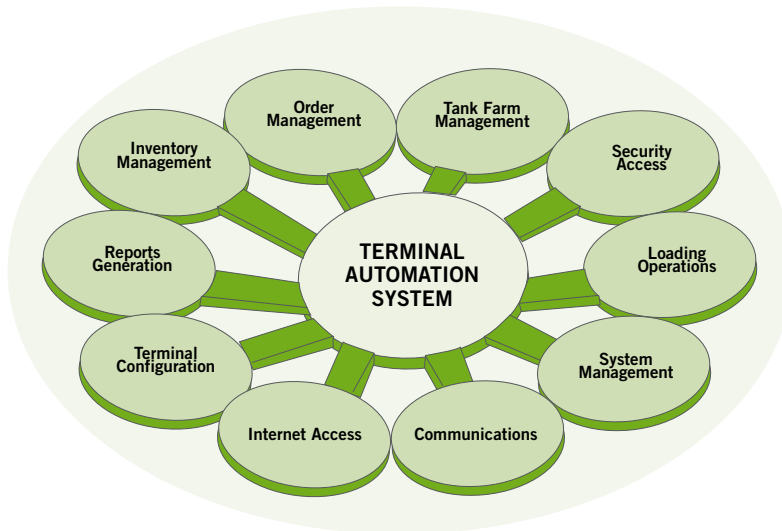




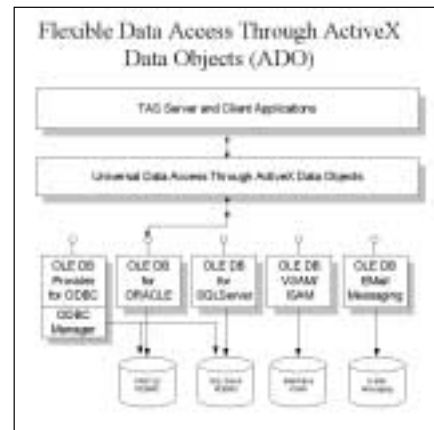
CSE Systems & Engineering Ltd (CSE) offers an integrated Terminal Automation System (TASyS) that provides safe and efficient monitoring and control of all aspects of marketing terminal operations, including loading, invoicing and reporting, amongst others.

TASyS adopts a client-server architecture interfaced with hardware devices in the field. The server system manages the complete ordering procedure from assignment of order for loading to monitoring and control of loading procedure. The client system facilitates the operator and graphical interfaces and allows for manual data input and display of the field event in real-time.

Operators are able to view the loading process and can be quickly alerted to any abnormal conditions. Alarms are time-stamped and logged for further analysis. In addition, daily reports can be generated to provide information to management. TASyS functions include:



**Loading Bay Overview**



# TERMINAL AUTOMATION SYSTEM

## Order Management

- Order Entry
- Order Maintenance
- Customer Information Maintenance
- Credit Checking
- Order Invoicing
- Order to Truck Assignment
- Delivery Confirmation
- Interface with ERP systems (e.g. SAP)

## Inventory Management

- Product Receipt (ship, pipeline, railway)
- Product Receipt Administration
- Remote Pump & Valve Control
- Real-time Graphical Monitoring
- GUI for Tank, Valve, Pump Selection
- Volume Measurement via Tank Gauging System
- Product Receipt Reporting

## Product Return

- From Calibration, Washdown or Undelivered Order
- Returned Product Data Capture

## Company Own Consumption

- Load Verification
- Volume Management
- Valve Control
- Maximum Volume Control

## Tank Farm Control

- Real-time Product Measurement at Ambient Standard
- High & High-High Level Warning and Alarm
- Product Transfer Operations
- Tank, Pump and Valve Status Reporting
- Inventory Management

## Loading Operations (Truck, Marine, LPG)

- Start of Day Processing
- Dynamic Bay Allocation
- Loading Advice Generation
- Driver Instructions
- Pre-loading Activities Monitoring
- Initiate Compartment Loading
- Loading Monitoring (volume / weight)
- Graphical display of Loading Operations
- Loading Alarm Reporting and Acknowledgement
- Pumps / Valve Shutdown during Emergency
- Product Invoicing (volume / weight)

## Report Generation

- Daily Operation Output
- Management Summary Report

## System Management

- Incremental / Image Back-up / Restore
- Data Archive / Restore
- Process Scheduling
- Remote Diagnostic
- System Recording
- Event Log
- Audit Trail
- Alarm Processing
- Emergency Shutdown
- Terminal Parameters Configuration

## Internet Access Capability

- Active X
- OLE Automation

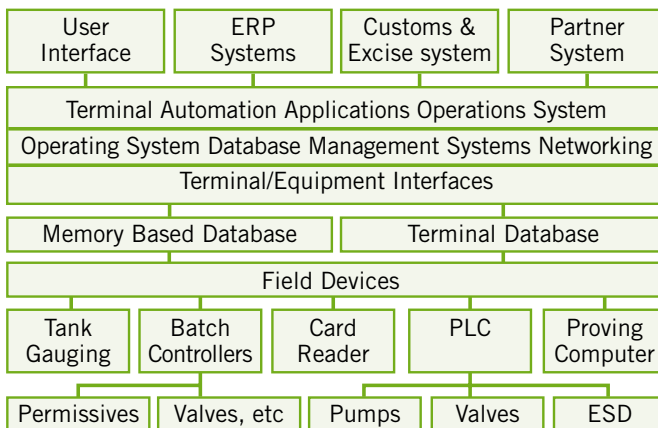
## Security Access

- Firewall
- Proxy Server
- User Access Level

## Options

- Quality Control / Laboratory Interface
- System Support
- Customs and Excise Interface
- Local Language Support

## TASyS Functional Architecture



## TASyS allows load monitoring





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