Latest Developments in AIS-Based Business Intelligence

Jason Tieman, Director of Maritime Solutions
PortVision®
About PortVision

• AIRSIS founded in 1995
• Maritime technology company
• Core competence in software development and remote asset management
  • Satellite-based tracking, management, and reporting
  • We manage assets for: vessels, barges, buoys, trucks, railcars, generators, radio towers
  • Environmental monitoring for Ports
  • Offshore platform management
  • Modular AIRSIS Vision™ platform
• Launched PortVision in 2006
• 2011 Plimsoll Award Recipient
• PortVision Patent: April 2011
  (System and method for harvesting business intelligence from maritime communications)
Underlying Technology - AIS

Maps and Aerial Views of Waterways

AIS Collision Avoidance Signals

Network of AIS Receivers

Computing infrastructure for data processing, data warehousing, application, and web presentation

Web-based service
How AIS can be leveraged

- Mapping of real-time vessel locations
- Automatic logging of arrivals, departures, and passings
- E-mail/text message alerts
- Flexible searching and filtering
- Historical playback and reporting
- Web-based to support remote access
Commercial Solutions

• Web-based services used by:
  • Federal/State/Local Government
  • Port authorities
  • Marine service companies
  • All major oil companies
  • Maritime lawyers

• High-volume data processing:
  • 40 million vessel location reports daily
  • Maintain a data warehouse of 15 billion arrival, departure, and movement records

• Significant real-time and historical functionality, providing true business intelligence
Business Intelligence

- Business perspective rather than vessel perspective
- Interpreting data to identify events and activities
- Comprehensive data warehousing for playback, fact discovery, and operational analysis
Opportunities for Ports

- Automate revenue capture (transits, docking, lay berth)
- Increase revenue (identify lost tariff opportunities)
- Dock scheduling, labor assignment
- Compliance, law enforcement, and MDA
- Incident management
- Training
- Negotiation/arbitration/litigation
Opportunities for Terminals

- Schedule labor and resources based on real-time data
- Better interaction with vendors
- Reduce demurrage
- Incident management
- Training
- Negotiation/arbitration/litigation
Refinery Terminal

**Need**
- Visual scheduling of all jobs via the web
- Tablet-based capture of all relevant activities on the dock
- Independent collection of Statement of Facts data
- Comprehensive analytical reporting identifies dock utilization, performance insight, optimization

**Results**
- Identify sources of delay and demurrage. Savings (claim denial) directly attributable to PortVision in each of last five years has delivered a 200% ROI
- Significant operating and market intelligence benefits
- Support negotiation, compliance, even litigation
- Hold vendors and service providers accountable

Dock Management System

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Port of Morgan City

Need

• A system to increase efficiency by providing visibility of vessel type, name, origination/destination and commodity onboard.
• Collect tonnage data to acquire dredging monies and ranking in the USACE NDC Waterborne Commerce Statistics Fact Card.

Solution

• PortVision’s AIS data service provided real-time and historical information for all commercial vessel traffic in POMC waterways.
  • It captured ship name, call sign, IMO/MMSI numbers, length/beam, ship type, draft, destination and estimated time of arrival.
• PortVision reports were accepted by USACE. POMC was ranked #98 in the USACE Top list for 2009.
Tug Fleet Management

- Customizable enterprise system for vessel owner/operators to better:
  - Schedule operations / Dispatch
  - Document vessel activities
  - Keep customers aware of product movement
  - Invoice clients
  - Manage crew
  - Manage vessel and equipment inspection / maintenance
Incident Response

On April 20, 2010, the Deepwater Horizon drilling rig (MODU) exploded about 40 miles (60 km) southeast of the US Louisiana coast and the subsequent fire killed 11 workers and injured 16 others.

Need

• Effectively allocate and manage:
  30,800 personnel, 5050 vessels, dozens of aircraft
• Create a command and control system and a tracking system where they could effectively utilize 2000 vessels of opportunity
• Capability to communicate
• Integrate AIS data for common operating picture
Incident Response

Results

- Improved safety
  - Work occurred in extremely remote areas with limited communications access.
  - Enabled response team to monitor thousands of personnel, deployed on hundreds of vessels, including “vessels of opportunity”

- Optimized accountability
  - Enforcement of no wake zones.
  - Monitoring vessels not evolved in the response

- Informed decision-making
  - Enabled response team to leverage both real-time and historical vessel information to facilitate better decisions.
  - Enabled response team to create/share detailed reports about activities in all 17 remote, hard-to-reach response divisions.
US Green Port—Port of San Diego

Port of San Diego launched a Clean Air Program which voluntarily asked vessels entering or leaving the Port to observe the set speed limits within a 20 nautical mile from specific points (VSR zone) to reduce emissions. Vessel operators who achieve 90% compliance were recognized.

Results

While in the VSR zone, a vessel’s maximum speed is recorded using the PortVision Web-based vessel tracking service to determine VSR program participation. Vessel operators who achieve 90 percent compliance are recognized for their participation each quarter.
Better Visibility Leads to Better Decisions

• Driving growth through improved decision-making and documentation
  • Resource allocation
  • Productivity improvement
  • Competitive analysis

• Enhancing operations through better accountability
  • Demurrage billing and validation
  • Improved tariff collection
  • Forensic support for litigation or law enforcement
  • Regulatory compliance monitoring

• Protecting personnel and assets
  • Reporting for dock repairs and dredging
  • Vessel speed and wake-reduction monitoring
  • MDA support
Contact Information

Jason Tieman
Director, Maritime Solutions
723 Main Street, Suite 1004
Houston, Texas

jtieman@portvision.com
1-713-337-3737

www.portvision.com