MARITIME LOGISTICS PROFESSIONAL

July/August | *Volume 7, Issue 4*

www.MaritimeLogisticsProfessional.com

Ports & Infrastructure

The 'New Normal' on the Waterfront

THE NORTHWEST SEAPORT ALLIANCE
Redefining Competition, Cooperation & Success

PORT SECURITY
Cyber Threats: clear and present danger

TECHNOLOGY
The end of Siloed Business Systems

Seatrade europe®

Cruise & River Cruise Convention

Wednesday 6 to Friday 8 September 2017

Hamburg Messe, Hamburg, Germany

Europe's leading platform for debate and discussion

10% off conference packages for Maritime Reporter readers

Hear from leading industry experts on the latest topics and talking points affecting the European cruise community, including:

- The future of the cruise industry in Europe
- River cruise – River innovation and creating a secure shoreside environment
- The impact of Brexit on the European cruise industry
- Ports and destinations – Operating beyond peak demand
- Sustainability and green shipping *Sponsored by* global maritime environmental congress gmec
- Ship Design and Interiors
- Shorex: What's trending?

Meet decision-makers

Expand your network

Join industry experts

10% off

for Maritime Reporter readers! Quote code 'MediaEurope17' in the 'Further Remarks' field on the booking form to receive your discount

Visit www.seatrade-europe.com to book your place

Supporting Media Rates: Supporting media are entitled to a 10% discount off full rate conference fees.

Sponsor

INTERCRUISES SHORESIDE & PORT SERVICES SA

Supported by

CLIA

IG River Cruise

VERBAND DEUTSCHER SCHIFFSMAKLER

Organised by

Hamburg Messe und Congress

In partnership with

Seatrade

NOV 27-29, 2017 | LA-LONG BEACH, CA

PORTCON™

A Port Management Network Event

SEAPORT MANAGEMENT, OPERATIONS, TECHNOLOGY & SECURITY CONFERENCE

+

THE ANNUAL CONFERENCE FOR CPE CERTIFIED PORT EXECUTIVE™ ALUMNI

www.portcon.org

MACDONNELL

CONTENTS

July/August 2017 **Volume 7 Number 4**

"I see WMU as charting the course for a better world. Providing the best education and research facilities for post graduate studies and capacity building for a sustainable maritime industry."

– Dr. Cleopatra Doumbia-Henry,
President,
World Maritime University (WMU)

Profile begins on page 20

8 **Editor's Note** *The 'New Normal'*

10 **Regulatory Watch** *Cyber Attacks Threaten Shipping & Dominate Maritime Sector News* **By William P. Doyle**

14 **Op/Ed** *Act Now on Port Infrastructure* **By Rich Cooper and Kurt Nagle**

16 **Maritime Security** *Today's Maritime Security* **By Jim Romeo**

26 **Insights** *Global Bunkers, 2020 and Developing Market Trends* **By Joseph Keefe**

30 **Liner Trades** *Better Times for Box Carriers Ahead?* **By Barry Parker**

Credit: Hapag-Lloyd

THE CENTER OF YOUR
LOGISTICS UNIVERSE

Experience the Power of 2

Seattle and Tacoma provide a single port gateway that simplifies your choice while expanding your options.

Find out how we can make it easy for you to do business.

nwseaportalliance.com/easy

THE NORTHWEST
SEAPORT ALLIANCE

CONTRIBUTORS

1 **Alexander Buchmann** is Managing Director of Hanseaticsoft GmbH. He founded Hanseaticsoft in 2009 and developed Cloud Fleet Manager. Since March 2017, Lloyd's Register one of the world's largest ship classification societies, holds a share in the software company.

2 **Rich Cooper** is the Chief Executive Officer at the Ports of Indiana. Established in 1961, the Ports of Indiana is a statewide port authority managing three ports on the Ohio River and Lake Michigan.

3 **William P. Doyle** is a Commissioner with the U.S. Federal Maritime Commission. The FMC, among other things, regulates liner companies, ocean transportation intermediaries and marine terminal operators.

4 **Kurt Nagle** is CEO and President of the American Association of Port Authorities. The American Association of Port Authorities represents 130 of the leading seaport authorities in the U.S., Canada, Latin America and the Caribbean.

5 **Barry Parker,** bdp1 Consulting Ltd provides strategic and tactical support, including analytics and communications, to businesses across the maritime spectrum. The company can be found online at **www.conconnect.com**

6 **Jim Romeo** is a marine engineer and a freelance writer based in Chesapeake, Virginia.

ON THE COVER

On the Cover

The Northwest Seaport Alliance, which includes the port of Tacoma (pictured here) and Seattle, have embarked on an innovative partnership designed to bring prosperity and superior service to customers in this Pacific Northwest deep draft gateway. That story begins on page 37.

Image: the Northwest Seaport Alliance (NWSA)

MARITIME LOGISTICS PROFESSIONAL

ISSN - 24739308
USPS # 005-893

HQ 118 E. 25th St., 2nd Floor
New York, NY 10010 USA
Tel +1 212 477 6700
Fax +1 212 254 6271

URL www.MaritimeLogisticsProfessional.com
Email trauthwein@marinelink.com

Editor
Joseph Keefe
keefe@marinelink.com
+1 704 661 8475

Contributing Writers
Patricia Keefe
Barry Parker
William Stoichevski

Publisher
John C. O'Malley
jomalley@marinelink.com

Associate Publisher/Editorial Director
Gregory R. Trauthwein
trauthwein@marinelink.com

Production
Nicole Ventimiglia
nicole@marinelink.com

Corporate Staff
Vladimir Bibik, IT
Mark O'Malley, Public Relations
Esther Rothenberger, Accounting

Subscription
Kathleen Hickey
marprocirc@marinelink.com

Advertising Sales

VP Sales
Rob Howard
howard@marinelink.com

Northeast
Jean Vertucci
vertucci@marinelink.com
+1 212 477 6700

Southeast/Gulf States
Eric Freer
eric@freerpub.com
+1 281 384 8793

Copyright © 2017 New Wave Media.

Maritime Logistics Professional (ISSN 24739308) is published bi-monthly (6 times per year) by New Wave Media, 118 E. 25th St., 2nd Floor, New York, NY 10010-1062. Periodicals postage paid at New York, NY and additional mailing offices.

POSTMASTER: Send all UAA to CFS. NON-POSTAL AND MILITARY FACILITIES send address corrections to Maritime Logistics Professional 850 Montauk Hwy, #867 Bayport, NY 11705.

The publisher assumes no responsibility for any misprints or claims or actions taken by advertisers. The publisher reserves the right to refuse any advertising. Contents of the publication either in whole or part may not be produced without the express permission of the publisher.

Member BPA WORLDWIDE BRAND REPORT
Business Publications Audit of Circulation, Inc.

FORECASTS AND MARKET INTELLIGENCE FOR THE GLOBAL FLOATING PRODUCTION MARKET

THERE IS NOTHING ELSE LIKE IT ANYWHERE ELSE!

This comprehensive business intelligence service and online database provides insider access to business and investment opportunities in the deepwater global floating production sector.

- **MONTHLY REPORTS ON FLOATER PROJECTS:**
  100+ page monthly reports providing up-to-date details for current and planned floating production projects

- **2017/21 FORECAST OF ORDERS:**
  An in-depth market analysis and five year forecast of orders for floating production systems

- **SEARCHABLE DATABASE**
  Internet accessible database with daily updated info direct from industry sources on current and planned deepwater projects

REQUEST YOUR SAMPLE REPORT AND A FREE FIVE DAY TRIAL:
VISIT WWW.WORLDENERGYREPORTS.COM OR CALL +1-212-477-6700

37 SPECIAL REPORT

Image: NWSA

37 Innovative, Ideally Located – and Together as One *By Joseph Keefe*
44 Handicapping the Global Liner Lineup
46 Port Security – The Next Pearl Harbor *By Gordon McKeown*
50 Michael Bondo Andersen, CEO and founder of GateHouse *By Greg Trauthwein*
54 Addressing Today's Shipping Challenges with Software Solutions *By Alexander Buchmann*
58 Cargo Handling Equipment *By Joseph Keefe*
62 Stats – Multi-National Freight Stakeholders Want Direct Ocean Carrier Feeds
64 The End of Siloed Business Systems *By Tom Van Buskirk*

CPE CPE

The Certified Port Executive™ Program

The CPE CERTIFIED PORT EXECUTIVE™ PROGRAM is a five day management course designed to provide participants with a professional education opportunity related to the operation of ports, marine terminals, vessels and the broader transportation system.To date, over 500 participants representing more than 85 port authorities and 65 terminal operators have become part of the program. Propel your career and organization to the next level. Join the CPE Certified Port Executive Program.

WWW.CERTIFIEDPORTEXECUTIVE.COM

MACDONNELL

Editor's Note

The 'New Normal'

The 'new normal' in the wake of the Hanjin bankruptcy, containership alliance reshuffling and an expanded Panama Canal, is difficult to define. On the surface, the environment for containership operators and U.S. ports alike is improving measurably, with near record TEU volumes being handled. Separately, prominent boxship firms are reporting much improved financials. Looking at the current state of the U.S. economy, the increased level of commerce is perhaps not surprising. How it all ultimately shakes out is anybody's guess, but you can bet that everyone has an opinion. Here at ***MLPro***, we're no different.

Notwithstanding the influx of good news for the waterfront, it is also true that few players are sitting on their hands even as things look up. The last thing anyone wants, especially when it comes to the world of intermodal logistics, is to fall back into a cyclical feast or famine routine that benefits no one. That holds true for ports and ship operators alike. From that mindset has emerged at least one cutting edge move that promises to shake up the old formula for competition between regional ports.

In the Pacific Northwest, the ports of Seattle and Tacoma have formed the Northwest Seaport Alliance (NWSA). In what might have previously been thought of as an unlikely alliance between two regional rivals, the NWSA pact marries the interests, finances and logistical planning to benefit an entire region. Where the two ports might have competed for the same piece of business in the past, ramping up for and ultimately finding there wasn't enough business to satisfy both appetites, today's approach is radically different – and refreshing. The regional cooperation now sees infrastructure projects in either location voted on by both ports, who share risk – and profits. It is a little early to judge the wisdom of such a move, but the combined might of this natural, deep draft and ideally located coalition promises to be a formidable regional player. That story begins on page 37.

The NWSA, like all ports, needs boxships. And the health of the global containership business is naturally a topic of much discussion everywhere. Within these pages, ***MLPro*** contributor Barry Parker takes a look at what's happening in this important sector now, and what might come next. His story begins on page 30, followed closely by a statistical analysis of today's boxship line-up, with input by as many as three trusted industry analysts.

Finally, ports and containerships all need technology. And where technology is involved in today's intermodal commerce equation, there also comes risk – cyber risk, to be specific. As terminal operators, ports and containership operators themselves try to leverage the cloud to improve their collective bottom lines, part of that involves eliminating so-called 'siloed' data streams. Within this edition, we document the amazing progress has already been made, as well as the new risk that this entails. That said; the 'new normal' for ports, terminals, containerships and the supply chain itself has never been more exciting. Turn the page to find out why.

Image credit: Erin Keefe

Maritime Logistics Professional editor Joe Keefe happily dusted off his 35-year old sextant on August 21st for the solar eclipse. Keefe's hometown of Charlotte experienced a 98% eclipse.

Joseph Keefe, Editor | **keefe@marinelink.com**

Seatrade Offshore Marine & Workboats Middle East

25-27 September 2017
Abu Dhabi National Exhibition Centre
Abu Dhabi, UAE

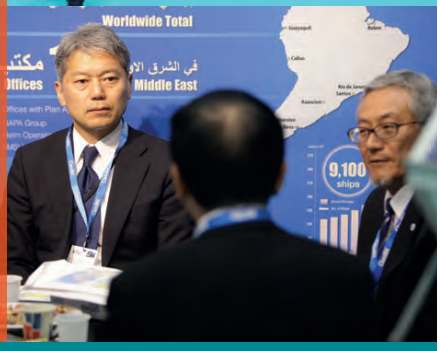
Find out more:
www.seatradeoffshoremarine.com

Be a part of the largest **Workboat and Offshore Marine** event in the region

BOOK TODAY
LIMITED STAND SPACE AVAILABLE

REGISTER ONLINE
FOR FREE ENTRY

Make this your opportunity to get in front of the right people, all under one roof



5,175+* visitors

220* companies

62* represented countries

*based on 2015 event figures

EXHIBITION • CONFERENCE • FORUMS • NETWORKING

Gold Sponsors

ABS

Middle East Marine

Smit Lamnalco

Silver Sponsors

allianz marine

SCHOTTEL

Supporting organisations

Institute of Chartered Shipbrokers

IMAREST

IMCA

The Nautical Institute

WISTA United Arab Emirates

Young Ship Dubai

Official media

Seatrade Maritime Review

Seatrade Maritime News

Go to www.linkedin.com and join Seatrade Maritime Events group for information and updates

Seatrade Maritime Events

@SeatradeME #SOMWME17

UBM

CYBER ATTACKS THREATEN SHIPPING & DOMINATE MARITIME SECTOR NEWS

THE MARITIME INDUSTRY MUST REDOUBLE ITS EFFORTS TO SECURE IT SYSTEMS AND DATA.

BY WILLIAM P. DOYLE

Image credit: William Doyle

In June, Maersk Line A/S's information systems were severely disrupted by the so-called Petya virus. FMC provided Maersk with relief to help them get through the difficult situation. In Mid-July, a researcher penetrated a ship's internet system through its very small aperture system (VSAT). The ship was operating in the South America trade.

VSAT Vulnerability

An internet security researcher identified as "x0rz" discovered that many shipboard VSAT systems can be penetrated through the public internet, making the findings live in real time on Twitter. Thus, ships can be tracked and identified through services like Shodan. Shodan is a search engine that allows users to find electronic devices and computer systems connected to the internet, i.e., power plants, traffic signals and even ships. x0rz found that some ships' systems are not securely configured thus allowing a remote attacker to gain access using default credentials.

According to TNW News, x0rz said "no ships were harmed during [his] experiments." The system x0rz obtained access to allow a review of the call history from the VSAT phone, ability to change the system settings, and even upload new firmware. The researcher logged the username "admin" then the password "1234" thereby gaining access to the ship's communication system.

I contacted x0rz through email connected to its Twitter account and asked for some tips and steps that shipping companies can take to make them more secure from cyberattacks. x0rz provided the following suggestions, all of which involve simple common sense and are easy to implement:

- Do not use default password(s) (change them immediately after installation);
- Do not expose on the Internet the VSAT administration panel (keep it internal only);
- Keep software up to date;
- Have this tested by a cybersecurity firm (audit / penetration testing). Sometimes it is easy to think "it's now secure" when in fact there are ways to bypass security mechanisms.

Maersk Infected by the Petya Virus:

FMC issued an order on July 19, 2017 granting Maersk Line's petition for a temporary exemption of service contract filings as a result of the so-called Petya virus. The cyber attack interrupted Maersk's ability to determine which shippers to contact

Earlier this month, Commissioner Doyle and Captain John Murray, CEO of Port Canaveral, toured the port and discussed, among other things, the advent of LNG as a fuel.

> FMC ISSUED AN ORDER ON JULY 19, 2017 GRANTING MAERSK LINE'S PETITION FOR A TEMPORARY EXEMPTION OF SERVICE CONTRACT FILINGS AS A RESULT OF THE SO-CALLED PETYA VIRUS. THE CYBER ATTACK INTERRUPTED MAERSK'S ABILITY TO DETERMINE WHICH SHIPPERS TO CONTACT IN ORDER TO EXTEND OR RENEGOTIATE CERTAIN SERVICE CONTRACT RATES.

in order to extend or renegotiate certain service contract rates. Further, even if Maersk were able to identify which contracts needed attention, the Petya virus prevented the company from electronically filing documents with the Commission.

By granting the petition, the FMC allowed Maersk some regulatory relief. For instance, Maersk would not require customers to pay the higher tariff rates to shipments tendered during the period of relief. Rather, FMC's order permitted Maersk to apply service contract rates to shipments that were agreed upon and filed after the date of cargo receipt without violating the Shipping Act. More to the point, Maersk was able to provide service to its customers on the same commercial terms as it would have had it been able to conclude and file contacts and amendments.

These two cyber incidents can serve as teachable moments for the entire maritime and logistics transportation chain. We all need to redouble our efforts and secure the best available IT system protections and practices.

M&A Update:

In July, China Ocean Shipping Company (COSCO) and Overseas Orient International Ltd. (OOIL) announced plans to merge. China-owned COSCO's move to absorb Hong Kong-based OOIL would create the world's third largest container carrier. OOIL is controlled by the Tung family, which founded Orient Overseas Container Line (OOCL) in 1969. The Tung family has a long history in the shipping industry predating modern day OOCL. In addition, the Tung family's Tung Chee-hwa was the first Chief Executive of Hong Kong. Tung Chee-hwa was elected in 1996 by the 400-member Selection Committee prior to the transfer of sovereignty over Hong Kong from the United Kingdom to China.

I had the opportunity to meet with the leadership of COSCO in Washington, DC in early August. According to COSCO executives, the parties have begun discussions with the U.S Department of Justice on the potential merger. The price tag for the deal is valued at $6.3B U.S. dollars. COSCO intends to keep in place OOCL's listing on the Hong Kong Exchange. The OOCL brand, headquarters and management structure is not expected to significantly change. Finally, all OOCL employees will be kept on board for at least two years.

Federal Maritime Commission Updates its Controlled Carrier List

On July 19, 2017, the Commission updated its list of "Controlled Carriers," or, those ocean common carriers that are majority owned or controlled by foreign governments. The Commission is charged with monitoring foreign government control of ocean shipping lines. The FMC maintains a list of these companies which is periodically updated as circumstances warrant.

Over the past couple of years, the FMC has demonstrated regulatory flexibility in addressing the burdens for shippers who do business with controlled carriers. For instance, in 2015, United Arab Shipping Company (UASC) was granted the ability to lower tariff rates without waiting the requisite 30 days. However, if UASC wanted to raise rates then they would still be required to wait 30 days prior to implementation.

Recent consolidation in the container shipping industry has resulted in four notable changes among Controlled Carriers as listed below:

- *China Shipping Container Line was integrated into COSCO Container Lines Company, Limited, which*

then changed its name to COSCO SHIPPING Lines Co, Ltd.

- *Singapore's American President Lines, Ltd. and APL Co., Pte. is being removed from this list because it is now wholly owned by CMA CGM S.A. and no state entity is a majority owner*
- *United Arab Shipping Company Ltd. (formerly United Arab Shipping Company (S.A.G.) is being removed from this list because it is now wholly owned by Hapag-Lloyd and no state entity is a majority owner*
- *China's Hainan P O Shipping Co., Ltd. is being removed from the list because it no longer operates in the U.S.-foreign trades*

China's COSCO SHIPPING Lines Co., Ltd. and Algeria's CNAN Nord SPA remain on the Controlled Carrier list.

Natural Gas as a Marine Fuel: IMO Holds Fast

The International Maritime Organization (IMO) met in London July 3-7. A couple of countries moved to delay or alternatively utilize a "transitional period" for the enforcement of the January 1, 2020 date for the global 0.5% sulfur content cap. The proposal was rejected by the IMO/ Marine Environmental Protection Committee (MEPC). Thus, any suggestion that there may be any delay to the January 1, 2020 implementation of the 0.5% sulfur limit was ruled out.

To summarize, in 2008, IMO MARPOL Annex VI regulations were accepted lowering the global sulfur cap from 4.5% to 3.5% by 2012 and then again to 0.5% on January 1, 2020. The 2020 date was conditionally approved with the inclusion of a look-back provision that would allow the IMO to delay implementation of the 0.5% cap from 2020 to 2025 pending a review on the availability of low sulfur fuel. A major step was taken in October of 2016 with the review finding no need to push back the original 2020 implementation date.

Shipowners and operators worldwide are making decisions based on IMO MARPOL's sulfur cap regulations. There are a limited number of options including LNG as a fuel, scrubbers or low sulfur fuels. Natural gas as a marine fuel substantially exceeds the other options with respect to air quality measures. Liquefied natural gas (LNG) emits zero sulfur oxides (SOx). Moreover, using LNG as a fuel emits near-zero particulate matter into the atmosphere. When compared to heavy marine fuel oil, LNG emits 90% less nitrogen oxides (NOx).

Expanded Panama Canal Celebrates First Anniversary

On June 26, 2017, the expanded Panama Canal celebrated its one-year anniversary. It is already having a massive effect on the US East and Gulf Coast. As of June, more than 1,500 neo-Panamax vessels transited the expanded canal with over half of them 13,000 TEU vessels. This dramatic increase in capacity has already yielded significant gains for ports. Both the Georgia and Virginia port authorities have reported double digit year-over-year volume growth for the month of May. Jacksonville saw a 13% bump in Asian containers from October 1, 2016 to end of March 2017 compared to the same period a year before. Because the old canal locks were only wide enough to handle ships of approximately 5,000 TEU, US ports on the east coast are keen to modify themselves to better accommodate the larger vessels.

A segment that has witnessed an unexpected rise in traffic is the carriage of natural gas and its byproducts. Prior to the Canal's expansion, very few LNG tankers were small enough to make the transit. Canal authorities forecasted a single LNG transit per week. However, today, an average of 5.2 LNG vessels transit the new locks every week. Beyond this, liquefied petroleum gas (LPG) vessels have seen a significant uptick, now accounting for 31.5% of all transits through the expanded canal.

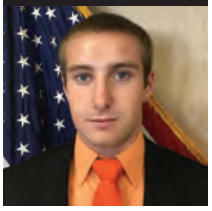
Numerous ports including Boston, Philadelphia, Charleston, Savannah, Jacksonville, Port Everglades, Tampa, Sabine-Neches Waterway and Houston are in the midst of dredging projects that will enable them to accept the larger post-Panamax vessels.

The Author

William P. Doyle

is a Commissioner with the U.S. Federal Maritime Commission. The FMC, among other things, regulates liner companies, ocean transportation intermediaries and marine terminal operators. The thoughts and comments he expresses here are his own and should not be construed to represent the position of the Commission or his fellow Commissioners.

Also Contributing:



Owen Braley

is a summer student volunteer in the Office of FMC Commissioner William P. Doyle. Braley is entering his junior year, a Second Class Cadet, at the Massachusetts Maritime Academy, majoring in International Maritime Business (IMB). He recently returned from a semester abroad at the Dalian Maritime University in Dalian, China.

ACT NOW ON PORT INFRASTRUCTURE

FUNDING FOR FREIGHT TRANSPORTATION INFRASTRUCTURE IS URGENTLY NEEDED TO KEEP U.S. ECONOMY MOVING.

BY RICH COOPER AND KURT NAGLE

Infrastructure is the backbone of developed nations. Our ability to move raw materials and finished products between domestic and world markets is critical to economic success. Right now, the U.S. freight transportation industry is at a crossroads and infrastructure funding is urgently needed to grow our economy. In recent years, transportation infrastructure investment has lagged, impacting the flow of goods for farmers, manufacturers, workers and consumers who must have access to the global marketplace.

This spring, an important roundtable was held in Indianapolis during national 'Infrastructure Week' where a group of national and Midwest experts discussed the most critical issues facing America's freight transportation system and our economy. Representatives from manufacturers, ports, steelmaking, mining, logistics, trucking, agriculture, departments of transportation, the U.S. Army Corps of Engineers and academia shared their concerns about the urgent need for new infrastructure funding and the catastrophic consequences if we don't act. Topics included:

- ***U.S. infrastructure lagging behind:*** *American Society of Civil Engineers graded U.S. infrastructure as a D+ in 2016 and estimated that 56,000 bridges are*

Image credit: Ports of Indiana

structurally deficient, while over half of our locks and dams have exceeded their design life. Meanwhile, China lifted 400 million people out of poverty by heavily investing in infrastructure.

- ***Congestion killing productivity:*** *Road and rail systems are carrying volumes beyond what they were designed for, which increases congestion. American Transportation Research Institute reported congested highways cost the trucking industry $63 billion in 2015 and caused 996 million hours of lost productivity. That's equal to 362,000 trucks sitting idle for a year.*
- ***11 million jobs depend on one aging lock:*** *U.S. Department of Homeland Security reported that if the Poe Lock failed for six months, the nation would be plunged into a recession resulting in the loss of 11 million jobs. Rebuilt in 1968, the aging lock is the only feasible passageway for raw materials to get to the U.S. steel industry, and upgrades are critical.*
- ***$66 billion needed for U.S. ports:*** *American Association of Port Authorities has identified a need for $66 billion in federal investments for critical port-related infrastructure over the next 10 years. Meanwhile, the port industry generates $320 billion annually in taxes, supports 23 million jobs and is investing $31 billion per year in infrastructure. Currently, the harbor maintenance taxes paid by shippers are much greater than the federal funds being allocated to maintain our harbors, and that needs to change.*
- ***Indiana's model could benefit nation:*** *Indiana recently passed groundbreaking legislation that provides $1.2 billion in new annual funding for roads and bridges over the next 20 years. By building a strong coalition and developing a collaborative process for identifying needs and sources of funding, a statewide logistics council was able to build a comfort level with legislators and the public about the need for tax increases. Raising taxes used to be considered a "death knell" for re-elections, but that is no longer the case when it comes to infrastructure.*

The answer is … Funding is obviously needed to improve infrastructure, but securing sufficient support for the needed investing requires key components:

» *Speak with one voice. This is a non-partisan issue that affects all modes of transportation and essentially every type of business.*

» *Support a comprehensive national strategy. States have taken the lead on developing highways, but a broader multimodal perspective is needed to invest wisely in a national freight system.*

» *Act now! It would not be wise to sit idle when the U.S. President is talking about making major investments in our country's infrastructure. The time is now.*

To that end, we call upon federal, state and local leaders to make infrastructure funding a top priority so that we can take our country's economy to the next level.

The Authors

Kurt Nagle
is CEO and President of the American Association of Port Authorities. The American Association of Port Authorities represents 130 of the leading seaport authorities in the U.S., Canada, Latin America and the Caribbean.

Rich Cooper
is the Chief Executive Officer at the Ports of Indiana. Established in 1961, the Ports of Indiana is a statewide port authority managing three ports on the Ohio River and Lake Michigan.

Today's Maritime Security: Prepared for a Clear and Present Danger?

By Jim Romeo

In late June of 2017, AP Moeller-Maersk shut down its container operations at the Port of Los Angeles. It wasn't due to labor relations problems, equipment malfunction or other reasons that have been known to thwart port operations. It was a cyber-attack.

In today's climate of information technology, there's no telling where hackers lurk or a cyber security compromises may occur. For the maritime industry and its extended supply chains, the threat is real and looming.

"At the local Maersk facility in LA, terminal personnel had to return to the days of paper and pen to keep cargo moving," says Jill Taylor, Homeland Security Manager with the Port of Los Angeles in San Pedro, CA. "Thankfully, they were able to recover rather quickly, but there was still a worldwide impact. If it can happen to Maersk, it can happen to anyone."

This is not the first alert to the cyber security risk posed for seaports. E. Anthony Incorvati is the Business Development Manager, Transportation for Axis Communications who provides network video as security for many commercial facilities. He says cyber security is a major concern for maritime and port security today and has been a top priority for the American Association of Port Authorities Security Council and many Port Authorities and federal agencies for some time.

"Ports are the economic engines of this country and the world, meaning any downtime caused by a breach could have a catastrophic impact on global supply chains," says Icorvati. "While not always thought of as an early tech adopter, many ports have embraced the internet of things (IoT). While communications and information technologies are beneficial for operations, they also open ports up to being more vulnerable to cyber-attacks than ever before. Any connected network device being utilized, whether it is for operational efficiency or

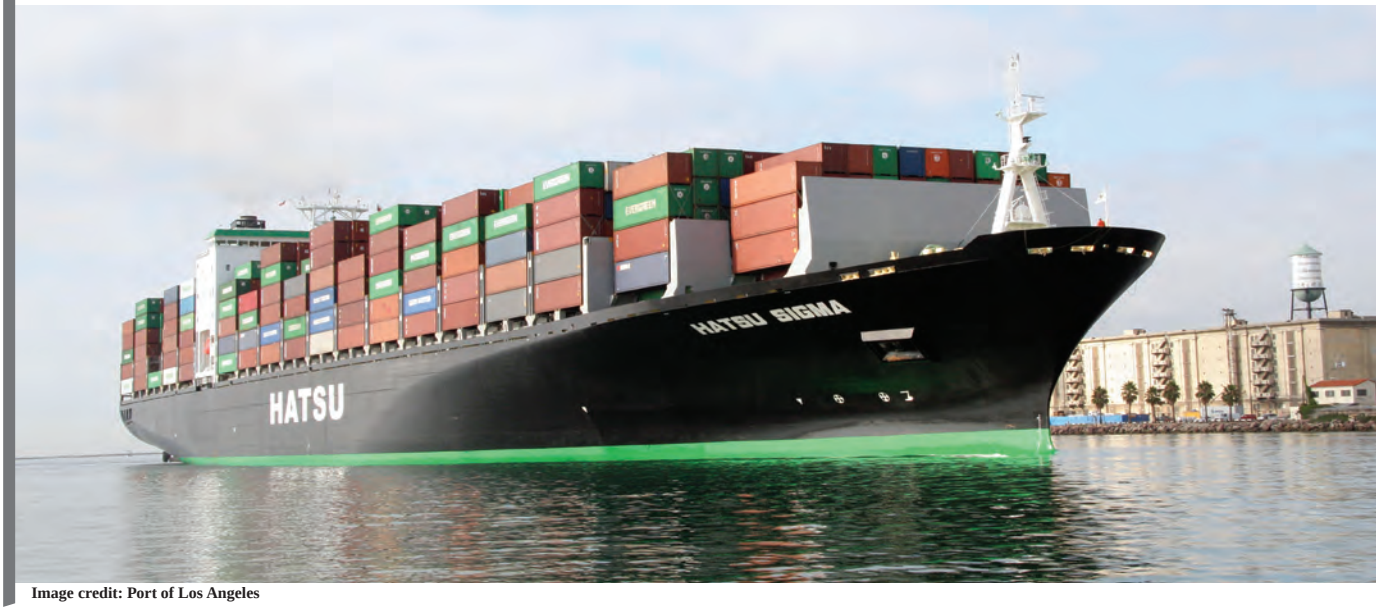


Image credit: Port of Los Angeles

better physical security, can create a cyber security risk. This includes IP cameras, which are normally seen as fundamental to preventing physical security issues, and are potential forgotten as possible cyber vulnerability."

Real Threat

Transportation infrastructure is often viewed as a target as it is a first line in disabling or doing harm to a supply chain. The effects of such an attack may ripple throughout the commerce that relies on it. Within transportation infrastructure though, maritime operations are truly vulnerable. Not only is a cyber threat part of the problem, but so are further acts of terror.

According to Orange Business Services – a global IT and communications services provider who has developed the Orange Maritime Connect single integrated solution platform managing a shipping fleet, cyber security is a real threat and many maritime shipping companies are not fully prepared. According to their research from Futurenautics, 43% of crews have sailed on a vessel that has been compromised by a cyber incident. 90% of mariners had never received any cyber security training or guidelines. 95% of breaches are caused by human errors. They also cite research stating that ship operators believe that data traffic will increase by nearly 60% over the next 2-3 years.

Great strides continue to be made in using technology to improve efficiency and reduce costs within ports and shipping. However, technology often brings increased risks according to Andrew Beckett, a managing director for Kroll, an information technology security consultancy, based in London.

"Systems which automate the movement of ISO containers can be hacked so that the containers are moved to a quiet area of the docks for the removal of smuggled items or in some cases, the removal of the entire container before it is processed by customs," says Beckett. "The ability to access and alter electronic shipping records, bills of lading, and other documentation means that it is all but impossible to trace missing containers. Having CCTV and bar code scanning running on different, isolated systems provides the ability to collate records from multiple sources for verification purposes and makes it harder for illegal activity to go unnoticed. However, too often, those comprehensive systems are missing."

Jill Taylor also believes the threat may extend beyond a cyber frontier to acts of terror. She points out those seaports with cruise terminals have some of the largest gatherings of people anywhere, with thousands of people embarking and debarking within a handful of hours inside a relatively small footprint. Taylor emphasizes that this is a vulnerability be vigilant in by planning and training.

Her concerns reach further as there is discussion about cutting off Federal port security grant funding to sanctuary cities. "In LA, the primary source of funding for our security system is the Department of Homeland Security's Port Security Grant Program," she says. "This funding has been instrumental in our ability to install layers of security to protect our Port. Since 2002, we have received over $80 million in Federal grant funding some of which has been used to prevent and/or mitigate the security concerns I just mentioned. We have built a Cyber Security Operations Center, which thwarts over 200,000 attacks per week, installed over 400 cameras on land and waterside and purchased Port Police patrol and training vessels. So, cutting off this funding to ports in sanctuary cities would be detrimental to the security of our Nation's cargo and economy."

In order to arrest the threats that prevail, it's important to collaborate with other stakeholders within the intelligence community. Staying ahead of emergent threats means being aware of what others are thinking and to know more precisely what your facility and its location presents as risk.

"Living in a Country like [the] United States there are so many potential areas of vulnerability," says Michael Graychik, Deputy Chief, Emergency Management and Operations

**Image above courtesy: Axis Communications*

> WHILE NOT ALWAYS THOUGHT OF AS AN EARLY TECH ADOPTER, MANY PORTS HAVE EMBRACED THE INTERNET OF THINGS (IOT). WHILE COMMUNICATIONS AND INFORMATION TECHNOLOGIES ARE BENEFICIAL FOR OPERATIONS, THEY ALSO OPEN PORTS UP TO BEING MORE VULNERABLE TO CYBER-ATTACKS THAN EVER BEFORE. ANY CONNECTED NETWORK DEVICE BEING UTILIZED, WHETHER IT IS FOR OPERATIONAL EFFICIENCY OR BETTER PHYSICAL SECURITY, CAN CREATE A CYBER SECURITY RISK. THIS INCLUDES IP CAMERAS, WHICH ARE NORMALLY SEEN AS FUNDAMENTAL TO PREVENTING PHYSICAL SECURITY ISSUES, AND ARE POTENTIAL FORGOTTEN AS POSSIBLE CYBER VULNERABILITY.

– E. Anthony Incorvati,
Business Development Manager, Transportation for Axis Communications

Group, Los Angeles Port Police in San Pedro, CA. "We watch and respond to current threats. We have very frequent communications with our partners in the intelligence community and strive to stay ahead of emerging threats. We using training and planning to prepare and to lessen our exposure to all known threats."

Graychik says that geographic location of their port is of great concern due to the open space of the California coast, its unmonitored coastline and the many security challenges it presents.

"Most commercial vessels are tracked and monitored but there is a threat that exists from smaller unmonitored recreational vessels," he says. "The small vessel threat is something that has been discussed within the Maritime Law Enforcement Community for many years now."

Turning to Technology

New technology is likely to shape the risk equation for all links in transportation supply chains. Investments in securing maritime operations are increasing in parallel to the security vulnerabilities of the marine supply chain infrastructure. With new technology is a heightened focus on having workforce in place that is dedicated to security.

The Port [of Los Angeles] Police uses a number technologies and partnerships to mitigate risks related the physical dimension of the maritime domain adds Graychick. "We are one of the few public safety departments that provide a full time contingent of officers to address our waterside security concerns," he says. "Our Marine Unit is on the water 24/7, as well as a full time dive team to address underwater security threats."

He says their patrol boats are equipped with the radiological and nuclear detection capabilities. Officers use this technology to passively scan all types of vessels as they transit in and out of the port. They also scan throughout the port's marinas and along its 43 miles of shoreline.

"Our Hazardous Material Unit and Marine Unit work with a regional public safety consortium known as 'Securing the Cities', to provide random large scale, multi-agency, radiation and nuke detection operations for both the Ports of Los Angeles and Long Beach," says Graychick. "Vessel screening is done on a large scale inside and outside of the port complex."

In a marine environment however, new visual technologies can be a boon to security efforts. Security cameras are very sophisticated nowadays and can offer capabilities that go beyond the archaic vigilance and surveillance we associate with them.

"It is incredible what can be done with surveillance cameras today," says E. Anthony Icorvati. "They are much more than cameras and more akin to computers with the processing power to enable intelligent applications that reside at the edge - or on the camera.

For example, thermal cameras have come a long way and are a must-have technology for maritime security, especially for perimeters. There are currently solutions available that can work with thermal cameras to allow for the detection of moving objects and long ranges with only a couple of pixels on targets needed. Intelligent software applications can take what is captured by a thermal camera and optimize it by connecting with a neighboring PTZ color camera, which can automatically track the object detected by the thermal camera."

Other technologies aid in the authentication and identification of those in and around the maritime operations environment. Icorvati says his firm provides technology in support of worker validation as newer tools and technology are being used for verification and validation.

"The Transportation Worker Identification Credential (TWIC) is something all leaders in the maritime industry should be aware of. Given that many vessels and ports hold sensitive information or materials, it is important to ensure they are highly secured and regulated. It is a regulation enacted by the Maritime Transportation Security Act, affecting workers who require access to secure areas of the nation's vessels," he says.

Image credit: Port of Los Angeles - Liquid Terminals

Maritime Security & the Road Ahead

Tools and technology as well as a dedicated task force to bolster security are crucial. As threats and cyber risk increases it's important to look to the future and stay focused on what's ahead for the maritime industry, its infrastructure and the supply chain it supports from all sides.

"Going forward, cyber will continue to be a hot topic in port security," says Taylor. "A company can put all necessary barriers in place to prevent an attack from a foreign country or outside entity, but still be exposed to the insider threat. Whether it is an unknowing employee opening up an infected email, or a disgruntled employee inserting a malicious thumb drive, there are numerous ways the network can be exposed to a virus from the inside. Security professionals know we cannot be complacent and this is particularly true with cyber. The message for proper cyber hygiene has to be circulated over and over again to employees at all levels within a company and protocols need to be enforced regarding the use of external devices. Information technology is ever evolving and the next cyber disaster could be just a click away."

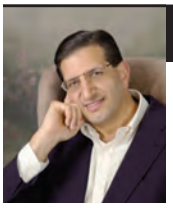
Icorvati also posits that the newfound utility of data security from information technology is a growing concern. The Internet of Things (IoT) and the opportunity it presents in extracting data and using it, is a source of concern for maritime security in the near term.

"The focus will be on connected devices, whether it is learning new ways to utilize connected devices for improved operational efficiency or physical security, it will continue to remain a priority," he says. "As with most industries today, IT and physical security managers will continue to work more closely to help ensure that the entire entity is protected. With hackers becoming even more advanced, the access they can gain from an unprotected internet protocol (IP) camera to not only data, but other connected devices, can be disastrous."

Nick Doyle, a managing director with Kroll in London adds that the design and integration of complex and innovative systems, alongside effective cyber, crisis management, and business continuity plans, will likely find their way into many, if not all, ports within the next three to five years. This will help ensure that ports are prepared to manage and respond to a diverse range of potential business impacts. He smartly points out that on the day of 9/11, U.S. airports remained closed. But after five hours ports were being reopened as the authorities realized how critical they are.

As attacks – both physical and cyber – continue to rise, maritime infrastructure must be riveted on reliable security measures.

Says Icorvati: "While many ports are considering the cyber security ramifications currently, over the next few years as attacks continue to rise and physical security improves, it will become the forefront of safety and security."



The Author

Jim Romeo
is a marine engineer and a freelance writer based in Chesapeake, Virginia.

Maritime Logistics Professional *Profile*

Cleopatra Doumbia-Henry

President, World Maritime University (Malmö, Sweden)

All images courtesy WMU

By Greg Trauthwein

I see WMU as charting the course for a better world. Providing the best education and research facilities for post graduate studies and capacity building for a sustainable maritime industry.

Dr. Cleopatra Doumbia-Henry, World Maritime University

WMU WORLD MARITIME UNIVERSITY

To say that **Dr. Cleopatra Doumbia-Henry** is passionate about all matters surrounding maritime and seafarers is a bit of an understatement. Prior to taking the helm as president of the World Maritime University (WMU) two years ago, she served as the Director of the International Labor Standards Department of the International Labor Office (ILO) in Geneva, Switzerland, responsible for developing the Maritime Labor Convention, 2006. *Maritime Reporter & Engineering News* was at WMU in Malmö in late June 2017 to sign a Memorandum of Understanding with WMU and Marine Learning Systems to jointly produce a benchmark study on global maritime training practices and trends. Dr. Doumbia-Henry discusses the future course of WMU and the importance of the coming survey.

"I've always had a passion for maritime and the shipping environment," said Dr. Cleopatra Doumbia-Henry, who completed her doctoral thesis on the carriage of dangerous goods by sea. "at the time it was a very unusual topic to choose. I was looking at lawmaking by international organizations and the resultant impact."

The topic, which she admits was a bit esoteric when it was researched and written, was her effort to find a niche to add value to the existing safety at sea discussion of the time. "I thought it could have a significant impact, particularly when you look at the amount of goods carried by sea, and the amount of goods that are considered dangerous," she said. "It was another way to look at the impact on the oceans, and through this I got to know the International Maritime Organization much better."

MLC, 2006

Following her studies, Dr. Doumbia-Henry joined the International Labor Organization (ILO) as a commercial lawyer, and courtesy of her maritime background, she became the de facto "maritime" lawyer at ILO. As history suggests, a fortuitous choice by both ILO and Dr. Doumbia-Henry, as she served as the architect of one of the most sweeping instruments to meaningfully impact the seafarers' work and personal lives – MLC, 2006.

MLC, 2006 was painstakingly built over a period of six years, and before it there were 72 separate instruments – binding ones and non-binding ones – that sought to serve the same purpose. "We had too many instruments that were unevenly ratified and implemented and thus had reduced impact," she succinctly summarized.

"So I began a major exercise in engaging governments, employers (shipowners) and trade unions (representing seafarers) to look at making this body of international legislation more effective," she said. This "long haul" started in 2000 and ended with the adoption six years later of a single Convention, MLC, 2006, that effectively replaced 68 international legal instruments.

Dr. Doumbia-Henry is justifiably proud of the effort, not only for what it means to the world's 1.2 million seafarers, but from the universal buy-in with ratification by 84 countries including all of the major ship registries covering approximately 91% of the world's ships. "This ended up being an incredible enterprise, but one that has been my most rewarding venture. It took a lot of energy, a lot of sleepless nights, but at the end of the day it worked."

The intensity of the exercise was not only to bring all 68 legal instruments together under one umbrella, but to give it teeth.

"The most important thing was to get ownership, because with ownership everyone feels they are part of the deal and they are going to make it work," said Dr. Doumbia-Henry. "The idea was to get an instrument that was better, that was more effective and that would have an impact on the working lives of seafarers, making living and working conditions better, give shipowners a level playing field and governments a single set of rules of the game. That was my mission. I had tremendous support, and I'm very proud, as it is one of the best ratified in the shortest timeframe possible of an ILO instrument when you consider its wide-ranging scope."

The work has paid dividends, and Dr. Doumbia-Henry credits Port State Control as being tremendously effective, citing the Paris MOU as an example in recording 17.4% detentions representing 113 ships after the first campaign one year after the entry into force of the Convention. "This had never happened before in those numbers, because now they had clear identifying factors and targets." She also referred to the role and the impact of the ILO Committee of Experts on the application of Conventions and Recommendations (Committee of Experts), which is the body that has the mandate at the international level to monitor and evaluate legal and practical implementation by ILO members States of the provisions of ILO Conventions. The Committee of Experts began monitoring compliance with the MLC, 2006 in 2014.

The number one challenge is (WMU's) financial sustainability. I will not rest until I have been able to get the university in a position where it can look well into the future and build financial reserves that would enable it to have a long-term financial perspective, to enable it to grow and to deliver the greatest impact possible for the maritime and ocean industries." WMU, with financial support from the NIPPON Foundation, anticipates starting the Ocean Institute in 2018.

A Return to Academia

Following more than three decades of work, including more than 15 years in senior management positions, Dr. Doumbia-Henry was appointed to lead the World Maritime University (WMU) in 2015. "I thought I had a pretty good set of skills and I think I'm pretty good at managing people."

In addition, she looked at her experience covering all international labor standards around the world in 187 member States of the ILO, and concluded that these years of experience fit nicely with the mission of the United Nations in building capacity, particularly for developing countries.

Any organization comes with challenges, particularly a high-profile international educational organization, and Dr. Doumbia-Henry sought to first assess both the promise and the peril of the position at WMU.

"I knew one of the challenges of the university was its long-term financial sustainability," she said, "and that remains for me the number one priority; to help the university strengthen its financial base so it can have a much longer-term perspective than it currently has."

While WMU is a child of the IMO, it is not funded by the IMO budget; rather it is self-funded. The IMO does contribute financially, but it is not a fixed annual amount. "When you run any business, when you run any institution, one of the main concerns is the money to support operations and building reserves for the rainy days. So before I started I had to determine if I had the energy and capacity to go out and do resource mobilization in a very big way."

Dr. Doumbia-Henry has spent much of the first two years on the job thoroughly understanding where the university stood. "It's important to ground yourself before you leap forward. It's one thing to have a perspective from the outside (of the university), it's another to really know an organization from the inside," she said.

One significant step forward and one of the most important achievements in terms of financial stability – with the support of the IMO Secretary General and the Board of Governors of WMU – was establishing an endowment fund. "We have launched the endowment fund, and now we must grow it to ensure the financial stability and future of the university."

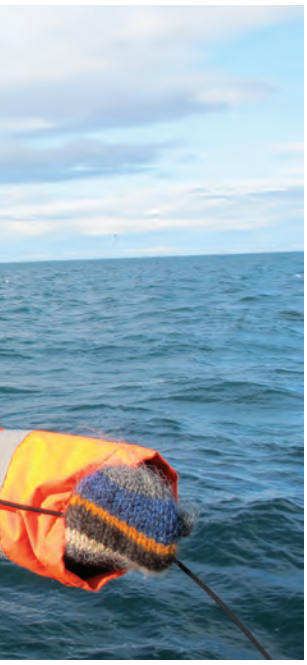
With the endowment fund box 'checked,' she is now focused on simultaneously working to energize the WMU alumni association, and preparing for a global launch, a fund-raising 'road show' by the end of 2017. Here again she will draw energy for the mission courtesy of her belief in the cause. "I see WMU as charting the course for a better world. Providing the best education and research facilities for post graduate studies and capacity building for a sustainable maritime industry."

Research: A Building Block

On June 29, 2017 World Maritime University, Marine Learning Systems (MLS) and New Wave Media signed a Memorandum of Understanding to jointly research and produce a comprehensive study on global maritime training trends and attitudes.

"The publication that we just signed off is breaking new ground; I think this is a study that has never been undertaken, it is innovative, it is new," she said. "Seafaring and shipping is not possible without well-trained, well capacitated crew. Shipping is responsible for 80% of world trade; and as I like to say, without it, half of the world would freeze and half of the world would starve."

"What we signed today is critically important for me because research is a core part of any academic institution," Dr. Doumbia-Henry continued. "In my view, as an academic institution we have to 'lift our game' in the area of maritime research. That's



why an annual, major report that will come out with research findings based on analysis of data is critically important. I want to strengthen WMU's maritime research. Maritime is our core, and we should be 'number one' in the world for maritime research. We need to have annual reports – this one is our first – and we have to be the independent arm providing research, outcomes and results and data that is independently assessed and available to the maritime community in the broadest sense.

Central to the evolution of maritime training is the technological evolution of ships at sea; both regulation-driven to meet ever tightening environmental standards and market-driven to improve safety and efficiency. As maritime moves increasingly toward automation, there are also fundamental questions regarding the future role of the seafarer; where will they come from; where will they work; when and where will they train?

Dr. Doumbia-Henry sees the impact of the internet and eLearning as transformational to all training and education, and one that is quickly spreading through maritime circles. "So much now can be done through eLearning platforms, and now it is impacting the maritime industry," said Dr. Doumbia-Henry. "I think face-to-face and practical onboard training – while they will still be indispensible – will be balanced with training people to learn through eLearning platforms, so seafarers, at sea, can continue their education."

To truly understand the pace and direction of change, more information is needed on the training habits, objectives and future plans of the companies training seafarers. "I think the survey will enable us to, first, establish a base-line; To achieve something that is objective, independent, and a comprehensive analysis of data relating to training policy and practices," said Dr. Doumbia-Henry. "For me, the outcome of this annual study will enable the maritime industry to gain insights that can assist with policy making, with decision making, with benchmarking, as well as to help optimize operations and potentially influence the international regulatory regime. We need to make sure the international regulatory framework are adapting to rapidly changing technologies."

Ultimately, well trained seafarers will support – in a very fundamental way – sustainable, safe and secure shipping on clean oceans.

"In my view that is critical to the long-term sustainability of the industry itself." And on the future of maritime, seafarers, the oceans and the WMU, Dr. Doumbia-Henry is passionate indeed.

Global Bunkers, 2020 and

Alok Sharma, Head of Global Sales at Glencore's coming next for one of the maritime industry's n

When it comes to bunkers, the OW crisis is still fresh in everyone's mind, Environmental Control Areas (ECA) are very much in place and the changes mandated to come for bunkers in 2020 are also closer than one would think. From Alok Sharma's chair as head of Global Sales at Inatech, a Glencore Company, the consequences of the first event, and the prospects of change emanating from the latter are both issues that he wrestles with on a daily basis.

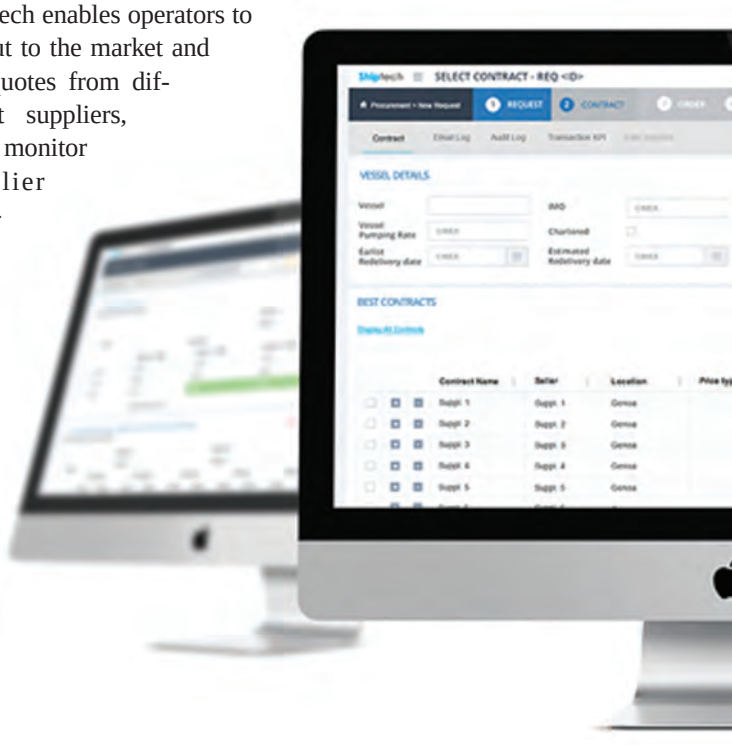
A Master Mariner with worldwide sailing experience, Alok has worked in Marine, Logistics and Express segments both as a Senior Consultant and a Director. Prior to joining Inatech in 2012, he worked as Head of Commercial Transformation for Royal Mail and before that, Head of Sales, EMEA for Quantum, a Marine ERP solutions and consultancy provider. And, after coming ashore, he served as a Regional Manager of Commercial Operations for the CSAV Group in Germany and Hong Kong. He studied for and received his Nautical Sciences degree at South Tyneside University and graduated from London Business School MBA program.

Inatech provides cloud Energy Trading and Risk Management (ETRM) and fuel management systems to the shipping, bunkering and oil trading industry. A rapidly growing company, its heritage is in shipping and bunkering but, following its acquisition by Glencore, that focus has expanded to also provide integrated end-to-end cloud software products to the oil trading industry. Currently, 2,200 deep sea vessels rely on Shiptech; two of the top five bunker suppliers are clients; two of the top five ship operators are clients; and 25 million tonnes of oil per year are managed using Inatech products. In this edition of ***Maritime Logistics Professional***, Alok weighs in on the important issues of the day.

Much of the pressure regarding IMO 2020 is put upon ship owners and not enough on the creation of infrastructure to support that mandate. What's your take on all that and where does Inatech fit into that equation?

I have to agree. The onus is very much on the operator. They will, after all, be responsible for non-compliance and paying any fines. In coming to a decision about whether to implement the cap in 2020, the IMO hired a consortium of consultants led by CE Delft. Their report concluded that there would be enough distillates produced by 2020 to meet the increased marine demand. However, since that announcement, refiners and suppliers have played a 'wait and see' game to see what strategy operators are taking before committing to production and making supplies available.

With so many operators unprepared or undecided about what their fuel strategy is for 2020, I can see only one outcome: shortages in supply in some regions and ports and prices for distillates in those areas soaring. In such a scenario, Inatech's products can help both operators and suppliers. Even in situations where the oil price is high, Shiptech enables operators to go out to the market and get quotes from different suppliers, helps monitor supplier qual-



Developing Market Trends

s Inatech, provides an in-depth look at what's most interesting and important sectors.

By Joseph Keefe

ity and is designed to ensure operators buy the highest quality of fuel at the lowest price available. Bunkertech allows suppliers access to an end-to-end bunker supply management system, which makes it easier to effectively manage the supply chain and provides better transparency of costs throughout, putting the supplier in control of the process from beginning to end.

LNG is frequently mentioned as the 'white knight' for the fuel of the future, but for some owners, scrubbers will be the ticket. How much, in your opinion, will LNG have impacted the bunker market by 2020? Talk about it in terms of percentage of bunker market capture?

LNG is seen as the cleanest technology. However its success and impact within the bunkering market will depend on three things: fuel availability or existing infrastructure; fuel price; and investment in building LNG ships. With the current 'wait and see' approach being adopted by the industry, it is difficult to predict how LNG will impact the overall market by 2020. What we do know today is that switching to gas oil distillates costs up to $200 per ton more than traditional fuels, and that companies need to see LNG as a long-term investment. In March 2017, the complement of LNG-fueled vessels that are not LNG carriers comprises 103 in-service ships and 97 on order. The total represents a year-on-year jump of 23 percent. So, we know the market is growing. We are also seeing the infrastructure being put in place. But my feeling is that we won't be ready to provide global coverage by 2020. There will be gaps in supply and serious price hikes.

The 2020 deadline involves a lot of things – among them, the shift in refining capacity to meet expected distillate demand. Are we moving in the right direction and are we moving fast enough?

We are moving in the right direction, but certainly not fast enough. Many operators are just not prepared for the changes coming in 2020. They seem to be 'sleep walking' into choosing gasoil and then simply having to manage the business impact of higher fuel prices. For me, this is a serious concern. However, the challenges for 2020 are not just restricted to the buyers. The decision by the IMO to go for the 2020 date was based on the belief that suppliers could produce enough compliant product; in time. But with so much uncertainty around what products operators are going to choose in order to comply with the 2020 regulations, suppliers are not reacting quickly enough and seem reluctant to commit to the levels of investment needed in order to deliver the products needed. This stand-off can only really be resolved through discussions between buyers, suppliers and producers. While certain suppliers are having meaningful discussions on a one to one basis, key topics of supply availability can only be resolved by physical suppliers who have skin in the game. We need to see more of such discussions or /solutions on an industry level involving all parties including labs and refiners. I think we really need to change the tone and change it fast!

> FUEL IS STILL AMONG THE BIGGEST COSTS, AND POST-2020 IT COULD BECOME AN EVEN LARGER COMPONENT. INATECH'S ROLE IS TO WORK WITH OPERATORS AND TO PROVIDE PRODUCTS THAT HELP THEM DEVELOP A STRATEGY FOCUSED ON EFFICIENTLY MANAGING FUEL PROCUREMENT AND THE RELATED EXPENSES AS EFFECTIVELY AS POSSIBLE.
>
> – Alok Sharma, Head of Global Sales at Glencore's Inatech

What do you see as Inatech's role in meeting the needs of vessel owners in a post-2020 world?

To a large extent, our role will not change in a post 2020 world. The main purpose of our products are to help ship operators, bunker suppliers and physical oil traders use technology to integrate, automate and streamline processes in order to drive increased efficiency, reduce costs and achieve improved margins. For vessel owners there are two choices – increase revenues or reduce costs. In today's competitive markets boosting revenue growth is going to be a challenge and I can't see that changing fast. So, the only variable ship owners can truly control is costs. Fuel is still among the biggest costs, and post-2020 it could become an even larger component. Inatech's role is to work with operators and to provide products that help them develop a strategy focused on efficiently managing fuel procurement and the related expenses as effectively as possible. That includes helping management become more aware of the added complexity that new regulations add to the bunker buying function. Technology combined with embedded best industry practices and decision-making systems is the fastest and most effective way of delivering savings. This is our role now and I expect it to continue well beyond 2020. Inatech works across three industry sectors – shipping, bunkering and physical oil trading. Shipping faces an unpredictable future: volatile fuel prices, variable fuel quality, issues around fuel delivery, the difficulty in obtaining credit and the threat of increased regulations.

Bunker companies need to ensure the ship operator is credit worthy and also benchmark the potential risk of doing business with many parties. Tell us about how Bunkertech ETRM can help manage this task.

Credit risk/credit-worthiness is a big concern for suppliers, who have to carry the burden of cost right through the supply chain. With margins tight, the cost and availability of credit, and the credit-worthiness of customers can both have a significant impact on business. When it comes to managing credit risk, it is important for suppliers to have in place robust financial management processes and systems. Bunkertech ETRM offers bunker suppliers the specialist credit management functionality needed to give them a way to efficiently process invoices, handle credit terms, produce cash flow forecasts and manage costs. Suppliers can combine these activities with due diligence and credit-worthiness checks of potential customers.

The OW debacle certainly impacted world shipping, roiled bunker markets, changed how people can get credit and, just as importantly, changed the risk models for the bunker market and its stakeholders. How so and were there positive outfalls from OW?

No one saw OW coming. It happened to a large company, and the assumption was that such organizations were immune to bankruptcy. Remember, OW controlled around 7 percent of the global $150bn bunker business and only seven months earlier had undergone an IPO. It has affected the insurers' and banks' assessment of the industry, with bunker suppliers now struggling to secure credit capacity. I believe it is something that cannot be prevented from happening again.

This also represents an opportunity for the industry to reassess how it operates. For ship operators, it's a chance to re-evaluate the entire fuel procurement process, and counterparty risk (for the first time). For physical suppliers, it's a chance to recognize that too much of their exposure was tied to too few

traders. For traders, it's the opportunity to reassess their role and responsibility towards buyer and suppliers. For banks and credit insurance providers, it's the opportunity to work through all the paperwork to make it watertight. However, I believe things haven't really changed. Perhaps the 'take away' is that it is time for suppliers to protect their business. While new behaviors and processes won't necessary prevent another OW collapse, suppliers can take steps to help mitigate their risk.

These steps include suppliers building a better picture of the companies they do business right across the supply chain. That includes looking at the business relationships, financial liquidity (due diligence and credit-worthiness checks of potential customers), risk management processes and tightening business terms and conditions – including retention of title. Another step is to implement better credit management systems. When it comes to managing credit risk, it is important for suppliers to have in place robust financial management processes and systems. Systems that have specialist credit management functionality give bunker suppliers a way to efficiently process invoices, handle credit terms, produce cash flow forecasts and manage costs.

A final step is putting in place adequate protection through credit insurance.

Hedging: some owners in the past hedged their bunker bets against very high prices, but some also found themselves in a bad spot when market prices collapsed. Where does Inatech get into the hedging game, and what's happening now in global markets with regard to that strategy.

Shipowners are oil consumers and need to understand that the main purpose of hedging is to mitigate the market risk. Hedging forms a part of the overall risk management policy which needs to mandate what to hedge, how much to hedge as well as stop limits, exposure guidelines etc. Flat price hedging i.e predicting the oil price will be "x" or "y" in future – is exactly as you call it – "betting" and should be avoided. There are many other strategies which can be deployed to ensure downside is protected or at least minimized– the exact strategy will depend on the market conditions and the risk appetite of the shipping company.

In the wake of OW and in advance of IMO 2020, what are the biggest changes that the bunker industry has seen, and what has stayed the same? At the same time, what are the biggest challenges that lay ahead?

The biggest changes to the bunkering industry include increased competition, greater regulation, wider choice of fuels, more uncertainty and risk, development and implementation of technology, increased fuel price volatility, reduced power for brokers, more access to information and – less trust.

Better Times for Bo

In the choppy wake of the liner alliance re-shuffle, industry consolidation and the (long awaited) boost from expanded Panama Canal traffic, a glimmer of hope appears.

By Barry Parker

ox Carriers Ahead?

Credit: Maersk

Credit: HapagLloyd

The situation for the liner carriers has clearly improved since the doldrums of 2016. Consultants Drewry were estimating that container carriers could book profits of $5 billion in 2017 – coming on the heels of half a decade of losses. In early 2017, improvements were seen in the market compared to the previous two years; Soren Skou, the CEO of conglomerate AP Moller Maersk, describing 2017 Q1, told investors: "Both spot freight rates and contract rates have increased during the quarter, lately also on the North-South trades." Earlier, he was estimating that the 2017 results for its eponymous liner company, Maersk Line, would be better, by $1 billion, compared to 2016 (when the line saw a deficit of nearly $400 million).

In 2017, demand growth may finally eclipse increased supply (reflected by TEU capacity). Maersk presentations to investors were forecasting that, for 2017: "Global demand for seaborne container transportation is still expected to increase 2-4%." Supply growth, year on year, was estimated to be less than 1%. Rebounding freight rates have been the result.

Port Volumes, Fundamentals & Consolidation, too

Ports in the U.S. also saw a rosy start to 2017. Logistics data provider Descartes noted in their online blog, "So far in 2017, import volume at the Port of Los Angeles has grown 5.2 percent compared with the same period in 2016. The Port of Savannah has seen continuous month-over-month growth vs. January-April 2016, with imports up 10.3 percent over the first four months of 2017. Notably, 18 of the top 20 U.S. ports increased in TEU import volume this April vs. April of last year."

The improved fortunes of carriers are fueled by improved fundamentals, but also by consolidation, which has been fast and furious lately. Liner shipping, like other sectors of mari-

time marketplace, suffers from the near-permanent bouts of oversupply that are endemic to the industry. But, in contrast to drybulk and tanker sectors mired in doldrums, the liners (defined as container carrying vessels on regular runs) have fought back through "consolidation," which can take the form of commercial alliances (typically taking the form of VSAs – "Vessel Sharing Agreements") or outright mergers between companies.

Lately, the mergers have been receiving all the headlines. In early July, the ongoing rumors of a deal between Cosco Shipping Lines and the listed company Orient Overseas International (OOIL, controlled by the C.Y. Tung family) quickly morphed into a deal announcement. Cosco, joined by Shanghai International Ports, is now on a path to purchasing OOIL (which controls Orient Overseas Container Line- OOCL) in a deal valued at US $6.3 billion. If the deal moves to fruition, the entity would control a fleet with capacity of 2.4 million TEU- ranked number 3 on the world leaderboard (with approximately 11.6% of world TEU capacity).

Olaf Merk, a European based observer of maritime economics who publishes the highly regarded "Shipping Today" blog, noted via his Twitter feed that: "Market share of top 4 carriers after COSCO takeover of OOCL: 53.8%. The container shipping industry has 'officially' become an oligopoly."

A little more than a year earlier, Cosco had seen its size bolstered following an early 2016 hookup with China Shipping Container Lines. In the weeks prior to the Cosco / OOIL news, the trio of major Japanese container carriers, Nippon Yusen Kaisha (NYK), Mitsui O.S.K. Lines (MOL) and Kawasaki Kisen Kaisha (K Line) finalized their plans to merge their businesses into Ocean Network Express, or "ONE"- effective in Spring, 2018. The merged entity's capacity would be roughly 1.4 million TEU, putting it at number 6 on the carrier roster (with a share around 7%).

Other mergers in recent years include Hapag Lloyd's acquisition of United Arab Shipping Company, in the works for two years and finally completed in the Spring of 2017. Hapag Lloyd, which controls 1.53 million TEUs, had previously bought CSAV in 2014 (in an unusual share exchange), and, in earlier round of company combinations, bought CP Ships, in 2004. Another major deal saw Singapore's Neptune Orient Lines (NOL), which had been largely owned by the governmentally linked Temasek Fund prior to being swallowed up in late 2015 by CMA CGM in a US $2.4 billion deal. CMA CGM, controlled by the French businessman Jacques Saadé, ranks third (but will be usurped by Cosco- OOIL), controlling 2.3 million TEU (around 11% of the market).

More narrative surrounded yet another 2017 deal; Maersk's acquisition of the German company Hamburg- Süd, for the equivalent of around US $4 billion. In explaining the rationale, CEO Skou, said that the transaction: "… represents a unique opportunity to combine two complementary businesses and realize sizable operational synergies as well as commercial opportunities. Combined, the two companies will be able to realize operational synergies in the region of USD 350-400 million annually over the first couple of years…" He continued, adding, "The cost synergies will primarily be derived from integrating and optimizing the networks as well as standardized procurement. In addition, APM Terminals' global portfolio will benefit from increased volumes." Of particular importance in this merger was the terminal business's recent growth in South America, where Hamburg- Süd remains very active.

In late August, APM took an important step towards sharpening its shipping / logistics focus with the announcement of a $7.5 Billion deal to sell its oil production unit, Maersk Oil, to the French oil company Total.

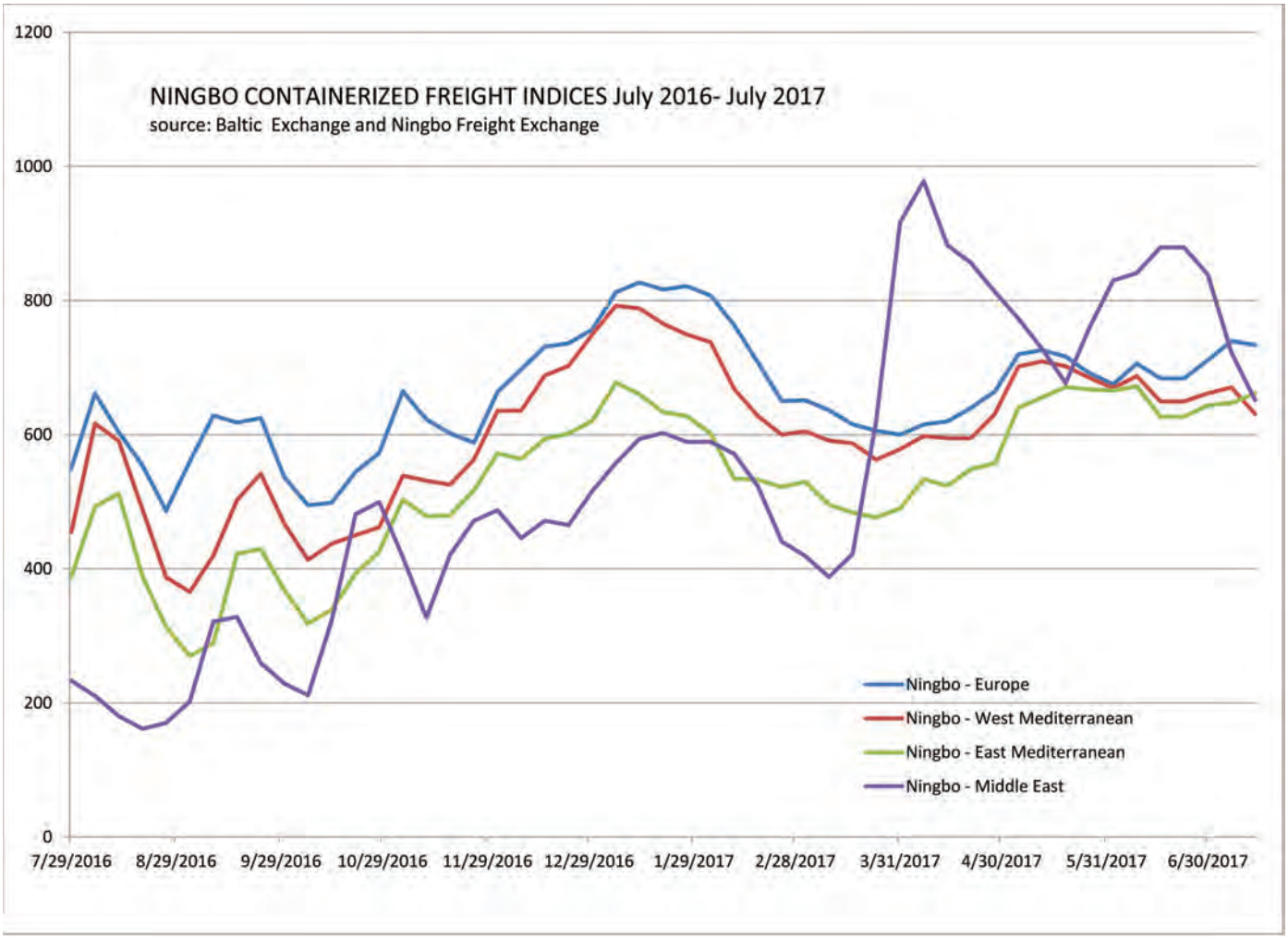
A Long Strange Trip

The voyage to market dominance is not without its freak waves. One arrangement that would not move forward, blowing up in mid 2014, was a VSA dubbed "P3", which would have brought a combined set of services from top seed Maersk (controlling 16% of mid 2017 capacity with 3.35 million TEU), the number 2 player Mediterranean Shipping Company (presently controlling 3.06 million TEUs, or just under 15% of capacity), and CMA-CGM.

The consolidation trend also brings ripple effects to other aspects of the business. In another wrinkle on such deals, landside terminals tied to affected carriers may change hands – for a combination of financial, tactical and strategic reasons. In a deal that finally closed in July 2017, NOL's not so new parent, CMA CGM, recouped more than $800 million (used to pay down company debt) from the sale of a 90% stake in the Global Gateway South Terminal, in Los Angeles that had been held by NOL. The buyers were a pair of infrastructure funds and such investors seek assets with long term deals. For fund packagers, carrier business combinations with a short time fuse may fly in the face of arrangements with terminals typically predicated on decade-long commitments to cargo throughputs.

With the announcement of the OOIL acquisition by Cosco, concerns have been raised about Chinese ownership of OOIL's terminal business, which includes a commitment through the year 2051 to move cargo through its newly constructed Long Beach Container Terminal (owned through other companies in the Tung Group) in Long Beach, California.

With the U.S. political mood and the Trump administration's attitudes towards China's state-owned companies more unpredictable than freight rates, the situation in Long Beach bears watching. There is some history here; observers may remember the 2006 flap when DP World (controlled in the Emirates) took over the venerable P&O Ports. Following intense objections regarding foreign control, the U.S. terminals were sold into a company that evolved into Ports America (originally part of AIG, but now held by an entity linked to



> *Consolidation in itself does not necessarily lead to pricing power or improved financial health. The container shipping market is fundamentally driven by demand and supply factors and until the capacity overhang comes under control, it is highly likely that price competition will continue to prevail.*
>
> – Mr. Hua Joo Tan,
> Executive consultant at Alphaliner

shipping investor Oaktree Capital).

On a mainly economic front (tinged with a heavy dose of sentimentality for the days of U.S. leadership in the sector), long time shipping watchers will note that it was NOL that acquired American President Lines (APL) in 1997. A small carrier with the US Lines nameplate (evoking the famous brand that suffered a failed re-invention in the 1980s), was acquired by CMA CGM in 2007.

Just Over the Horizon

What's in store for the industry? Its economics may remain unchanged. Mr. Hua Joo Tan, Executive consultant at Alphaliner, offered that, "Consolidation in itself does not necessarily lead to pricing power or improved financial health. The container shipping market is fundamentally driven by demand and supply factors and until the capacity overhang comes under control, it is highly likely that price competition will continue to prevail."

Consultants who provide strategies for shipping companies of all stripes are always advising their clients to gain 'pricing power' by moving away from 'commoditization,' where one slot is indistinguishable from another. Interestingly, CMA CGM announced that commencing in Q4, it would be teaming up, in a VSA, with refrigerated cargo specialists Seatrade and Marfret, to offer a weekly service to shippers of cargo such as fruits and meats. According to CMA CGM, "13 modern

Credit: South Carolina Ports

> *The Hamburg-Süd transaction … represents a unique opportunity to combine two complementary businesses and realize sizable operational synergies as well as commercial opportunities. Combined, the two companies will be able to realize operational synergies in the region of USD 350-400 million annually over the first couple of years. The cost synergies will primarily be derived from integrating and optimizing the networks as well as standardized procurement. In addition, APM Terminals' global portfolio will benefit from increased volumes.*
>
> – Soren Skou,
> CEO of AP Moller Maersk

geared ships with a nominal capacity of between 2,200 and 2,500 TEUs will be deployed on this new line." Each will have minimum 600 Reefers on board necessary to transport refrigerated goods…" on north-south trades.

Nevertheless, established smaller carriers could be vulnerable to acquisitive tendencies of consolidators; in July, Alphaliner was pointing to Pacific International Lines (PIL), an independent based in Singapore, as the next acquisition target. PIL is a niche play – with Alphaliner emphasizing the carrier's positioning in the burgeoning Africa trades.

The present firming of the market may not be indicative of a long-term structural change. Citing the industry's natural economic tendencies, Alphliner's Tan told ***MLPro***, "The market moves in cycles so it would be foolish to suggest that pricing power can ever be a permanent. There is bound to be overly enthusiastic ordering when the market recovers."

In contrast to the centuries-old rules of economics and the tendency towards over-ordering, geopolitics is dynamic, with a steadily changing seascape. Liner shipping is strategic; where state-owned Cosco is concerned. In a recent blog by Olaf Merk, he opines that "Cosco will not stop until it is the biggest." In his discussion, he adds that: "As a state-owned company, Cosco has a logic that is not only commercial, but also geopolitical, maybe even predominantly so. China wants to secure its supply chains and strengthen its naval presence: dominating in container shipping can help achieve this." At the highest level, some political analysts are considering Cosco to be an instrumentality of China's "Belt and Road" initiative.

For those keeping score of which carrier is dancing with another, political factors may trump the economic rationale for combinations, with Mr. Merk noting that "P3 would have forged an alliance of the three largest global container carriers: Maersk, MSC and CMA CGM – all European – in a way that would have transformed the classical vessel sharing agreement into a more strategic form of cooperation." Stressing the reason that P3 was never finalized, he says, "… the Chinese authorities did not give regulatory approval, officially because it would distort competition and quite likely also for geopolitical reasons: namely to avoid the emergence of a European champion. European regulators were prepared to bless this alliance."

The political motivation also drove Mr. Merk, in his blog, to offer a hypothetical, albeit tantalizing possibility, an alliance between CMA CGM and Hapag Lloyd. Though infusing less hegemony than P3 might have, such cooperation, although unlikely, might bring a powerful "European" brand into the marketplace.

The Author

Barry Parker
of bdp1 Consulting Ltd provides strategic and tactical support, including analytics and communications, to businesses across the maritime spectrum. The company can be found online at www.conconnect.com

MARITIME LOGISTICS
PROFESSIONAL

A Closer Look

PORTS

Innovative, Ideally Located – and Together as One

Located in the Pacific Northwest in Washington State, The Northwest Seaport Alliance joining the deep draft ports of Seattle and Tacoma offers shorter U.S.-to-Asia transits, as well as a deep connection to Alaska. And, a lot more.

All images courtesy NWSA

By Joseph Keefe

In an era where the fiercely competitive business of global trade is changing in ways that could not have been imagined just one decade ago, ports, terminals and their collective stakeholders are rethinking how to also remain relevant. Shifting liner alliances, an uncertain regulatory climate, the expanded Panama Canal and the possibility of changing trade agreements mean that the status quo won't be enough anymore. On the U.S. West Coast – Washington state, to be precise – that's already become only too obvious.

Located in the Pacific Northwest in Washington state, The ports of Seattle and Tacoma, formerly two separate and diverse entities, compete with everyone else for market share. Until recently, they competed against one another, as well. That all changed in August of 2015 when the two formed what is now known as the Northwest Seaport Alliance (NWSA). That's not to say that the two ports didn't collaborate in certain ways prior to that. They did. Today's NWSA, however represents something far more powerful and in an era where political leadership fails to meet in the middle for the common good, this is one instance where the so-far one-of-a-kind relationship is already yielding fruit.

> *Everybody benefits. It's as though, from a management standpoint and a funding standpoint, we are one gateway. And we're indifferent about where those investments are made, and where the cargo resides, and where the income comes from, as long as long as it is aligned around and interested in growing the business and the financial resources as a gateway.*
>
> – John Wolfe, CEO,
> The Northwest Seaport Alliance

The Northwest Seaport Alliance

The Northwest Seaport Alliance is a marine cargo operating partnership of the ports of Tacoma and Seattle. The first of its kind in North America, the NWSA is the nation's fourth-largest container gateway. Regional marine cargo facilities also are a major center for bulk, breakbulk, project/heavy-lift cargoes, automobiles and trucks. Specifically, NWSA is designed to deliver less congestion, closer proximity to Asia deep ties to Alaska, and an easier way of doing business. Naturally deepwater harbors and the ability to handle a wide range of cargo position it collectively as the ideal gateway to meet the growing needs of Pacific Rim trade.

Uniquely, the alliance, whose boundaries include King and Pierce Counties, is a port development authority governed by the two ports as equal members, with each port acting through its elected commissioners. The overriding goal is to gain a collective competitive advantage for all international trade, while maximizing unrealized potential for both ports. And while the value of this two-way international trade totaled more than $73 billion in 2014, including $18 billion in exports, both ports know that they can and should do better.

John Wolfe is the chief executive officer of The Northwest Seaport Alliance. He sets the organization's vision, and guides the NWSA's unique dual port, customer-focused culture. He also serves as the CEO of the Port of Tacoma, a position he was named to in 2010. Boasting deep roots in the port management business, he spent 10 years with Maersk Sealand/APM Terminals in Tacoma, most recently as the terminal's operations manager. He knows the region and more importantly, what it needs to compete in today's changing intermodal landscape.

For the Greater Good

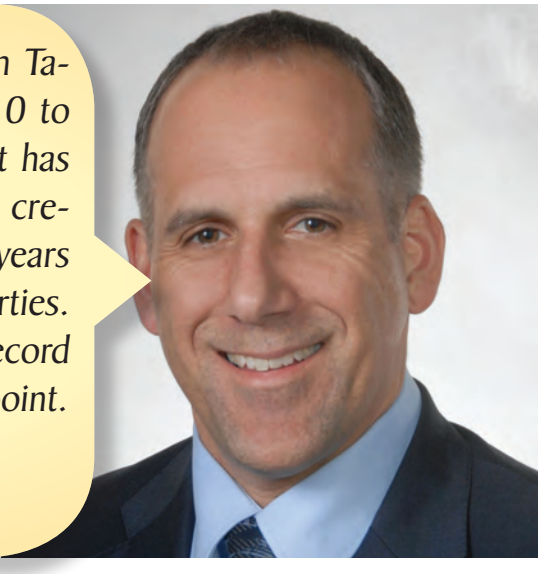
NWSA CEO John Wolfe told ***MLPro*** in July, "For decades, the Ports of Seattle and Tacoma have cooperated, much like Los Angeles and Long Beach, in areas such as the environment, security, and safety. We also competed primarily for international container business. Other than that, the two ports have different business areas of focus." In some respects; quite different. For example, Seattle owns and operates SeaTac Airport. Tacoma doesn't own or operate anything like that.

What they did have in common was the quest for the international container business. "That's been okay, and yet, as you know, the industry has gone through significant change in a short time frame," explained Wolfe, adding quickly, "we felt the effects of that change as a gateway, being now the fourth largest gateway in North America for container trade. From a strategic standpoint, it was better that we work together than compete here within Puget Sound."

Through a series of conversations between the two commissions, they came up with the structure which is now referred to as the Northwest Seaport Alliance. A 50/50 joint venture ownership, it is its own company; recognized by the Federal Maritime Commission. Today, the joint venture seeks to pool collective assets, financial capabilities and strengths together

We need to do the right thing. We've invested just in Tacoma probably over 200 million dollars in the last 10 to 15 years to clean up some of the contamination that has existed here in the tide flats – not created by the port, created by private sector and industry back in the early years – and we have stepped up to clean up those properties. Seattle has done the same. So we have a great track record of doing the right thing from an environmental standpoint.

– John Wolfe, CEO,
The Northwest Seaport Alliance



as one gateway, focusing on how best to create solutions for Puget Sound and its customers.

NWSA governance structure is driven by state law. Separately, the two commissions are elected by the counties they serve, with five commissioners in both Seattle and in Tacoma. Wolfe notes that the Alliance did not change the governance structure of the ports when it was formed. "As it relates to the business of the seaport alliance, we have meetings where both commissions are present together, and when we bring forward any capital investments or major leases that are outside management's decision-making authority, they take action on those as two boards. A simple majority of both boards moves that request forward."

It is important to define what the Alliance is, and what it is not. The Seaport Alliance is not a bank – the home ports are the funding entities for the Seaport Alliance. As an example, and when they collectively bring forward a major ($100 million) capital expenditure for an improvement to assets in either port, both boards then vote, and assuming that there is approval to move forward with that project, what they're committing to is 50 million dollars from each port to that investment. Ultimately, though, the net operating income is split 50/50 back to the home ports to pay off that investment and to reinvest back into the business.

Unique Solutions for Difficult Challenges

The NWSA arrangement came about in August of 2015 – a watershed moment for the gateway and the ports themselves. For Wolfe, the concept is a simple one, built on trust and mutual agreements. "Everybody benefits. It's as though, from a management standpoint and a funding standpoint, we are one gateway. And we're indifferent about where those investments are made, and where the cargo resides, and where the income comes from, as long as it is aligned around and interested in growing the business and the financial resources as a gateway."

Before the Alliance, Seattle had their business and investment strategy to grow their container business, and Tacoma had one of their own. To that end, and given the softness of the market extending into the previous decade, it wasn't always the best strategy for two deep draft ports coexisting in such close proximity. "Oftentimes," says Wolfe, "Seattle would make an investment, Tacoma the same, and we would duplicate that investment, creating more capacity than the demand existed for the gateway." This usually involved competing on rates to do that. As a direct result, even the port that won the business might struggle to make it work.

Wolfe says it best, insisting, "By stepping into this partnership, we're able to have a single investment strategy for the gateway and reduce any risk of over-investment and really be more strategic about where our investments are going to be made, aligned with our customers' interest, and really, a better balance of the supply/demand curve within the gateway which provides compensatory levels of rates not just for us, but also our tenants, the terminal operators that operate, and provides a better service to our customers." Wolfe also pointed out that if the terminal operator is losing money, they're not apt to spend money on service delivery improvements.

It can be a delicate balancing act. Even with all the local collaboration, Seattle and Tacoma – and their respective ports – are two very different entities. The more urban Seattle port primarily involves the international container business. Tacoma, on the other hand, consists of a broader mix of international as well as domestic container business, but also break bulk, RO/RO, and bulk products.

That reality, says Wolfe, required a whole new business

plan. "And so we have a collective strategy now in the North Harbor, where our primary focus is going to be – is and continues to be – to have the international container business at Terminal 18 and future Terminal 5 with a major capital investment, and then repurposing some of the other facilities for industrial use. So we really strengthened our position in the North Harbor that way."

Seattle's Terminal 18 is a large, international container terminal, able to serve the largest vessels in the trade. Indeed, CMA CGM's Benjamin Franklin called here last year, and the terminal is capable of handling up to 18,000 TEU capacity vessels. "We're not duplicating and creating more international container terminals than what we need," said Wolfe.

Similarly, that investment is balanced by planned investment in the South Harbor. And, that collective strategy takes into account the gentrification piece – something that all ports are facing. "We're aware of that for both Seattle and Tacoma, what is occurring, in a better way, is further engagement with the broader community and the city government to have proper land use planning, and aligning ourselves around that land use planning so that we don't create for ourselves these conflicting interests. Engagement with the City of Seattle and City of Tacoma is really important."

Leveraging Local Strength

A key strength of the gateway, and one that is an important selling point for it, is that not only do the local ports not have to deepen their waterways, they also don't have the ongoing maintenance requirement to maintain that water depth on a regular basis, whereas some of the major ports around the country are still struggling with it – especially in a post-Panama Canal expansion environment. With that advantage also comes challenges, though. And, to that end, the dredging situation is something that NWSA has been addressing within the Ports Association and at the federal level.

Wolfe laments that importers that use the NWSA gateway also pay into the Harbor Maintenance Tax, and yet, the local ports don't have a need for the use of that fund. "Arguably," insists Wolfe, "We're helping to fund competition through that Harbor Maintenance Tax. And, in addition, the importers that

use the Canadian gateway – say, the Port of Vancouver, British Columbia – they can avoid paying that Harbor Maintenance Tax and put that container cargo on the Canadian railroad and run it into the United States and, again, avoid the Harbor Maintenance Tax. So we feel like there's a need to revisit the Harbor Maintenance Tax, especially with the changes in the industry. We're having those types of discussions, as well."

The Alliance also has the unenviable task of competing not only with domestic U.S. West Coast ports, but its Canadian neighbors, located a stone's throw to the north, as well. In Prince Rupert Sound, BC and beyond, Canadian ports have not been sitting on their hands. There, a modernization program is nearing completion. Moreover, the Canadian intermodal relationship is exceptionally strong, with trucking, ocean liners, terminals, and rail all recognizing that each mode is only as strong as the one that precedes or follows it in the intermodal supply chain. Wolfe and his NWSA colleagues are only too aware of this.

"When we formed the Seaport Alliance, we stood up an Executive Advisory Council, where the key partners in the logistics chain meet formally once each quarter, with the sole purpose of identifying inefficiencies in the movement of cargo through our gateway and reducing those inefficiencies. Imagine sitting at the table – the port, the shipping lines, the terminal operators, our labor partners, the railroads, the trucking companies, the warehouse distribution companies – talking about how things work today and how we can improve upon the efficiencies and reduce inefficiencies of the gateway. That's working pretty well. There are some key initiatives that have surfaced as a result of that and then there are smaller breakout groups that work those issues and bring them back to subsequent meetings."

NWSA went the additional mile and established metrics of performance, measuring against those activities and looking for constant improvement, whether it be on crane productivity, gate turn times, dwell time, total transit time from Seattle-Tacoma to Chicago, and a raft of similar measurable benchmarks. "That's one area of focus that we've stepped up our game on," adds Wolfe.

Another more tangible manifestation of the NWSA partnership is their new operations center, one which has coverage over both harbors. Its focus is on day-to-day operations and real time response to issues that come up on a day-to-day basis, whether a terminal has a congestion problem or perhaps a delay because there is an accident out on the highway. The center allows for real-time communication with key stakeholders, guided by operations staff – many previously from the private sector – and who understand their customers' business well.

In the end, the alliance seeks to compete, not just with Prince Rupert, but really all the gateways that are participants in the Trans-Pacific trade.

The Northwest Seaport Alliance 5-Year Cargo Volume History:

THE NORTHWEST SEAPORT ALLIANCE

CONTAINERIZED VOLUME (TEUs)								
	2012	2013	2014	2015	2016	June 2016 YTD	June 2017 YTD	% Change Y-O-Y
Int'l Import full TEUs	1,339,521	1,238,894	1,217,375	1,308,214	1,391,590	649,215	694,175	6.9%
Int'l Export full TEUs	974,954	983,870	907,867	871,522	984,274	469,188	476,745	1.6%
Int'l Empty TEUs	463,978	412,542	431,597	581,072	482,951	219,708	306,949	39.7%
Total International TEUs	*2,778,453*	*2,635,306*	*2,556,839*	*2,760,808*	*2,858,815*	*1,338,111*	*1,477,870*	*10.4%*
Total Domestic TEUs	786,012	820,855	836,685	768,633	756,938	375,219	348,029	-7.2%
Grand Total TEUs	*3,564,465*	*3,456,161*	*3,393,524*	*3,529,441*	*3,615,752*	*1,713,330*	*1,825,898*	*6.6%*
CARGO VOLUME (METRIC TONS)								
Container Cargo	26,817,593	26,346,987	25,145,870	24,965,859	26,766,258	12,721,644	13,062,324	2.7%
Break Bulk	303,576	250,124	253,378	235,476	181,372	93,975	93,257	-0.8%
Autos	203,669	226,397	252,325	270,744	246,421	131,584	114,056	-13.3%
Logs	342,388	389,040	276,628	236,557	176,928	66,999	159,704	138.4%
Petroleum	620,587	788,419	997,976	815,380	612,224	321,116	348,798	8.6%
Molasses	74,831	48,240	49,912	43,731	43,666	25,636	14,405	-43.8%
Grand Total (Metric Tons)	*28,362,643*	*28,049,207*	*26,976,089*	*26,567,747*	*28,026,869*	*13,360,953*	*13,792,544*	*3.2%*
Vessel Calls	2,181	2,227	2,121	2,043	1,995	1,023	986	-3.6%
Autos (Units)	148,239	160,419	175,802	183,305	165,687	90,214	74,489	-17.4%

How is it Going?

Over the past two years, the two port alliance increased overall volumes and held onto its market share, whereas in past years, it was seeing a slow reduction of that Trans-Pacific market share. Wolfe explains, "This past full year – 2016 – we didn't increase the market share yet we didn't lose market share. So that was encouraging. Now, we've got to continue to work towards constant improvement because we can't rest on our laurels – this year is another highly competitive year, so we'll see how we do this year."

But, as NWSA aspires to be 'that gateway that is easiest to do business with,' Wolfe also knows that they have work to do. The shift in liner alliances from four to three partnerships brought with it a shuffling of cargo at the gateway – and others, to be fair – and this created certain operational inefficiencies at some terminals. Wolfe insists that the alliance is working through all of it.

Locally, even with the sea change that has deeply impacted the liner trades, the NWSA came out about even in terms of volumes, but some of the more immediate challenges include the impact of cargo shifting from one terminal to another. Wolfe promises, "Our team is really focused in that area right now. As we improve upon that, I believe that more cargo will come our way. The other thing I would say is that we are looking for, and encouraging new ways in which our terminal operators may partner with each other. That is made easier by having all of the terminal assets under one company." The next steps, Wolfe said, is to work in partnership with the terminal operators to look for ways in which service levels can be expanded while at the same time maintaining a price point that is competitive.

One way to do that involved the implementation and use of a new tool called DrayQ, a commercial App that helps to speed the flow of cargo along local freight corridors, reduces idling-related air emissions and saves fuel. DrayQ technology is designed to give truck drivers real-time information about wait times in and around marine cargo terminals and traffic camera views at the touch of a fingertip. Drivers can use the app to determine the best time to enter a terminal and reduce the time spent in traffic, which helps reduce air emissions from idling and saves fuel. For dispatchers or shippers, it helps to optimize schedules and improve customer expectations. That's already yielding measurable gains, says Wolfe.

"What it does is it creates for us greater visibility to the true turn-time of a truck through a terminal. DrayQ allows us full visibility to that."

A Look to the Future

Executing a game plan that was only developed 18 months ago, the early results aren't necessarily easy to measure. But, says Wolfe, the Alliance needs to see that through. Among the other initiatives being considered are so-called "P3" Public Private Partnerships to help offset future port investments. Wolfe lays out the Alliance's investment strategy by saying, "The details are still being worked through. I think the strength of the port – our gateway – is to make investment in the in-ground infrastructure, whether it's wharfs, pavement, utilities; things of that nature. Where the private sector might come in and make their investment would be in equipment, buildings, some of the other vertical infrastructure that they need to operate."

Separately, and with eye towards the massive – some say unworkable – Clean Air Action Plan (CAAP) which will reportedly cost the ports of Los Angeles and Long Beach, CA a collective $16 billion between now and 2030, we asked Wolfe how and where the Alliance was addressing the all-important issue of its environmental footprint. "We need to do the right thing," he replied, adding, "We've invested just in Tacoma probably over 200 million dollars in the last 10 to 15 years to clean up some of the contamination that has existed here in the tide flats – not created by the port, created by private sector and industry back in the early years – and we have stepped up to clean up those properties. Seattle has done the same. So we have a great track record of doing the right thing from an environmental standpoint."

Long term, the alliance seeks to align its interests with that of its customers. And, says Wolfe, the customers also want to do the right thing. At the same time, "It needs to be balanced with practical reality of the marketplace. I look at it as sort of the 80/20 rule: let's go after the 80 percent first and attack that because that's the biggest bang for our buck. And where the industry can do its part in that, we should, whether that's purchasing equipment or encouraging our customers to purchase equipment that is using low sulfur diesel, or electric vehicles – and let's look at it holistically. I think that's a smart way to achieve an outcome that we all, in this community, want to see."

As this edition of ***MLPro*** was headed to production, the International Longshore and Warehouse Union had just ratified a three-year extension to its contract with the Pacific Maritime Association. The vote, noted the NWSA, extends the coastwide contract through July 1, 2022. That kind of labor stability can only be a positive indicator for the near term future, especially when one considers the alternative and what has happened just a few miles to the south in Portland, Oregon. Beyond this, the Alliance also announced that it will reimburse up to $2 million to extend gate hours at its international container terminals during peak season. That kind of commitment speaks volumes as to what might come next. Whatever it is, Seattle and Tacoma will face it together, as one.

HANDICAPPING THE G

There are many ways to look at the containership market today. Fleet size, market percentage, TEU's controlled, profit and losses – you name it, the sector has its many benchmarks. For example, the Alphaliner (***www.alphaliner.com***) TOP 100 provides a constantly updated ranking of the 100 largest container/liner operators as well as global capacity figures taking into account the fleets of virtually all container operators worldwide. In this edition (CREDIT: Alphaliner) we provide a smaller snapshot of that voluminous and well-respected database.

Today, APM Maersk continues its perch atop the global boxship fleets, controlling as many as 656 ships, more than 1.7 million TEU and almost 16.7% of the global market share. The top 10 liner operators furthermore control as much as 75% of the world's container fleet and capacity, with the top five operators accounting for 60% of the totals (and 78% of the top 10 share). But, the burning question on most stakeholders' minds is: how are we doing as a sector? It all depends on how you look at it.

As promised, the newly expanded Panama Canal has delivered record volumes to many U.S. ports this year. That metric, in part, is a function of a recovering and (in some areas) red hot economy, but bigger, deeper and wider tonnage is the rule in North America, all of which delivers more boxes per voyage. U.S. ports, as a general statement are showing year-on-year gains of 5 to 7 percent in volume; some of those boasting all-time record monthly and yearly volumes. That translates into more business for boxships. But, are they making money?

It turns out that they are. Xeneta (***www.xeneta.com***), a firm that gathers global shipping data from a community of over 700 businesses, covering more than 160,000 port-to-port pairings and over 35 million contracted rates, recently said that "new alliances, structural change and positive economic trends have transformed the container shipping market over the past year, driving growth and pushing business performance figures from deep red into black." From a 2016 that saw the collapse of Hanjin and the top 20 market players posting combined net losses of USD 5 billion (Wall Street Journal), 2017 is shaping up to be a good year.

Take a look, for example, at recently announced financials for the number 4 and 5 (respectively) ranked boxship firms, COSCO and Hapag-Lloyd. COSCO's H1 2017 profits attributable to equity holders was reported to HK$206 million, increased by 42% as compared to same period of 2016. Separately, Hapag-Lloyd's reported profit before interest and tax (EBIT) in the first six months came to 87.3 million euros ($104.55 million), up from a year-earlier loss of 39.7 million, the company said. It posted a 16 million euro net profit in the second quarter, compared with a 99.3 million loss last year. Those kinds of number are common across the sector for the bigger players.

Xeneta CEO Patrik Berglund explained, "Maersk's recent 2017 Q2 financial report provides an interesting snapshot of the industry," he notes. "Higher freight rates propelled revenues upwards by 8.4% to almost USD 10 billion for the quarter. Meanwhile, reports suggest that Hapag-Lloyd will triple its earnings this year." Berland also noted that, as described above, that U.S. containerized ports are busier than ever, handling a projected (record) 1.75 million TEU this month in August alone. And, this comes despite the Trump administration's so-called 'America First' doctrine and withdrawal from initiatives like the Trans-Pacific Partnership.

The restructuring of industry alliances – Xeneta says that 90% of all container ship traffic is now accounted for by three major alliances (THE Alliance, OCEAN and 2M) – and Hanjin's demise have all contributed to boost rates. Nevertheless, Xeneta also cautions that despite long-term rates that are, in some

Credit: Hapag-Lloyd

LOBAL LINER LINEUP

cases, up 120% year on year, the future remains uncertain due to a looming shadow on the horizon. And, the hidden caveat in all of this good news rests in the fact that there are as many as 245 boxships on the global shipyard order books, and, says Xeneta, "a staggering 78 new mega-ships are due to come online for the Asia-Europe trades over the next two years, pushing capacity up by over 23%." Those so-called mega-ships (> 18,000 TEU) need utilization rates of more than 90 percent in order to achieve cost savings. Is that kind of freight business looming and just as importantly, how many existing boxships will go to scrap in the interim? To be determined ...

Separately, ***VesselsValue.com*** (VV), a firm that provides accurate and unbiased data on the global fleet of Bulkers, Tankers, Containers, LPG, LNG, Small Tankers, Small Dry and Offshore sector, has another way to look at the boxship fleets. According to VV, the last 18 months has brought 'huge' activity in the container space to buy or merge with other lines. And, says VV, this is happening on a global scale. COSCO and OOCL, based in China and Hong Kong respectively, are creating a rival to Maersk, who has traditionally been the largest shipowner in the world.

VV also signals a warning flag when it comes to the global order book for so-called mega-boxships – or Ultra Large Container Vessels (ULCV). For its part, VV currently counts 115 ULCVs on order, making up 1.97 million TEU: an additional 10% of the live global container fleet. Says VV, "Owners need to be careful here as they could over order now and scupper any chances of the recovery by increasing the number of vessels when there is not enough supply."

Alphaliner – Top Operated Fleets (29 August 2017)

	TOTAL		Owned		Chartered			Orderbook	
Operator	TEU	Ships	TEU	Ships	TEU	Ships	% Charter	TEU (Ships)	% Existing
APM Maersk	3,535,483	656	1,711,114	245	1,824,369	411	51.6	296,690 (22)	8.4
MSC	3,090,628	509	1,082,557	190	2,008,071	319	65.0	159,040 (14)	5.1
CMA CGM	2,464,302	484	914,214 117	117	1,550,088	367	62.9	140,786 (15)	5.7
COSCO	1,810,215	329	495,093	82	1,315,122	247	72.7	521,292 (30)	28.8
Hapag-Lloyd	1,505,345	214	1,016,413	117	488,932	97	32.5	14,993 (1)	1.0
Evergreen	1,046,868	194	548,041	105	498,827	89	47.6	521,260 (32)	27.8
OOCL	677,622	101	444,409	54	233,213	47	34.4	85,652 (4)	12.6
Yang Ming	585,078	96	209,150	45	375,928	51	64.3	70,000 (5)	12.0
Hamburg Süd	549,218	102	313,508	46	235,710	56	42.9	30,640 (8)	5.6
NYK Line	541,100	96	238,574	40	302,526	56	55.9	126,208 (9)	23.3

Top Container Owners (& fleet value) (as per VV)

Company	Number of Vessels	Total TEU	Total Values USD bn
Moller Maersk AS	237	1,856,356	$8.93
COSCO Shipping Lines Co	178	1,449,140	$7.03
Hapag Lloyd	121	1,076,320	$5.55
MSC	198	1,219,584	$4.35
CMA CGM	99	788,730	$3.89
Evergreen Marine Corp	118	633,505	$3.39
OOCL	61	542,254	$2.73
NYK Line	67	506,624	$2.50
Hamburg Sud	48	322,802	$1.77
Yang Ming Marine Transport	47	224,554	$0.90

THE NEXT PEARL HARBOR

"The potential for the next Pearl Harbor could very well be a cyber-attack."

– Leon Panetta, former CIA Director, addressing US Congress, 2011.

By Gordon McKeown

Danger Signs

There were warning signs before 9/11, above all the rising onslaught of attacks viewed as a trend. The Aden Hotels in 1992, the 1993 World Trade Centre bombing, the foiled attack on President Clinton in Manila in 1996, the Mostar Car Bombing in 1997, the US Embassy bombings in Dar es Salaam and Nairobi in 1998, the Somali and Afghan Civil Wars throughout the 90's and Al Qaeda's involvement in them and in Kosovo. All lead indicators of danger, harbingers of the next Pearl Harbor. Sixteen years later, what is the next Pearl Harbor.

When everything is connected to everything, do you need to physically hijack an aircraft to damage it? Do you need to plant a bomb on a gas pipeline to cause an explosion? Would you need to physically break into an electricity substation to disrupt the power supply and cause a blackout? No, you could do these things using malware.

Malware

There are two lead indicators that point to Leon Panetta's prediction coming true:

1. *The trend of relentless hacking and malware. Everything connected is being tested constantly by malicious actors. It's asymmetric war out there.*
2. *The proven threat from malware designed to cause physical damage to equipment and infrastructure.*

Consider the barrage of high profile data security failures in recent years, including:

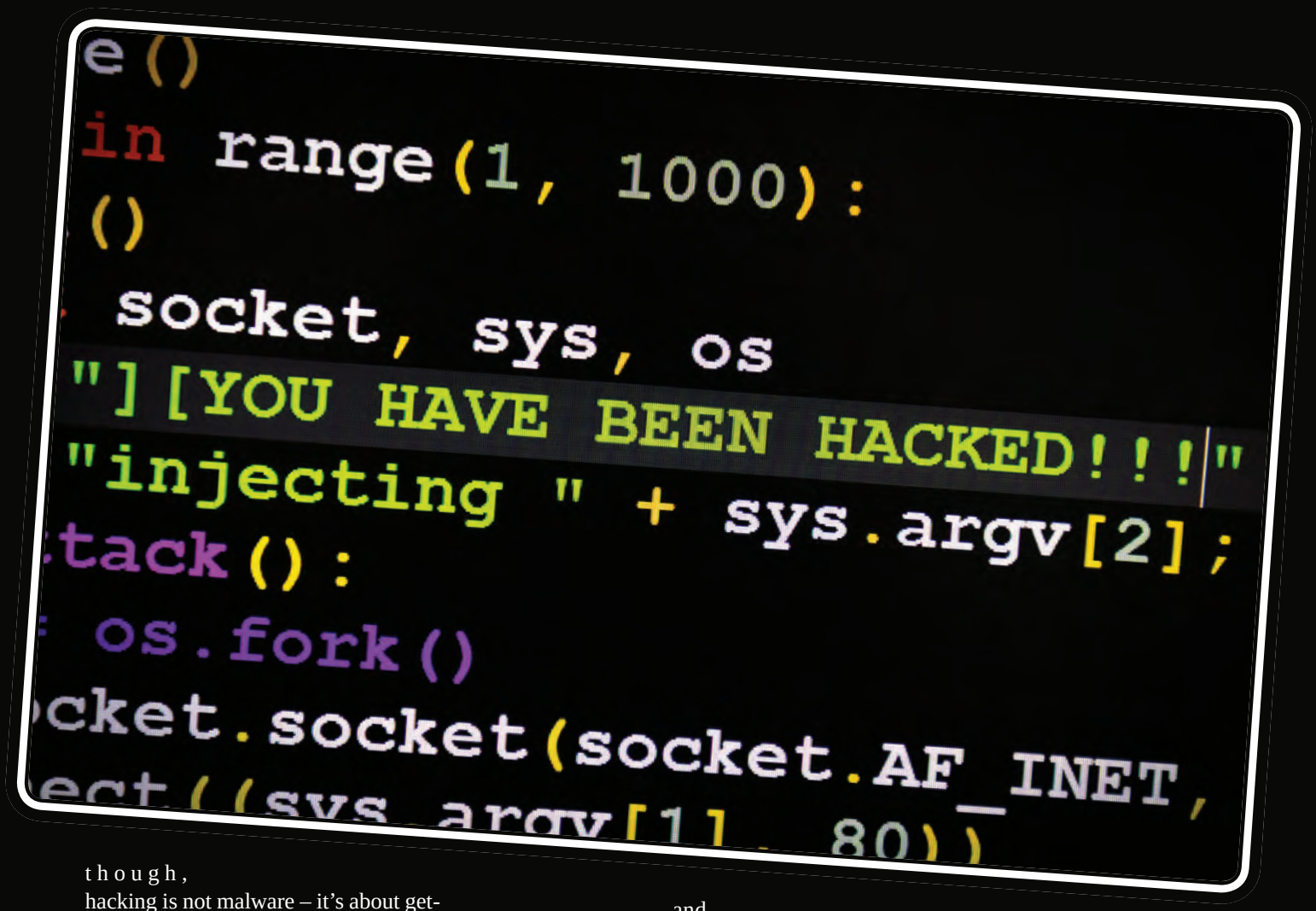
- ***2012:** Shamoon malware demolishes vast IT estates in Saudi Arabia*
- ***2013:** Dark Seoul brings down ATM's and television networks in South Korea*
- ***2014:** Black Energy switches off the power in Ukraine*
- ***2015:** US Democratic National Committee is famously hacked*
- ***2016:** Mirai bots overwhelms high profile websites including Twitter*
- ***2017:** UK NHS Wannacry Ransomware assault*

There's the trend, but if we're looking for the next Pearl Harbor we need to find a 'proof of concept' that moves from the digital domain into real world destruction. We're looking for a cyber weapon.

A Brief Taxonomy of Malware

"Somebody just used a new weapon and this weapon will not be put back in the box," Michael Hayden, former NSA Director, speaking in a television interview about Stuxnet.

For completeness, we should also mention *hacking:* using XSS or SQL injection to maliciously change (hack) software code, usually in a website. The goal is often to get at the database behind the site as in the TalkTalk hack in 2016. Technically,



though, hacking is not malware – it's about getting direct access to source code.

Most malware and hacking assaults are intended to either steal or destroy information, gain access to bank accounts and steal money, demand a ransom or simply show off hacking skills. Where then is this new weapon?

Does Anyone Remember Stuxnet?

Stuxnet was a worm that spread widely via USB sticks in the Middle East in 2009 and was discovered in 2010. Here's a summary of what it did:

- ***Exploited no fewer than 4 zero-day (previously unknown and unpatched) vulnerabilities in MS Windows;***
- ***Covered its own tracks by falsifying system data;***
- ***Communicated with its owner when the infected PC was online;***
- ***Searched the local network for Siemens PLCs running the Step 7 OS; and***
- ***If the Siemens OS version and other parameters matched certain criteria, it would deploy its payload.***

The Stuxnet payload was malicious code that entered the industrial control system (ICS) to carefully change settings and damage connected machinery.

Very specific machinery: centrifuges used to enrich Uranium. No-one has claimed responsibility for Stuxnet, but it is widely believed to have been the creation of a western government to set back the Iranian nuclear program in 2008/9. If that was the case, it worked. Stuxnet ravaged Iran's Natanz nuclear facility, destroying the centrifuges by causing them to spin out of control.

To date, Stuxnet remains the only malware designed to physically destroy machinery and establishes the model for the next Pearl Harbor:

- ***Infect a networked computer;***
- ***Deploy a root kit to take control of the computer, cover traces, reconnoitre the network and report back to base;***
- ***Deploy a payload that overrides the connected industrial control system and damages or destroys [power station, turbine, valve in gas pipeline, rail infrastructure, aircraft, reactor, medical device, etc.].***

According to Kaspersky Labs Threat Landscape for Industrial Automation Systems 2016, a quarter of all cyber attacks

Image above: AdobeStock credit: daliu

> *When everything is connected to everything, do you need to physically hijack an aircraft to damage it? Do you need to plant a bomb on a gas pipeline to cause an explosion? Would you need to physically break into an electricity substation to disrupt the power supply and cause a blackout? No, you could do these things using malware.*

reported to their Internet security service were aimed at industrial computers such as PLCs and one industrial computer in five is attacked each month. Looking at any modern industrial equipment, process or infrastructure, it usually has multiple external network connections including:

- *A direct Internet connection for remote management access to the ICS;*
- *OEM and supply chain organisations update industrial equipment;*
- *Administration and maintenance systems and data (process health, logistics, etc.);*
- *Many in-house and third party line of business systems;*
- *Government and other supervisory and regulatory systems and communications; and*
- *Portable media.*

Even the most critical infrastructure has many potential attack vectors over which the owners and operators may have partial or very little control. The answer to this vulnerability is extension of the scope of enterprise risk management to supply chain and digital risk.

What is the threat to shipping?

At the beginning of June, Maersk became a high profile victim of the Petya/Notpetya virus, demonstrating the obvious digital risk realities that a.) even the largest and most prepared organizations are vulnerable to cyber attack, and b.) the bigger they are, the harder they can fall. Petya locks users out of networks (as in the Aramco attack) and there are reports that Maersk had to resort to manual, handwritten processes for recording manifests during the period in which it responded to the ransomware attack.

The most catastrophic attack could be a malware assault on a large vessel at sea such as an oil or LNG tanker or on a drilling platform. Modern vessels and maritime assets are heavily connected to the Internet and have many potential attack vectors for malware:

- *Operating software and navigation systems (GPS, AIS and ECDIS) that are updated by maintenance a nd service providers and supply chain;*
- *Operator and port maintenance systems and data (vessel health, manifest data, etc.);*
- *Hydrocarbon accounting software;*
- *Safety systems such as Emergency Shutdown, Blowout Prevention, HIPPS and Burner Management Systems;*
- *On board IT infrastructure for use by crew;*
- *Communications systems.*

For example, an application like Stuxnet could take control of an important safety system on a drilling rig such as a blowout preventer and take it offline, or alter its behaviour, when the rig is operational. *This could be designed* to cause an explosion with loss of life and damage to the environment to say nothing of financial and reputational consequences.

Who would do such a thing? Well, terrorists or a hostile state is the simple answer.

Do shipping companies and the owners of maritime assets

Type	What is it?	Why?
Bots	Small apps that allow an attacker to have some functionally specific control over a device like a PC.	DDoS attacks, stealing logins and personal info
Ransomware	An app that restricts access to data or functions in a computer.	Payment of ransom
Spyware	An app that installs itself then communicates to a third party	Stealing logins etc.
Rootkit	Software that installs deep in an operating system to provide extensive, very hard-to-detect control	Multiple possible purposes
Trojan	A file that appears harmless but contains malware	Infection, distribution
Virus	Any malware that copies itself and spreads over a network or via some other vector like USB drive	Infection, distribution
Worm	Malware that exploits vulnerabilities in an operating system.	Infection, distribution

effectively model and manage digital risk? Most reports on the subject suggest not. By way of a typical example, a couple of years back the Brookings Institute looked at six U.S. port authorities from a cybersecurity perspective and found that only one had conducted a digital vulnerability assessment and none had a cyber incident response plan. "Indeed, of the $2.6 billion allocated to the U.S. Port Security Grant Program – created in the wake of 9/11 to fund new congressionally mandated security requirements at U.S. ports – to date, less than $6 million has been awarded for cybersecurity projects." (*The Critical Infrastructure Gap: U.S. Port Facilities and Vulnerabilities*).

Recommendations

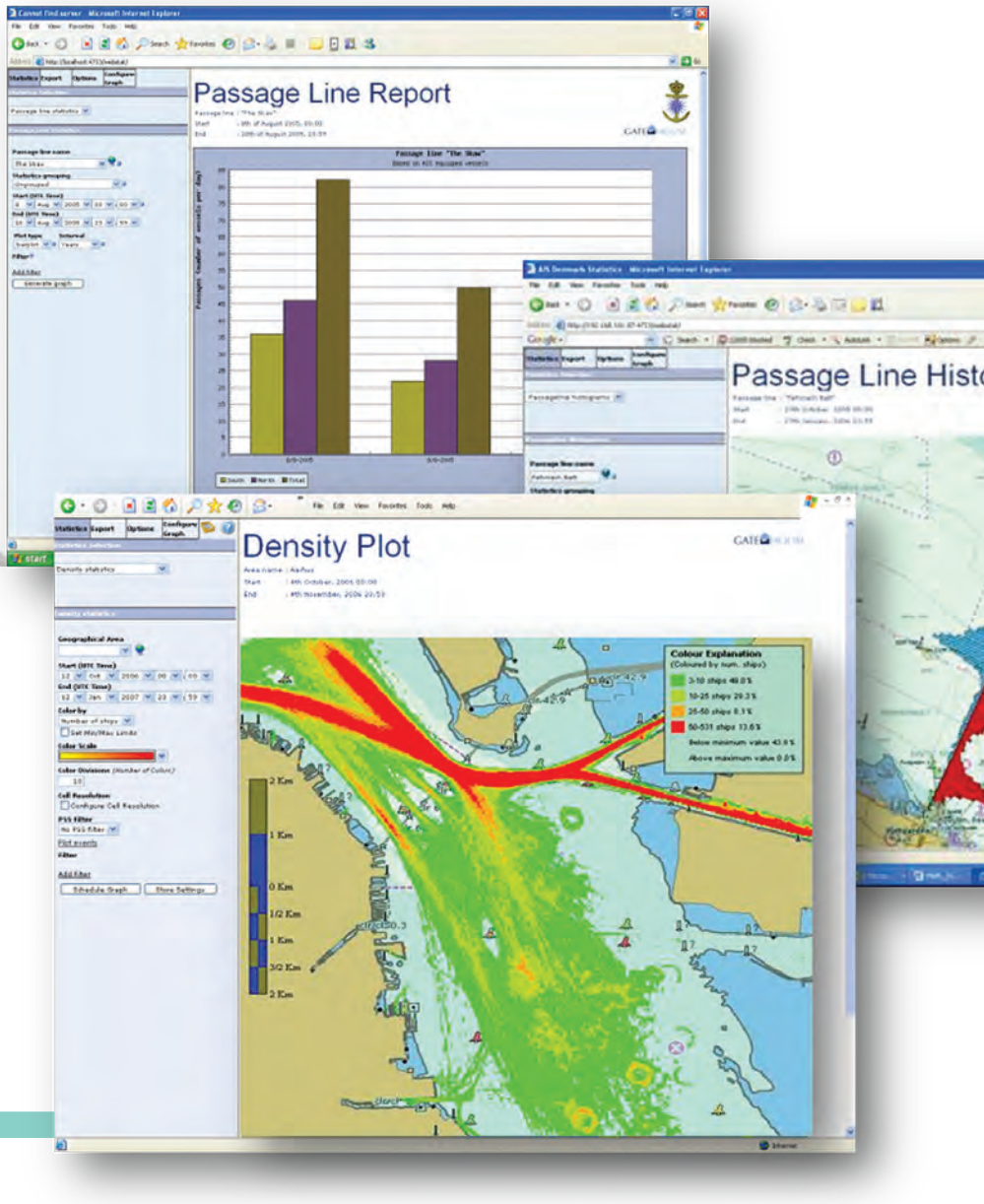
If your organization owns critical infrastructure or plant or equipment where deliberate sabotage would have Financial, Infrastructural, Reputational, Market or Safety (FIRMS) consequences, do you proactively manage this risk? The absolute essential, basic steps that every organisation must take in the face of the current level of global cybersecurity threat are as follows:

- ***Implement ISO27001;***
- ***Include malicious digital attack in risk models for infrastructure;***
- ***Take a risk-based approach to safety and security;***
- ***Appoint a person to overall responsibility for risk management in your organisation (that person could be a dedicated CRO but many organisations are successful by increasing the role scope of the Quality Manager, Information Security Manager or COO);***
- ***Implement a group of employees to manage risk;***
- ***Identify all your information assets;***
- ***Identify the threats posed to each information asset;***
- ***Identify the consequences if each risk was to happen;***
- ***Identify the controls you have in place (or are planning to have in place) to mitigate threats***
- ***Agree the perspectives (e.g. likelihood, impact and associated scoring) of the risk matrix(es) you are going to use;***
- ***Agree the treatment plans for each band of risk scoring;***
- ***Implement the controls.***

The Author

Gordon McKeown

is the Group Brand Manager at Ideagen. He is a software marketing professional with twenty years' experience in the industry.



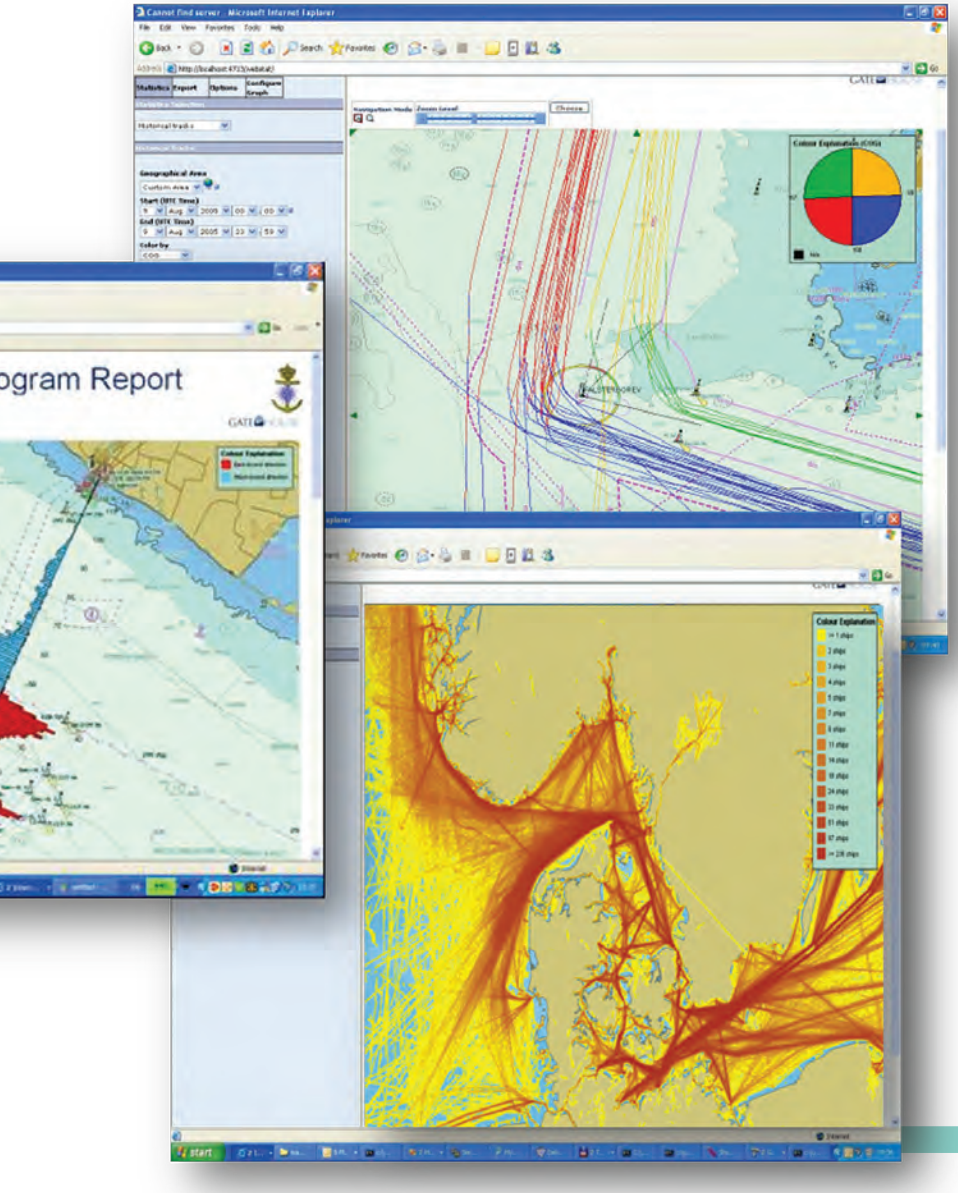
Michael Bondo Andersen

Chief Executive Officer (CEO) and founder of GateHouse, M.Sc.EE

GateHouse is developing software solutions to support optimization, flexibility and mission critical operations for vehicle and vessel tracking, monitoring and satellite communications. While hardly a novel concept in this space, Michael Bondo Andersen, CEO and founder, explains that managing Big Data lies at the heart of the GateHouse approach. “Big Data often leads to information overflow if not thoughtfully and competently curated. However, when delivering the right information, at the right time, in a user-friendly format, Big Data can deliver groundbreaking competitive advantages.”

In short, GateHouse offers solutions to maritime authorities (commercial and military), port operators, offshore and subsea asset owners/operators and vessel operators. To serve this diverse range, GateHouse offers the ghMaritime suite of products and services, including: ghMaritime Monitor, ghMaritime Port, ghMaritime Arrival, ghMaritime Analytics, ghMaritime Offshore and ghMaritime Intelligence. Combined, the functionalities of the ghMaritime suite include:

- *Tracking, monitoring and control of maritime traffic*
- *Real-time arrival notifications for vessels and trucks (supply chain logistics)*
- *Advanced statistical analysis and reports, including risk management tools*
- *Event detection and WatchDogs in support of asset monitoring and protection*
- *Routing and Estimated Time of Arrival predictions and notifications*
- *AIS message creation and management in support of e-Navigation*



Michael Bondo explains how this Danish company is well positioned to thrive as the world of logistics continues its relentless push toward full digitization.

By Greg Trauthwein

Images courtesy of Gatehouse

"Through our advanced toolsets, we strive to deliver the required information to clients automatically through standardized web services," said Andersen. "These data services can provide all the information required for a client to make an informed business decision, or integrated with another operational system in support of business activities."

GateHouse in the Real World

GateHouse is well experienced in the maritime and logistics sector, and is now making a push into North America as it sees green field opportunities within.

"We see opportunities with the maritime authorities in both the United States and Canada," said Andersen. "In the past six months, it has become apparent that opportunities exist in the management of large volumes of data, analytics and reporting tools within several government departments. Developing areas include the data services in support of River Information Systems and the support of e-Navigation initiatives. Data aggregation in support of supply chain logistics is a great opportunity for GateHouse in North America, with a focus on the maritime/land interface (ports)."

Some recent applications of GateHouse solutions include:

- *The Marine Exchange of Alaska (MXAK) has deployed a GateHouse server system in support of 133 AIS receiver stations on the Alaskan coach. The MXAK utilizes our analytics and reporting tools in the provision of services that aid safe, secure, efficient and environmentally responsible maritime operations. MXAK has deployed GateHouse data management tools to supply AIS data streams to its clients so that they can monitor their vessels. The data feed is also provided to the USCG in support of the nationwide AIS program.*
- *Maersk Oil and GAS (MOG) uses the AIS system to*

monitor all the traffic in the area of its oil and gas rigs in the North Sea. The system includes an automatic watchdog that will monitor all ships approaching any given oil rig in multiple concentric circles. In case a ship is approaching the outer area a notification (e-mail and SMS) is sent to the staff. If the ship approaches the next circle an AIS warning message is sent to the ship and if this doesn't divert the ship and it approaches the inner zone, then an alarm is triggered to activate safety precautions onboard the rig.

➨ *The Port of Aarhus has been using the GateHouse AIS Port Solutions for over a decade. At the core of the solution is GateHouse's Estimated Time of Arrival (ETA) calculator. Using the automatic ETA calculator, port management receives alerts if vessels planned for berths are delayed, and the port management can communicate information about the delay to all the terminal operators and shore side services in the port. The port operators can visually monitor the berthing allocation several days in advance to allow for optimal resource allocation also in terms of port staff required where and when. The AIS system is integrated into the other parts of the port management system using a simple web service.*

GateHouse Group

GateHouse Logistics/ Cargoways Case:

Cargoways on Logistics Fast Track

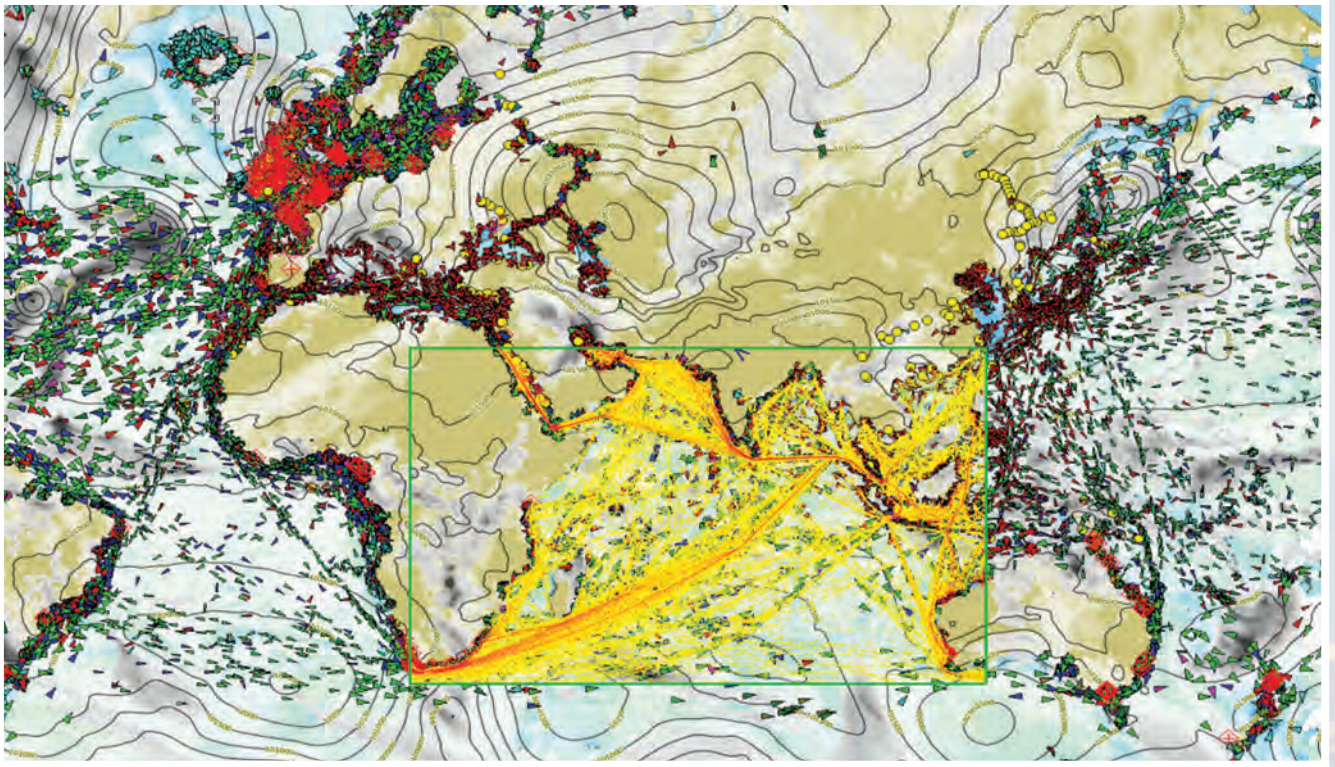
It's been something special for forwarding company Cargoways Logistik & Transport GmbH to break into the business of transporting race cars to venues. The first contract was to transport formula E-equipment using 35 trucks from London to Paris and the success of that operation led to Formula One enquiries. Cargoways also specializes in transports to islands. Currently, its core business is between Italy and England, but opportunities are now opening up to the firm in Sweden, Norway, Finland and Germany. The main office is in Kufstein, Austria, from where it controls all transports. The company was formed just two years ago and today they handle approximately 1,500 transports per month and has around 35 to 40 partners driving for the company.

The challenge

The forwarder has framework agreements with transport companies and is responsible for employing the full use of all trucks. If it does not assign a job to any of the trucks on any day, Cargoways has to pay them idle time so it is important to know where the vehicles are located and their availability.

The solution

There was only one efficient solution for Cargoways to obtain accurate vehicle information - the telematics portal ghTrack of Gatehouse Logistics. The portal is capable of providing an overview of all telematics systems on just one monitor. If a vehicle used by Cargoways is using an unknown GPS system, GateHouse establishes a new interface within a day. The Cargoways portal currently provides only the location of vehicles but this is possible to extend. GateHouse can aggregate all important data in the portal and what is shown depends entirely on the customer's preferences.



GateHouse Logistics

The GateHouse Group is composed of three business units:

- **GateHouse Logistics: Tracking solutions to the logistics industry.**

  * *GateHouse Logistics' systems track several hundred thousand units each day in ships, trucks and planes. As the only secure and independent platform capable of providing total transparency and visibility of assets throughout the entire supply chain, ghTrack helps logistics and transport managers to improve operational efficiency and to simplify the progress of monitoring goods in transit at any time. ghTrack is compatible with existing GPS and TMS systems and is the cornerstone for automation and data exchange in supply chain technologies for the coming fourth industrial revolution: Industry 4.0.*

- **GateHouse Telecom: Satellite communications, consulting and services.**

  * *GateHouse Telecom has for more than a decade provided the satcom industry with a range of software products for commercial, government and military use. GateHouse Telecom also offers consultancy services for software, hardware and system integration as well as for the preparation and evaluation of international tenders.*

- **GateHouse Maritime:**
  Tracking solutions to maritime authorities, coastguards, ports and related businesses.

  * *GateHouse Maritime provides maritime decision makers and operators in global markets with world class tools for tracking and monitoring maritime traffic. Its products have wide applications in Coastal Surveillance, Port Management, Offshore Surveillance and Risk Analysis. GateHouse Maritime is an AIS provider, and AIS solutions from GateHouse Maritime can be bolted on to existing solutions bringing added value for Data Fusion, Anomaly Detection, Statistics and Risk Assessment.*

Addressing Today's Shipping Ch

Technology will prove the game c

By Alexande

The shipping industry faces many challenges. The growth in fleet volumes at a time of global economic slowdown has resulted in excess supply and falling demand, which has had a major impact on profitability. It's not only the global economic slowdown, particularly in China, that is affecting shipping. Hardly any other sector requires such complex process management as shipping, which compounds the challenges.

A major issue for many shipping companies is that they have to handle a variety of tasks all carried out by different departments – leading to a lack of overview about processes and people in charge. This isn't surprising given several different teams carry out tasks ashore and aboard, from employees of shipping companies, to external agencies and crews on the high seas. A great problem here is that the fleet is not integrated into the internal processes of the company and most of the time lack access to a central source of data. For example, the same information might get requested multiple times from the captain, which forces him to respond manually to each request.

Unless the teams are connected and can communicate on a reliable basis it's easy to see the difficulty in managing hundreds, if not thousands of employees. Antiquated day-to-day processes remain an ongoing challenge in shipping and are reinforcing inefficient ways of working.

allenges with Software Solutions

changer for the shipping industry.

r Buchmann

Addressing the Challenges

Solving these challenges is tough. Many of the external factors such as the supply/demand imbalance and swings in demand are beyond the ability of one company to fix, however shipping companies can deploy internal improvements to business areas such as commercial, operations and fleet to improve their performance.

Despite the need for change, shipping companies have often been slow to adopt new ways of working. And those who are on the road to making changes are being held back by legacy IT systems that are hampering them from making the improvements they need.

However, things are changing. In the last decade, we've seen technology drive significant changes to business processes and working practices in other industries As global management consultants McKinsey recently highlighted, "Over the past few years, rapid technological advances in digitization and data and analytics have been reshaping the business landscape, supercharging performance and enabling the emergence of new business innovations and new forms of competition and business disruption."

However, the firm goes on to point out that progress has been uneven and says, "While many companies struggle to harness the power of these technologies, companies that are

"Using the cloud means information can be centralized, is accessible for everyone, systems and processes can be integrated and data silos removed – allowing operators to gain a complete 360-degree overview of their fleet and entire operations. While the real-time exchange of data may still take some time to become established, cloud-based solutions are available today and already help shipping companies to realize great benefits in terms of communications, data access and collaboration."

fully leveraging the capabilities are capturing disproportionate benefits, transforming their businesses and outpacing – and occasionally disrupting – the rest."

Technology is the Way Forward

The shipping industry can no longer afford to be left behind in a world where technological advances are streamlining business and management processes, leading to greater efficiencies and profitability.

More companies are starting to use technology to optimize fleet management, automate processes, increase their business performance and reduce costs. We see enormous potential for further progress driven by technology.

Already, there's been commitment from the industry to bring the internet on board and make it available constantly. This is a major step forward since it will allow shipping companies to communicate and exchange data with their fleet in real-time.

Another major topic is the use of cloud-technology. Using the cloud means information can be centralized, is accessible for everyone, systems and processes can be integrated and data silos removed – allowing operators to gain a complete 360-degree overview of their fleet and entire operations. While the real-time exchange of data may still take some time to become established, cloud-based solutions are available today and already help shipping companies to realize great benefits in terms of communications, data access and collaboration.

How Cloud-Technology is Helping Shipping Companies

Peter Döhle Group, with more than 500 vessels including container and multi-purpose vessels, as well as bulk carriers trusts in modern cloud-based software to manage and monitor its fleets. As a global company, the Peter Döhle Group demands

safe, secure and quick information flows between all relevant parties ashore and at sea. The company wanted to integrate and align information about its vessels and data from external partners with its internal company processes in one platform.

The company wanted accurate and up to date fleet management information for all parties at any time, regardless of their location. It hoped that being able to access this information would accelerate information processing and improve the company's ability to react to events as they happen. Other goals were for the company to remove data silos, which were costing the business time and resources, speed up communications and increase the efficiency of its vessel management.

The company adopted our Cloud Fleet Manager solution to gain a single platform through which their entire fleet can be managed. The platform centralizes information so it can be viewed, analyzed and processed in real time using apps and mobile devices. Hanseatic requires minimal employee training. At short notice, we provided prototypes for the company and open interfaces for up and downstream systems which offered scope for future development.

Within days, the application was rolled out, data imported and the Cloud Ship Manager installed on the vessels. Today, the Cloud Fleet Manager is used as a central, company-wide communication and information platform which has improved information accuracy and reliability and added business value. The extra work that used to be involved in managing data redundancies in Excel spreadsheets is a thing of the past.

Peter Döhle Group has evolved its processes and procedures. For example, inspections are now done "on-the-fly" using the Inspection Report app with results made available for all persons in authority immediately – saving the Inspector considerable time and increasing their productivity. The company plans to introduce the software globally soon and will use the Cloud Crewing module to manage its crew, plan their voyages and perform payroll processes.

Another company using Hanseaticsoft's Cloud Fleet Manager is Norddeutsche Reederei H. Schuldt, a 150-year-old shipping company, with a fleet of 52 vessels. The company's fleet consists mainly of modern container vessels of various size and specification reflective of market demands and development. It is also a leading partner for international liner companies fulfilling in part their tonnage requirements for global trade. It also offers a diverse range of other maritime services such as purchase, sale and risk management, as well as asset management.

This company had reached the stage where it felt that sustainable competitive advantage in their area would only be achieved with the use of modern technology. Its goal was to find a platform that would minimize data redundancies and communication gaps. Additionally, it wanted to have consistent data accessible for everyone in the company, and to improve the quality of the data. Another crucial factor for the selection of the right software solution was the need for cloud-based technology that could be accessed over the internet using tablets and phones regardless of location and time.

They chose Cloud Fleet Manager because it seamlessly integrated into the company's existing systems and processes and could be accessed via a web browser at the office while simultaneously offering an application for use at sea, the Cloud Ship Manager (CSM).

The company first introduced the Cloud Fleet Manager portal and its Crewing application enabling the collaboration between the ships and staff on shore to be strengthened and accelerated. Using Cloud Fleet Manager whether crew planning, undertaking the preparation of payroll or the appraisal of seamen: the digital data is available non-redundant, valid and immediately where it is needed.

Using the system, the company has been able to improve the quality of its management, and at the same time achieve a noticeable reduction of the workload for its employees on land and at sea.

Further applications such as Operations, Schedule & Agents and Offhires and Claims were later introduced with minimal effort. The ability of Cloud Fleet Manager and Cloud Ship Manager to offer sufficient flexibility to distribute tasks according to requirements is a major benefit. For example, schedules or agencies can be administrated both at sea and on land, meaning all users can benefit from the transparent depiction of required information.

The next application to be introduced is Inspections and Audits with its native apps for Android, iOS and Windows 10. Inspections, audits or vettings can now be carried out on mobile devices in a timesaving manner and are post processed and finalized in the cloud.

Shipping companies have a huge opportunity to transform how they manage their fleet and crews, through using cloud technology. This will help them drive down costs, improve their efficiencies, ensuring they future-proof their business and retain or gain that all important competitive edge.

The Author

Alexander Buchmann

is Managing Director of Hanseaticsoft GmbH. He founded Hanseaticsoft in 2009 and developed Cloud Fleet Manager. Since March 2017, Lloyd's Register one of the world's largest ship classification societies, holds a share in the software company.

Changing Box Landscap That Yard Tools Keep Pa

The need for increased operating efficiencies for container terminals collides with the demands of a Tier 4 regulatory climate. Fortunately, you can achieve the former goal while satisfying your thirst for latter.

The summer of 2017 presents both ports and container terminal operators everywhere with many challenges. A shifting liner alliance landscape has reshuffled the intermodal deck, and some ports are scrambling to dredge and finish the infrastructure necessary to handle the increased TEU throughput. Separately, renewed pressure from the regulatory side of the equation – notably the so-called West Coast Clean Air Action Plan (CAAP) – has ports puzzling over how to ramp up already robust (and successful) efforts to clean up their environmental footprint.

All ports, no matter where they reside, share two common denominators. The desire for an efficient and profitable cargo operation must be balanced by the need to go green. Take lift trucks, for example. Customers have always looked for many

pe Demands ace

By Joseph Keefe

things when it comes to robust lift trucks and reach stackers. Life cycle costs, retail price, versatility, safety – these and more are all important. According to Hyster Company, a manufacturer of lift trucks and industrial equipment for a wide range of cargo operations, just one thing hasn't changed very much over time.

Brett Schemerhorn, President of Hyster's Big Trucks Americas group told ***MLPro*** in August, "Our research shows that the number one purchase decision driver continues to be the total cost of ownership. Customers are interested in both low purchase cost and low cost of operations. One key way for users to achieve a low cost of operation is to have durable and reliable equipment. The trucks must be running for these customers to make money; otherwise, they would need to invest in backup trucks." That said; he adds quickly, "Depending on the location, some ports, such as those located in California, are under higher pressure when it comes to reaching certain environmental goals."

For its part, Hyster Company, a division of Hyster-Yale Group, is headquartered in Cleveland, OH and employs more than 6,300 people worldwide. The firm offers as many as 130 lift truck models configured for gasoline, LPG, diesel and electric power, with one of the widest capacity ranges in the industry — from 2,000 to 105,000 lbs. Supported by a robust dealer network, Hyster container handlers are manufactured at their global Big Truck factory in the Netherlands. At the same time, the North American market is also supported by a Danville, Illinois, parts distribution center (PDC), ready to ship parts to customers anywhere via next-day air.

CURRENT EVENTS: IMMEDIATE NEEDS

The widening of the Panama Canal brought deepened harbors, bigger ships and more traffic to U.S. ports, even with the shifting global boxship alliances. Initially, and while the global count of containers shipped has been on the rise, shipping lines and port terminal operators have not been able to stabilize prices for a container shipped and handled due to a surplus in shipping capacity. Hence, both have been operating on very thin margins. That, in turn, does not allow for replenishment or increase of port equipment units. Nevertheless, through consolidation of terminal operators and shipping lines, as well as the retirement of container vessels, prices have begun to recover and port equipment manufacturers are seeing increased demand for equipment.

At the same time, the need for 'green' is also becoming more critical. Equipment providers find themselves addressing not only economics, but environmental concerns as well. Some OEM's are better positioned than others. "Through our leadership position designing and building electric trucks and our relationship with fuel cell company, Nuvera, Hyster is well-positioned to understand power solutions available and apply this knowledge to the development of multiple electric power options for large container handlers," explained Schemerhorn.

The U.S. Environmental Protection Agency (EPA) set forth a schedule that implemented Tier 3, Tier 4 Interim and Tier 4 Final emission requirements based on engine horsepower output over the past six years. By the end of 2016, all off-highway engines (all horsepower ranges) had to be compliant with EPA Tier 4 Final emission levels. However, lift truck OEMs were given some flexibility from the EPA in the implementation of the Tier 4 Final engines. Because of this, there may still be some new Tier 3 or Tier 4 Interim trucks being supplied.

At Hyster, a modular approach gives customers choices when it comes to selecting the best zero-emission solutions for their operations. To achieve the best total cost of own-

ership, the most suitable power option will depend on the requirements of the specific operation – application and infrastructure. For example, an electric truck with a large battery pack and conventional charging may suit some customer needs. In other cases, more frequent 'opportunity charging' will be needed, and different methods of charging might be in order. Other operations may be best suited to an electric truck with a smaller battery pack combined with a fuel cell. As a minimum, OEM's must be ready to provide both.

DECISIONS, DECISIONS

As environmental solutions initially developed for lift trucks and other commercial cargo handling solutions, at the Tier 4 Final level, engine manufacturers were not able to hit the PM and NOx levels using only EGR. SCR systems with DEF (Diesel Exhaust Fluid) were required. Some engines use this in combination with cooled EGR to reduce the amount of DEF required. Regardless of how a particular company achieves compliance, developing solutions to enable the move from profitable low emissions unit to profitable zero emissions doesn't happen in a vacuum. For example, the CEC (Cal Energy Commission) invited industry to participate in their Alternative and Renewable Fuel and Vehicle Technology Program for Sustainable Freight Transportation. Hyster is actively engaged in such programs as they determine what affordable zero-emission solutions may look like. It is no small task.

Important considerations include the duty cycle, infrastructure and the optimal charging strategy. Schemerhorn explains, "In less-intense applications, a large-size Lithium-ion battery pack with conventional charging strategy may be sufficient. For some applications, where trucks have downtime within a shift and can be 'opportunity' charged, a medium battery pack could be a viable solution. However, Li-Ion battery capacity is currently not expected to be sufficient for the most-intense full-shift applications where there isn't an opportunity to recharge during the shift. This is where fuel cells may be a better choice."

Eventually, innovations in Big Truck technology are expected to result in the ability to have continuous operation with operator-friendly recharging or quick hydrogen fuel cell refilling options. But environmental compliance need not wait for developing technology. Hyster Company along with the Port of Everett, Washington, recently celebrated the delivery of three Tier 4 Final Hyster RS46-36 ReachStackers. A deep-water port located 25 miles north of Seattle, the Port of Everett specializes in overdimensional breakbulk cargo.

Hyster ReachStackers were selected through a competitive request for proposal (RFP) process led by port officials and an outside consultant. Because the Port of Everett handles a significant amount of breakbulk, including odd-sized/shaped containers and extremely valuable and sensitive cargo, they required high duty, high capacity equipment proven to accommodate non-standard cargo and customizable to meet their specific needs.

The Hyster team diligently tested the ReachStackers to ensure that they could maintain capacity with varying positions, attachments and centers of gravity. As a result, said Carl Wollebek, Chief Operating Officer, Port of Everett. "We now have three more environmentally-friendly and efficient ReachStackers perfectly suited to our facility."

The new ReachStackers will be used to help increase capacity, throughput and uptime, as well as to support the port's forward-thinking environmental goals. The Port of Everett is one of the first ports in the U.S. to employ Tier 4 Final equipment in its operations and Schemerhorn says that's no accident. "Through our application center approach, Hyster developed a well-proven Voice of Customer process. The application center is a group of engineers and sales and marketing representatives from Hyster who work closely with customers to not only identify opportunities to improve the material handling machines operated in these industries but also recommend improved practices to owners."

Separately, the Port of Virginia, the only U.S. east coast port with congressional authorization for 55-foot depth channels, also took delivery of five new Hyster H450HD-EC empty container handlers this year, fulfilling the need for additional high-capacity equipment to handle increasing port volume. The Hyster H450-EC is part of the full range of container handlers and ReachStackers offering material handling capacities up to 105,000 lbs.

For both ports, said Schemerhorn, providing the right equipment for the right task is the key. "We not only understand the needs of port operations, but work very closely with our customers and prospects to understand their unique preferences and requirements to create and deliver the optimum products for their needs."

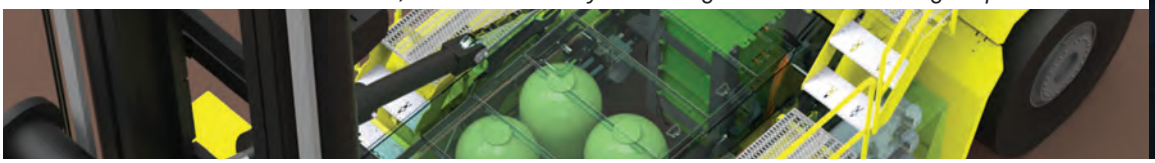
Today, Hyster is currently working with terminal operators to develop its zero-emission top loader. In the early stages, the electric trucks, including batteries and chargers or fuel cells, are expected to have a much higher acquisition cost than current diesel trucks. Hyster, says Schemerhorn, anticipates that as technology continues to progress, costs should decrease, resulting in a less expensive option for the end user. In fact, he insists, "The industry anticipates that the total cost of ownership will eventually be similar to or better than the cost of the currently available diesel trucks."

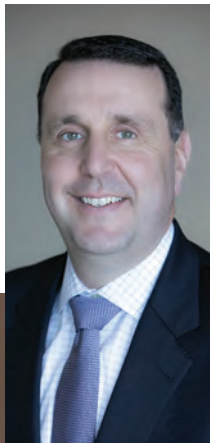
VERSATILITY & EFFICIENCY PRODUCE ANOTHER KIND OF 'GREEN'

The Hyster RS46-36 ReachStacker offers more flexibility and is available in both container handling (CH) and intermodal handling (IH) versions for high-density container stacking applications, up to five high and three rows deep. The Container Handler models are designed for operations where only containers are moved, stored and stacked. Intermodal applica-

"In less-intense applications, a large-size Lithium-ion battery pack with conventional charging strategy may be sufficient. For some applications, where trucks have down-time within a shift and can be 'opportunity' charged, a medium battery pack could be a viable solution. However, Li-Ion battery capacity is currently not expected to be sufficient for the most-intense full-shift applications where there isn't an opportunity to recharge during the shift. This is where fuel cells may be a better choice."

– Brett Schemerhorn, President of Hyster's Big Trucks Americas group





tions usually involve multiple modes of container movement, utilizing a different spreader attachment that enables the truck to pick up a container and chassis together. The attachment has legs to pick up the chassis from just below the bed, with the container on the chassis bed. Some terminal operators find that a single vehicle that can handle multiple missions and replace two or three that are designed with limited options.

Empty-container handlers from Hyster are capable of lifting up to 23,000 pounds, which is the highest lifting capacity offered in the market today. This is significant because it offers the ability to double-handle, even if an operation requires moving two refrigerated containers at once, with the refrigeration units on the same side. Until now, empty-container-handling manufacturers have advised carrying the containers with the refrigeration units on opposing ends, which can be a time-consuming maneuver. Hyster eliminates that requirement.

Double-handling is not a widely spread practice in the North American market, but it is well-adopted in the European regions, where Hyster has been involved with the double-handling equipment market for years. The ability to handle two containers with one machine saves time, money, improves dwell time and, of course, reduces that all-important environmental footprint.

REGULATORY COMPLIANCE OF A DIFFERENT KIND

Container Verified Gross Mass (VGM) is no longer just a concern – its verification is an absolute must. The Hyster Static Plus weighing system is now available on new and existing Hyster ReachStackers and Laden Container Handlers. This is a very convenient way for terminals – especially those smaller ones with limited resources – to achieve instant compliance economically and using an existing asset. But, Hyster's Schemerhorn says that when it comes to weighing containers; one size does not fit all. Hence, Hyster provides options.

"We have a few different systems available based on the need and the budget. Our Static Container Weighing System is a very cost-effective solution to enable SOLAS-compliant weighing in certain countries. It is based on hydraulic load-sensing technology and is self-calibrating and easy to use. Accuracy is better than 98 percent, and results are available in less than 15 seconds, with a few printing options."

Static Plus, on the other hand, is a dynamic solution for SOLAS-compliant weighing, offered in collaboration with Trimble, a leader in weigh system technology. The system provides legal for trade capability, faster weighing, time-stamping, data transfer to ERP / terminal operating system and multiple printing options.

After you've verified that VGM, you'll probably want to know why your yard driver hasn't yet arrived back from his last move, or what's taking so long. Or, perhaps you want to know where and why that lift truck is simply idling and spewing out emissions. Beyond weighing systems, Hyster Company earlier this year also announced that Hyster Tracker wireless monitoring with cellular GSM connectivity will be standard on all Hyster Big Trucks and container handlers in the Americas. The wireless capability enables remote truck monitoring via a web portal of key operating KPIs, such as usage tracking, impact sensing, key diagnostic failure codes reporting, fuel consumption and container counts (when applicable), along with others. The package can be upgraded to include wireless verification (access control for operators, truck shutdown when unattended or not in operation, and operator pre-shift checklist) for an additional fee.

POWERFUL, GREEN & COMING SOON TO A TERMINAL NEAR YOU

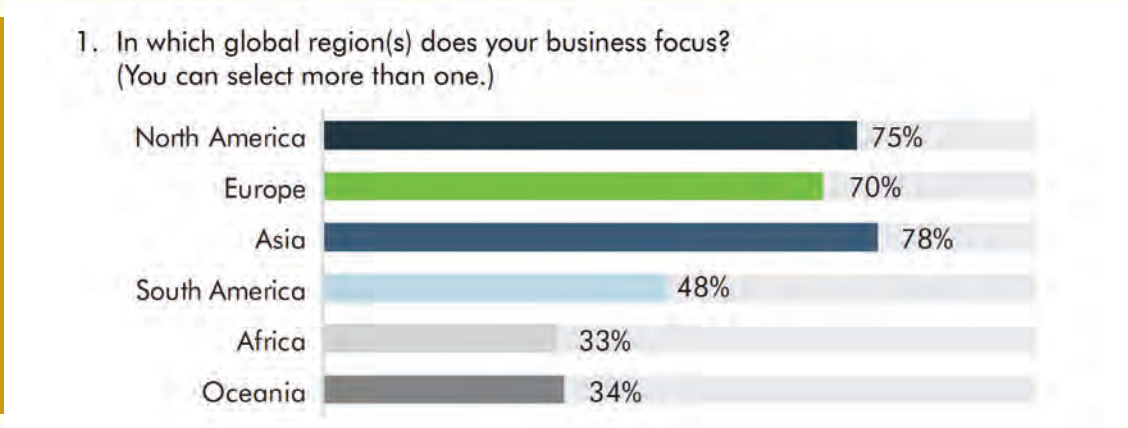
It is coming. Terminals will soon be expected to be able to electrify their Big Truck fleets and produce zero emissions, while achieving full shift performance comparable to a diesel-powered truck in the near future. Looking to meet that demand head on, a 52-tonne capacity Hyster laden container handling truck with an electric motor will shortly be entering the test phase. This and other innovations for container yard equipment will all be a part of the intermodal solution of tomorrow. In fact, most of these features are available now.

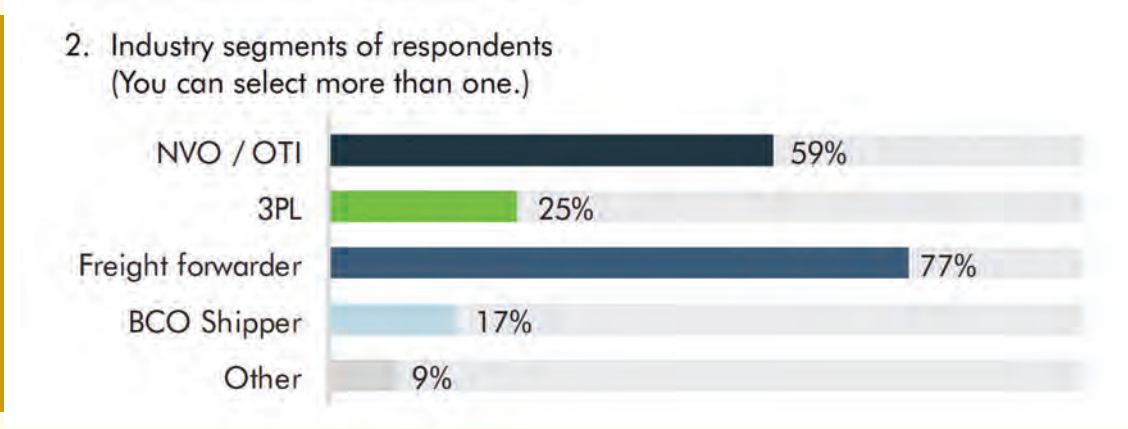
Multi-National Freight Stakeholder

A recent survey commissioned by CargoSphere, the cloud-based global freight management system, revealed that 92% of respondents agreed that a direct ocean carrier data feed would be a competitive service advantage. In other words, connecting ships, ports and people truly does matter, and make a difference. According to CargoSphere, their rate technology platform delivers frictionless rate distribution and networking. And, at a time when freight stakeholders are thirsting for greater transparency at all points in the global, intermodal supply chain, the results of their latest survey are especially important.

Cloud-based, systematized contract and rate management provides the CargoSphere user community with accurate and collaborative rate distribution, sharing, comparison and quoting, as well as the ability to self-publish FMC tariffs. The CargoSphere Rate Mesh connects shipping partners for seamless, confidential rate collaboration in real-time to simplify rate communication and provide a faster, more effective way to receive and distribute freight rates. CargoSphere's original research was developed to determine what value the global NVO and forwarding (FF) community puts on receiving a direct, Web-based feed of their negotiated rates from their ocean carriers. So, what does that mean and what do users really want?

In 2016, CargoSphere commissioned Drewry to define the cost burden to the global freight forwarding community to find or receive and process/analyze ocean freight buy rates. It was determined the annual labor cost is a whopping $500 million. This acknowledgement of the financial strain of processing frequently changing ocean carrier rates, says CargoSphere, highlights the need for a more efficient digital framework for container shipping rate management and distribution. This survey investigates the various reasons and benefits for automating rate management and distribution and streamlining this process with a direct ocean carrier feed. By the numbers, the demographics of the survey looked something like this:





RS WANT DIRECT OCEAN CARRIER FEEDS

13: Countries represented
6.5 million: Annual TEU of container volume represented
77: Percent Respondents who were freight forwarders
59: Percent Responders who were NVOs
36: Percentage of Respondents who identified themselves as C-Suite
47: Percentage of Respondents who identified as managers

According to CargoSphere, the most important conclusion of the survey is that there is near-universal interest from the respondents in the electronic receipt of confidential negotiated ocean carrier rates. The survey provides great confidence in this conclusion because of user responses to 2 different questions: A response of "Yes" from 92% of the respondents when asked "Would a direct data feed from your carriers with your confidential ocean pricing be a competitive service advantage?"

When asked to rank the value to their company of streamlining the ocean pricing process (on a scale of 1 to 10 with "1" being "Little Value", "5" being "Moderate Value" and "10" being "Invaluable"), 25% of respondents selected '10' (invaluable) and 92% selected '5' (moderate) or higher.

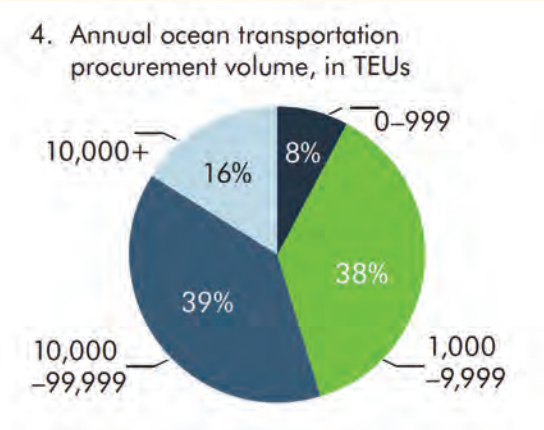
Carriers can be confident that forwarders will be eager recipients of this data when they are able to improve their distribution technologies.

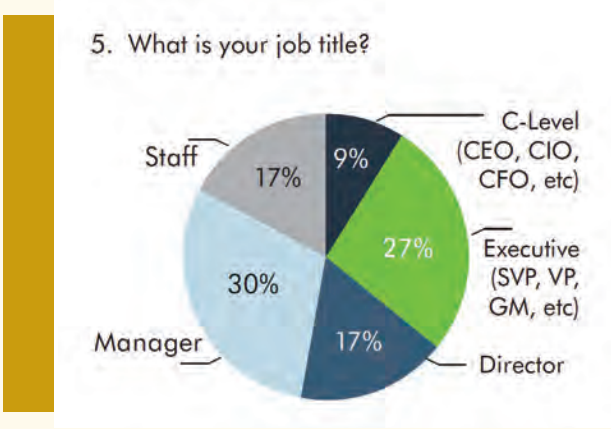
Benefits of the new technology:

Time savings for sales & ops staff	*Faster quoting to customers*
Increased data accuracy of buy rates	*Increase in customer satisfaction*
Global access to accurate timely rates	*Enables selection of optimal booking carrier*
Faster reconciliation of carrier invoices	*Sharing rates in real-time w/partners*

CargoSphere®

For more information, and full access to survey results, visit: ***www.cargosphere.com***





The End of Siloed Business Systems

By Tom Van Buskirk

When considering the great transformational technologies for software in recent history – such as automation, analytics and artificial intelligence – too often we neglect the power and promise of software integration, and more specifically, integrated systems.

Take the terminal operations industry as an example. The tools and systems necessary to run marine and rail facilities are vast and disparate, and when not integrated intelligently, can be unwieldy and vulnerable to failure. Even small failures can lead to dramatic business impacts for terminal operators.

What creates these kinds of failures? For software systems in general the factors are many, and varied. As a broad generalization, as software systems grow and become more complex, they become more challenging and costly to maintain.

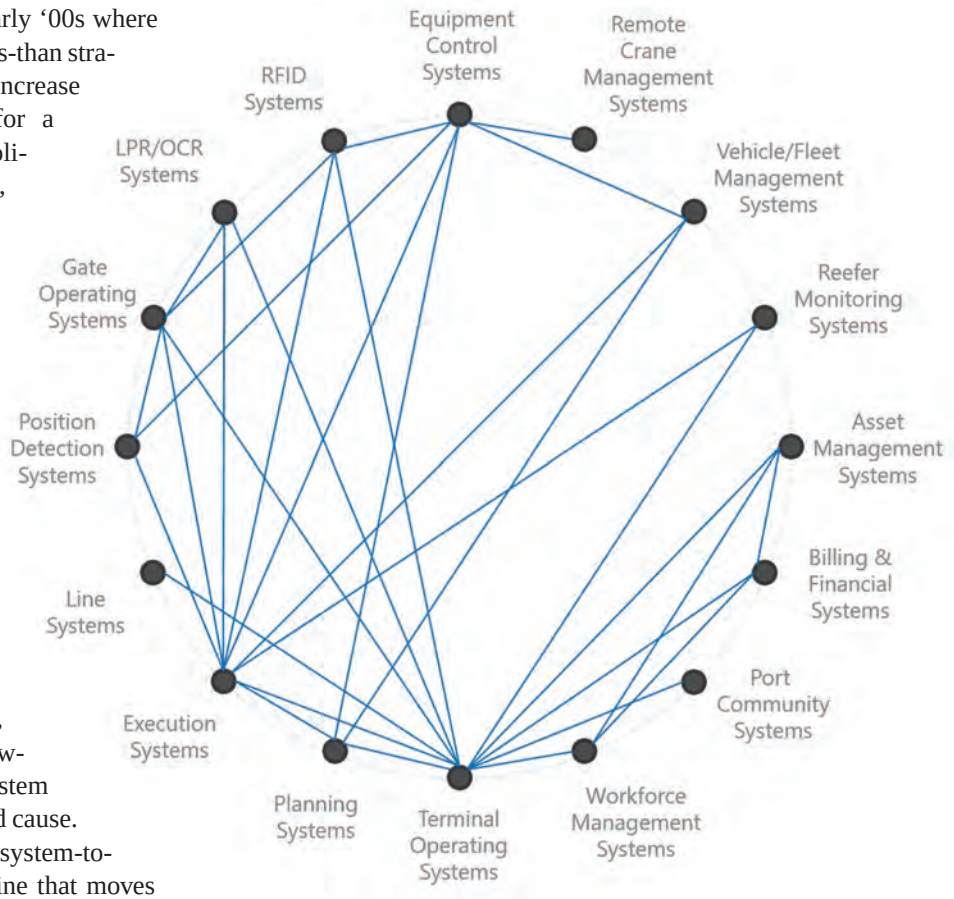
'Siloed' Business Systems

Historically, the trend towards monolithic system development began in the '90s and early '00s where incremental changes were added less-than strategically to software in the effort to increase functionality. This worked fine for a while, except, as the model gets replicated a few hundred thousand times, those "incremental" improvements evolved into a complicated tangle of code, test cases, documentation, and knowledge to maintain. Ultimately, this monolithic model trades short-term cost savings for long-term maintenance nightmares and exponential cost growth.

As a result, the software industry has keenly recognized that the solution to combat complexity is to break large, monolithic systems down into smaller systems (or services), each of which is concrete, purposeful, and cohesive with each other. However, the days of siloed business system functionality are over, and with good cause. Today, businesses welcome robust system-to-system communication, as the engine that moves operations at the speed and volume necessary to compete with customers' real-time expectations.

"Terminal operators are interested less in being on an isolated island of their own IT, with their own IT director," said Michael Schwank, president of Tideworks. "Within a terminal or port complex there has to be a certain amount of commonality amongst these systems because nobody's on an island anymore. You're in a very tight competitive market where steam ship lines are asking for cost control to the 'nth' degree, and it's no longer viable to consider IT as something that's just unique to your facility."

The graphic below illustrates a list of the systems leveraged by the terminal operations industry today. Even this leaves off other known systems. One glance and its apparent that these systems are highly integrated.



To be clear, this structure isn't necessarily by design. Market demand for technological solutions, alongside organic growth by existing vendors in terminal operations, precipitated significant investment in software and hardware systems that evolved into a myriad of potential product offerings and vendors.

Human tendency would be to simplify and consolidate these systems because this looks too complex. But modern software architecture would say the opposite.

The End of Siloed Systems

Instead, recent trends would say: simplify each system into its core purpose, reduce overlap between them, and provide a standardized means of integrating the systems using APIs (Application Program Interfaces) - which specify how the software components in this system should interact. Doing so will improve testability (and therefore reliability) of each system and will best serve the end customer by allowing each to grow independently of the others.

Therefore, the ability to successfully integrate across systems – generated in part by the large proliferation of these terminal systems – has the power to make or break many companies. In the chart below, we examine this integrated system dynamic in a slightly different way, this time consolidating the "Terminal Operating Systems," the "Planning Systems," and the "Execution Systems" (collectively, often referred to as the "TOS," in our industry) into a single node in the center:

Doing so reveals that the TOS products are the brain that is facilitating integration with the other terminal systems.

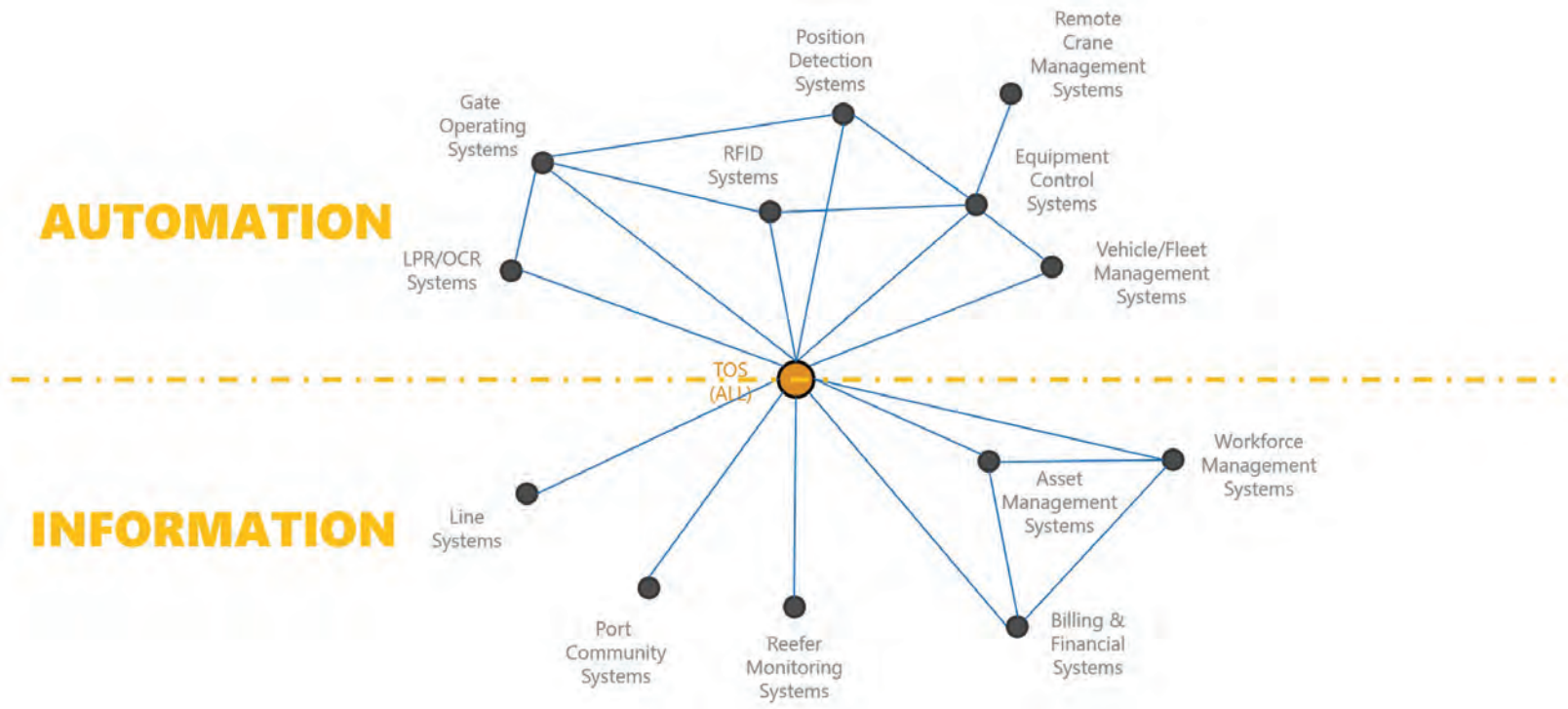
Another interesting observation surfaces when looking at the system relationships this way. The integrations on the top, where a lot of the complexity resides, are the automated systems. This shows, in part, the challenge of implementing automation. To achieve automation, you need to have successfully integrated systems coupled with optimization of the automated equipment.

So, how do we make integration easier, more cost effective, and yield higher quality results? In short – we simplify and we standardize.

We simplify complex integrations that require back-and-forth instruction sharing to instead think about those systems as black boxes with one another. Each system is agnostic to what system(s) might be calling its APIs, and agnostic to what system(s) might be consuming event data it is exposing.

We standardize each system such that it has intuitive interactions through standard APIs. Even more ideally, like providers within a single (less complex) subsystem can conform to similar APIs and allow other features/functionality they expose to be their means of market differentiation. The ability to integrate systems really shouldn't be a driving factor in vendor selection decisions – the features, alignment to business need, capabilities, services, support, of that vendor should be the driving factor.

It is incumbent upon technology providers to plan for and incorporate integration strategies into overall product offerings. The sustainable path calls for systems that adapt with



growth and change, including the eventual introduction of more systems into the operations mix.

When considering multi-system integration, two concerns many in IT have is that as integrated systems grow, we (a) reduce our understanding of failure points – debugging issues can be complex if needing to derive root cause by investigating across multiple sub-systems, and (b) fragment data so it becomes more complex to analyze. Both are valid concerns and related to how to apply data analytics in a multi-system environment. The answer is, of course, dependent on the systems and vendors involved, but can be informed by what was explored above.

Panama's Manzanillo International Terminal (MIT)
courtesy Tideworks

First, when considering data analytics, the system at the hub of the hub-and-spoke model (in this case the TOS products), is also the most informed about information flowing between sub-systems, and thus is the most critical point for data analytics.

Second, because each of these systems store and manage data in structures that are most relevant to performing their respective duties, it is important to have a higher-level data platform that can sit above the systems to help aggregate, consolidate, cleanse, and otherwise present a unified data picture across systems.

In Actual Practice

Emerging data platforms can provide a 360-degree real-time and historical view of performance from all operational areas from a single dashboard. Panama's Manzanillo International Terminal (MIT), for example, is using Tideworks Insight to identify patterns and outliers so that it can quickly improve operations and reduce costs. In this case, the operator had source systems spread across a variety of TOS products, Billing and Financial, Asset Management and Workforce Management Systems. Leveraging Tideworks Insight as a platform built on TOS data, the data platform was quickly expanded to provide a consolidated view leading to determinations of cost-per-move. The terminal can now also detect, in real-time, operational bottlenecks where data may be originating in a variety of source systems and react to those bottlenecks dynamically.

The best technology partners serve as your trusted guide across the technology landscape, seeking to be more than just a vendor providing software solutions, but also as a thought leader, driving innovation for how the industry itself may choose to adapt software to meet the customers' collective demands.

In the realm of integrated systems, we at Tideworks strive to build standard APIs with intuitive flows, documented ICDs, testable interfaces, few "optional" fields, and reusable "types" that support vendor integrations with our software solutions. Ultimately, by providing standardized APIs, our objective is that vendors with whom we integrate more easily in turn make our customers' options more robust and varied. Similarly, those vendors receive the benefit of a more transparent and less costly partner in providing terminal systems and solutions. And, we build standardization to improve quality and reliability.

Even beyond the terminal operations space, broader industry trends such as the progression towards the Internet of Things (IoT), increases in devices, improvements in machine learning and decision-making, and the application of technology across all realms have a common theme: integration. As such, this journey toward intelligent integration and system automation is a road trip that has no end. As long as businesses continue to be asked to do more with less, there will always be a call for more innovation. And as long as there's a call for more innovation, there will be a need for more integration.

The objective is simple: to offer secure, consistent, tested APIs allowing customers to take full advantage of the transformational technologies available today and those that will be available tomorrow, with a smaller price tag and faster up-time.

The Author

Tom Van Buskirk is Vice President of Product Engineering at Tideworks Technology. He joined Tideworks in 2009 and oversees all software development and quality assurance teams. Prior to his current position, Tom led the development efforts for Mainsail Vanguard, Tideworks' next generation terminal management system. For nearly a decade, Tom has pioneered and enhanced emerging software technologies, both as an engineer and innovator, focusing primarily in Java, Flex, and N-Tier application development.

MARINELINK

Marinelink.com, the premiere news source online for the commercial maritime industry, has launched a new look. The new mobile-friendly site features a sleek new look, enhanced search and archive functions, easier navigation, videos and much more.

www.marinelink.com

The Maritime Industry's Largest
Social Media Presence

Maritime Reporter is a member of the Marine Media Network of websites, publications, and social media sources for news, editorial and information including the Maritime Network, the commercial marine industry's largest dedicated Linkedin group.

63,864
Facebook Page Likes

128,718
Linkedin Group Members (industry's largest)

27,505
Twitter Followers

MARITIME REPORTER AND ENGINEERING NEWS

THE MARITIME NETWORK

@ShipNews

Also part of the Marine Media Network

Page	Likes
Marine Electronics	34,849
Marine Technology Reporter	57,604
Maritime Global News	27,015
Maritime Jobs	46,961
Maritime Logistics Professional	31,807
Maritime Propulsion	23,378
Maritime Reporter & Engineering News	63,864
World Energy News	51,176

All stats from 02/14/2017