In the container shipping industry, so-called reefer containers are used to transport goods that need cooling, freezing or other types of climate controls. These containers are expensive to both produce and transport, as they require electricity supply and climate control, both on the vessel, in the port and while residing with the shipping customers.

The goods carried in these containers are perishable and require highly specific settings in terms of temperature and air quality or combination of gasses, in order to prevent spoilage.

Today it is difficult to monitor these aspects while the container is on the way on the vessel or standing in the port awaiting pickup by the customer. This makes it difficult to act on time in case something goes wrong along the way.

In addition, it is difficult to monitor the precise whereabouts of the containers once they have left the port areas. At times the equipment ends up spending unnecessarily long time with clients thereby hampering turnaround times for the usage of the equipment. At other times the equipment simply gets stolen or disappears altogether.
Roger O’Niell
Head of Global Equipment – NorWest Shipping Co

“We must continuously strive to be ‘best-in-class’ in terms of internal efficiency, thereby ensuring the best possible experience for our customers.”

About
- 43 married, 2 children. 20 years of experience working in the shipping industry – the last 4 Head of Operations
- Overall responsible for ensuring proper monitoring of equipment used for transporting goods, including, but not limited to, reefer containers with cooled or frozen items
- Heading a department with a total of +200 employees in 30 countries. 5 direct reports. Reports directly to the CEO of NorWest Shipping Co

Responsibilities
- Monitoring of equipment including reefer containers
- Optimizing usage of equipment – reducing idle time
- Ensuring availability of equipment
- Minimizing damages to goods while in the hands of the freight carrier and thereby minimizing customer claims

Main Goals
- Less time spent on physical inspection of equipment and time-consuming follow-up correspondence with clients
- More time spent on value-adding analysis and customer support

Needs
- Tools to track status of containers and cargo centrally at head quarters
- Better tools for customers to monitor their shipments real-time

Pain Points
- Insufficient knowledge of the location of shipping containers
- Too many resources and time spent on liaising with customers to have containers timely returned
- Latency in terms of reacting to issues that may arise with perishable goods while on board vessels
- Insufficient possibilities for customers to track location of shipped goods in real time
Point of View

As a Head of Equipment of a major player in the global container shipping industry:

I need a way to gain an overview of the fleet of reefer containers in terms of both location and status of the containers themselves as well as the cargo they carry. This includes being able to remotely monitor vital stats such as temperature as well as the location of the individual containers.

Thereby we will minimize damage/spoilage of the customer’s cargo as well as optimize usage of the equipment fleet by minimizing idle time as well as complete loss of equipment, resulting from containers being stolen etc.
# User Experience Journey – Shipping and Inspecting a Reefer Container

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>MINDSET</th>
<th>FEELING</th>
<th>TOUCH POINTS</th>
</tr>
</thead>
</table>
| 1. Receive order from customer  
2. Inspection of container | “The order is in the books – good stuff!!”  
“Let’s go check out the container! Need to make sure it is good shape!” | 😞 | Customer  
Booking system  
Phone call / e-mail correspondence with container inspectors |
| 1. Send container to customer  
2. Follow-up on how long container resides with customer + container’s position | “Calculating charges is tedious work - not value adding!!” | 😞 | Customer  
Trucking service  
System used to calculate charges to the customer, for having the container on premise |
| 1. Receive container from customer at port  
2. Manual monitoring of reefer stats on board  
3. Follow-up on container’s position and ETA | “It is hot, I am busy and I can’t figure out where they put the containers!!”  
“Not sure which containers to focus on for inspection?” | 😞 | Customer  
Inspection officer at port  
System used to calculate charges before container is picked up by the customer |
| 1. Load container on ship  
2. Manual monitoring of reefer stats in port  
3. Follow-up on time container resides in port | “Inspection in rain and high sea again!!”  
“Customer wants more info: “where is my cargo and when can I have it!!!”” | 😞 | Customer  
Port authorities  
On-board technicians |
| 1. Discharge container from ship  
2. Manual monitoring of reefer stats in port  
3. Follow-up on time container resides in port | “Where did they put that container!!?”  
“Time consuming calculations again, and this old system is driving me nuts” | 😞 | Customer  
Inspection officer at port |
| 1. Customer picks up container  
2. Follow-up on time container resides with customer + container’s position  
3. Receive container from customer | “Once again, tedious calculations, but at least the customer got their cargo and we got the equipment back!!” | 😞 | Customer  
Trucking service  
Inspection officer at port |
Prototype

Reefer Monitoring – Mockups:

First Level – Global Overview: Total number of reefer containers as well as total number of containers where action is required
Clicking on a region, e.g. ‘Americas’ will take the user to the second level: Drilldown by Region.

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Units (TEU)</th>
<th>Units Requires Action (TEU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>4,352</td>
<td>136</td>
</tr>
<tr>
<td>Africa</td>
<td>1,244</td>
<td>88</td>
</tr>
<tr>
<td>Europe</td>
<td>3,566</td>
<td>102</td>
</tr>
<tr>
<td>Americas</td>
<td>4,566</td>
<td>177</td>
</tr>
<tr>
<td>Oceania</td>
<td>875</td>
<td>25</td>
</tr>
</tbody>
</table>

Second Level – Drilldown by Region: Overview of containers and issues in a given region
Clicking on a country, e.g. ‘Panama’ will take the user to the third level: Drilldown by Country.
The user can navigate to Global overview via toggle button.

Américas

Error Ratio - Region: 3.9 %
Top Contributor: Brazil 7.5 %
Most Common Issue: Temperature 41.2 %
**Third Level – Drilldown by Country:** Overview of containers requiring attention
Clicking on a container number, e.g. ‘NSWU1444653’ will take the user to the fourth level: *Container Details*. The user can navigate to Regional and Global views via toggle buttons.
**Fourth Level – Container Details:** Gives details of location, temperature, atmosphere etc. of the individual container. From here you can directly contact most relevant technician. The user can navigate back to Country, Regional and Global overviews via toggle buttons.