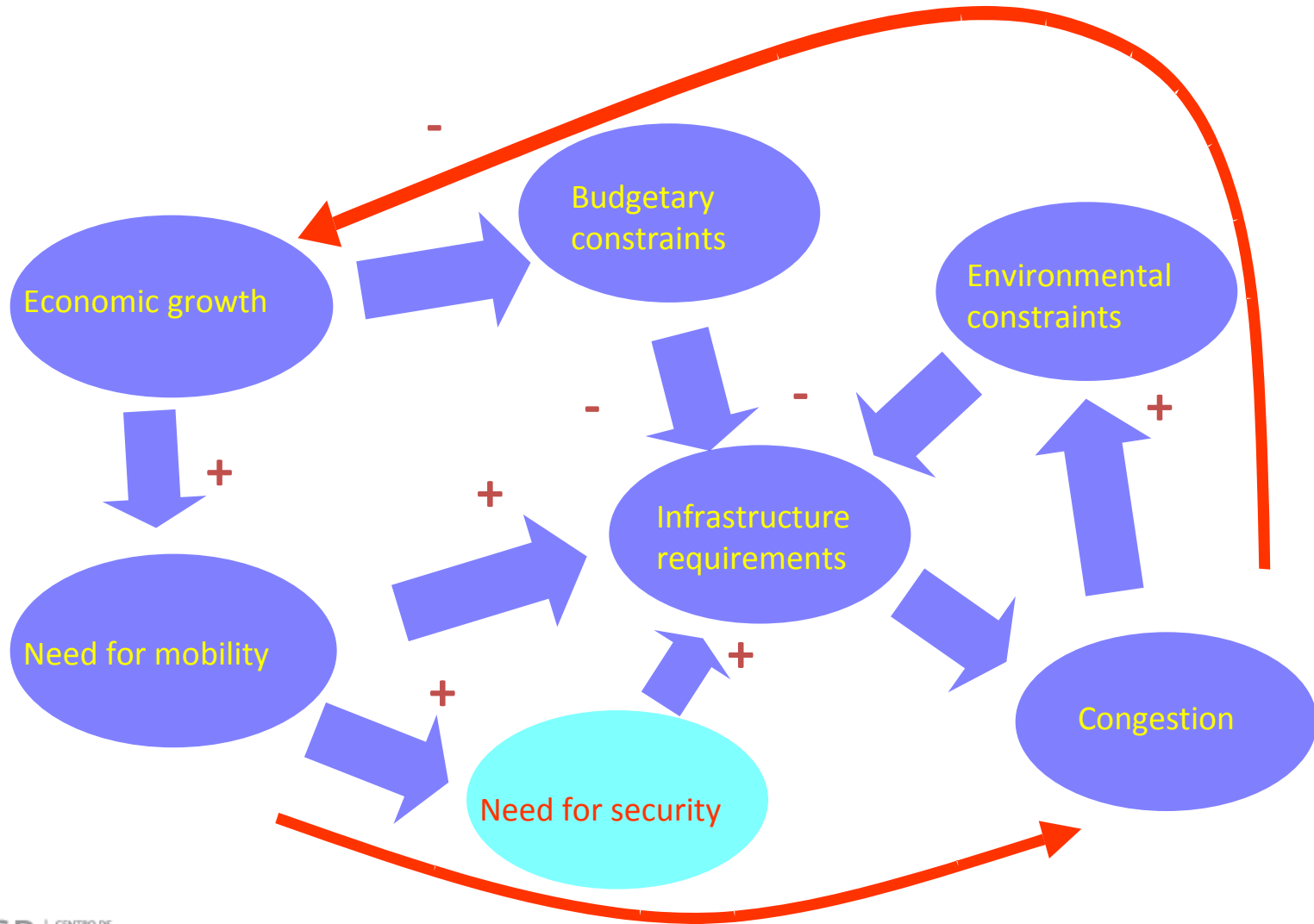


Vessel Traffic Monitoring and Information System (VTMIS)



Enhancing throughput, efficiency,
safety and security in Brazilian Ports

General logistical challenges



IALA Regulation 12 – Vessel Traffic Services

1. Vessel traffic services (VTS) contribute to safety of life at sea, safety and efficiency of navigation and protection of the marine environment, adjacent shore areas, work sites and offshore installations from possible adverse effects of maritime traffic.
2. Contracting Governments undertake to arrange for the establishment of VTS where, in their opinion, the volume of traffic or the degree of risk justifies such services.

Port of Santos



Port of Santos



Exports about 60% of GDP



What if something goes wrong?



This should not happen.....



ISPS International Ship and Port Facility Security Code

- The ISPS Code is a comprehensive set of measures to enhance the security of ships and port facilities as well as the security of passengers and crews.
- It has two parts, one mandatory and one recommendatory.

ISPS - terminal

Restricted area

Adgang forbudt for
uvedkommende



Området er videoovervåket

PORT PAPERLESS (PSP) described in NORMAM

- SEP promotes streamlining of procedures for ships staying at ports.
- Integrating the processes of import and export in to a single database for shipping agents and the various government services.
- Reducing paperwork and improving turn around time of ships.

Legislation in Brazil

- VTS, ISPS and PSP are put in legislation in Brazil by the:
NORMAS DA AUTORIDADE MARÍTIMA PARA AUXÍLIOS À NAVEGAÇÃO - **NORMAM**
- But no **VTMIS** yet implemented in **Brazil**
- Implementing VTMIS with integrated interface to the single database solves most issues.



PMS como parte de VTMIS

Stakeholders Port



Agents



Dangerous Goods



Traffic management



Pilot planning



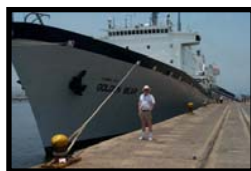
Container terminal



Billing



Waste control



Berth planning



Tug planning



Crane



Lock management



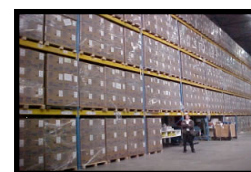
Patrol boats



Property



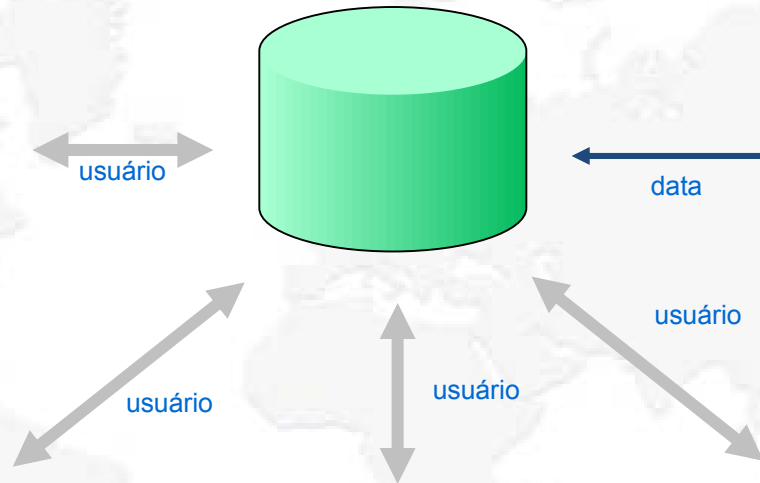
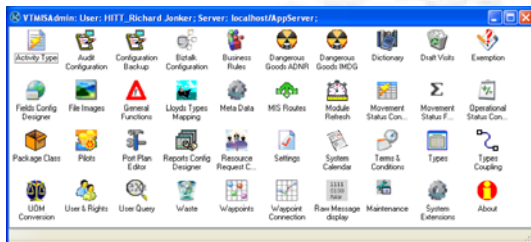
Linesmen



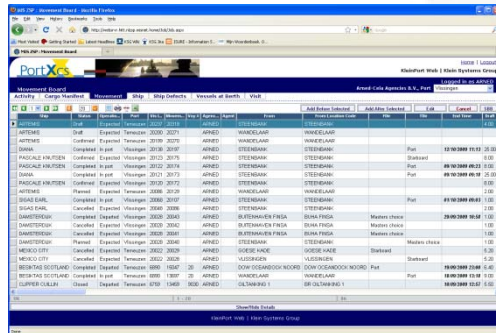
Warehouse

VTMIS - PMS

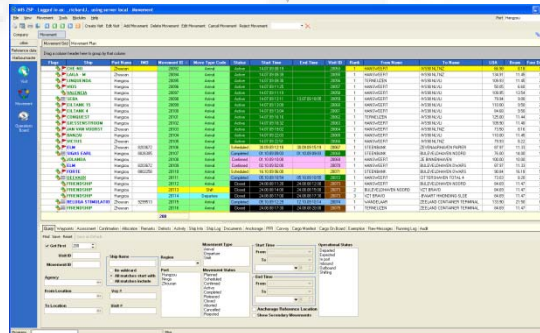
Ferramenta adiministração



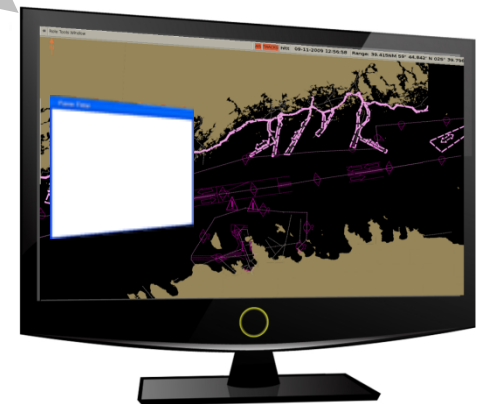
Interface Local /
Regional com a
organização
marítima



Cliente na Web

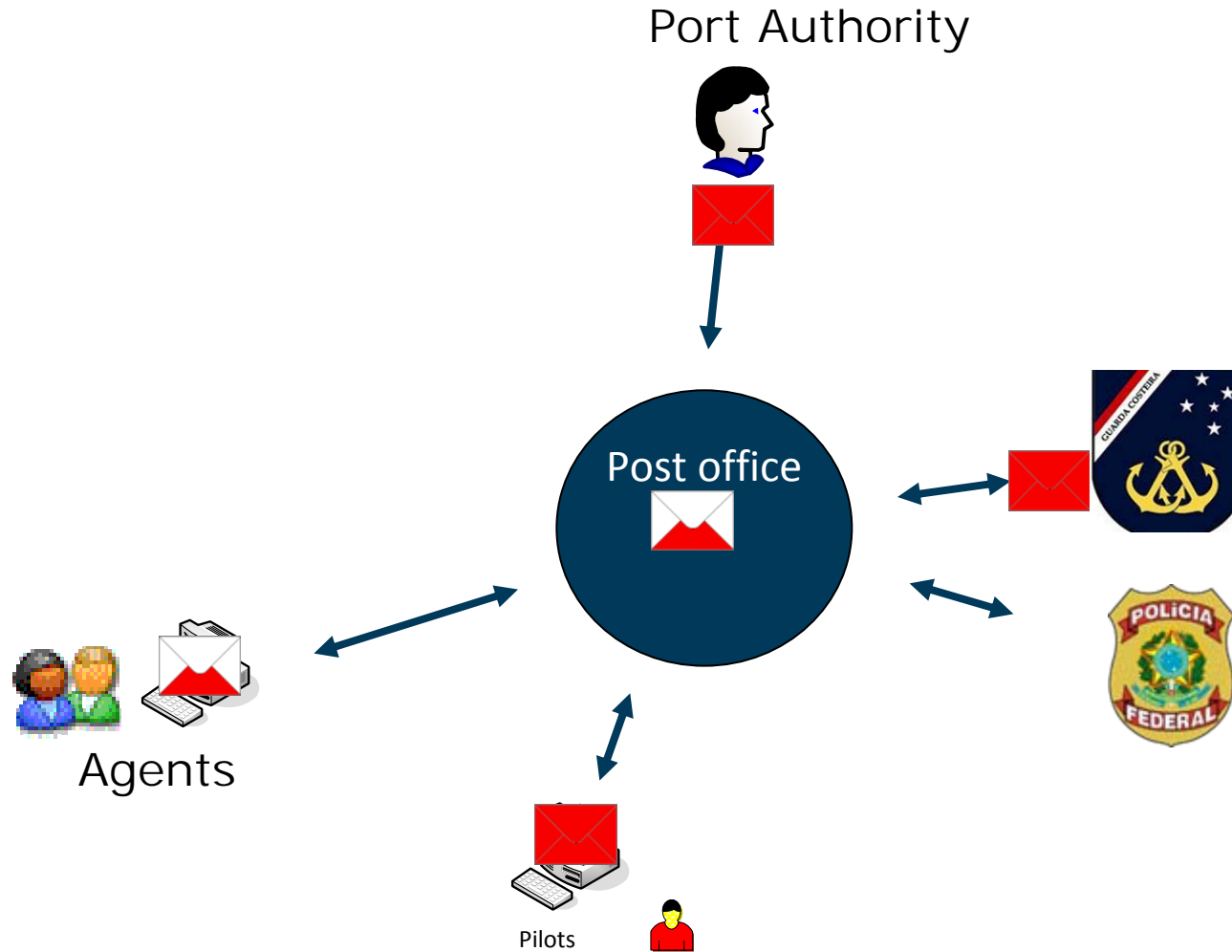


Janela Windows

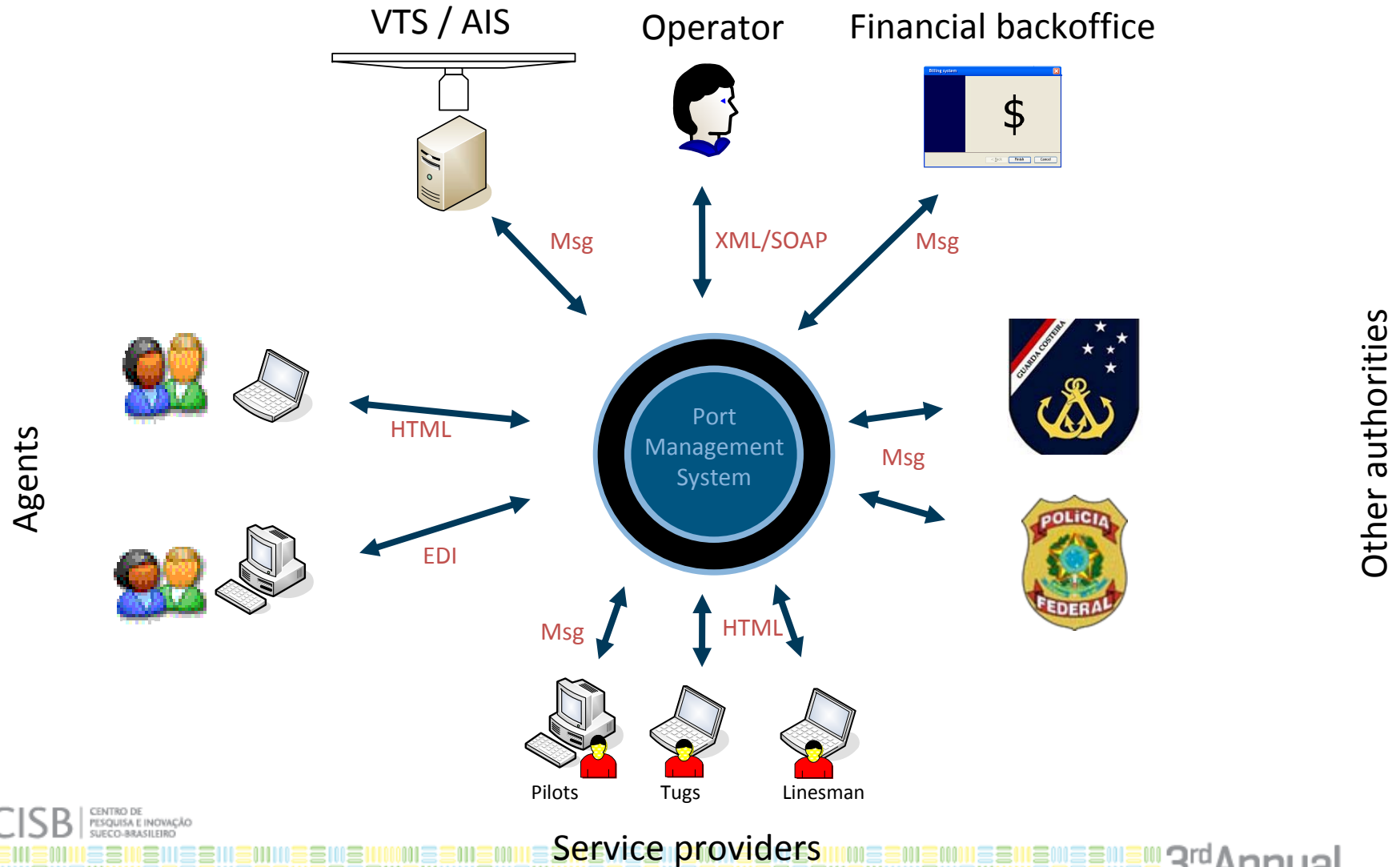


Aramis

Port Community System



Port Community System



Data exchange VTMISS - PMS

VTSS → MIS

- Identification
- System tracks
- Events
 - Violations
 - Line crossings
 - Area penetration
- Alarms
- Meteo
- AIS messaging

MIS → VTSS

- Sailing plans
- Sailing history
- Ships History
- Alerts and citations
- Cargo dangerous goods

- So how does it work in practice?
- From Port of departure to Port of arrival in the most efficient and paperless way saving fuel and therefore the environment

10 days before arrival



Initial Manifest to Destination

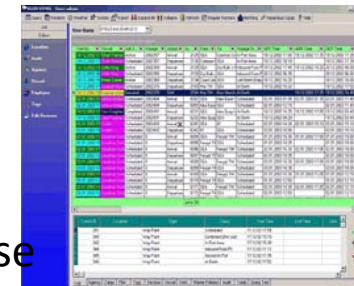
Ship Dispatched



Confirmation to Agent



Entry into Database



Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

60 nm before arrival



AIS Data Received from Ship by VTS

Data to Routing Desk

**AIS Data Correlated
With Database**

The screenshot shows a software interface with a table of AIS data. The table has columns for 'Ship ID', 'Location', 'Type', 'Status', 'Time', 'Last Time', and 'Data'. The data is organized into rows, with some rows highlighted in green and others in red. The interface also includes a sidebar with various icons and a top menu bar.

Ship ID	Location	Type	Status	Time	Last Time	Data
201	Yokohama	Container Ship	Underway	11/12/2007 11:30	11/12/2007 11:30	11/12/2007 11:30
202	Yokohama	Container Ship	Underway	11/12/2007 11:30	11/12/2007 11:30	11/12/2007 11:30
203	Yokohama	Container Ship	Underway	11/12/2007 11:30	11/12/2007 11:30	11/12/2007 11:30
204	Yokohama	Container Ship	Underway	11/12/2007 11:30	11/12/2007 11:30	11/12/2007 11:30
205	Yokohama	Container Ship	Underway	11/12/2007 11:30	11/12/2007 11:30	11/12/2007 11:30
206	Yokohama	Container Ship	Underway	11/12/2007 11:30	11/12/2007 11:30	11/12/2007 11:30



40 nm before arrival

Data Passed to PMS

Berthing Solution Passed



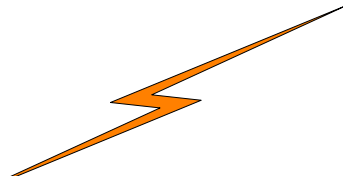
Vessel

Pilots

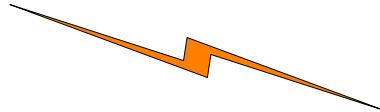
Tugs

Logistics

20 nm before arrival



AIS Data Correlated with Radar Data in VTS



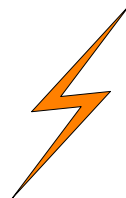
**VTS connects to Database,
retrieves vessel details**

ID	Name	Type	Status
1	ALFA	Container Ship	Underway
2	BRAVO	Container Ship	Underway
3	CHARLIE	Container Ship	Underway
4	DELTA	Container Ship	Underway
5	ECHO	Container Ship	Underway
6	FOXTROT	Container Ship	Underway
7	GOLF	Container Ship	Underway
8	HOTEL	Container Ship	Underway
9	INDIA	Container Ship	Underway
10	JULIETT	Container Ship	Underway
11	KILO	Container Ship	Underway
12	LIMA	Container Ship	Underway
13	MIKE	Container Ship	Underway
14	NOVEMBER	Container Ship	Underway
15	OSCAR	Container Ship	Underway
16	PAPA	Container Ship	Underway
17	QUEBEC	Container Ship	Underway
18	RADIO	Container Ship	Underway
19	SIERRA	Container Ship	Underway
20	TANGO	Container Ship	Underway
21	UNIFORM	Container Ship	Underway
22	VICTOR	Container Ship	Underway
23	XRAY	Container Ship	Underway
24	YANKEE	Container Ship	Underway
25	ZULU	Container Ship	Underway



Corridor

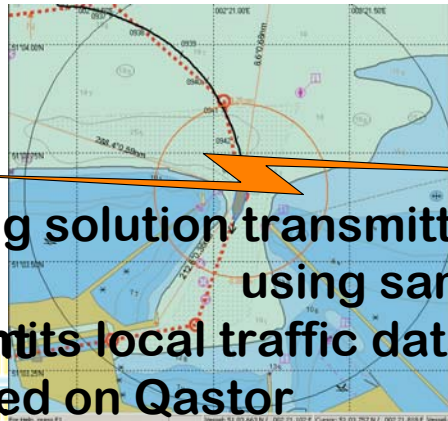
**Berthing solution refined on basis real-time positional
& velocity data updates sent to Pilot Scheduling System**



3 nm before arrival



Pilot on-board with Qastor
(preprogrammed with actual ENC's)

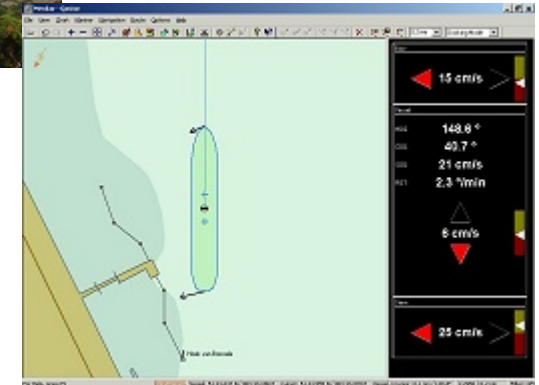


Berthing solution transmitted to VTS
using same ENC's.

VTS elements local traffic data which
is correlated on Qastor



100 m before arrival



**Qastor switched from Harbor Approach to Berthing Mode
providing accuracy of 3 cm provides the following: Hdg
 $\pm 0,1^\circ$; Speed $\pm 0,01$ kts; RoT $\pm 0,1^\circ/\text{min}$**

At Berth in max efficiency



Conclusion

- VTMISS enhances efficiency and safety
- Integration of VTMISS with PMS enables paperless port
- Operators have direct access to data on cargo and the origin and destination of the ship
- All parties involved can be put to work just in time
- Billing is automatic

Presented by Saab

OBRIGADO

Questions ?

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SAAB

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