of value, so your organization can gradually unlock increasing benefits.

The Logistics Control Tower solution allows customers to drive superior service and cost for **domestic, intra-company, and international moves and supports all transport modes:** truckload, less than truckload (LTL), intermodal (e.g. ship, truck, and rail), air, parcel, and ocean. With integrated warehouse management, dock-door scheduling, yard management, chain-of-custody, and order management capabilities, it delivers the highest service level and lowest cost of goods in a single solution.

The Logistics Control Tower solution also includes One Network's Global Logistics Gateway (GLG). The GLG **connects shippers to more than 17,000 carriers and logistics service providers.** GLG is where carriers and logistics service providers (LSP) **connect one time to the network** and

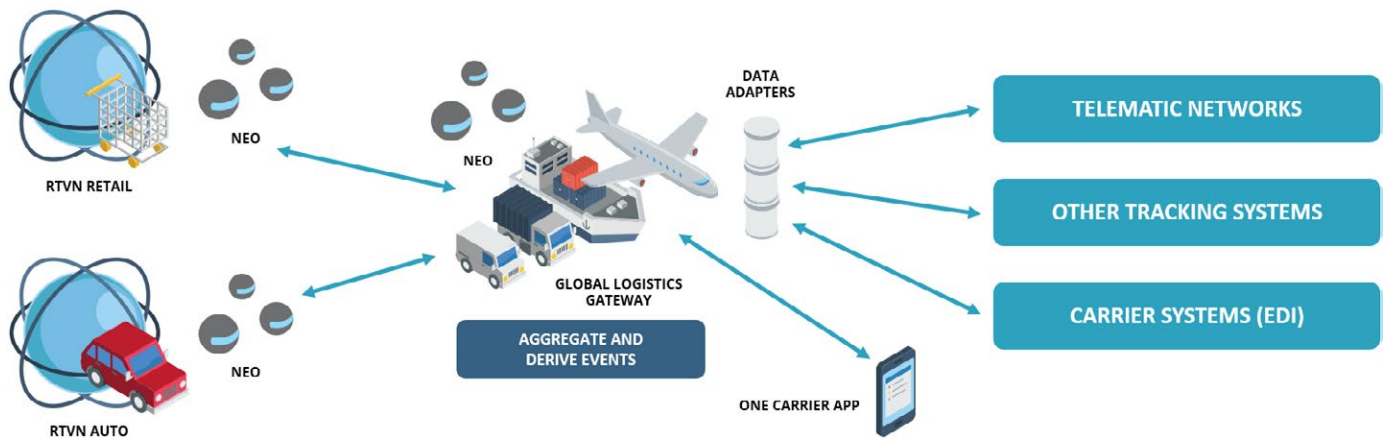


FIGURE 2: ONE's Global Logistics Gateway (GLG) harmonizes and enhances Carrier-3PL Collaboration

collaborate with multiple shippers already on the Network. It leverages advanced technology to integrate across all data sources to process, transform, and monitor Carrier data to support real-time location and event-based updates within the platform.

3PLs and Shippers can use the GLG as a one-stop-shop to explore, connect and transact with domestic and international carriers, freight forwarders, customs brokers, last mile operators, and other partners. With the Global Logistics Gateway, companies can:

- Explore a network of 17,000 international, domestic, ocean and air carriers and establish new partnerships
- Review carrier details such as coverage and services
- Minimize expedite freight cost by utilizing excess freight capacity on the Network
- Measure Carrier performance with score carding and KPI analytics
- Gain insight into other valuable Carrier information such as: operating authority, inspections and accidents, and safety and reviews.
- Standardize communication across your own network of Carriers:
 - Use GLG to integrate with your Carriers' transportation management systems
 - Enable GLG's web-based carrier portal to collaborate with small-medium sized carriers

The solution provides four levels of maturity, so that your organization can gradually unlock increasing benefits.

LEVEL 1: END-TO-END AND REAL-TIME LOGISTICS VISIBILITY

To successfully represent the complete logistics lifecycle across a network of supply chain participants (warehouses, plants, DC's, carriers, LSP, customers, contract manufacturers, and suppliers), the Logistics Control Tower solution serves as a system of engagement, integrating and harmonizing data across internal and external players. It also operates with the capability to embrace many systems and to assume control of any point in the shipment execution lifecycle as needed, possibly even serving to replace legacy or redundant systems. By integrating transaction information across all parties, the Control Tower solution **enables real time visibility of the entire logistics lifecycle** from purchase order to shipment order, shipment execution, track and trace, and to financial settlement.

Supporting Global Logistics

One Network's Logistics Control Tower also manages international milestones across a network of participants with the following capabilities:

- Multi-modal execution with distinct 3PL/LSP assignments per leg, with LLP control
- Integrated process flows between cross border and in-country operations
- Milestone settings and management based on expected arrival and departure times
- Tracking of Customs Submitted, Customs Hold and Clearance events
- Chain-of-Custody with serialization
- Global trade compliance

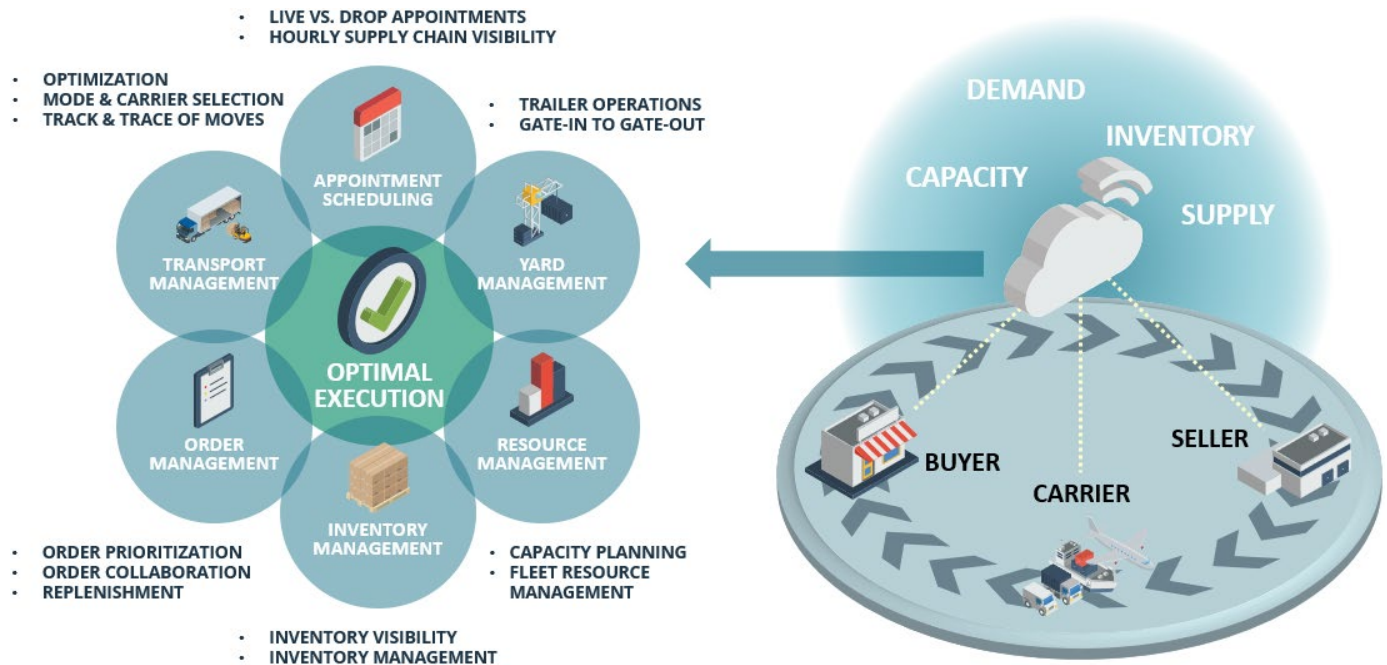


FIGURE 3: One Network enables visibility, planning and execution across the end-to-end logistics lifecycle

- Supply and finish goods condition tracking (e.g. temperature, expiration)
- Container booking and tracking
- Telematics Integration

LEVEL 2: PERFORMANCE MEASUREMENT AND PREDICTIVE ANALYTICS AND ALERTS

End-to-end visibility is further supported by robust permissions and dashboarding configuration that allow all participants to view and analyze only the data relevant to their organization and user role in real-time.

- Operational dashboards are configurable at the user level and include all the tasks and alerts relevant to each specific role. Using these operational dashboards, users can drill into each task and alert to quickly resolve any issues.
- Command and control monitoring provides a management overview of the health of the network configurable to their unique perspective.
- Operational data views provide real-time visibility of transactions where users can build customized reports, leverage reporting templates and create data cubes or pivot tables.
- Enterprise slicing allows users to easily import data into other operational or reporting tools.

Advanced Reporting

One Network also provides a suite of pre-built reporting templates to support standard performance analysis on customers, lanes, carriers and vendors (on-time and in-full) as well as any exceptions and root causes. The network-supported reporting mechanisms provide unmatched opportunities to improve cost and service within the organization and across the network.

Intelligent Supply Chain Management

Intelligent NEO agents are part of One Networks platform and run on top of the execution data, combining other streaming data sources that compare the plan in real-time and predict ETA and other events. Exceptions are managed through a case management capability that drives root-cause analytics and derives intelligent performance and predicted service insights.

LEVEL 3: RECOMMENDED SOLUTIONS, CASE MANAGEMENT, AND PRESCRIPTIVE WORKFLOWS

The system is able to continuously compare planned activities to actuals, determine the likely impact, alert relevant parties of deviations, and provide recommended solutions so that exceptions can be managed quickly and effectively. The network-enabled Control Tower goes beyond what traditional TMS can accomplish by allowing network participants to

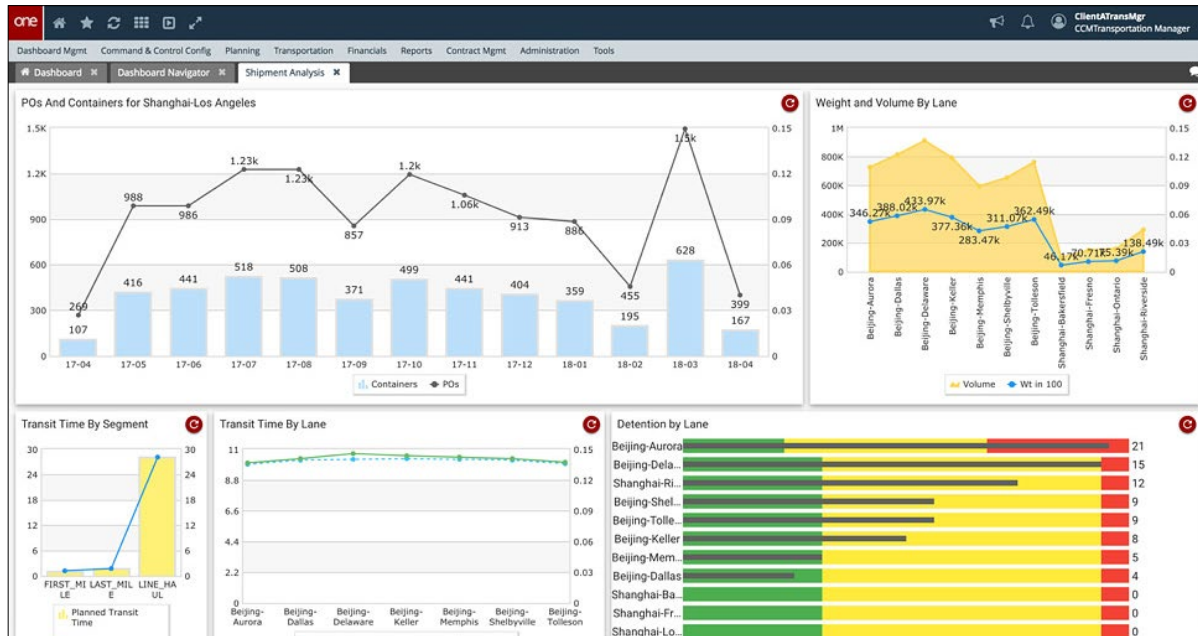


FIGURE 4: Performance analytics provide valuable information about network density, processing times, cost metrics, exceptions, case processing and predictive corrective actions

collaborate on time-sensitive issues in real-time. With a full suite of case management capabilities, shippers, 3/4PLs, and service providers can manage issues that occur during the execution process.

One Network's secure Social Network Services provide unstructured collaboration tools that include

- Chat with point-to-point live chat
- Chat Rooms for group discussions
- Blipper, a twitter-like micro-blogging platform

Blipper enables you to follow people, companies and products on the network, and broadcast to your followers. In addition, the case management, root cause analysis, and what-if capabilities enable shippers and logistics service providers to manage recurring issues that occur during the execution process.

Additional features include:

- An issue state machine to monitor open, in progress, cancelled, resolved and closed issues
- Root cause analytics with reason and resolution codes
- User collaboration allows users to assign ownership and chat in real-time, with chat history recorded within transactions for auditing purposes
- Audit and reporting summarize issue history within transactional context

Prescriptive workflows go even further to seamlessly incorporate warehouse, yard and dock scheduling operations into the end-to-end logistics workflow. Processes that are frequently managed across separate systems or via manual communication between Shipper, 3PL and Carrier, can now be streamlined across all parties where specific roles, activities and performance metrics can be established for optimized operations.

An Integration Ready Platform

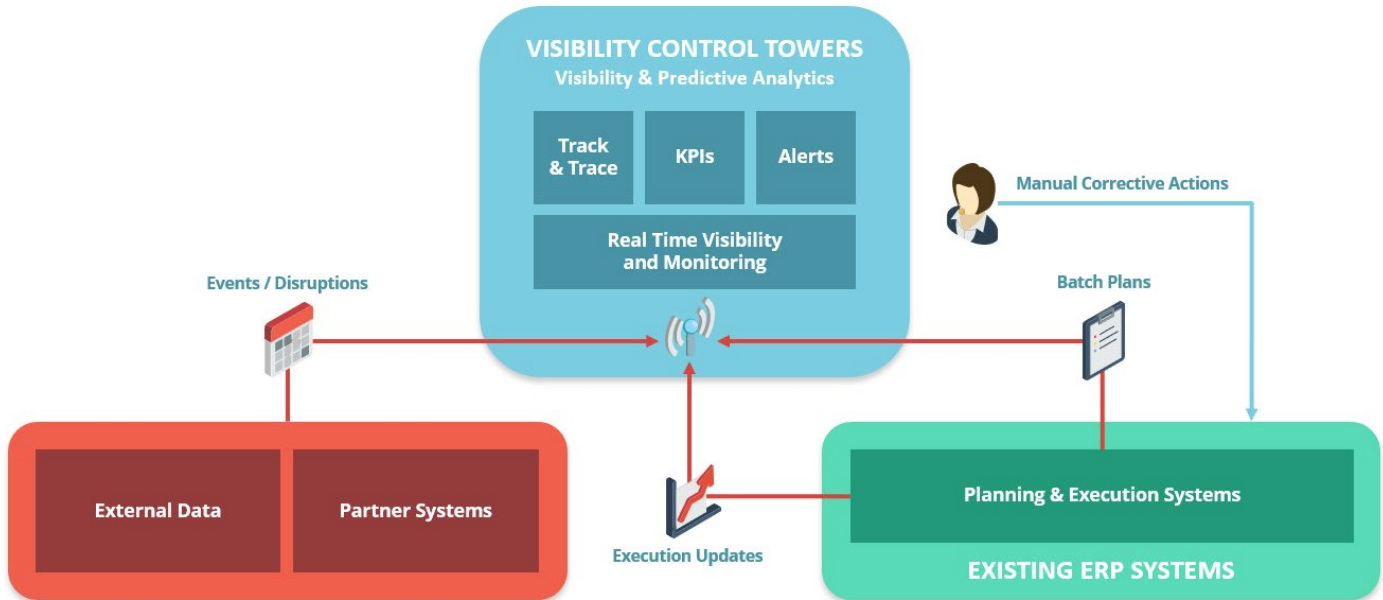
The Logistics Control Tower can also integrate with existing WMS, OMS and YMS systems to represent relevant multi-party collaborative milestones in the Network. Integrated order information also provides an unprecedented level of visibility for buyers and transportation managers seeking to prioritize shipments or effectively manage existing inventory.

Chain-of-Custody Tracking

Chain-of-Custody Tracking enables enhanced tracking and tracing of products and ownership, aligned with industry standards, through the entire supply chain for full visibility. It allows for immediate and efficient management of disputes and enables the handling of targeted recalls in a faster, simpler, and more precise manner. It also enables the rapid resupply of recall-affected locations with appropriate product quantities to preserve revenue opportunities.

What is Missing in Basic Control Towers?

Reporting and Alerting is only the first step, but not complete



How ONE Network Control Tower Bridges the Gap?

Monitoring and autonomous optimization of the ecosystem

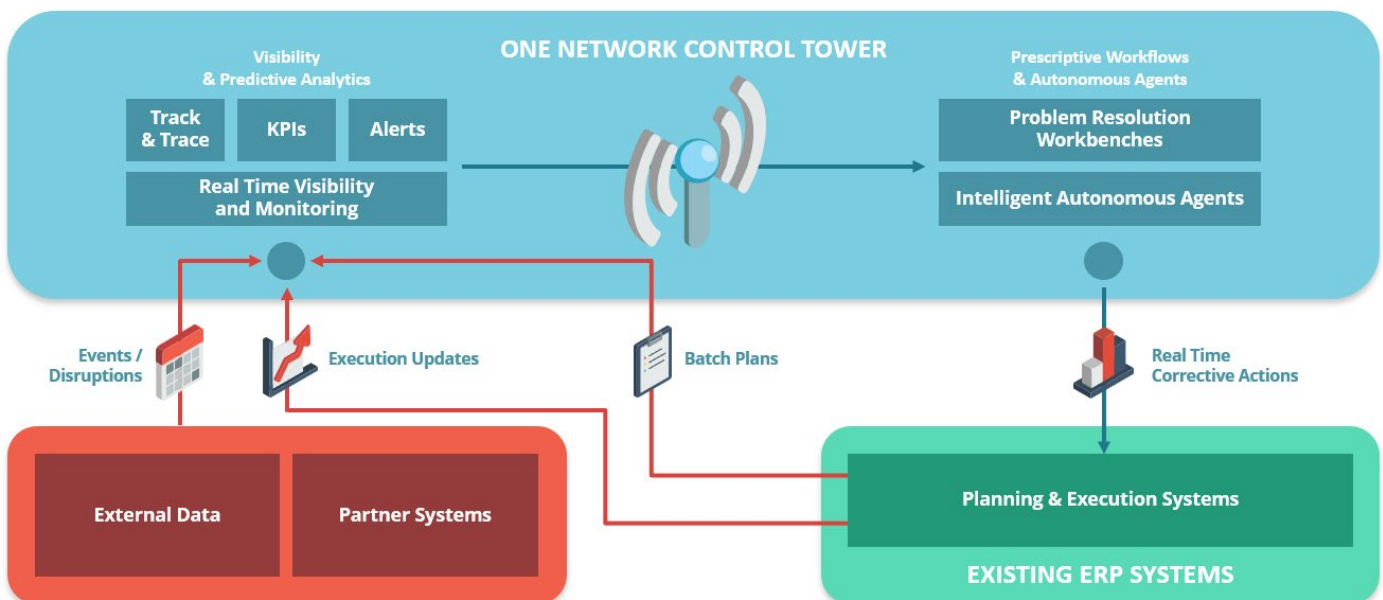


FIGURE 5: Bridging the gap

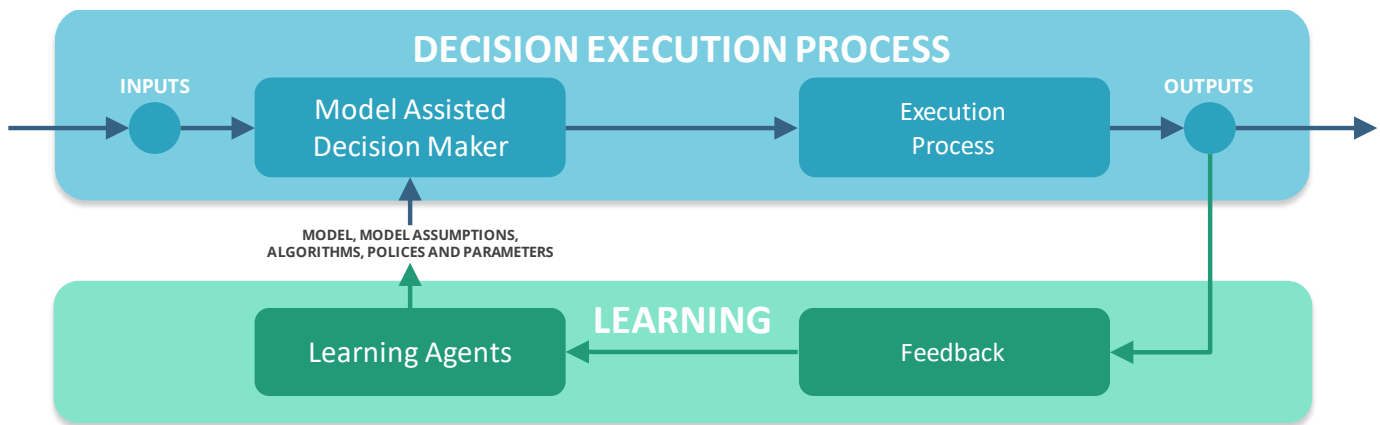


FIGURE 6: How ONE leverages automation to continuously improve logistics processes

It will also set the stage for intelligent rules-based or autonomous logistics decision-making via the Network.

LEVEL 4: AUTONOMOUS NETWORK CONTROL

At this Level of Control Tower maturity, many suggested resolutions and user-managed actions can be gradually converted to **automated network actions**. Logistics Control Tower goes beyond detecting trends and automating issue resolution and can **propose new policies and models to improve operational efficiencies**.

Through increased automation, the entire multi-party business network will be able to reduce manual tracking and support requirements to ultimately offer a Single Version of the Truth and greater levels of service and value to the end customer.

The autonomous NEO agents include advanced planning and optimization algorithms that drive tactical decision making such as transport capacity forecasting, transport optimization for dedicated and common carrier equipment, as well as the advanced scheduling of DC appointments.

COMPLETE VISIBILITY AND CONTROL IS WITHIN REACH

As shippers and 3PLs continue to seek new ways to improve performance and reduce costs, One Network is now offering performance and value-generating capabilities well beyond what a traditional TMS platform can provide. Global businesses are now recognizing that multi-party network

solutions offer the best path forward to drive out supply chain costs, boost service levels, and provide seamless collaboration across an entire network of trading partners and external systems, facilities, and devices.

One Network's Multi-Party Logistics Control Tower offers the foundational capabilities to manage this complexity, ensure compliance, respond to problems, optimize, and automate complex cross-company workflows like never before.

THE PATH FORWARD WITH A DUAL PLATFORM STRATEGY

One Network's platform is a unique "Tunable System of Control" for business planning and execution across multiple parties and systems, leveraging new network technology while empowering legacy systems, to deliver optimal results fast. This enables your team to assign system-of-record responsibility to each state and action in the Network process — either to the ONE business network platform or a legacy application. It's your choice, and the ONE platform enables you to manage end-to-end processes, even as designated steps are still processed by your legacy systems.

We call this a "Dual Platform Strategy", where your business network platform actually becomes the primary platform for planning and operations, and the old ERP monoliths become bolt-ons to the Network for financial processing.

With One Network, the financially related inputs and outputs of trading transactions easily flow from the cloud to the financial modules of your legacy ERP systems. Whether you



“Advanced optimization capabilities, coupled with a powerful network-based architecture played a fundamental role in the successful deployment of this mission-critical technology platform for our programs for customers.”

– Customer SVP of Managed Transportation, Top Global 3PL

are working to eliminate technology silos or collaborate more closely with logistics service providers, the Dual Platform approach ensures that your daily, weekly, and monthly effort is focused on your organization’s most important execution objectives, and is done in the most efficient way. Thus, the Dual Platform approach solves 4 major problems:

- How to eliminate the tremendous costs of maintaining and migrating the current legacy system landscape
- How to achieve advanced business network performance across multiple enterprise-centric ERP silos
- How to gain the flexibility required to take advantage of new market opportunities
- How to gain competitive advantage in today’s marketplace

This tunable environment also runs across multiple blockchains, so if certain trading partners are using Ethereum or Hyperledger, the ONE Blockchain provides cross-chain connectivity as it runs on top of both as a multi-party ledger. In summary, a dual platform strategy enables you to leverage legacy systems without wasting prior investments – while dramatically advancing your capabilities and decision-making with a business network platform.



ABOUT ONE NETWORK

One Network is the intelligent business platform for autonomous supply chain management. Powered by NEO, One Network's machine learning and intelligent agent technology, this multi-party digital platform delivers rapid results at a fraction of the cost of legacy solutions. The platform includes modular, adaptable industry solutions for multi-party business that help companies lower costs, improve service levels and run more efficiently, with less waste. This SaaS and aPaaS platform enables leading global organizations to achieve dramatic supply chain network benefits and efficiencies across their ecosystem of business partners. One Network offers developer tools that allow organizations to design, build and run multi-party applications. Leading global organizations have joined One Network, helping to transform industries like Retail, Food Service, Consumer Goods, Automotive, Healthcare, Public Sector, Defense and Logistics. To date, more than 75,000 companies have joined One Network's Real Time Value Network™ (RTVN™). Headquartered in Dallas, One Network also has offices in Japan, Europe, and India. For more information, please visit www.onenetwork.com.



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