



## Deriving MTS Business Intelligence from On-Board Vessel Communications

*Transforming the Marine Transportation System:  
A Vision for Research & Development*

Irvine, CA, June 29, 2010

**Dean Rosenberg, CEO**  
PortVision

**portvision**

# AIS Background

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- Automatic Identification System (AIS) implemented world wide since 2005
  - Collision avoidance transponder
  - Mandated by USCG and IMO on vessels over 300 gross tons (65 feet in US)
  - Proposed expanded regulations to include smaller commercial/passenger vessels
- Primary purpose *was* collision-avoidance at sea – now uses have expanded to homeland security, shore-side logistics, etc.

# Shoreside Opportunities for AIS

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- A VHF antenna on-shore will see 20-50 mile radius of all AIS-enabled vessels
- Ingest vessel location reports into a database, enhance MDA and solve “business problems”
- Analyze, interpret, and publish the data
- Archive the data for historical reporting
- Do-it-yourself, or deploy commercial service

# Do-it-Yourself

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- **Advantages**

- Low cost, feasible for limited regions
- Raw position data available for mapping and analysis

- **Disadvantages**

- Limited regional coverage
- Don't have access to higher-value features and functions

# Typical Features and Functions

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- **Real-time**
  - Map visualization, e-mail alerts, vessel tracks, weather, incident management
- **Historical**
  - Regional reporting (by terminal, dock, bridge, channel, etc.), point-to-point reporting, heatmaps, historical playback, VesselZone reporting

# Commercial AIS Solutions

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- Web-based services used by USCG, USACE, DHS, MARAD, port authorities, marine service companies, and all major oil companies
- High-volume data processing:
  - 40 million vessel location reports daily, and maintain a data warehouse of
  - 10+ billion arrival, departure, and movement records
- Significant real-time and historical functionality

# Real-time MDA

The screenshot displays the PortVision web application interface. At the top left is the 'portvision' logo. Below it is a search bar with 'New Orleans, Louisiana' entered in the 'Region' dropdown. To the right of the search bar are links for 'My Alerts', 'My Flots', and 'My Terminals'. Further right is a 'PortVision Advantage' menu with options for 'TerminalSmart', 'Passenger', 'Administration', and 'Welcome User Guide'. On the far right, a 'Current User' box shows the user 'sllavigna@portvision.com' and their home region 'New Orleans, Louisiana'.

The main content area is divided into two tabs: 'Reports' and 'Playback'. The 'Playback' tab is active, showing a map of New Orleans with a blue line representing a vessel's path. A label 'New Orleans General Anchorage, LA' is placed on the map. Below the map are navigation controls including a 'Map', 'Satellite', and 'Chart' button, and a 'Playback' control with a '1 minute(s)' advance setting and play/pause buttons. The date and time '2010-09-29 10:01 CDT' are displayed at the bottom right of the map area.

On the right side of the interface, there are three panels for the selected location 'New Orleans General Anchorage, LA':

- Details:** A table with fields for Type, Contact, Phone, Email, # of Vessels, and Address.
- Actions:** A section for performing actions on the location.
- Events:** A table listing events with columns for event name, date, and time.

Event	Date	Time
Prep: CREOLE	2010-05-28	09:56 CDT
SUN	2010-05-28	09:45 CDT
Arrival: CREOLE SUN	2010-05-28	09:45 CDT
Prep: MISS	2010-05-28	09:18 CDT
DARRIN	2010-05-28	09:00 CDT
Prep: DRECLE	2010-05-28	08:00 CDT
SUN	2010-05-28	08:00 CDT
Prep: DRECLE	2010-05-28	08:00 CDT
SUN	2010-05-28	08:00 CDT



# Vessel Speed Reduction

**portvision**

Search:  Region: ALL

Current User: dean2@ariss.com  
home region: Venice, Louisiana

**IMPIRE STATE**

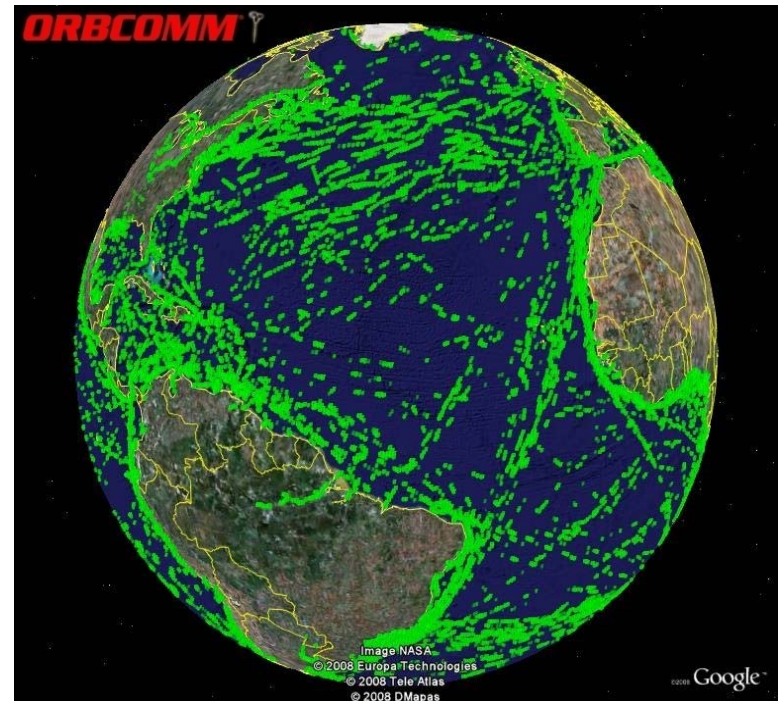
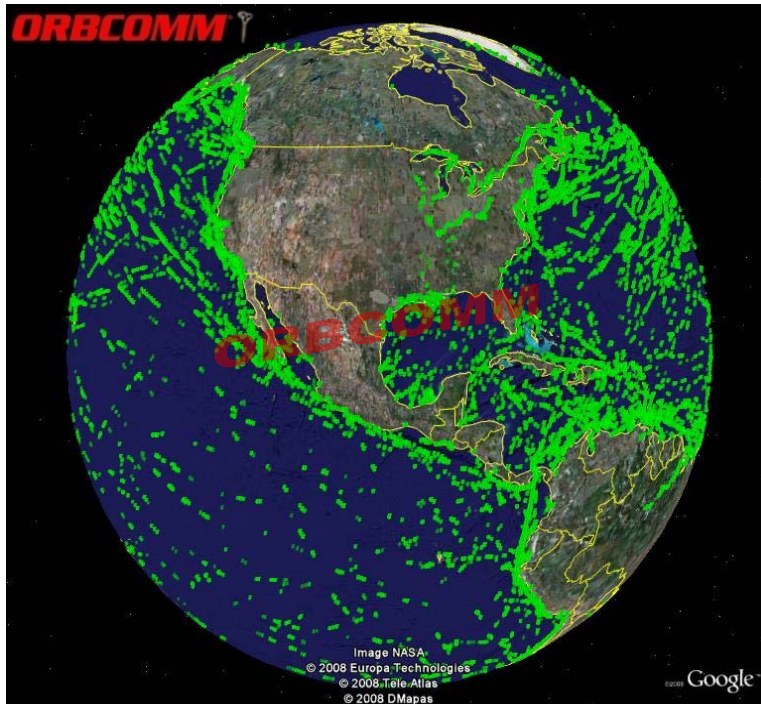
**Vessel Speed Report**  
from 5/24/2010 to 6/28/2010 11:59:59 PM in local time

Vessel	Type	IMO #	Call Sign	MMSID	Flag	Max Speed	Miles	Direction	Time
SPARTAN	Vessel	5867870	WBN3018	586888760		48.6	6	Inbound	2010-06-17 10:51 PDT
BESAME	Passenger	9426360	WD49235	586862960		21.5	2.8	Inbound	2010-06-17 16:10 PDT
DIONYSOS LEADER	Cargo	9426360	7JFW	432722000		19.5	9.2	Outbound	2010-06-23 19:46 PDT
GREEN BAY	Cargo	9339818	WDD9433	587311350		19.1	12.9	Inbound	2010-05-29 13:16 PDT
SEVEN SEAS NAVIGATOR	Passenger	9064128	ZCDT7	510520000		18.5	18.9	Inbound	2010-05-24 09:45 PDT
SEVEN SEAS NAVIGATOR	Passenger	9064128	ZCDT7	510520000		18.3	5.2	Outbound	2010-05-25 00:06 PDT
UNITED SPIRIT	Cargo	9185047	ELYB2	636011280	Liberia	18.2	11.8	Outbound	2010-06-07 17:53 PDT
ARCADIA HIGHWAY	Cargo	9078842	3FGT4	554342000	Panama	17.9	15.1	Inbound	2010-06-01 12:28 PDT
CSCC TIANJIN	Cargo	9361835	C6XA4	511003500		17.5	9	Inbound	2010-06-26 18:00 PDT
DREAM DIVA	Cargo	9325790	3EXW6	572856000		17.5	18.5	Outbound	2010-06-17 16:51 PDT
DREAM DIVA	Cargo	9325790	3EXW6	572856000		17.4	7.9	Inbound	2010-06-17 04:06 PDT
ARCADIA HIGHWAY	Cargo	9078842	3FGT4	554342000	Panama	17.3	14.2	Outbound	2010-06-02 05:19 PDT
GRAND DUKE	Cargo	9303170	3ECP7	571384000	Panama	17.2	6.9	Outbound	2010-06-19 04:50 PDT
PLEIADES LEADER	Cargo	9416374	7JGE	432734000		17	18.5	Outbound	2010-06-25 22:42 PDT
MODERN EXPRESS	Cargo	9231688	H9DG	586187000	Panama	16.9	17.5	Outbound	2010-06-13 03:34 PDT
MORNING MIRACLE	Cargo	9289908	MKV52	235010230	United Kingdom	16.5	12	Outbound	2010-06-02 18:27 PDT
GREEN BAY	Cargo	9339818	WDD9433	587311350		16.4	14.8	Outbound	2010-05-31 18:33 PDT
SOLAR WING	Cargo	9708244	ELJS7	636008614	Liberia	16.1	16.6	Outbound	2010-06-04 18:34 PDT
BELUGA FAIRY	Cargo	9468996	VZE04	505494000		15.6	11.7	Inbound	2010-06-15 14:25 PDT
NIPPON MARU	Passenger	9817831	JNNU	431302000	Japan	15.4	2.7	Outbound	2010-06-10 14:15 PDT
HYUNDAI NO 206	Cargo	9709157	9VGA2	565771000		15.3	3.4	Outbound	2010-06-22 18:45 PDT
UNITED SPIRIT	Cargo	9185047	ELYB2	636011280	Liberia	15.2	19.8	Inbound	2010-06-06 17:04 PDT
MODERN EXPRESS	Cargo	9231688	H9DG	586187000	Panama	15.1	9.6	Inbound	2010-06-12 14:10 PDT
BELUGA FAIRY	Cargo	9468996	VZE04	505494000		14.8	7.7	Outbound	2010-06-16 07:31 PDT
GRAND DUKE	Cargo	9303170	3ECP7	571384000	Panama	14.8	11.5	Outbound	2010-06-20 17:26 PDT
NIPPON MARU	Passenger	9817831	JNNU	431302000	Japan	14.5	16.8	Inbound	2010-06-09 11:24 PDT
BELL M SHIMADA	Vessel	9349069	WTEG	569970147		14.4	2.7	Outbound	2010-06-02 10:56 PDT
BELL M SHIMADA	Vessel	9349069	WTEG	569970147		14.4	11.6	Outbound	2010-05-30 15:23 PDT
CSCC TIANJIN	Cargo	9361835	C6XA4	511003500		14.3	4.8	Outbound	2010-06-27 15:38 PDT
DOLE COSTA RICA	Cargo	9900335	08FX9	511641000	Bahamas	13.7	19.8	Outbound	2010-05-25 23:03 PDT
MORNING MIRACLE	Cargo	9289908	MKV52	235010230	United Kingdom	13.6	1	Inbound	2010-06-02 05:14 PDT
CALIFORNIA RESPONDER	Vessel with anti-pollution	983102	WBO8591	586608000	United States	13.2	3.1	Inbound	2010-06-21 05:28 PDT

VESSEL SELECTED: 32° 33' 13.32" N, 117° 10' 27.18" W



# Worldwide Heatmap



# Waterway Reporting

The screenshot displays the PortVision web application interface. The main window shows a 'Terminal/POI Detail Report' for 'Total #2 - Sabine-Neches' from 2008-05-01 to 2008-05-13. The report includes a table of vessel arrivals and departures with columns for Vessel Name, Arrival Date, Departure Date, Time at Terminal / POI, Origin, and Next Destination. A sidebar on the left lists various report types under 'Reports' and 'Playback'.

**Terminal / POI Detail Report**  
 Arrivals and departures from Total #2 - Sabine-Neches beginning 2008-05-01 ending 2008-05-13 in local time.

Vessel Name	Arrival Date	Departure Date	Time at Terminal / POI	Origin	Next Destination
Moscow	2008-04-29 18:53 CDT	2008-05-01 21:50 CDT	50 hrs, 56 mins	Motiva PI #2	Lower Fine Anchorage
GREG TURECAMO	2008-05-01 20:48 CDT	2008-05-01 21:46 CDT	57 mins	Marine Fueling Service	Marine Fueling Service
HELEN MORAN	2008-05-01 21:13 CDT	2008-05-01 21:47 CDT	34 mins	Marine Fueling Service	Lower Fine Anchorage
SAN BLAS	2008-05-02 07:02 CDT	2008-05-02 07:13 CDT	10 mins	Total #3	Total #3
ASHLEY SEA	2008-05-02 07:44 CDT	2008-05-04 13:44 CDT	53 hrs, 59 mins	ExxonMobil Baton Rouge	Upper Fine Anchorage
GOLIATH	2008-05-02 07:51 CDT	2008-05-02 08:43 CDT	52 mins	Motiva PI #3	Motiva PI #3
HERMES	2008-05-02 07:52 CDT	2008-05-02 08:40 CDT	45 mins	Motiva PI #3	Motiva PI #3
SAMSON	2008-05-04 13:07 CDT	2008-05-04 13:42 CDT	34 mins	Rewan Dock	Upper Fine Anchorage
GOLIATH	2008-05-04 13:06 CDT	2008-05-04 13:45 CDT	36 mins	Lone Star Marine	Upper Fine Anchorage
Moscow River	2008-05-04 18:24 CDT	2008-05-06 08:39 CDT	38 hrs, 14 mins	SB Buoy	Lower Fine Anchorage
GOLIATH	2008-05-04 18:40 CDT	2008-05-04 19:11 CDT	30 mins	Motiva PI #1	Motiva PI #1
HERMES	2008-05-04 18:43 CDT	2008-05-04 19:11 CDT	28 mins	Lone Star Marine	Motiva PI #1
NIKE	2008-05-06 08:01 CDT	2008-05-06 08:39 CDT	37 mins	Lone Star Marine	Lower Fine Anchorage
HERMES	2008-05-06 08:02 CDT	2008-05-06 08:37 CDT	35 mins	Motiva PI #1	Lone Star Marine
GOLIATH	2008-05-06 19:09 CDT	2008-05-06 19:47 CDT	38 mins	Lower Fine Anchorage	Signal Dry Dock
Stavanger Bay	2008-05-06 19:12 CDT	2008-05-07 17:11 CDT	21 hrs, 58 mins	SB Buoy	Sunoco #5
SAN BLAS	2008-05-06 21:03 CDT	2008-05-06 22:02 CDT	59 mins	Total #3	Galveston Oil Terminal
BAY OU PIGUANT	2008-05-07 12:47 CDT	2008-05-07 13:04 CDT	16 mins	Total #3	OMIS
HELEN MORAN	2008-05-07 16:30 CDT	2008-05-07 17:09 CDT	39 mins	Marine Fueling Service	Sunoco #5
CARE ANN	2008-05-07 16:38 CDT	2008-05-07 17:12 CDT	33 mins	Marine Fueling Service	Sunoco #5
HOWARD BLANK	2008-05-08 10:20 CDT	2008-05-08 12:55 CDT	2 hrs, 35 mins	ITC	Total #2
HOWARD BLANK	2008-05-08 13:54 CDT	2008-05-08 14:22 CDT	27 mins	Total #2	Total #2
HOWARD BLANK	2008-05-08 15:21 CDT	2008-05-08 23:01 CDT	7 hrs, 39 mins	Total #2	Total #3
RHONDA LANULLE	2008-05-09 11:58 CDT	2008-05-09 12:58 CDT	0 mins	Total #3	Total #3
SAN BLAS	2008-05-10 06:10 CDT	2008-05-10 06:32 CDT	22 mins	Total #3	610 Bridge, Houston TX
SAN MIGUEL	2008-05-11 20:39 CDT	2008-05-12 05:55 CDT	9 hrs, 15 mins	Total #3	Port of Port Arthur
Lochness	2008-05-12 08:22 CDT	2008-05-13 18:42 CDT	34 hrs, 20 mins	Sunoco #2	Galveston Sea Buoy
HELEN MORAN	2008-05-12 08:29 CDT	2008-05-12 09:22 CDT	53 mins	Sunoco #2	Great Lakes Carbon
SAMSON	2008-05-13 17:52 CDT	2008-05-13 18:38 CDT	45 mins	Motiva PI #3	Lone Star Marine

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# AIS Benefits

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- \$2M reduction in barge demurrage at an oil refinery
- Increased enforcement of Jones Act violators by trade association
- Increased tariff collection
- Enforcement of speed/emissions/labor
- Safety reporting (dock repair, dredging)
- Forensic support (enforcement, litigation)
- Increase MTS business intelligence – awareness of vessel movements throughout the System

# Press Briefing by National Incident Commander

June 18, 2010, 14:07: 06 CST

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“ Some of the things we're working on this week—we've had an extraordinary response to our Vessel of Opportunity program, in excess of 2,000 vessels operating around the gulf. Our goal is to create a command and control system and a tracking system where we can most effectively utilize these vessels of opportunity. We only (inaudible) that local expertise and passion and we want to channel that and make sure we're creating unity of effort.

To that end, we're doing a couple of things. We're organizing these vessels of opportunity in groups, establishing a leader with the capability to communicate. A lot of these folks are very, very small and may or may not have radio systems. **We're also putting automated identification system tracking devices on the larger vessels so we can bring those in to our common operating picture and have them actually displayed on a computer.**

We actually brought in extra aircraft into the area to increase surveillance as well. Most recently, three additional H-65 aircraft were deployed to Air Station New Orleans to provide overhead sighting. The goal is, over this week and into next week, is to create a command and control structure and a communications backbone to allow us to effectively deploy and utilize all those 2,000 vessels of opportunity that are out there.”

**Admiral Thad Allen**  
National Incident Commander



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# Questions & Answers

# Contact Information

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