

# Asset Management - Lyngsoe Systems A/S

---

PACK & SEA - CUSTOMER CASE, 15 NOV 2006

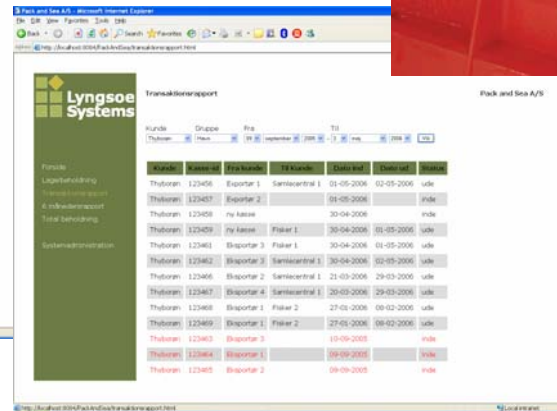
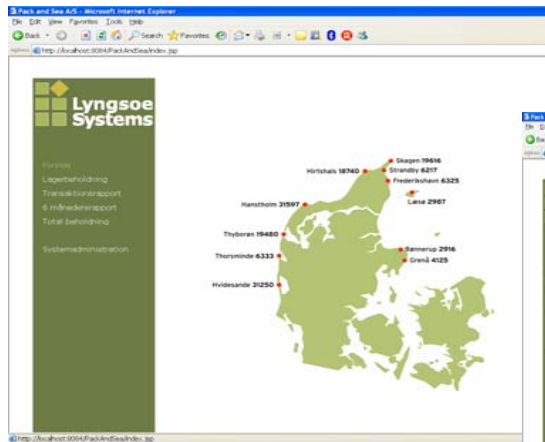


Lars Jankowski

Tel: +45 96 980 980 E-mail: [ljm@lyngsoesystems.com](mailto:ljm@lyngsoesystems.com)

# Contents of this presentation

- ◆ Lyngsoe Systems, company information
- ◆ Fish Crates with RFID tags at Pack & Sea
- ◆ Lyngsoe Asset Management system



---

◆ Lyngsoe Systems, company information

## Lyngsoe Systems – Key Figures

- ◆ Privately owned IT company
- ◆ Business lines: Postal, Airports, Food, Healthcare, RFID
- ◆ Headquarter in Denmark, offices in US, Canada, Romania
- ◆ 180 employees, 70% software engineers
- ◆ 30+ years' experience in managing, implementing and supporting large software projects worldwide
- ◆ RFID systems integrator since 1994
- ◆ Annual turn-over approx. 30 M€, with 10% yearly growth
- ◆ ISO 9001:2000 certified in software



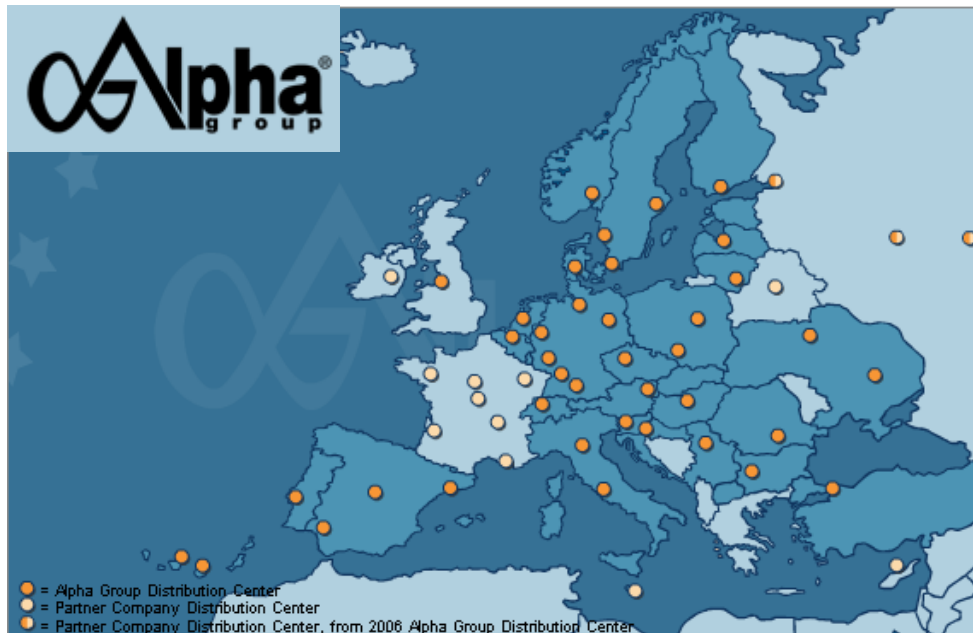
# Lyngsoe Systems – Customer References



More than 1100 solutions worldwide...

## Customer Case: McDonald's distribution in Europe 2004-2006

- ◆ Distribution to 3500 restaurants in Germany, Spain, Portugal, Italy, Austria, Denmark, Sweden, Norway, The Netherlands, Belgium, Poland, Hungary, Finland, etc.
- ◆ 300+ suppliers of food and non-food.
- ◆ 28 distribution centres.
- ◆ 70 million yearly transactions.



## ◆ Fish Crate with RFID tags at Pack & Sea



## Pack & Sea - company

---

- ◆ Pack & Sea A/S is a cooperation of Danish Fishermen, who operates a pool of assets (pallets, crates, containers) used primarily in the North Sea fishery.
- ◆ The main objective is to increase the volume of high quality / value fish, while maintaining low operational costs.
  - to stay in business.





## Pack & Sea - objectives

---

- ◆ Centralize asset management of crates from 11 systems to one.
- ◆ Centralize pool operation in one business unit.
- ◆ Reduce overstocking of crates in each harbour.
- ◆ Increase the circulation of crates with 1 cycle pr. year.
- ◆ Improve the availability of clean crates to vessels.
- ◆ Reduce transportation costs for crates between harbours.
- ◆ Prepare streamlining of washing facilities.
- ◆ Prepare streamlining of auctions.
- ◆ Prepare for automated handling of crates and food traceability.
  
- ◆ Without RFID the above objectives can only be obtained up to 80%.

## Pack & Sea – Pay-back time for investments

- ◆ Pay-back time for investment in new crates of 10 mio. is 5-6 years.
- ◆ Pay-back time for investment in IT-system of 5 mio. is 2-3 years.
- ◆ Pay-back time is conditional to a stable turnover in the fishing industry and that no further logistic streamlining is taking place.



## Pack & Sea – Fish Crate with RFID tags

- ◆ Pack & Sea is equipping 200.000 fish crates with RFID tags.
- ◆ Every fish crate is equipped with 2 pcs. EPC G2 tags having the same GRAI code.
- ◆ RFID tags are moulded into the handles of the crate to protect them from harsh environment and keeping a distance to content.
- ◆ Read rates of 100% have been achieved in on-site tests.
- ◆ A read rate of 99,9% is expected in production.



# Pack & Sea – Project phases

## Phase 1 - Tracking of Fish Crates

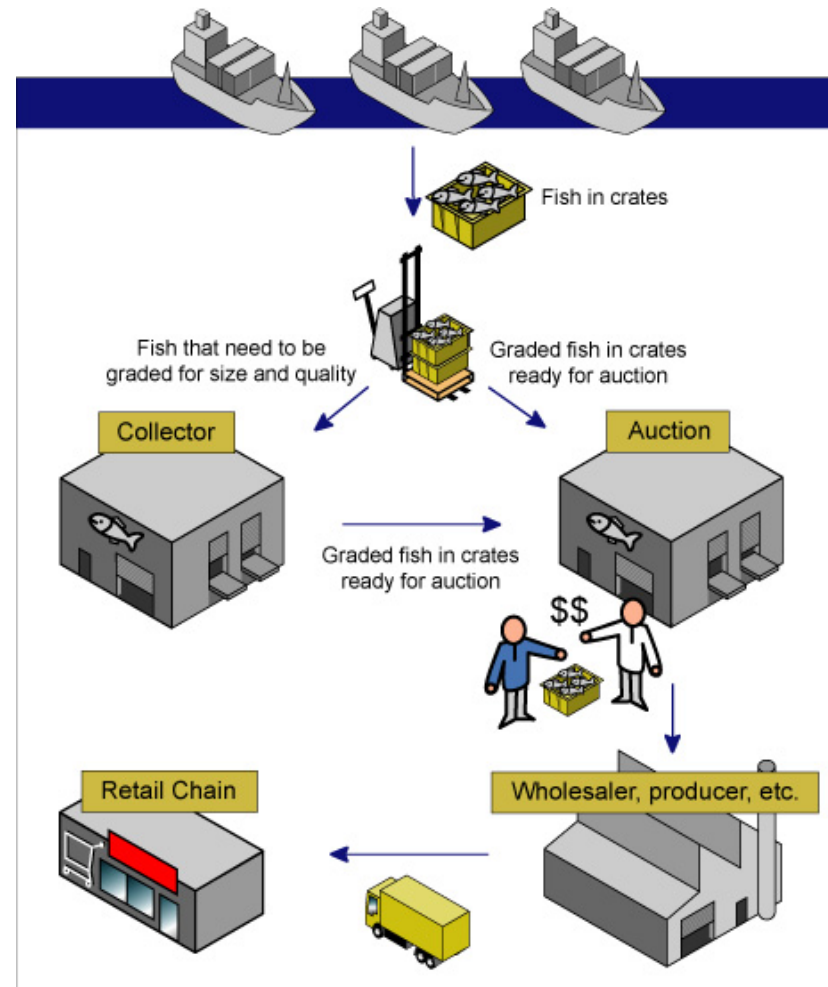
- ◆ Centralize asset management.
- ◆ Streamline pool operations.
- ◆ Ensure availability of crates.

## Phase 2 - Food Traceability

- ◆ Tracking of fish through the supply chain from vessel to consumer.
- ◆ Full documentation and customer/EU compliancy, support for ISO 22000.

## Phase 3 – Operational Streamlining



- ◆ Further streamlining of processes and infrastructure.



# Pack & Sea - Solution

Basis for traceability is the GS1 standard. (EAN 128)

- ◆ GTIN for each product of finished goods.
- ◆ SSCC for each logistic unit.
- ◆ GLN for each site in the supply chain.
- ◆ GRAI for each returnable asset.
- ◆ XML interface for data exchange between actors.

Supplier name		
Supplier address		
Product Name		
WRIN: 06004-056		
SSCC		
3 1234567 891234567 6		
GTIN	Best Before	Count
1234567890123	021100	24
 <small>10211234567890123115100110937124</small>		
 <small>000123456789012345676</small>		

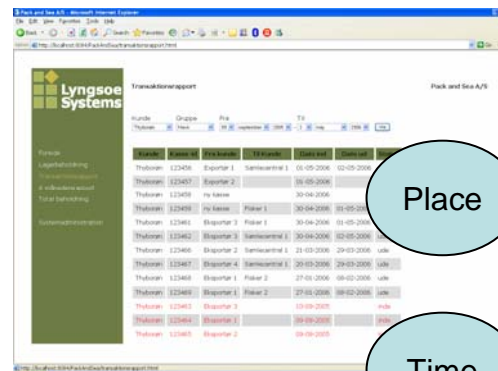
The GS1 System is an integrated system of global standards that provides for accurate identification and communication of information regarding products, assets, services and locations. It is the most implemented supply chain standards system in the world.



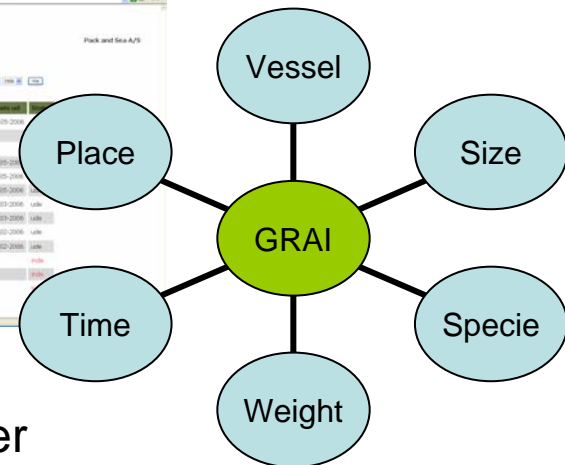
# Pack & Sea - Solution

◆ Data linked to the crate GRAI (following GS1 TRACEFISH):

- ◆ Vessel
- ◆ Species
- ◆ Size
- ◆ Weight
- ◆ Time of capture
- ◆ Place of capture
- ◆ Current owner
- ◆ Parties and timestamp for each handover

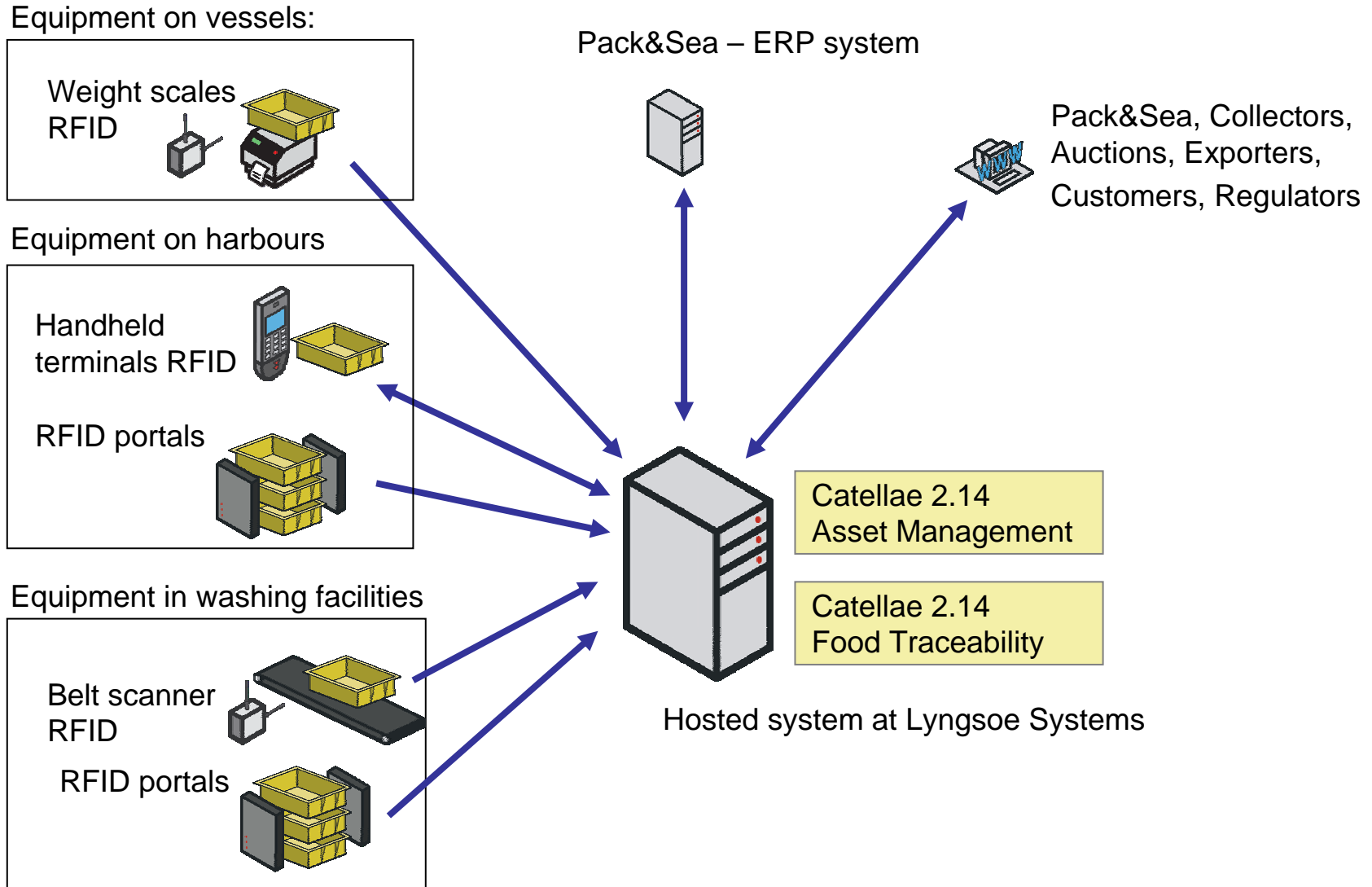


Kunde	Gruppe	Fis	TX		
Thalson	123456	Esportar 1	Semester 1	15-05-2006	02-05-2006
Thalson	123457	Esportar 2		15-05-2006	02-05-2006
Thalson	123458	My Name		30-04-2006	
Thalson	123459	My Name	Fisker 1	30-04-2006	31-05-2006
Thalson	123461	Esportar 3	Fisker 1	30-04-2006	01-05-2006
Thalson	123462	Esportar 3	Semester 1	30-04-2006	30-05-2006
Thalson	123463	Esportar 2	Semester 1	20-03-2006	20-03-2006
Thalson	123467	Esportar 4	Semester 1	20-03-2006	20-03-2006
Thalson	123468	Esportar 1	Fisker 2	27-03-2006	08-03-2006
Thalson	123469	Esportar 1	Fisker 2	27-03-2006	08-03-2006
Thalson	123461	Esportar 3		19-09-2005	
Thalson	123461	Esportar 1		09-09-2005	
Thalson	123461	Esportar 2		09-09-2005	

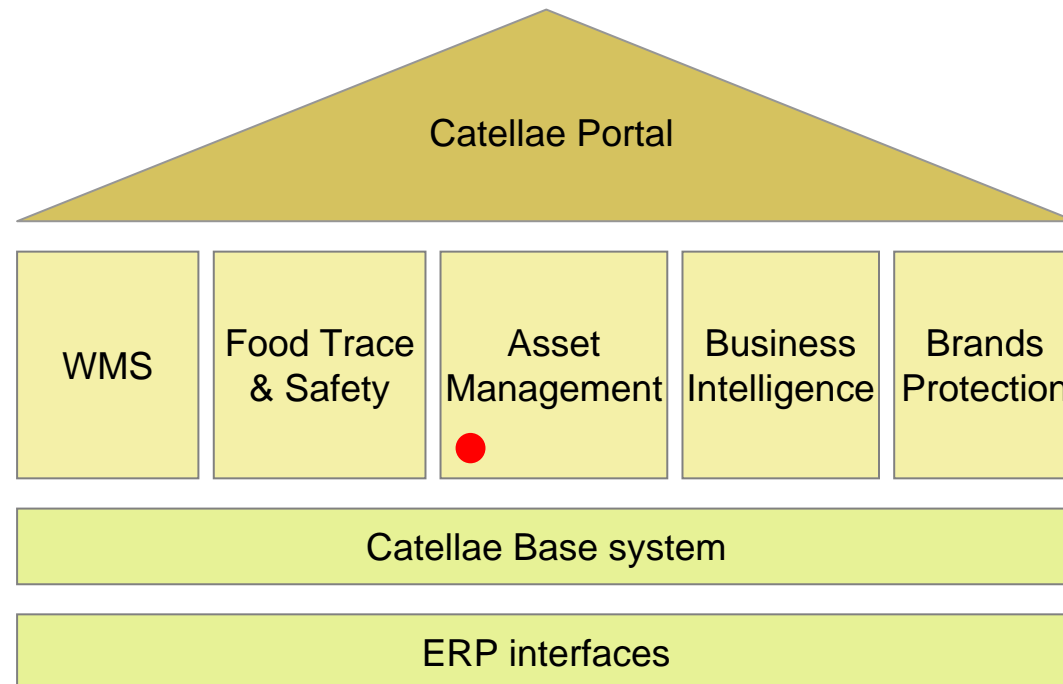


= Traces the fish back in the supply chain to the vessel with full documentation for each step

# Pack & Sea - IT and RFID Infrastructure

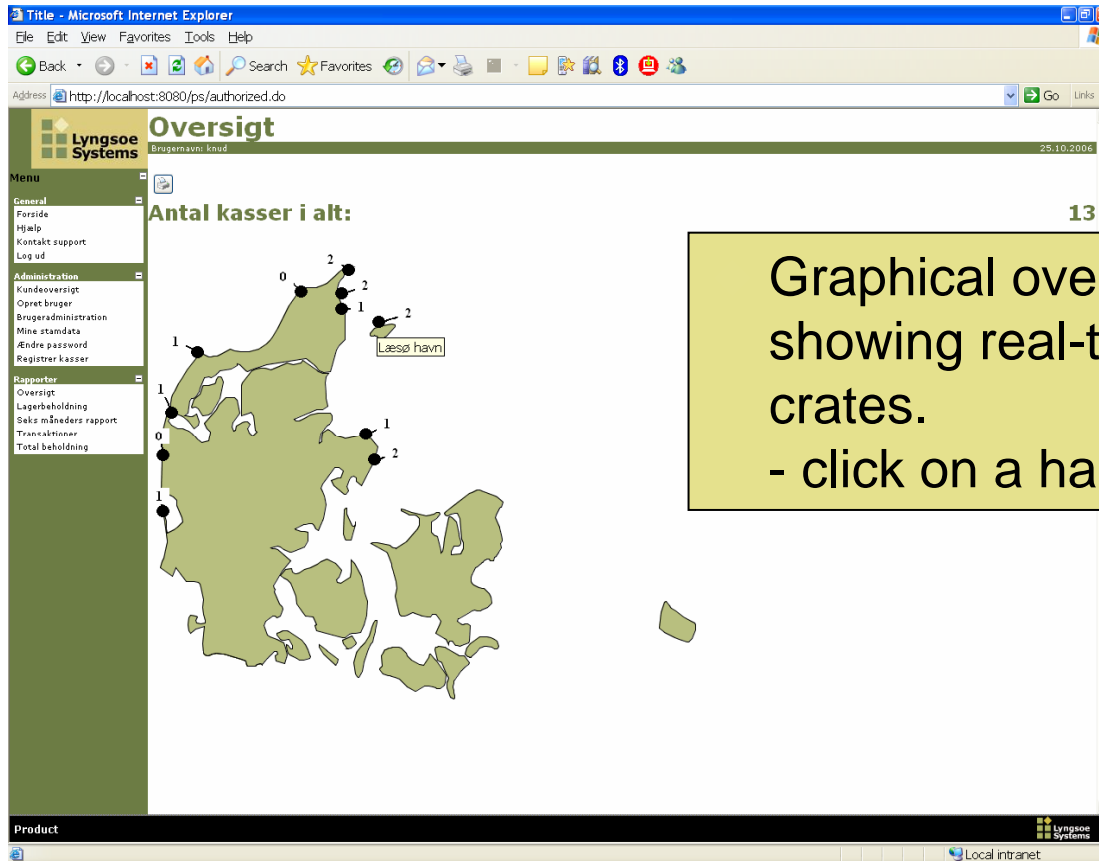


# ◆ Lyngsoe Asset Management

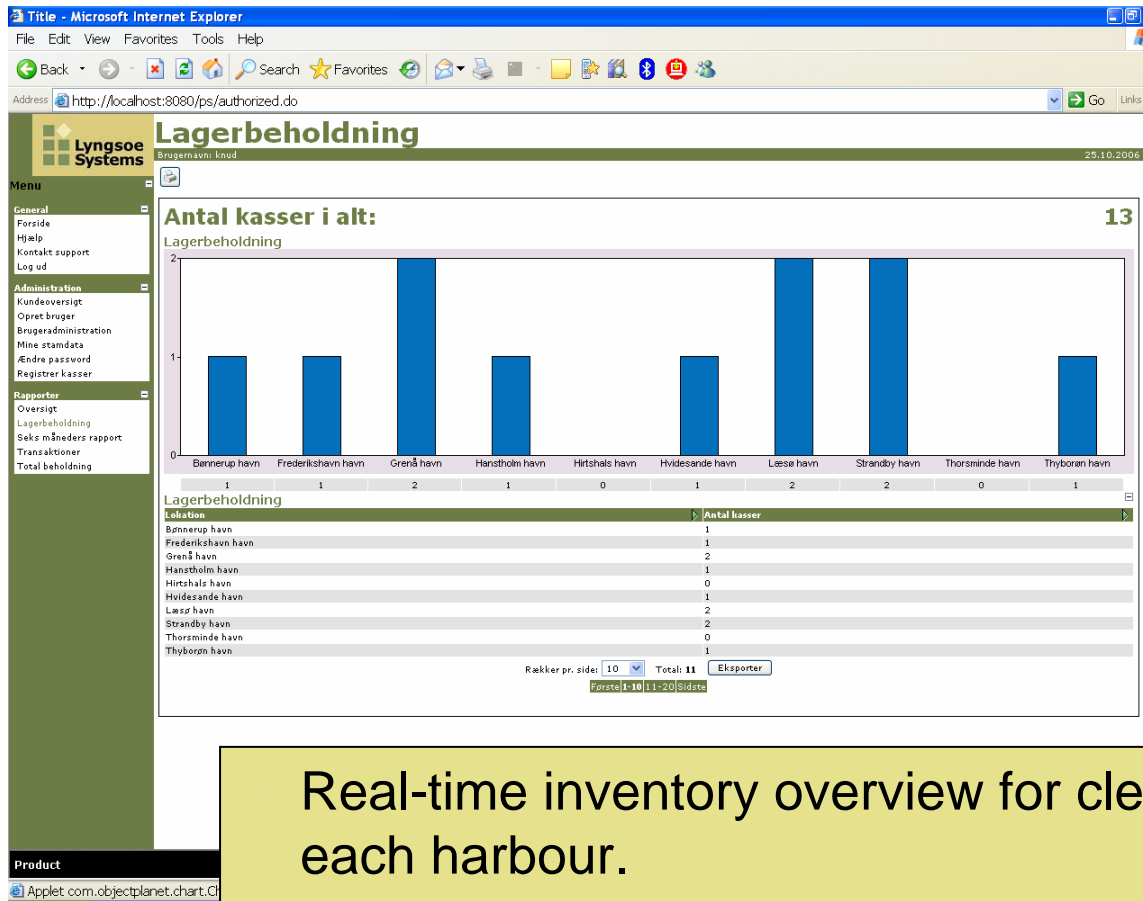




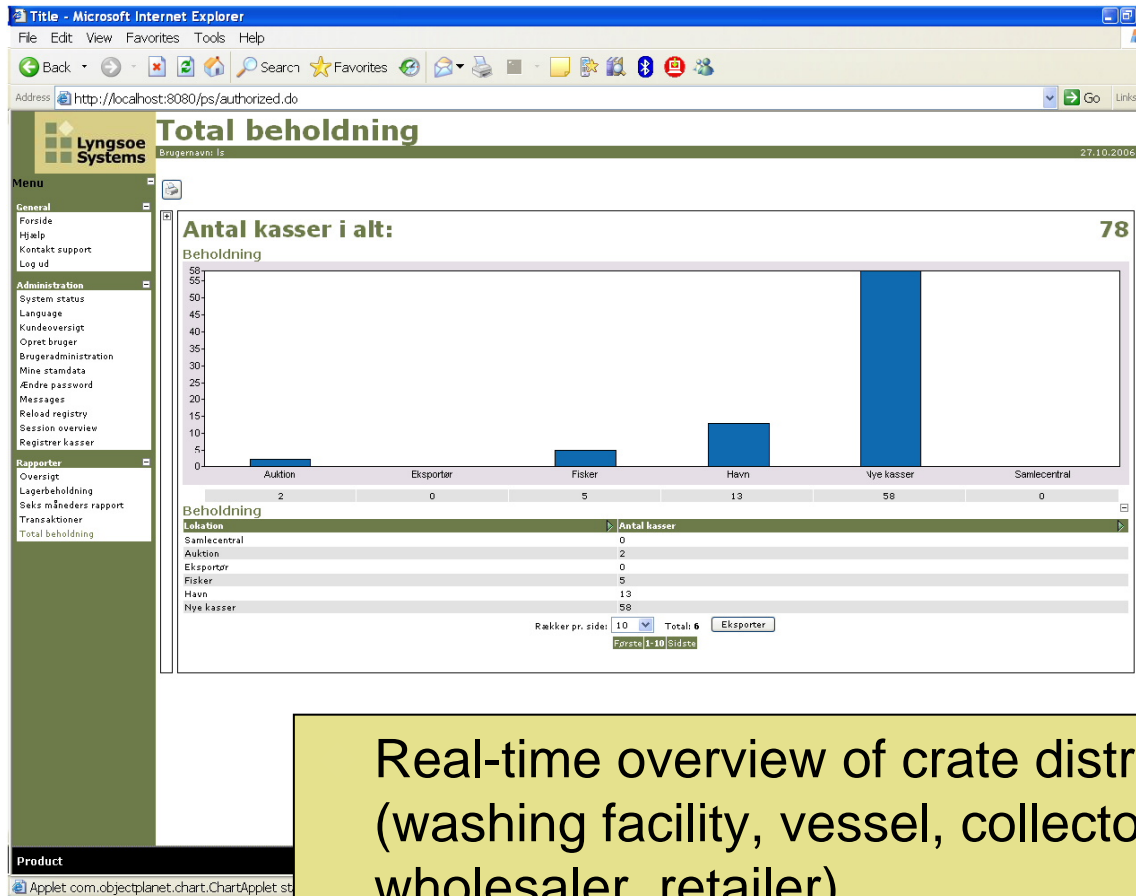
- ◆ Real-time overviews based on RFID.
  - Inventory of clean crates at harbours.
  - Distribution of crates between parties.
  - Crates at each party.



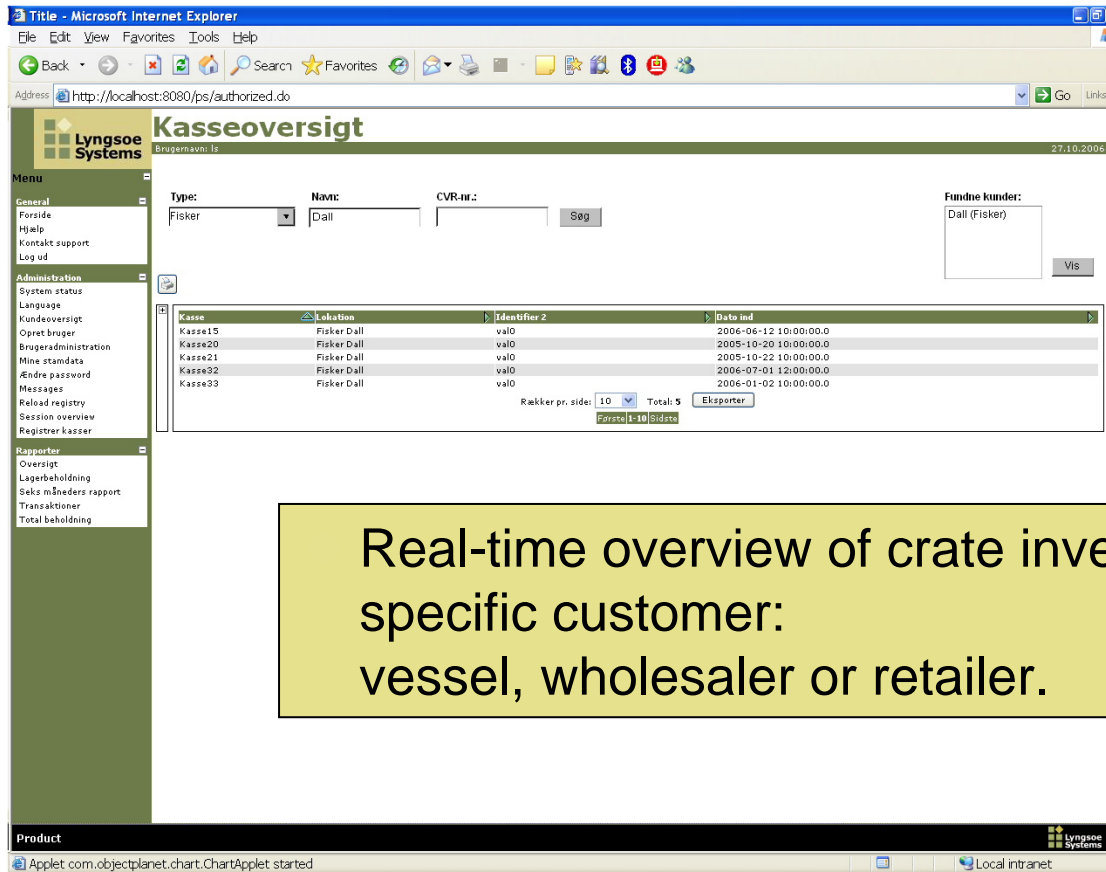
Graphical overview for all harbours – showing real-time inventory of clean crates.  
- click on a harbour to drill down.



Real-time inventory overview for clean crates at each harbour.  
- Users can add low-water and high-water marks.



Real-time overview of crate distribution between:  
(washing facility, vessel, collector, auction,  
wholesaler, retailer)



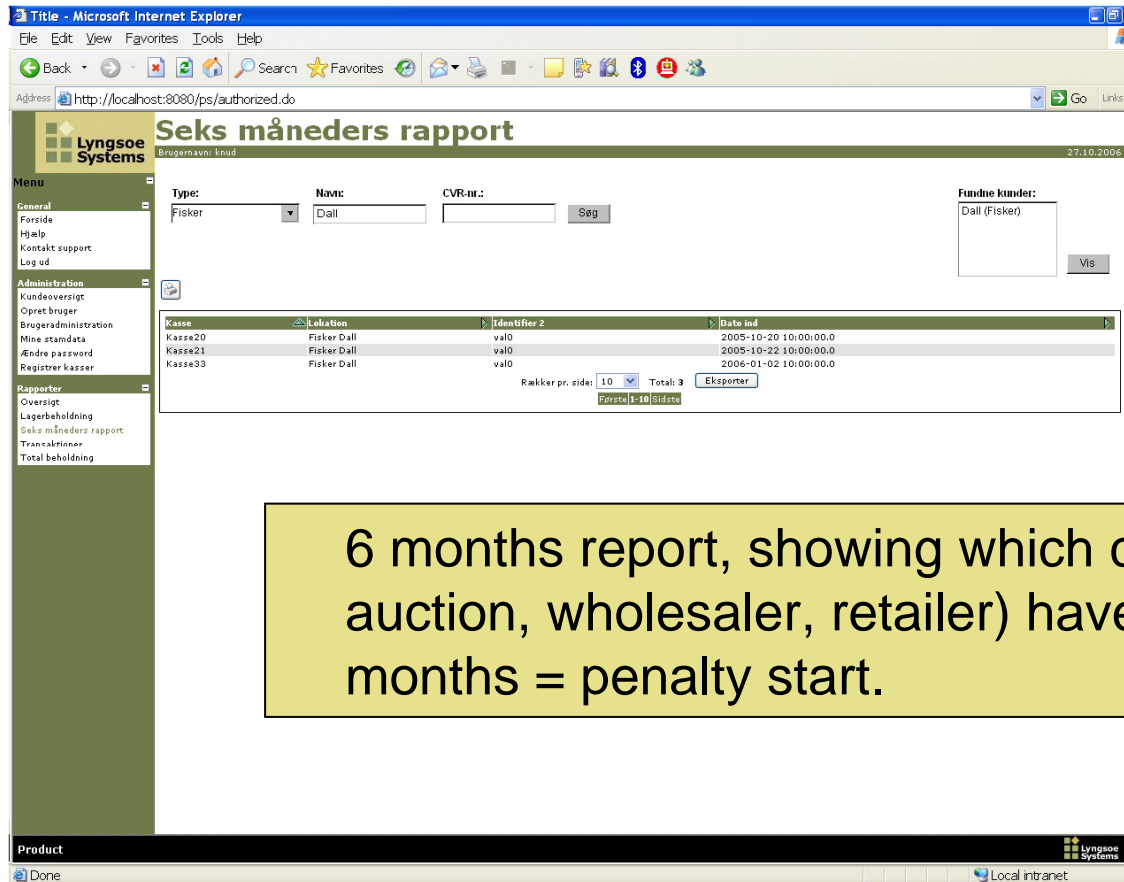
The screenshot shows a web browser window displaying the 'Kasseoversigt' (Crate Overview) page. The page has a green header with the Lyngsoe Systems logo and the title 'Kasseoversigt'. Below the header, there are search filters for 'Type' (set to 'Fisker'), 'Navn' (set to 'Dall'), and 'CVR-nr.'. A 'Søg' (Search) button is present. To the right, there is a 'Fundne kunder:' (Found customers) section with 'Dall (Fisker)' listed and a 'Vis' (View) button. The main content area contains a table with the following data:

Kasse	Lokation	Identifier 2	Dato ind
Kasse15	Fisker Dall	val0	2006-06-12 10:00:00.0
Kasse20	Fisker Dall	val0	2005-10-20 10:00:00.0
Kasse21	Fisker Dall	val0	2005-10-22 10:00:00.0
Kasse32	Fisker Dall	val0	2006-07-01 12:00:00.0
Kasse33	Fisker Dall	val0	2006-01-02 10:00:00.0

Below the table, there are controls for 'Rækker pr. side' (10), 'Totalt: 5', and 'Ekspander' (Expand). There are also 'Forside' and 'Sidste' buttons. The left sidebar contains a 'Menu' with categories like 'General', 'Administration', and 'Rapporter'. The bottom status bar shows 'Product' and 'Applet.com.objectplanet.chart.ChartApplet started'.

Real-time overview of crate inventory at a specific customer: vessel, wholesaler or retailer.

- ◆ Reports based on RFID.
  - 6 months report, penalty limit.
  - Transaction report for tracing crates.
  - Crate inventory at each customer.

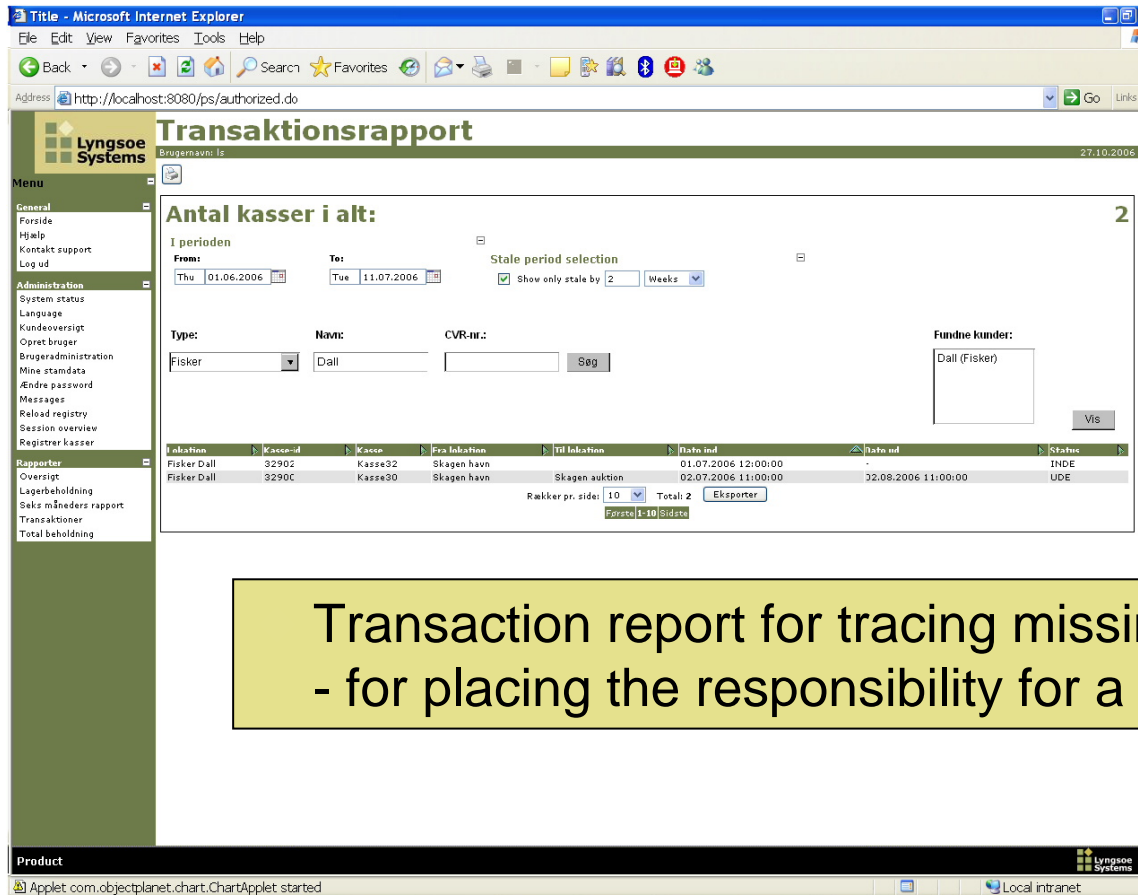


The screenshot shows a web browser window displaying the Lyngsoe Systems interface. The main heading is 'Seks måneders rapport' (6 months report). The user is logged in as 'Bruger navn: knud' on '27.10.2006'. The interface includes a search form with fields for 'Type' (set to 'Fisker'), 'Navn' (set to 'Dall'), and 'CVR-nr.'. Below the search form is a table with the following data:

Kasse	Lokation	Identifiser 2	Dato ind
Kasse20	Fisker Dall	val0	2005-10-20 10:00:00.0
Kasse21	Fisker Dall	val0	2005-10-22 10:00:00.0
Kasse30	Fisker Dall	val0	2006-01-02 10:00:00.0

Below the table, there are controls for 'Rækker pr. side' (set to 10), 'Totalt 3', and an 'Eksporter' button. A 'Fundne kunder' section shows 'Dall (Fisker)' with a 'Vis' button. The left sidebar contains a 'Menu' with sections for 'General', 'Administration', and 'Rapporter'. The bottom status bar shows 'Product' and 'Local intranet'.

6 months report, showing which customer (vessel, auction, wholesaler, retailer) have kept crates for 6 months = penalty start.



The screenshot shows a web browser window displaying the Lyngsoe Asset Management application. The page title is "Transaktionsrapport" and the user is logged in as "Brugernavn: IS" on "27.10.2006". The main content area is titled "Antal kasser i alt:" and shows a total of 2 crates. Below this, there is a search form with fields for "Type:" (set to "Fisker"), "Navn:" (set to "Dall"), and "CVR-nr.:". A "Søg" button is present. To the right, a "Fundne kunder:" box shows "Dall (Fisker)". Below the search form is a table with columns: "Lokalation", "Kasse-id", "Kasse", "Fra lokalation", "Til lokalation", "Plato ind", "Plato ud", and "Status". The table contains two rows of data:

Lokalation	Kasse-id	Kasse	Fra lokalation	Til lokalation	Plato ind	Plato ud	Status
Fisker Dall	32902	Kasse32	Skagen havn	Skagen auktion	01.07.2006 12:00:00	-	INDE
Fisker Dall	3290C	Kasse30	Skagen havn	Skagen auktion	02.07.2006 11:00:00	32.08.2006 11:00:00	UDE

At the bottom of the table, there are controls for "Rækker pr. side:" (set to 10), "Totalt 2", and an "Eksporter" button. There are also "Første 1-10" and "Sidste" buttons. A yellow text box is overlaid on the bottom right of the screenshot, containing the text: "Transaction report for tracing missing crates. - for placing the responsibility for a crate loss."



- ◆ Asset Maintenance based on RFID.
  - Repair of crates.
  - Introduction of new crates.



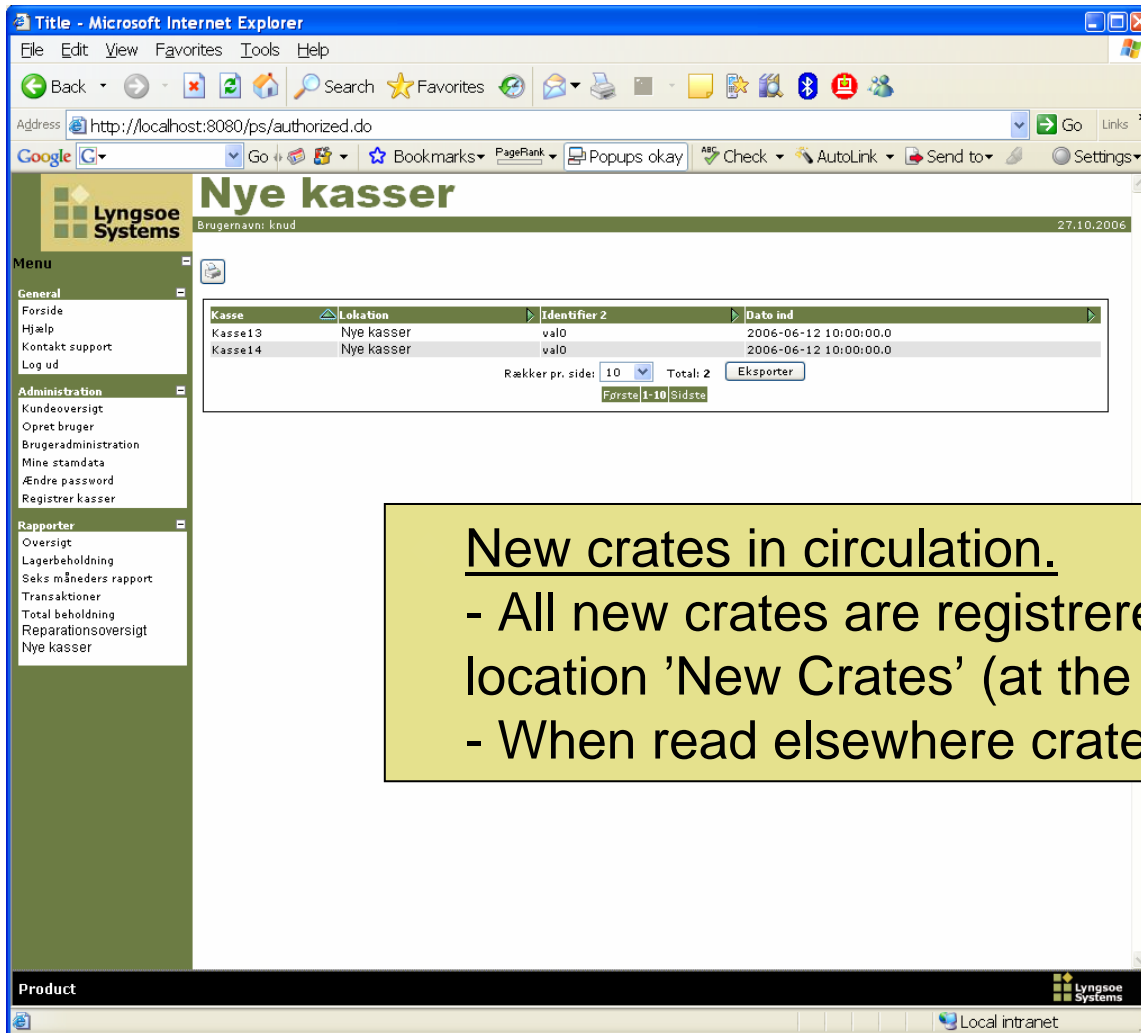
The screenshot shows a web browser window displaying the Lyngsoe Asset Management application. The page title is "Reparationsoversigt" and the user is logged in as "knuud". The main content area contains a table with the following data:

Kasse	Lokation	Identifier 2	Dato ind
Kasse13	Reparation	val0	2006-06-12 10:00:00.0
Kasse14	Reparation	val0	2006-06-12 10:00:00.0

Below the table, there are controls for pagination: "Rækker pr. side: 10", "Total: 2", and "Eksporter". The page also features a left-hand menu with sections for "General", "Administration", and "Rapporter".

## Crates marked for repair.

- Any party can mark a crate for repair by a HHT (scan crate and enter repair code).
- In the washing facility these crates are identified and routed to the repair shop.



Kasse	Lokation	Identifler 2	Dato ind
Kasse13	Nye kasser	val0	2006-06-12 10:00:00.0
Kasse14	Nye kasser	val0	2006-06-12 10:00:00.0

Rækker pr. side:  Total: 2

## New crates in circulation.

- All new crates are registered at a virtual off-set location 'New Crates' (at the crate manufacturer).
- When read elsewhere crates are transferred.

---

- Thank you !

- For further information, please contact.



**Lars M. Jankowski**

Phone: +45 96 980 951

E-mail: [ljm@lyngsoesystems.com](mailto:ljm@lyngsoesystems.com)