



Cost-effective management of container, break-bulk, Ro-Ro terminals and warehouses using information technologies

Dan Pershin,
Head of Marketing, SOLVO

Who we are:

SOLVO – one of the leading providers of high-end supply chain execution solutions to help optimize port, terminal and warehouse logistics .

Years active:

20

Number of employees:

145

Number of completed projects:

207 (end of 2015)

Among customers:





Technology Pioneers

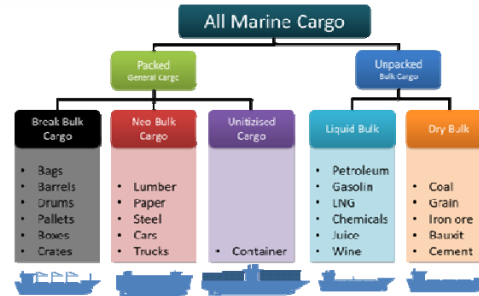
Developed first WMS and TOS in the Pos-Soviet space in the 1990s



International certification



70% of all container in Russia is processed by Solvo.TOS

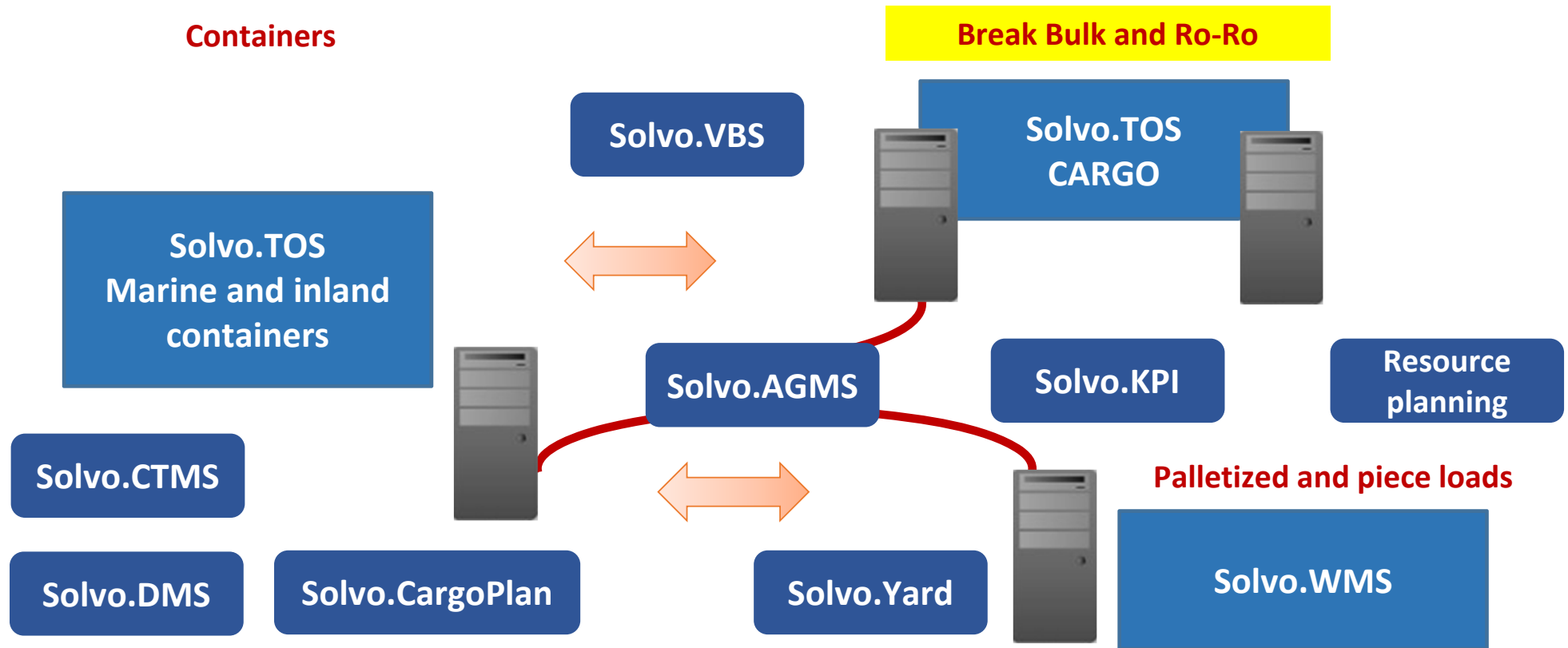


Solutions for container, break-bulk, Ro-Ro and multi-purpose



20 years
200+ projects
50+ worldwide partners





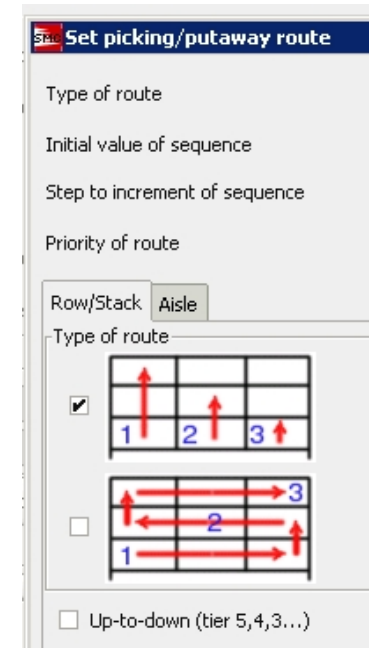
Automatic identification



Address-based storage

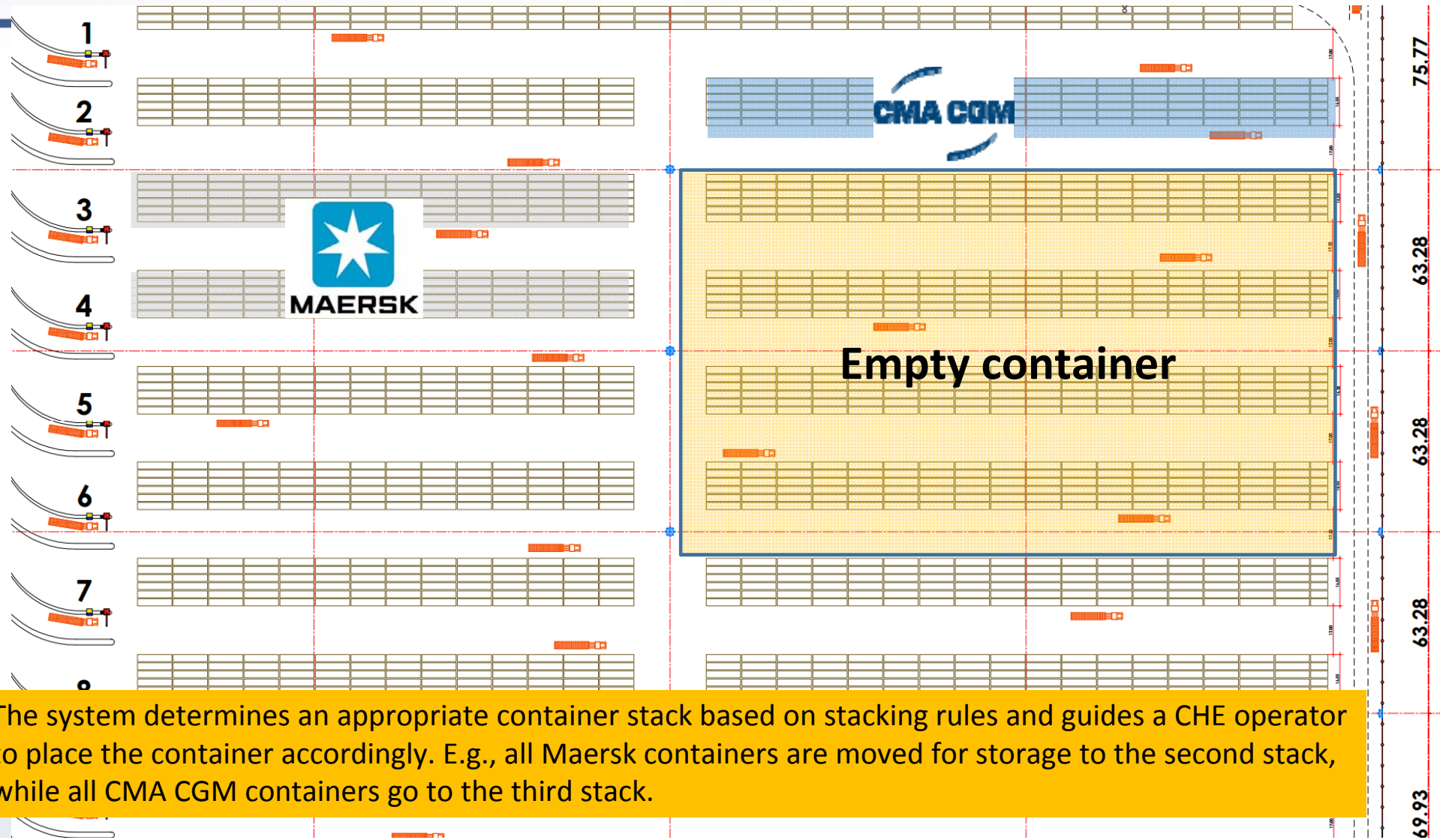


Business intelligence



Remote management of personnel



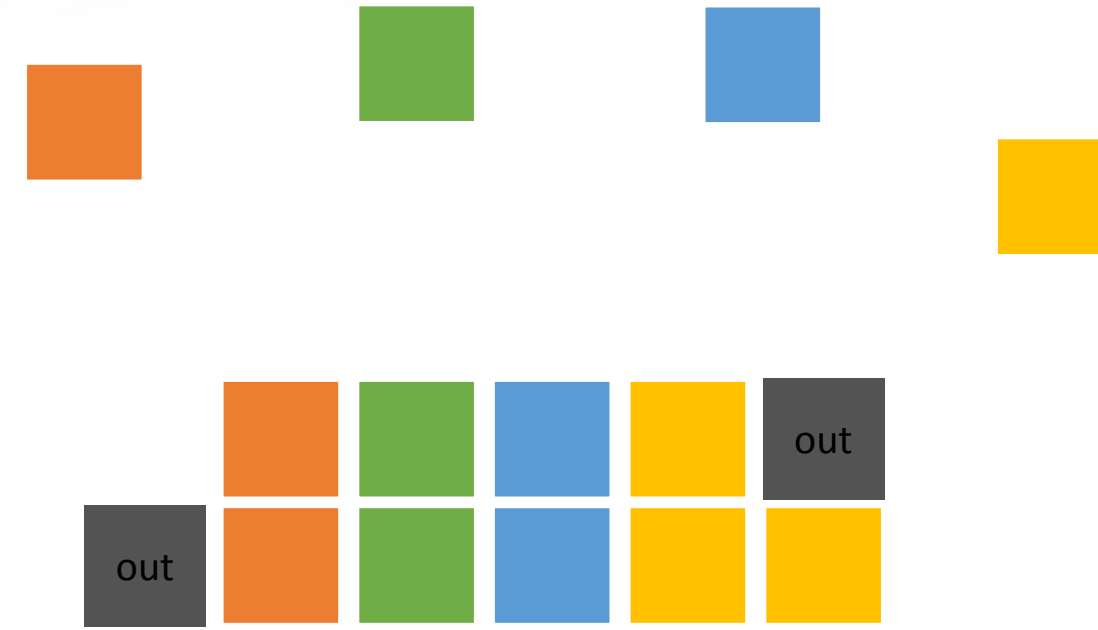


The system determines an appropriate container stack based on stacking rules and guides a CHE operator to place the container accordingly. E.g., all Maersk containers are moved for storage to the second stack, while all CMA CGM containers go to the third stack.



The specific location in a stack is chosen by the system in accordance with stacking strategies. For example, unoccupied locations at the lowest tier are taken first.

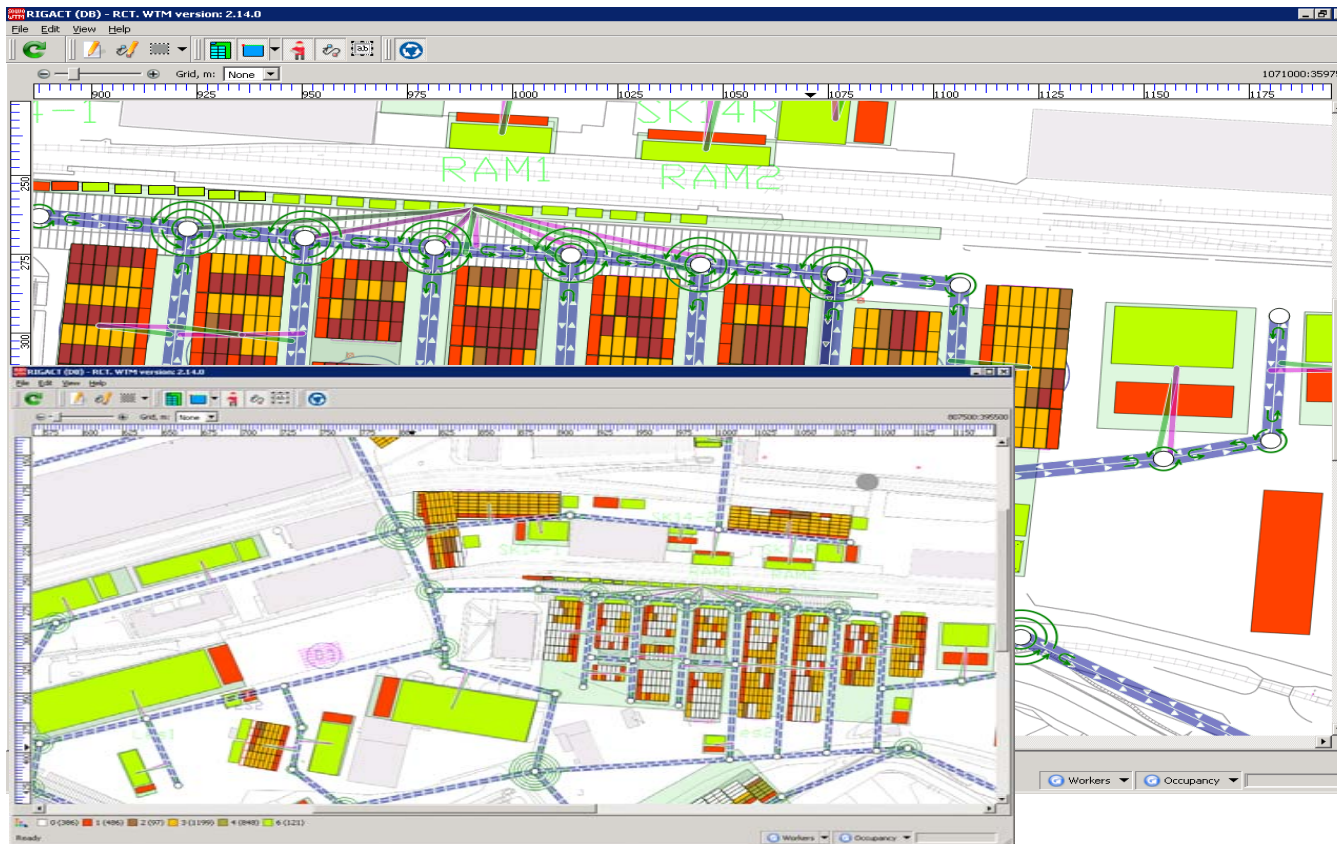
Housekeeping and reduction of rehandles



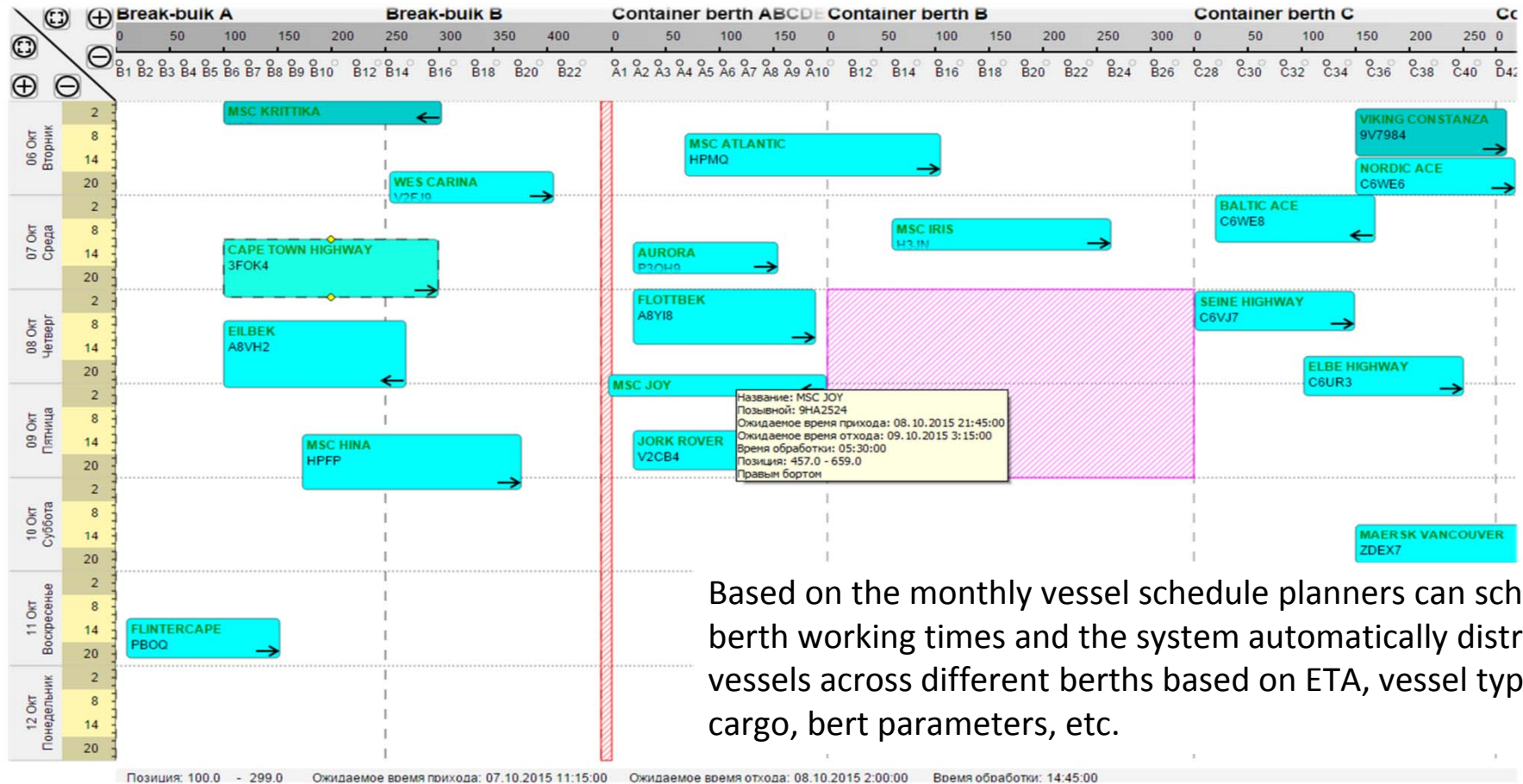
Number of rehandles reduces on average by 25%

A reduction in the amount of moves is achieved thanks to:

- Address-based storage at the yard
- Dynamic stacking rules and strategies.
- Forecasting of container arrival/departure
- Housekeeping instructions



- The system analyzes the available data about the road network of the terminal and builds the optimal route for a CHE;
- The entry of road data is carried out through the roads editor function - part of the Real-time terminal layout viewer and editor;
- The user defines the key check-points, permitted turns and delays.
- The user can also then set the availability of a stack for processing from a selected road.



Based on the monthly vessel schedule planners can schedule berth working times and the system automatically distributes vessels across different berths based on ETA, vessel type, cargo, berth parameters, etc.



Forwarder send an EDI message to the terminal operator which is automatically processed by TOS.
E.G COPARN - transport order booking. The message contains preliminary info about the arriving containers and vehicles.

Integrated load/discharge planning applications

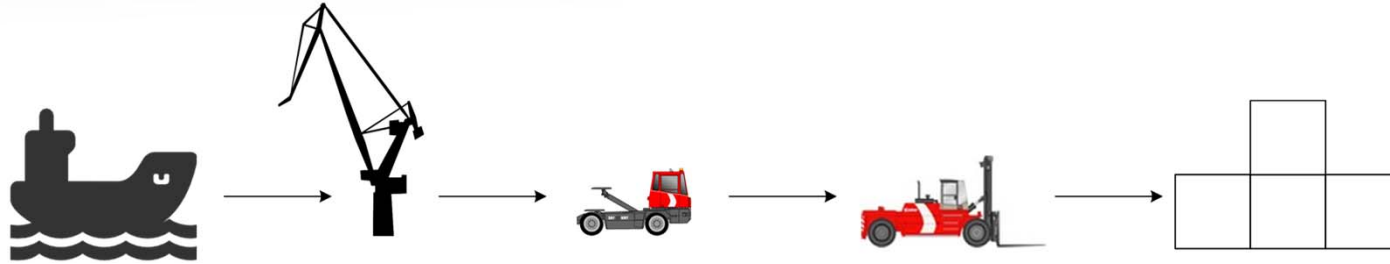
Includes graphic vessel profiles, bay plans for loading and discharging, etc.

- No limits to build ship of any size and height of bays: supports all types made easily by user
- Bay plans created by planners based on the EDI (ex: BAPLIE and MOVINS)
- Simultaneously, the crane jobs are generated automatically by the system using genetic algorithms to optimize the ops rate
- Supports fully-automated, semi-automated or manual modes as per customer needs

The screenshot displays the SOLVO software interface for integrated load/discharge planning. It features several key components:

- Ship Geometry Editor:** A central window showing a 3D perspective view of a ship's deck with a crane. The deck is divided into bays, and the editor allows for adjusting bay dimensions and crane positions.
- Bay Plans:** Multiple windows showing detailed bay layouts for different sections of the ship, such as Bay 05, Bay 01, Bay (06)07, and Bay 23. Each bay plan is a grid with numerical values representing cargo tiers and columns.
- Loading Schedule:** A table showing the overall loading and discharging schedule for the vessel.

Date	Total	Discharging	Loading
2014	345 / 497	255 / 252	90 / 205
- Attributes Panel:** A panel on the right side of the Ship Geometry Editor window, allowing users to configure various attributes for the bay plan, such as:
 - Plan type: Normal (selected) or Virtual
 - Tiers quantity: 7
 - Bays quantity: 14
 - Bay's columns q-ty: 9
 - Deck begin number: 82
 - Hold begin number: 2
 - Place attributes: Bays quantity at ship bow (10), Hold tiers quantity (3)
- Legend:** A legend at the bottom left of the interface defines the colors used in the bay plans and loading schedule:
 - Discharged (652)
 - Transit (5)
 - SHRT (5)
 - Other (72)
 - Loading
 - Discharging

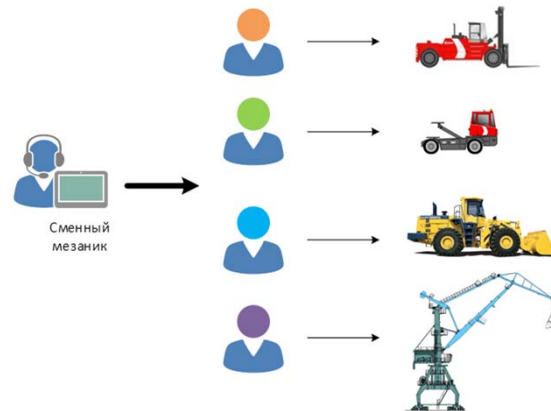
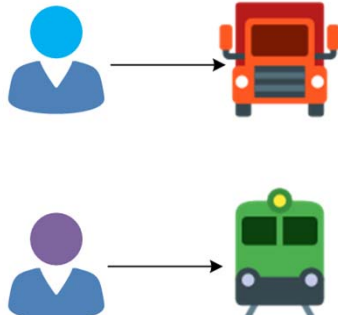
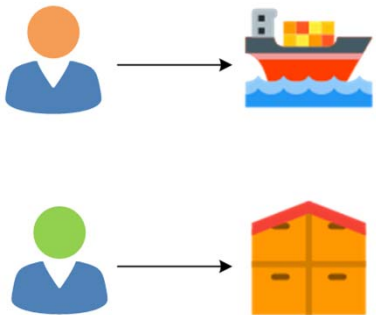


Day-shift planning

Shifts

Work-orders

Resource allocation and control



Cargo Explorer - demo license

المكان المقصود	موقع	بحث عن البضائع:	وصف
K863EK35 09-24-T	09-24-35 (3)	FESU 655613 0	45G1 40' HC F
B067CT36 09-24-T	09-24-36 (4)	CXTU 906214 8	22G1 20' HC F
A574CE36 09-24-T	09-24-36 (2)	CXTU 362191 2	22G1 20' HC F
H738EM36 09-24-T	09-24-36 (1)	PONU 014906 9	45G1 40' HC F
T898ME36 09-24-T	09-24-36 (2)	CAIU 154908 0	45G1 40' HC F
M203ME37 09-24-T	09-24-37 (2)	PACU 160878 1	45G1 40' HC F

F1 تغيير العرض
 F2 لفة
 F7 خلق البضائع
 F9 إلقاء





Increased productivity for STS

5%

VBS: Truck scheduling and truck visit requests

Balance: 40741.00rub
Limit: -100000.00rub Refresh

Main Debt details Create truck visit request Truck Visit Requests Power of attorney Search for container Export containers Import containers Manage privileges

<< to request list

Time slots for period 25.08.14 12:41 - 26.08.14 00:41

Работа через web 12 hours from current date Show unavailable slots

Append to request

Date from	Date to	Direction	Profile	Cont qty	State
25.08 11:00	25.08 13:00	Inbound	ДЕПО	19	●
		Inbound	Экспорт	14	●
		Outbound	ДЕПО	5	●
		Outbound	Импорт	28	●
25.08 13:30	25.08 15:30	Inbound	ДЕПО	19	●
		Inbound	Экспорт	14	●
		Outbound	ДЕПО	5	●
		Outbound	Импорт	24	●
25.08 15:30	25.08 18:00	Inbound	ДЕПО	20	●
		Inbound	Экспорт	48	●
		Outbound	ДЕПО	5	●
		Outbound	Импорт	55	●
25.08 18:00	25.08 20:30	Inbound	ДЕПО	20	●
		Inbound	Экспорт	58	●
		Outbound	ДЕПО	5	●
		Outbound	Импорт	64	●

Solvo.Web Func
Reset all filters and sorting

Truck Visit Container Details Containers for Import Power Of

The system automatically creates time slots (duration - 2 hours) available for truck visits.

Via Solvo WEB port cargo-forwarders can send truck visit requests to the terminal and select the available slot. Each time slot is determined by the maximum number of trucks (by category), which can be processed during the time assigned.





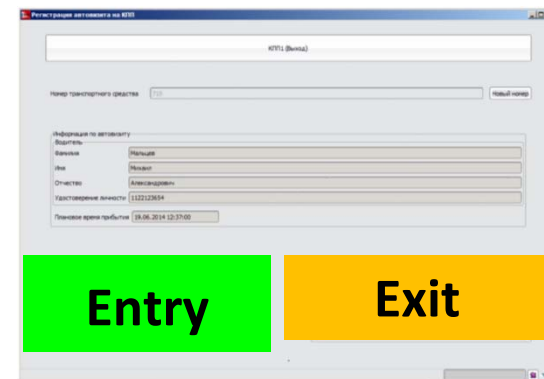
MainWindow

CONTAINER TERMINAL SAINT-PETERSBURG

11:52

SDVVO THE SMARTER ALTERNATIVE

Processing			Standby					
Time slot	Status		plate number	duration	plate number	duration	plate number	duration
11:00 - 13:00	Processing		B782OK178	4 min.	B638BO178	28 min.		
13:30 - 15:30	Standby		K499HT190	4 min.	A844CO35	32 min.		
plate number	window	Status	B969MM178	8 min.	Y027CP78	32 min.		
B088PK98	2	Processing	H790PP178	8 min.	B457TP98	36 min.		
B351PT178	3	Invitation	M597MC178	12 min.	B072EO178	36 min.		
			T706XY47	12 min.	O932PT178	40 min.		
			K049TB178	16 min.	B806KA98	40 min.		
			Y687KE78	16 min.	P910KX47	44 min.		
			B070OE178	20 min.				
			H356TC178	20 min.				
			B935BP178	24 min.				
			B156CB178	24 min.				



7%

Reduction of rehandles

30%

Truck turnaround time is reduced


Automated identification: containers



Gate Operations


1/28 | 50 | Row: 1 | Total: 0 | 60

#	Visit type	Code	Entry permitted	Exit permitted	ETA	ETD	Forwarder	Vehicle number
476184	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10/13/15 00:09	10/14/15 00:09	TJ_EXPEDITOR33	01/290GBA
476264	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	11/09/15 09:00	11/10/15 09:00	TJ_EXPEDITOR	01/108HAA
476261	out		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	11/09/15 00:09	11/10/15 00:09	TJ_EXPEDITOR33	01/108HAA
476515	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	03/23/16 18:00	03/23/16 21:00	GEO_LINE	H678E98
476047	out		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	08/27/15 15:00	08/27/15 17:00	EXPEDITOR	AA5605MA
476418	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	01/22/16 14:41	01/22/16 16:41	TJ_EXPEDITOR	01/103XBA
476275	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	11/11/15 00:09	11/12/15 00:09	TJ_EXPEDITOR33	01/1785BA
476513	in/out		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	03/23/16 16:00	03/24/16 00:00	GEO_LINE	AA1605-3
476504	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	03/23/16 11:00	03/23/16 13:00	F	A240OM69
476113	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	09/16/15 09:00	09/17/15 09:00	TJ_EXPEDITOR	01/1785BA
476486	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	03/21/16 11:00	03/21/16 13:00	MSC	01432NBA
476507	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	03/23/16 12:00	03/23/16 15:00	GEO_LINE	T649CC47
476194	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10/14/15 15:00	10/14/15 17:00	MSC	AB2391BI
476293	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	11/16/15 13:00	11/16/15 15:00	F	AA5605MA
476381	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	12/17/15 09:00	12/18/15 09:00	TEST_OOO_EXP	01/224MBA
476511	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	03/23/16 18:00	03/23/16 21:00	GEO_LINE	T198TX98
476419	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	01/29/16 09:00	01/29/16 23:45	MSC	01/108HAA
476467	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	02/26/16 09:00	02/27/16 09:00	GEO_LINE	T198TX98
476465	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	02/26/16 09:00	02/27/16 09:00	GEO_LINE	T198TX98
476474	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	02/29/16 09:00	03/01/16 09:00	GEO_LINE	E869PO29
476242	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10/30/15 15:00	10/30/15 17:00	F	AA8539-4
476479	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	03/03/16 15:00	03/03/16 18:00	EXP_001	01 102XBA
476445	out		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	02/11/16 09:00	02/12/16 09:00	LIVEN	01 5400BA
476506	in		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	03/23/16 12:00	03/23/16 15:00	GEO_LINE	T649CC47




Entry

Car



Vehicle number: 01/290GBA
Owner: СОЮЗТРАНССЕРВИС 782
Vehicle description: МЕРС

Driver



Surname: 4СЛЕД-ТАЙМ-СЛОТ
First name: 4
Middle name:
Document type:
Document data: 4
Authorization number:

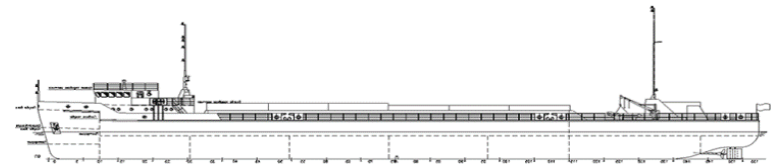
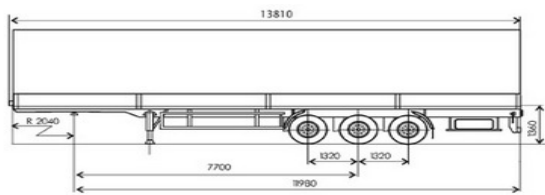
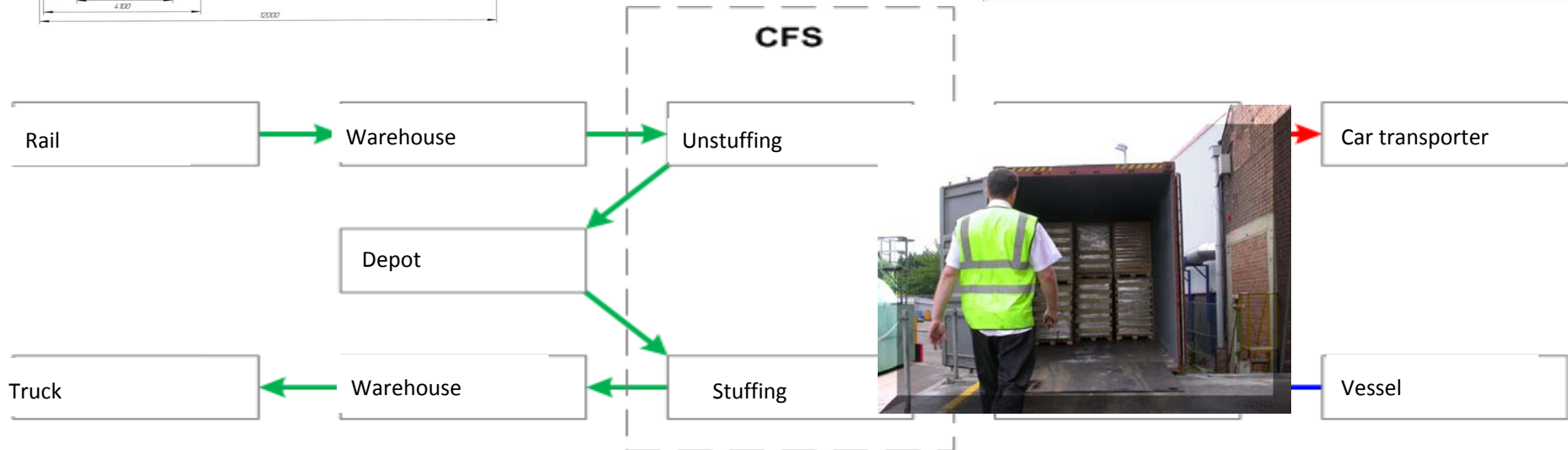
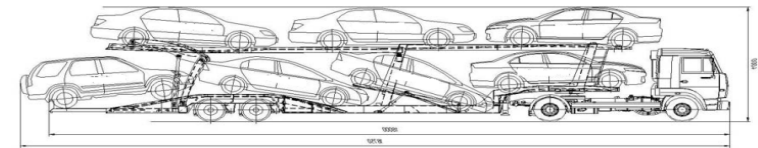
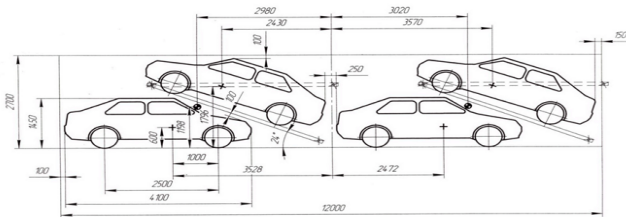
Exit

The gate security guard makes sure the truck driver's ID and plate number are sync with the initial info in TOS. If OK the driver is permitted to enter the gate. Data comparison can be done via RDT, PC or self-service kiosk.

Load ID labels and RFID tags



CFS operation

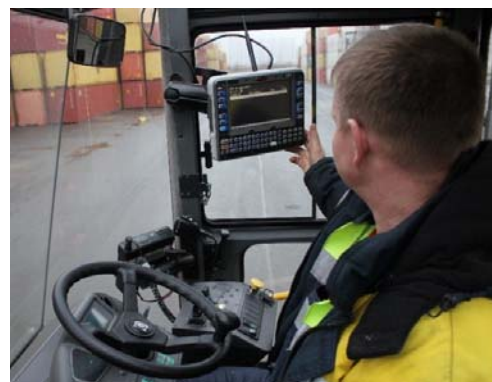




Weighing management



Automated container delivery



Weighing registration



23.07.2014 10:48:20			
		Адрес:	
		Телефон:	
		Факс:	
Акт взвешивания N WGT000055 от 10.12.2014 20:39			
Клиент:	ООО «Альда»	Договор N АСТ.00011 от 02.01.2011	Заказ N БИ110411 от 11.04.2011
Контейнер:	SUDU2211268	Тара: 4500 кг	Платформа: 00704872
Тип тары:	40 ПЭ		
Прибыл на терминал 04.12.2014г., на платформе 89652104 (транспортный)			
Общий вес контейнера с грузом: 32 140 кг.			
Взвешивание произведено на весах RS 104			
Представитель ОАО «Владимирский морской торговый порт»:		Представитель получателя:	

Creation of weighing documents

TOS disables vessel container loading without VGM



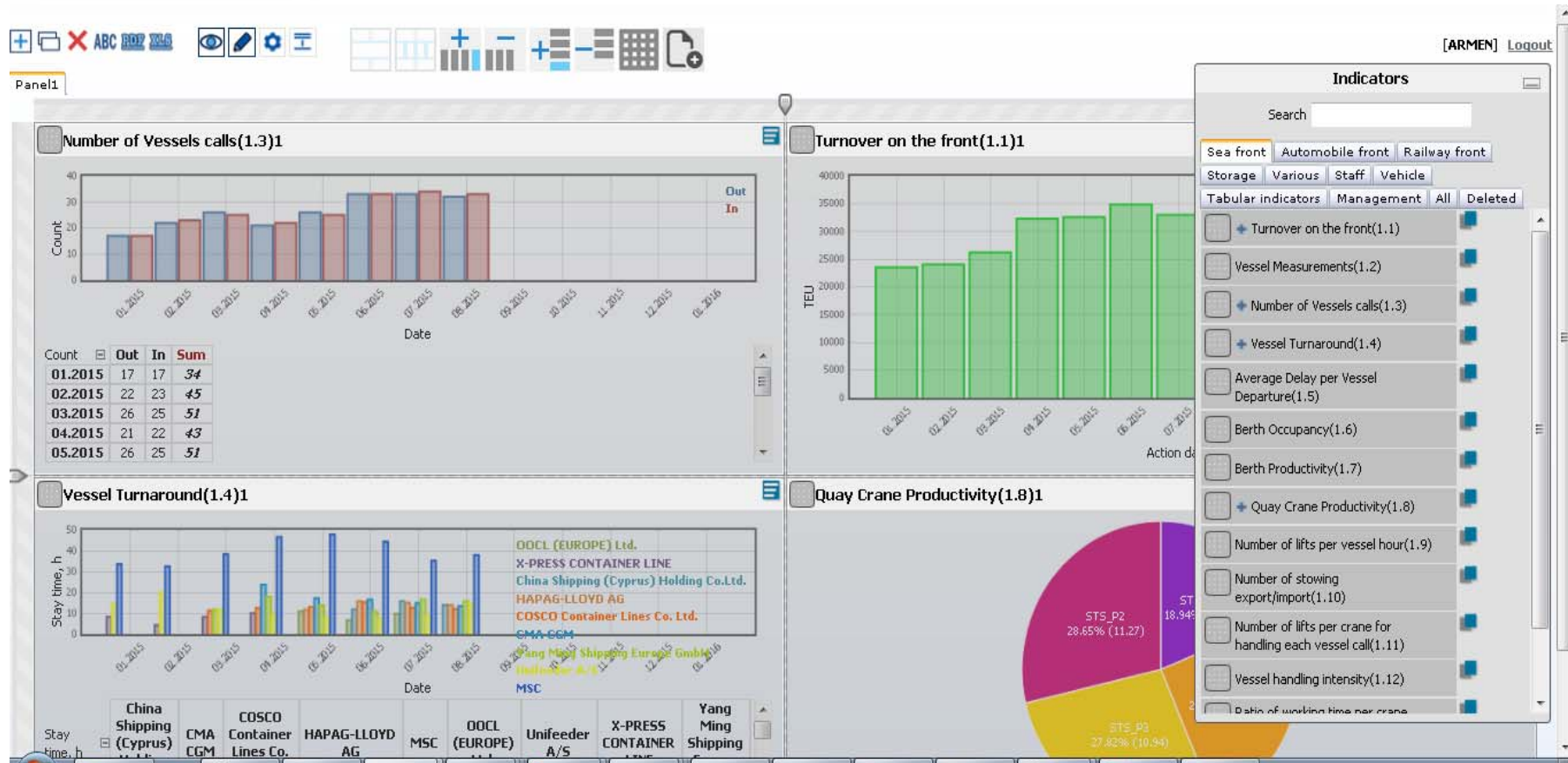
Solvo.TOS blocks delivery and loading of container onto the vessel without VGM data

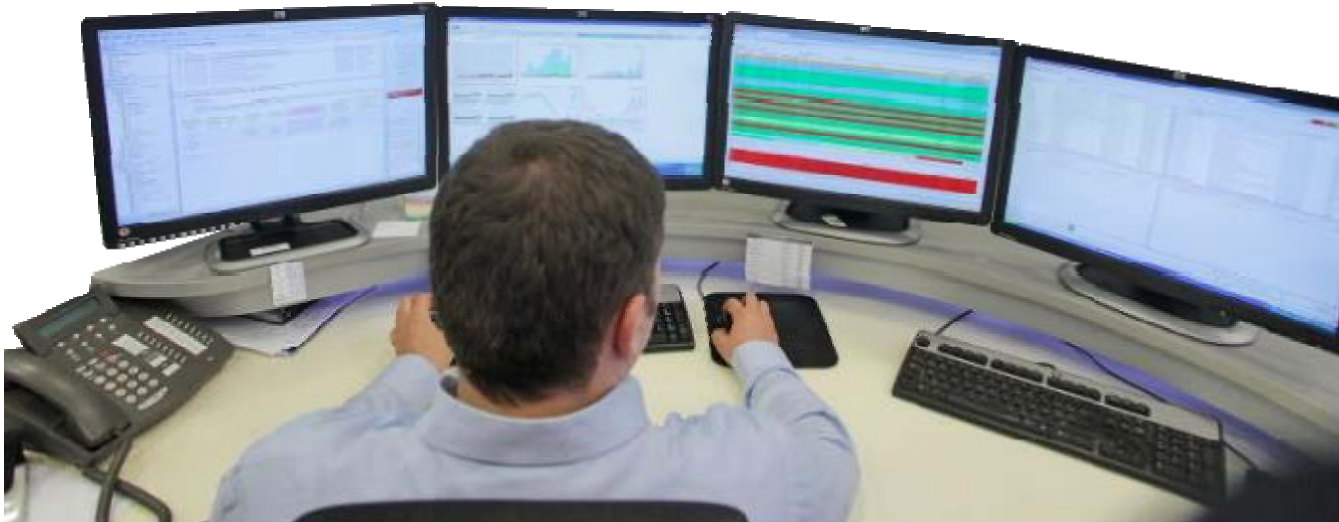


“**Smart shelves**” or racks equipped with RFID antennas.

- Racks are made from a special dielectric material to shield from radio signals.
- **Smart shelf technology makes it possible to automatically record staging and load grabbing events in the WMS, while freeing up the hands of the operator.**







The smarter alternative
www.solvosys.com
Our stand: #9