Globe Tracker
Smart Container Tracking and it’s Impact on Global Ocean Freight
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Distinguished IBM, Intel Executive, Member of IBM Academy of Science and Technology
EPRI Innovation Award, @Road Director
Globe Tracker Solution

ADVANCED CONTAINER TRACKING DEVICE

Globe Tracker pinpoints the global position of assets equipped with the GT801 anywhere in the world, collects important data about the assets relevant condition, like temperature, and delivers it all to the asset owners private database where it can be visualized, analyzed and combined with other business data. Asset owners can send commands to reefer control units.

GLOBAL DATA EXCHANGE NETWORK

Globe Tracker then provides a method to selectively, securely and discreetly share this information with your business partners and customers.
Top Issues Facing Global Ocean Freight

Overcapacity primarily caused by larger vessels coming into the market

Bigger container ships need:
- Deeper approach channels and berths
- Wider channels and turning basins
- Larger container terminals
- Higher and longer outreach
- Mechanized ship-to-shore support cranes
- More efficient work force for swift ship turnaround

Margin Squeeze
Top Issues Facing Global Ocean Freight
Continued

Container Re-positioning

- Empty containers cost Maersk Line USD 1 billion each year
- The imbalance between the global markets forces Maersk Line to sail around with 4 million empty containers per year.
  (ShippingWatch November 1 2012)

Container Dwell-Time

- Container utilization is broken down to: 60% dwell time, 20% transit time and 20% Change of Custody time.
  (US DOT)

Reefer Spoilage, Loss and Liability Risk
What Solutions have been developed to address the Global Ocean Freight issues?

- **Overcapacity**: Prices and margins remain under pressure.

- **Re-positioning**: “no immediate solution to the problem”, (Maersk Line, *ShippingWatch November 1 2012*)

- **Dwell Time**: Progress is slow.

- **Reefer monitoring**: Partial solutions are lacking
  – Through power cord
  – mobile and disposable devices
What is a Smart Container?

Containers equipped with sensors and systems to track and report data.

- Location, Historic and Real Time
- End to end Supply chain visibility
- Condition Monitoring
  - G-Force impact damage events
  - Temperature
  - Humidity
  - Motion
  - Light
  - Gasses, e.g. CO²
  - Imbedded covert cargo tracker
  - Electronic Seal Breaches
- Inventory
Example:

The GT-801 Smart Container Device

- Unmatched Geo-Position Data
- 5 Year Guaranteed Life
- RF Agile
- Container to Container, and Container to Ship communication, cloud services
- Remote Asset Administration
- Burden-Free Service Level
- Rugged Container
- Corrugated Wall Fit
- IP-67 Waterproof
- 24 hours / day, 365 days / year
- Industry Designed Analytics
- Communicates with Reefer Control Unit
How Does it work?

GT801 - HARDWARE ATTACHED TO SHIPPING CONTAINER

GPS AND GT TRACKING SOFTWARE KEEPS CONSTANT TABS IN REAL TIME TRACKING FROM DEPARTURE TO DELIVERY
Why are Smart Containers Needed?

- **Better ROI**
- **Cargo Security**
- **Reduced Losses & Liability**
- **New Revenue Models**
Smart Containers Increase ROI

Tracking, Monitoring and Communication

- Transportation Efficiencies
  - Reduced Dwell Time
  - Reduced Transfer Delays
- Improved Asset Utilization
  - More efficient re-positioning
  - Reduced LCL Shipments
- Reduced Liability
- Reduced Labour Costs for monitoring / inspection
- Reduced % of Customs inspections (GREEN LANE)
- Reduced Theft, Loss and Damages
Smart Containers Improve Security

• Better Visibility
  – Real-Time Tracking Shared with Partners
  – Track Container/Pallet/Crate/Product Number
  – eSeal Integrity
  – Covert Tracking Device Communication
Smart Containers Reduces Losses

Real-Time Tracking
– Custody Chain Determination and Bill-Back
– Reduced Insurance Costs

Continuous, Accurate Temperature Monitoring
– Reduce Damage and spoilage
– Reefer control unit management “over the air”

Reduce Human Error
Smart Containers New Revenue Models

Data Sharing

– Supply Chain Partners Happily Will Pay
– Database Integration
– Visibility extends work flow to logistics
Smart Containers and Insurance

• Cargo Insurers have indicated rebates of up to 25% to users of Smart Containers.
• Insurance companies indicated the ability to Insure more cargoes that weren’t traditionally insurable.
• Ship Owner Insurers have also indicated reduced premiums to Ship Owners.

Southern Australian Government Study on Smart Containers conducted by PWC
**Reduction of insurance premium with smart containers**

Example: cargo value USD 350k, 0.3% insurance premium

<table>
<thead>
<tr>
<th></th>
<th>Current Insurance Premium w/o smart Container</th>
<th>Possible Reduction with smart Container</th>
<th>Insurance premium with smart Container</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Premium</strong></td>
<td>1050</td>
<td>315</td>
<td>735</td>
</tr>
</tbody>
</table>

**Hard savings for users of smart containers on a single trip resulting from insurance**

*Premium reduction Courtesy of DB Schenker*

Property of Globe Tracker International A/S
What is GREEN LANE Shipping?

- It extends the existing FAST and Trusted Trader programs to Ocean Freight.
- A trusted shipper loads a container and seals that container with a real time eSeal.
- Every 60 seconds the smart container device receives a report from the eSeal
  - locked/unlocked status
  - remaining battery life
- At the port of arrival, Customs can view the audit trail and clear that container faster.
Smart Containers are the Future

- As of January 2012, there were 77,000 container tracking units deployed globally, mostly by the military and the Reefer trade.
- By 2016 that number will top 1,000,000 units.
- Additional capabilities help justify Reefer rate increases
- **Prices lower than $1/day** in 2013

Courtesy of Berg Insight
What’s New?

• Container to container and container to reefer communications
• Independent container to vessel communications
• Container real time cross ocean communications globally independent system, no human interaction needed (only response teams)
• Reefer real time temperature and container tamper alerts globally and cross ocean
• Energy Saving Technologies including Clustering and Wi-Fi
• Intermodal Reefer Tracking & Monitoring in Yards, Depots and Free trade zones
Case Study 1

CCNI Container Tracking Position updates during the sail and zoom of the final destination port

Property of Globe Tracker International A/S
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Place</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/08/2012</td>
<td>17:22</td>
<td>San Antonio</td>
<td>First Transmission</td>
</tr>
<tr>
<td>06/11/2012</td>
<td>18:31</td>
<td>San Antonio</td>
<td>Moved to a new position in the port.</td>
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<tr>
<td>06/18/2012</td>
<td>01:47</td>
<td>San Antonio</td>
<td>Loaded into the vessel</td>
</tr>
<tr>
<td>06/22/2012</td>
<td>00:46</td>
<td>Callao</td>
<td>First transmission from port in Callao, Peru</td>
</tr>
<tr>
<td>06/26/2012</td>
<td>20:30</td>
<td>Cartagena</td>
<td>First signal from port in Cartagena, Colombia</td>
</tr>
<tr>
<td>07/01/2012</td>
<td>18:59</td>
<td>New York</td>
<td>First location at the port</td>
</tr>
<tr>
<td>07/02/2012</td>
<td>07:55</td>
<td>New York</td>
<td>Off-loaded from the vessel</td>
</tr>
<tr>
<td>07/02/2012</td>
<td>14:52</td>
<td>New York</td>
<td>Moved by truck to a warehouse off the port</td>
</tr>
<tr>
<td>07/06/2012</td>
<td>12:18</td>
<td>New York</td>
<td>Moved back to the container pool at the port</td>
</tr>
</tbody>
</table>
Mapping of the container sitting in the container pool at the port
Zone and Stationary Pie Chart of INKU 2628699

Zone Pie Chart
15/06/2012 - 08/07/2012

Stationary Pie Chart
15/06/2012 - 08/07/2012
Case Study Notes

- Note that the container with wine was offloaded in New York at 7:55 AM and did not get moved to a facility until 2:52 PM that afternoon. It was plus 35 °C in New York on July 2\textsuperscript{nd} with container exposed to open elements for almost 7 hours.
Case Study 2

- Tracking and real time temperature monitoring of fresh fish going from Iceland to Canada and Europe.
- All tracking and monitoring of any single unit, or the entire global container fleet, can be done from any computer or smart phone.
- All manual processes can be removed from the supply chain. Only exception alerting on call staff required.
- Full visibility of cargo and container using Smart Container systems.
- Cargo temperature possible at a granular level.
Real time Temperature
Geo Zone Tracking
GT-801 on Vessels
Customer gladly pays extra for visibility, logistic info. and temp. monitoring

- Secure tiered data sharing allows customers:
  - Access to real time temperature data that is from the reefer itself not an independent device.
  - Access to real time location and dwell allows all members of the supply chain to be responsible for their part.
  - Closer to real time ETA when a vessel is in the port as to a container being offloaded allows less waiting time to pick up containers at ports.
  - Transfer of chain of custody in real time to limit risk.
  - Lessen claims of loss and spoilage as real time allows hours to intercept and save cargoes.
  - Better customer visibility builds more trust.
My Globe Tracker
Global Trade Data Sharing,
Tracking, Monitoring and Green Lane Solution

Fresh Fish in Insulated-Tub from Iceland to Oslo Norway with stop in the Faroe Islands
Conclusions

• In a market of overcapacity, service efficiency is key
• Savings for more efficient re-positioning and lowering container asset dwell times
• Insurance reductions for cargo and ship owners through supply chain visibility and shipment integrity
• Supply chain wide savings in labour through automation of manual processes on Vessels, Terminals and Storage areas.
• Savings through GREEN LANE programs which are being looked at by border agencies around the world
• Ocean carrier revenue streams from real time container data across the supply chain.
• Smart Container technology has come a very long way in capability and affordability
• For the Ocean Freight Industry, this wave of technological advancements offers efficiencies at ports, terminals, distribution centers, container yards and on vessels.
• Smart Container technology can enhance profitability by reducing losses, improving efficiencies and offering new services.
• Reefers and other high-value cargo are adopting first