The age of complete enterprise-wide transport management and optimization has arrived.

PLATO

Enterprise Transportation Management

PREMIER DEVELOPERS OF VEHICLE LOGISTICS SOFTWARE
The age of complete enterprise-wide transport management and optimization has arrived. PLATO is OPSI Systems’ enterprise offering, which is a complete system for managing the record keeping, invoicing, and purchasing for a transport environment. It includes full internet-based access for entering loads, assigning hauliers, dispatching and receiving loads and track and trace for all parties. PLATO uses PLATO-Scheduler to handle enterprise wide planning, with many features aimed at top-end distribution including cross docks, loading bay scheduling, must-go/can-go orders, GPS integration, handheld computer integration and multiple costing strategies.

PLATO forms an integral part of OPSI’s suite of new generation logistics software. It is a fully integrated system, managing the full transportation process from order inception to financial administration.

Very often, a logistics organization allocates a large portion of its resources to various systems controlling individual aspects of the transportation business. It is very seldom that a central management system implemented is able to make the transportation process efficient and more cost effective. PLATO is a complete transport management system that complements existing order-management, forecasting, warehouse-management and financial-administration systems. It acts as an intelligent control center, by:

- collating orders from a variety of integrated order-processing, replenishment and forecasting systems,
- integrating with OPSI’s feature-rich PLATO-Scheduler to build optimal loads using sophisticated algorithms that honor operational and physical constraints,
- optimizing service performance by efficiently procuring transportation using haulier rating information and on-line load publication,
- maintaining up-to-date load statuses by retrieving vehicle allocations as well as despatch, delivery and proof-of-delivery information directly from the warehouse,
- enhancing the visibility of shipments providing vehicle GPS tracking information via the integration of a variety of third-party service providers,
- managing debtor and creditor contracts and tariff structures to enable the system to allocate accurate transportation costs and revenue information, and
- providing intuitive user interfaces to easily manage the volumes of data naturally associated with any successful logistics organization.

The PLATO system is built around six core components.
1. Order Management
2. Planning
3. Track-and-Trace
4. Financial Administration
5. Data Management & Supporting Processes
6. Web Server
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**Enterprise Transport System Overview**

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5. **Data Management**
6. **Web Server**

The service request management interface
Order Management

PLATO provides a repository to collate high volumes of orders, called **service requests**. Service requests describe the logical movement of articles of trade between two points, and may include additional information such as:

- required cross-dock locations,
- particular delivery window information,
- client tariff details,
- value of the goods for insurance purposes,
- priority, source, and other order reference information.

Service requests can be simple fixed quantity orders, or more advanced **must-go/can-go** requests. **Reducing orders** (must-go:can-go orders defined over a time period) are also supported.

The process of service request collation is performed from a variety of integrated external sources which may include ERP order management, replenishment or forecasting systems. With the appropriate permissions, users are also able to manually enter ad-hoc service requests directly into PLATO.

Planning

In order to provide cutting edge scheduling functionality, PLATO is tightly integrated to PLATO-Scheduler, OPSI’s sophisticated optimizer and scheduler. Using advanced algorithms to honor physical and operational constraints, the scheduler builds optimal, cost-effective loads, called **trips**. Whereas service requests provide corresponding logical information, trips provide a realistic physical description of the movement of product by making use of:

- extensive road network data,
- stop-time learning,
- loading bay information,
- drop shunting, and
- cross-docking

PLATO’s planning functionality also includes efficient procurement of transportation. Both internal fleets and those of contracted hauliers are rated according to tariff-history and performance on specific routes. PLATO decides automatically or manually on the best available haulier and publishes the trip information. The haulier is notified of, and responds to a published trip via:

- a web interface,
- email,
- SMS (publication only), or
- phone or fax contact by an operator

**PLATO-Track & Trace**

PLATO manages transportation execution, called the **'track-and-trace'** process by:

- allowing the re-allocation of trips to vehicles in real-time, either via an application or web interface,
- providing warehouses with a web interface to supply information upon vehicle despatch,
- monitoring the progress of the trip by updating vehicle locations either via manual web-based updates or automatically, using GPS satellite tracking data collected from a variety of integrated third-party service providers,
- displaying daily schedules and actual tracked routes in an intuitive vector map interface,
- collecting delivery-related information via a warehouse web interface, and
- providing the ability to capture proof-of-delivery information necessary for accurate financial administration.

Since PLATO has access to both the planned and actual descriptions of each trip, comparisons can be made to assist in continually improving the planning process.
Financial Administration

Improved planning, management and execution can have a marked effect on the cost of goods sold and bottom-line financial performance.

PLATO is designed to complement existing financial systems by acting as a source of invoice and purchase order information. The system uses electronic vouchers to accumulate both accounts payable and accounts-receivable information including:
- transportation costs,
- overhead costs,
- customer charges

Transportation costs and invoice amounts are both described by advanced tariff structures, often including multiple charges defined by fixed or variable amounts.

The financial administration process is complemented by a set of standard financial reports with the option to include custom-written reports, if required.

Data Management and Supporting Processes

The successful implementation of any sophisticated system depends partly on effective data management. PLATO provides intuitive user interfaces that includes management of the following:
- client and haulier information,
- contract and tariff information, for both accounts-payable and accounts-receivable,
- details of warehouse locations and geographic areas, including road network maintenance and automatic geocoding of new sites,
- logistics-related information, such as loading bays and stop times.

A number of supporting processes enhance the security and transparency of the PLATO system, including:
- comprehensive reporting,
- detailed auditing and logging of system activities,
- multi-user functionality using role-based security and user profiles, and
- managing archival data.

PLATO-Web

PLATO-Web provides:
- a haulier interface that shows all loads offered to hauliers, including the allocated tariff, pick up and delivery windows.
- a depot interface showing arrival and dispatch times for all loads coming to or leaving the depot.
- a customer interface showing the status and geographic position (derived from GPS tracking) of all loads for the specific customer.

Integration

Integration to external systems may be accomplished by interfacing to middleware systems or directly via PLATO’s robust XML-based interface standard, allowing any system interfaces to be tailored to an organization’s requirements.

Summary

PLATO, used in conjunction with PLATO-Scheduler, is ideally suited to both large businesses, requiring efficient management of a variety of logistics systems, and smaller organizations, whose growing business needs, demand a sophisticated method of managing the transportation process.
THE ANSWER TO:

1. Keeping track of all your resources
2. Keeping track of the real world parameters
3. Keeping track of the costs
4. Adding flexibility to your task definitions
5. Enterprise level transport planning
6. Taking advantage of improved optimization flexibility
7. Ensuring that your data is correct/valid.

A new era in logistics optimizing

Logistics optimizing can be defined as optimally using your resources to execute requested jobs within a set of real-world parameters and constraints. PLATO-Scheduler takes this concept to a new level:

♦ Plato's scheduling has the flexibility and power to create real-world schedules; breaking the often arbitrary distinction between primary and secondary transport.

♦ Plato's Track and Trace enables you to take control of your logistics to know precisely what is happening and what has happened.
Scheduling

The following 7 points forms the basic recipe required to create and maintain realistic schedules in Plato:

- Keep track of all resources
- Keep track of the real-world parameters and constraints
- Keep track of costs
- Add flexibility to your jobs/tasks definitions
- Enterprise-level transport planning
- Take advantage of improved optimization flexibility
- Ensure that your data is correct and valid
1. KEEP TRACK OF ALL RESOURCES (Vehicles, Horses, Trailers, Loading bays, External fleets).

Availability of resources is one of the important real-world constraints the optimizer needs to consider. It is pointless to optimize a plan using a vehicle/loading bay that is currently being used by another schedule. All the benefits of optimizing are lost if the plan does not take into account the need to wait for busy resources. PLATO-Scheduler carefully keeps track of all resources: what they are doing, when, where and for how long.

2. KEEP TRACK OF THE REAL WORLD PARAMETERS AND CONSTRAINTS

Some of these real world parameters are related to customer service, and some to physical realities or working hours, etc. All of these must be realistically modeled to achieve realistic schedules.

Real world constraints

- Vehicle/Trailer \(\Rightarrow\) Product. Restrict or allow certain vehicles from loading certain products.
- Vehicle \(\Rightarrow\) Trailer. Restrict or allow certain vehicles from pulling certain trailers.
- Site \(\Rightarrow\) Vehicle. Restrict or allow certain vehicles from going to certain sites.
- Product \(\Rightarrow\) Product. Restrict certain products from being loaded on the same vehicle or section of a vehicle.
- Loading bays \(\Rightarrow\) Vehicle. Restrict or allow certain vehicles from using a loading bay.
- Loading bays \(\Rightarrow\) Product. Restrict or allow certain products from being loaded or offloaded on a loading bay.
- Loading Bay can be restricted to either only offload or only load.
Real world windows

- Job window (The earliest a job can start, and the latest the job should be completed by.)
- Job defined loading window
- Job defined offloading window
- Site class windows (Business hours of class)
- Site windows (Business hours of site)
- Loading bay offloading windows (Business hours for offloading at bay)
- Loading bay loading windows (Business hours for loading at bay)

3. KEEP TRACK OF THE COSTS

PLATO-Scheduler accurately keeps track of the distribution costs. But some costs are very useful for scheduling, but not for financials (e.g. The loaded and empty cost per km of a vehicle). PLATO-Scheduler actually keeps track of three separate costing concepts:

1. Scheduler costs are the costs that are used during optimizing.
2. Reporting costs are the costs that are used for internal reports.
3. Contract costs can be set-up to keep track of the costs to be used for invoicing.

4. ADD FLEXIBILITY TO YOUR JOBS/TASK DEFINITIONS

Sometimes the way jobs/tasks are defined actually limits the optimizer unnecessarily. PLATO-Scheduler has a very flexible job/task definition. You can:

- Define line items to include must-go, can-go quantities. A must-go quantity specifies the quantity that must be delivered, but the can-go quantity ensures that your vehicles are never under-utilized.
- Create reducing orders that can be scheduled on multiple schedules and/or multiple vehicles.
- Create reducing orders with must-go can-go quantities that vary over time.
- Schedule jobs through cross-docks. You don’t have to create two separate jobs to handle cross docking. You can also allow the optimizer to decide when to cross-dock.
- Sometime contracts are negotiated with vehicle suppliers to handle regular routes at a discount rate. These can be modeled in PLATO-Scheduler with contract routes.
5. ENTERPRISE LEVEL TRANSPORT PLANNING

Transport planning across an entire enterprise with multiple planners at multiple sites brings a whole new level of complexity to the planning process. PLATO-Scheduler facilitates this with automatic job locking, allocation of areas to specific planners, rough edge scheduling, and allocation of vehicles that are temporarily in an area to the planner for that area.

6. TAKE ADVANTAGE OF IMPROVED OPTIMIZATION FLEXIBILITY

To make the most of an optimizer it makes sense to optimize as much as you can together on one schedule. This is sometimes impractical and can even hinder other business processes. PLATO-Scheduler provides a flexible scheduling interface making it both practical and optimal within each schedule, without over-booking any of your resources. In PLATO-Scheduler you can have multi-planners, and there are no day boundaries. You can plan selected jobs over a month, week, day, or half-day.

In PLATO-Scheduler you can also schedule:
- Trailers
- Drop-Shunting, (when you leave a trailer at a customer for loading/offloading to be picked up later)
- Shifts changes
- Load for empty back-legs

7. ENSURING THAT YOUR DATA IS CORRECT/VALID

An important aspect of scheduling is the continual maintenance of data e.g. the location and offloading time at your customers. The optimizer works within the bounds of the data, if the data becomes incorrect, so do the schedules. PLATO-Scheduler uses three techniques to help maintain the data:

1. **Learning** - Where it is possible, stop times are learned from the GPS tracking data.
2. **Data inheritance** - Data is entered only once for each data concept. There is therefore significantly less data to enter/maintain.
3. **Data transparency** - Data is made visible at all stages when scheduling, allowing the planner to identify and correct incorrect data while scheduling.
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PLATO-Scheduler

Track and Trace

By combining the schedule with GPS tracking data, PLATO-Track & Trace tracks the progress of each trip, each task on each trip and the progress of each shipment. Once tasks can be identified as complete, the latest remaining scheduled task estimates can be recalculated by taking full advantage of the scheduler engine.

Through tracking, the actual costs of schedules can be calculated more accurately and the latest positions and full vehicle travel and stop histories are available.

PLATO-Track & Trace makes track and trace information available through PLATO-Web for ease of access.

New optimizing concepts

PLATO is an ideal tool to evaluate new distribution strategies. You can turn on features, or redefine jobs to test/quantify and implement these concepts. With PLATO, you can accommodate:
- Cross-dock optimization
- Sleep-outs
- New shifts (shift changes)
- Horses and trailers treated separately
- Drop shunting
- Multi-principle
- Back-leg scheduling
Some of OPSI's world class customers:

- Air Liquide (world's #1 in industrial and medical gases)
- Coca-Cola - through ABI (world's #1 refreshment)
- Exel (world's #1 in supply chain management)
- Firestone (world's #1 tire manufacturer)
- Diageo (world's #1 for premium drinks)
- Reckitt Benckiser (world's #1 in household cleaning)
- Anglo Platinum (world's #1 primary producer of platinum group metals)
- SABMiller (world's #2 beer company)
- Clover (SA’s #1 dairy company)