DB SCHENKER*smartbox*
ECITL 2010 Bremen

EUROPEAN CONFERENCE ON ICT
3RD 4 TRANSPORT LOGISTICS

Corp. Product Management Ocean Freight

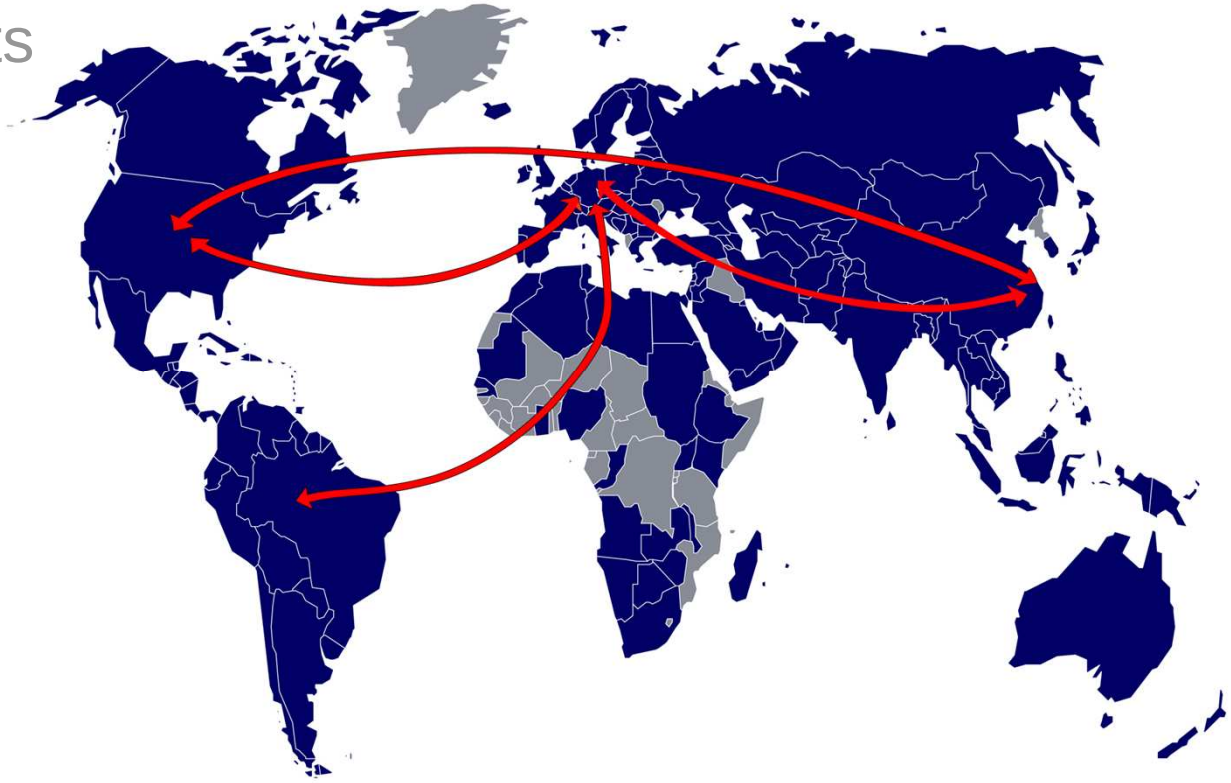
Christopher Regenhardt

Schenker AG, Head Office

Bremen, November 2010

DB SCHENKER*smartbox*
Agenda

- Product description
- Web Application
- Sample Customer Reports
- Facts and Benefits



DB Schenker Logistics is a leading provider of international transport and logistics services

DB Schenker Logistics

Integrated transport and logistics services

- Operation of **global networks**
- **Expertise in specific industries,** e.g. automotive, electronics, consumer goods
- Strong brand with global **door-to-door service**

DB Schenker Logistics Service Portfolio

No. 1 in European Land transport

- 800 offices in 36 countries
- 70 million consignments p.a.
- approx. 32,000 regular services per week

No. 2 in global Air Freight

- More than 700 sites worldwide
- 800 freight flights p.a.
- 1 million tons airfreight volume p.a.

No. 3 in global Ocean Freight

- 1.4 million TEU[1] ocean freight volume p.a.

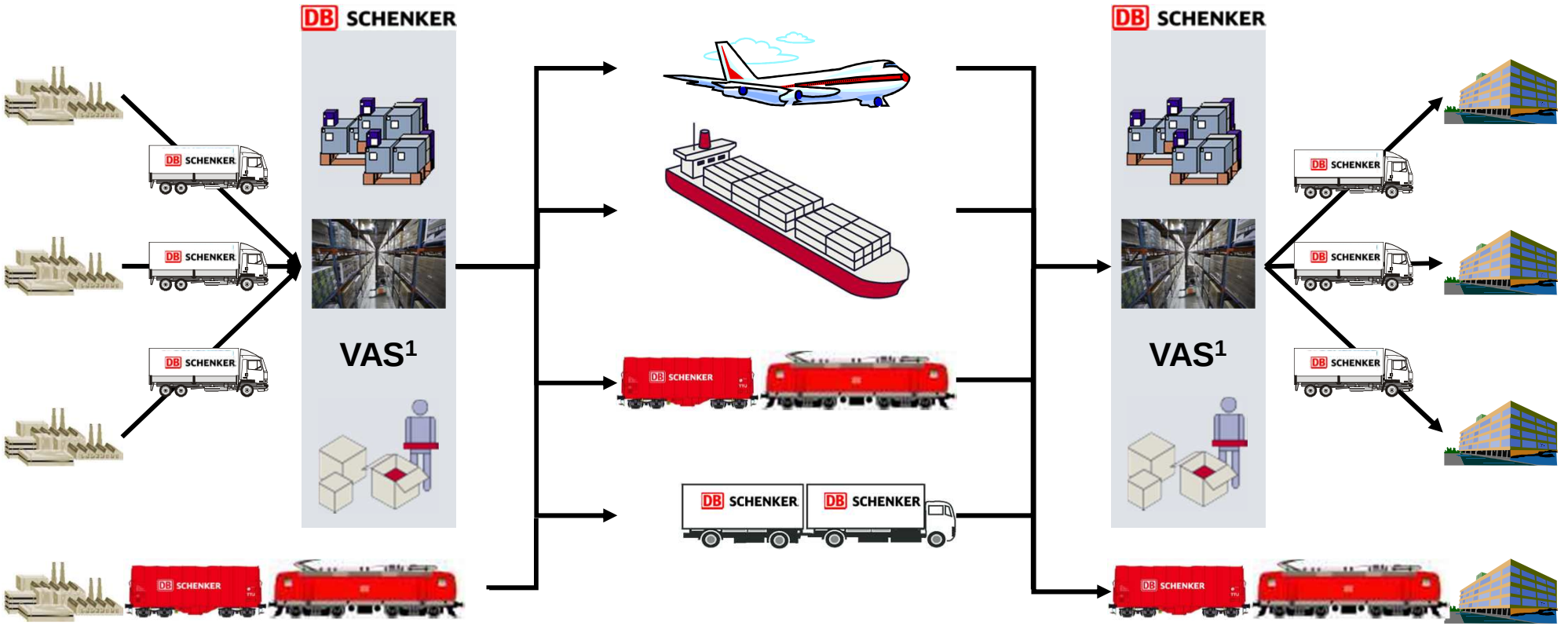
No. 5 in global Contract Logistics

- 500 offices in more than 50 countries
- More than 4 million m^2 warehousing space

as of 31.12.2009, [1] TEU = Twenty-foot Equivalent Unit

DB Schenker, Christopher Regenhardt

Delivering Solutions - DB Schenker offers customers integrated logistics chains from a single source



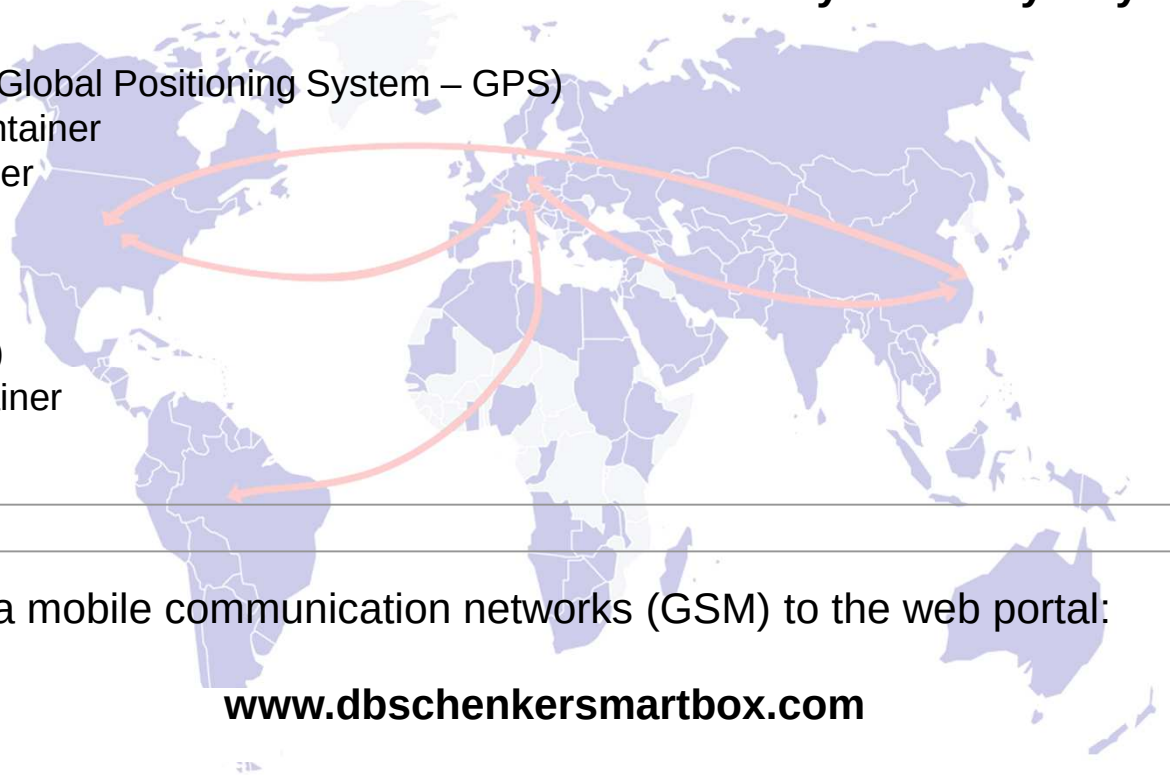
[1] Value added services

DB Schenker, Christopher Regenhardt

DB SCHENKER*smartbox*
Product description

- The following parameters are monitored by DB SCHENKER***smartbox*** –
  worldwide – 24 hours a day – 365 days a year:

  - Geographical position (via Global Positioning System – GPS)
  - Temperature inside the container
  - Humidity inside the container
  - Light influx
  - Tilt level
  - G-force impact
  - Door status (open - closed)
  - Movement inside the container



- The collected data are transmitted via mobile communication networks (GSM) to the web portal:

  www.dbschenkersmartbox.com

DB SCHENKER*smartbox*
Product description

Further related services and features are:

- Reverse Logistics of device via air freight (worldwide network)
- Consulting and Business Case analysis
- Customized reports and statistics
- System accessible via **C**ustomer **I**nformation **S**ystem
- Marketing support and press announcements
- Optional security center solution

DB SCHENKER*marineparts*
Reverse Logistics

*** Hubs**

+150 locations worldwide

DB SCHENKER*smartbox*
Evaluated Technologies

		Tracking	Visibility	Monitoring and Detection
Passive RFID and reader		✓	☒	☒
E-Seal		(✓)	☒	✓
Active RFID + Door sensor		✓	(✓)	(✓)
GPS sensor suite DB SCHENKER***smartbox***		✓	✓	✓

Checkpoint based

* Worldwide

✓ possible

(✓) limited functionality

☒ not possible

* Depending on coverage of mobile and/or satellite network

DB SCHENKER*smartbox*
Device evolution

Initial Prototypes
2001-2003

- Solar cells
- Separate inside and outside

Generation **CMD410**
2004-2005

- 4 parts (Module, Battery, Antenna, Door magnet)
- Cables required
- Tested in “Operations Safe Commerce”

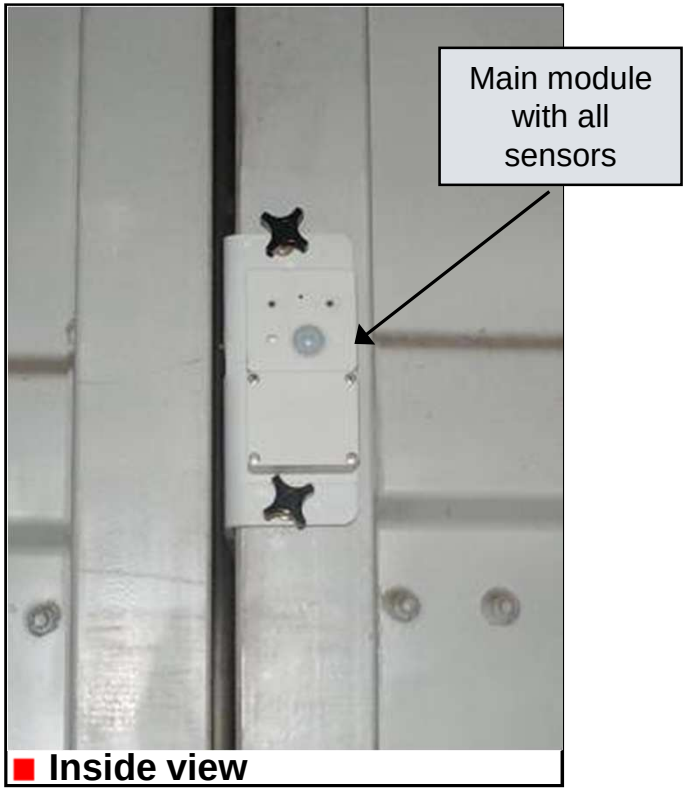
Generation **CMD420**
2006-2009

- Quick setup
- Cables visible, but not in the way
- Just 2 parts (separate door magnet required)
- Light weight
- Small size

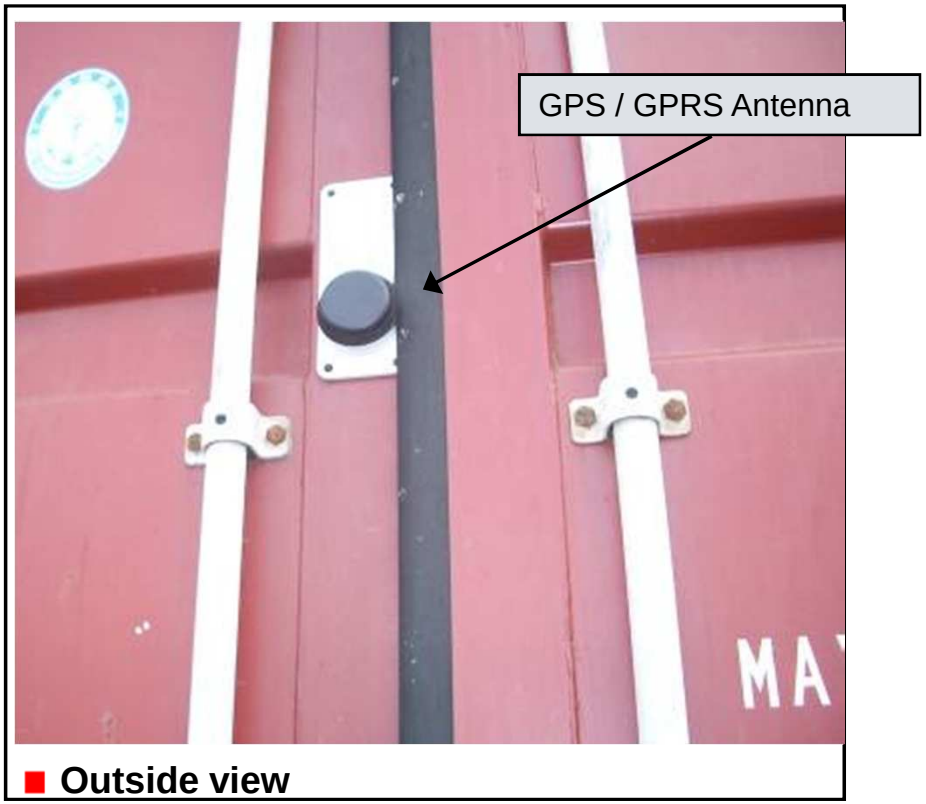
Generation **CMD500**
Launch Q4/2009

- **No** visible cables
- Just **one part**
- Extremely **quick** setup
- Extremely **light** weight
- Extremely **small** size
- **High functionality** based on 4-year joint DB SCHENKER*smartbox* **experience**

DB SCHENKER*smartbox*
The current device generation



■ **Inside view**



■ **Outside view**

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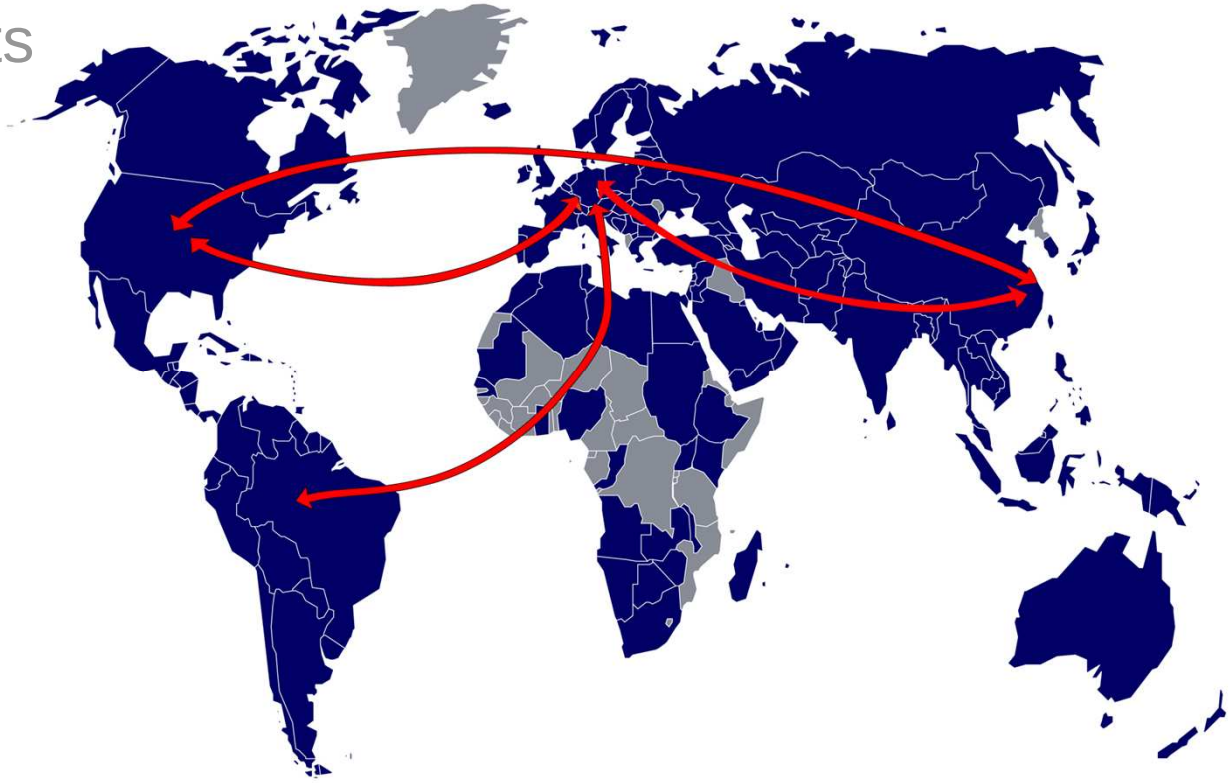
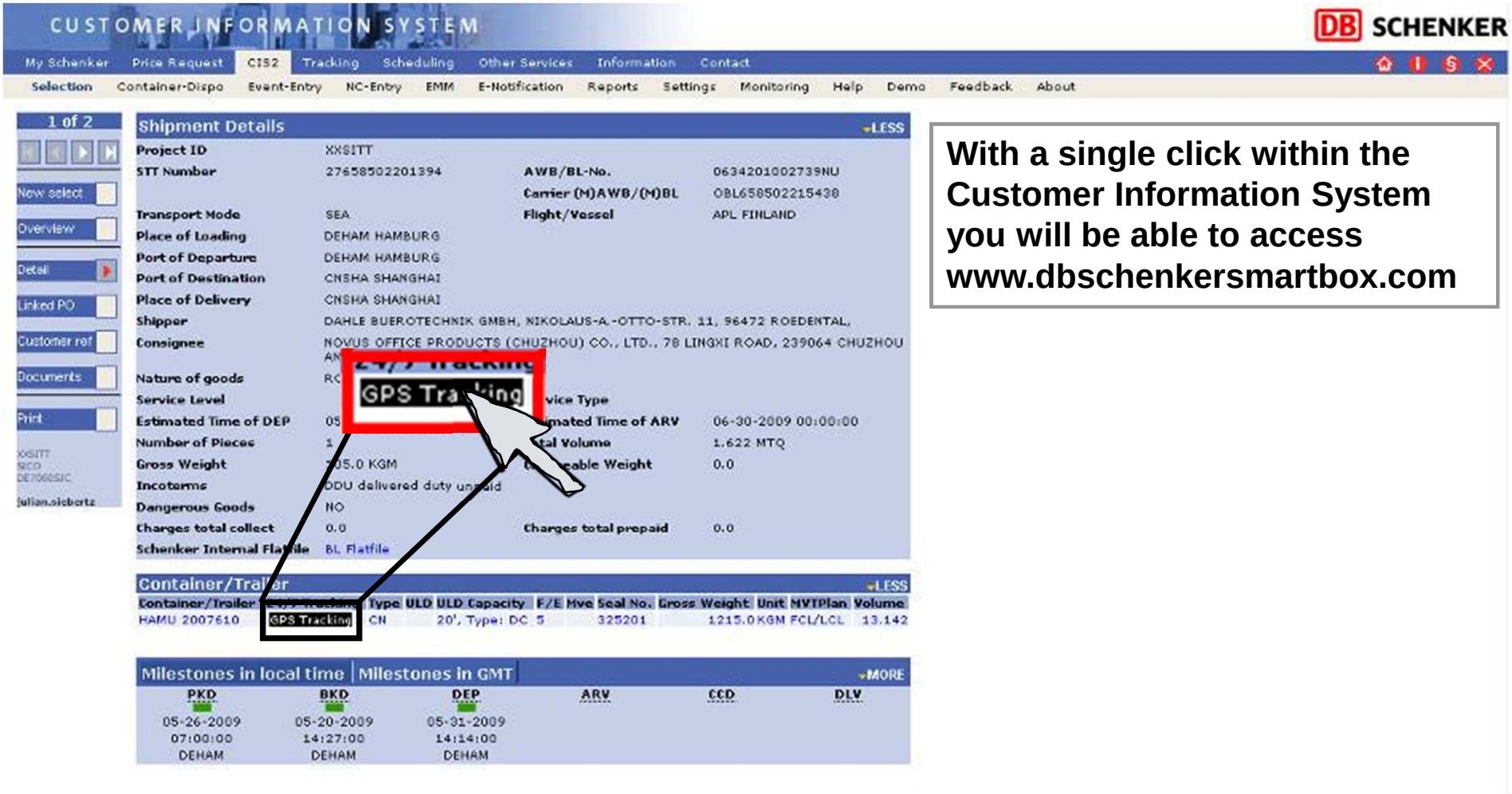


DB SCHENKER*smartbox*
Customer Information System (CIS)



With a single click within the Customer Information System you will be able to access www.dbschenkersmartbox.com

DB SCHENKER*smartbox*
Customer Information System (CIS)

Container	353358014840867
Description	CTR 14_PONU4957212_500-R-1001-0010
TRIP	Name: Trip2 Date: from 19.02.2010 19:24:29 to Current time (UTC)
Coordinates	53.5979,N x 8.51722,E
Accuracy	44m
Location (town,country,distance)	n/a
Temperature	4.4°C
Humidity	55.9%
Battery state	94%
Last communication time	02.03.2010 10:09:51 (UTC)

Security Parameters	Device Parameters
Door Closed	Active
No Movement Inside	GPRS Network Available
No Light	Normal Power
Inside Geo-Zone	Mounted
Environmental Parameters	**Accelerometer Parameters**
Temperature Normal	No Impact
Humidity Normal	No Vibration
GPS Normal	No Tilt

24 hours / 7 days a week

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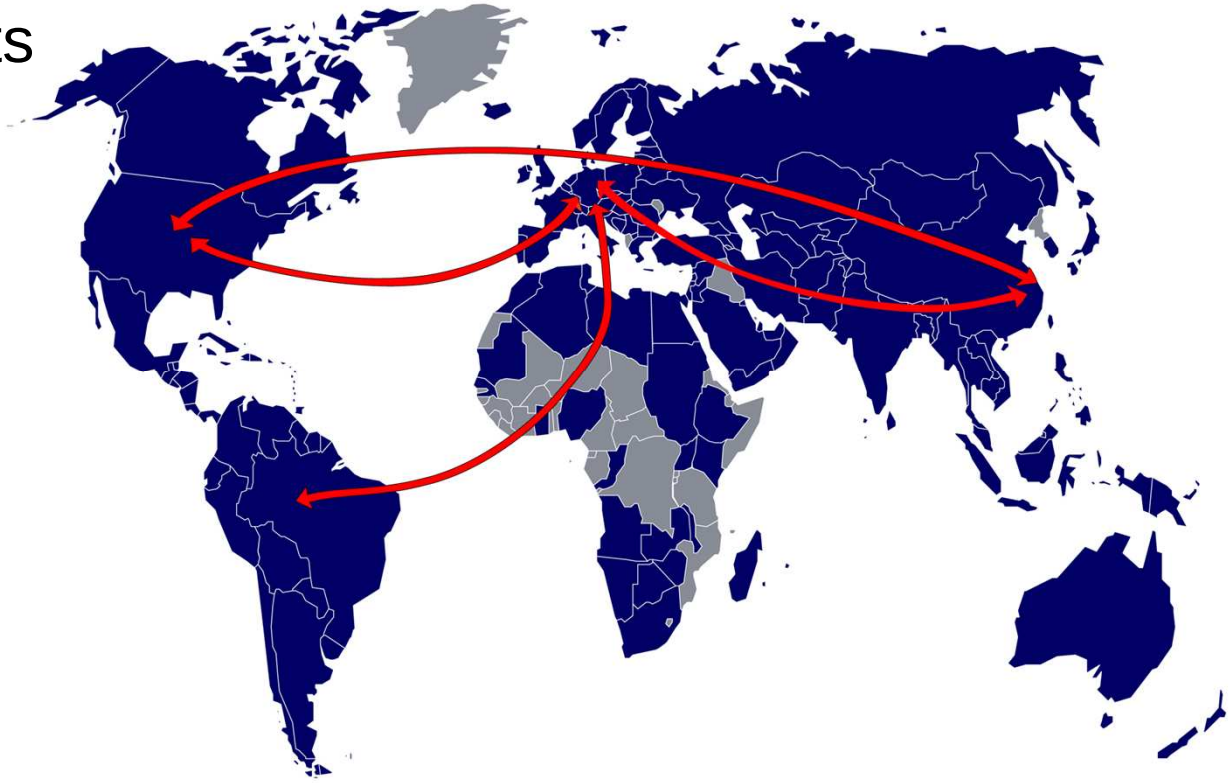


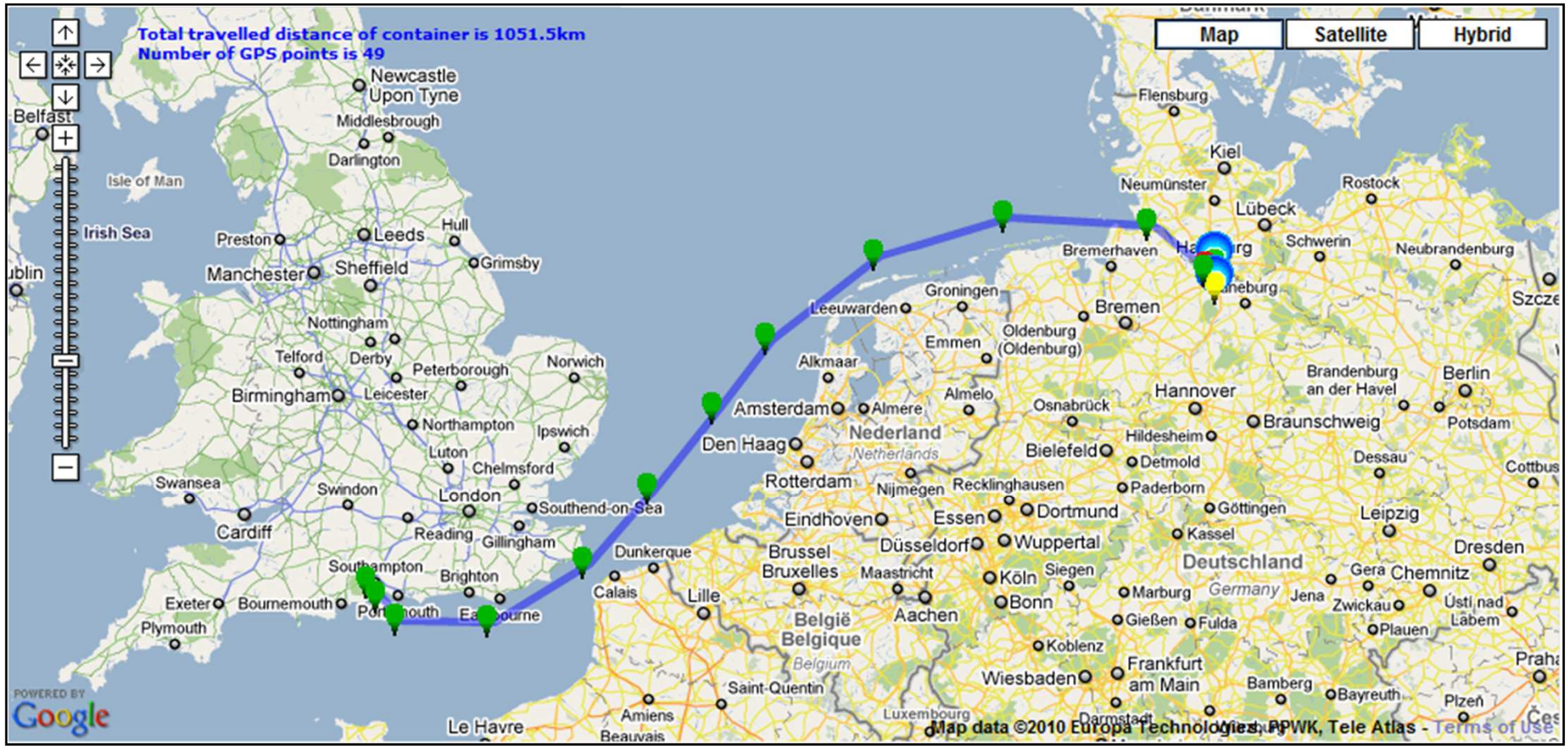
GPS map of SXXJ0004200 status (Status on Sept 25th)

GPS: Route / Map | History: Events / Temperature / Humidity / Tilt / GForce / Vibration | Module params

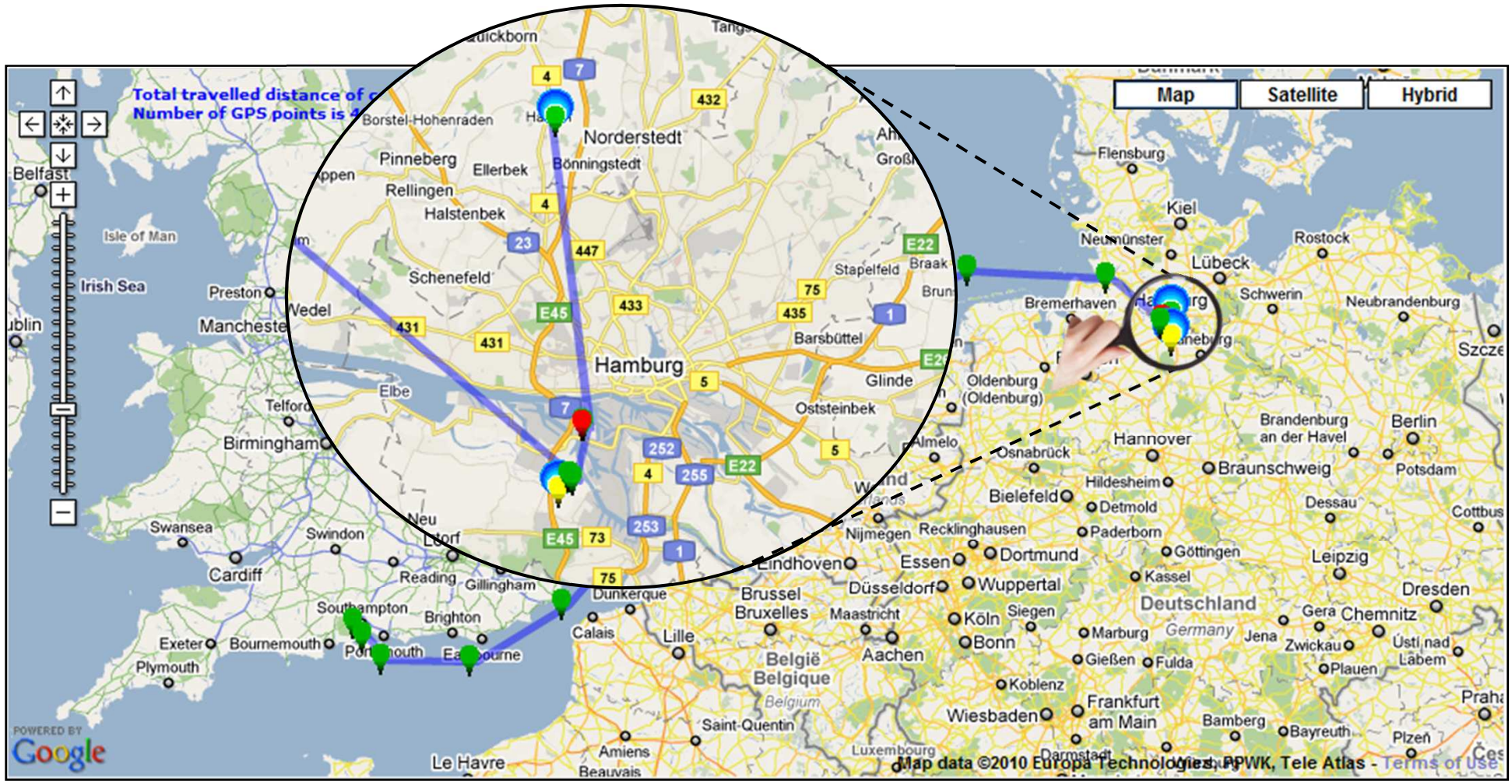
Container	011691001152324
Description	NYKU8465472
TRIP	Name: Trip1 Date: from 24.05.2010 12:57:35 to Current time (UTC)
Coordinates	50.5859,N x 1.05243,W
Accuracy	31m
Location (town,country,distance)	Sandown, United Kingdom, 9.90854km
Temperature	10.2°C
Humidity	84%
Battery state	94%
Last communication time	25.09.2010 07:27:55 (UTC)

Security Parameters	Device Parameters
Door Closed	Active
No Movement Inside	GPRS Network Available
No Light	Normal Power
Inside Geo-Zone	Mounted
Environmental Parameters	**Accelerometer Parameters**
Temperature Normal	No Impact
Humidity Normal	No Vibration
GPS Normal	No Tilt

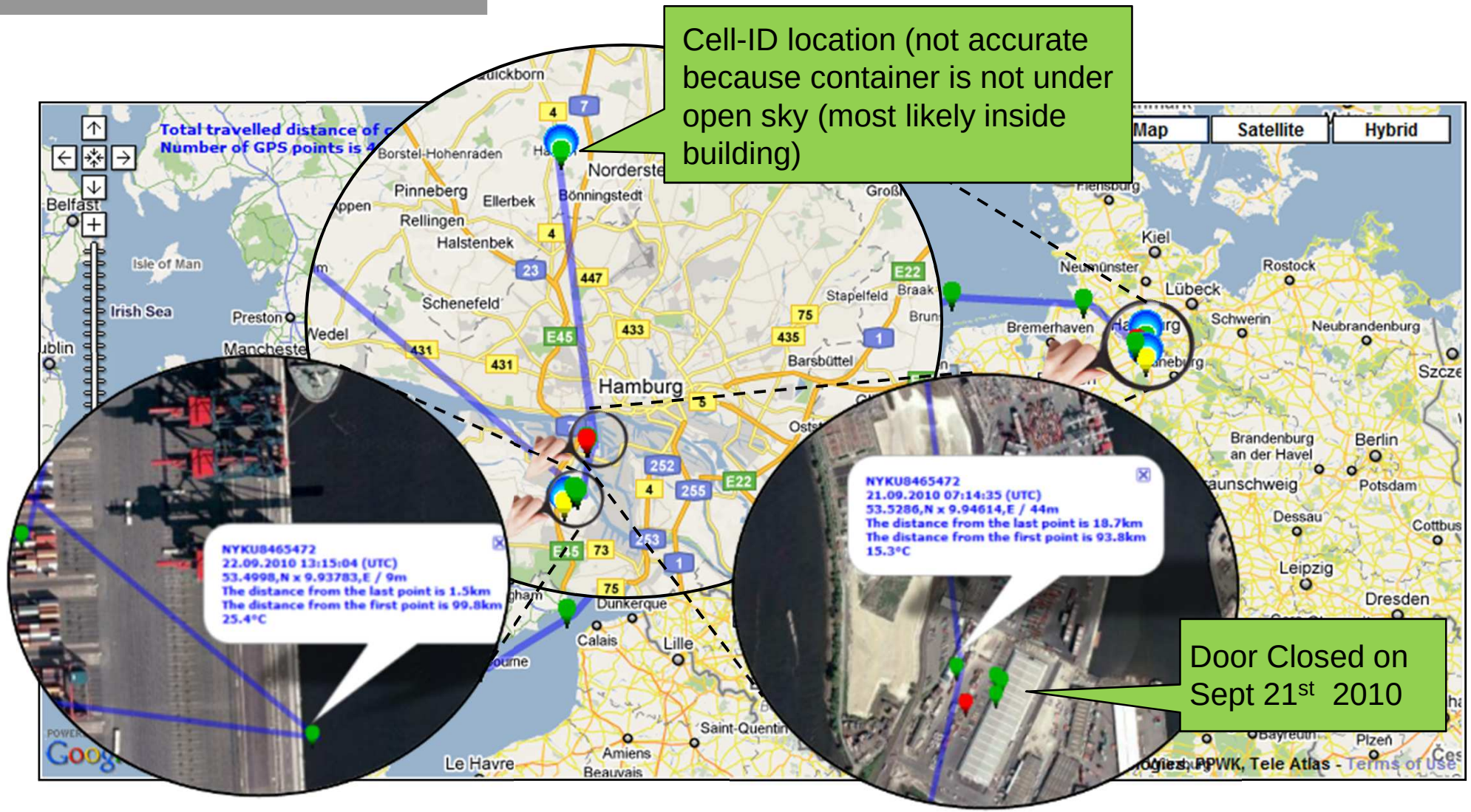
GPS route of SXXJ0004200 (1/5)



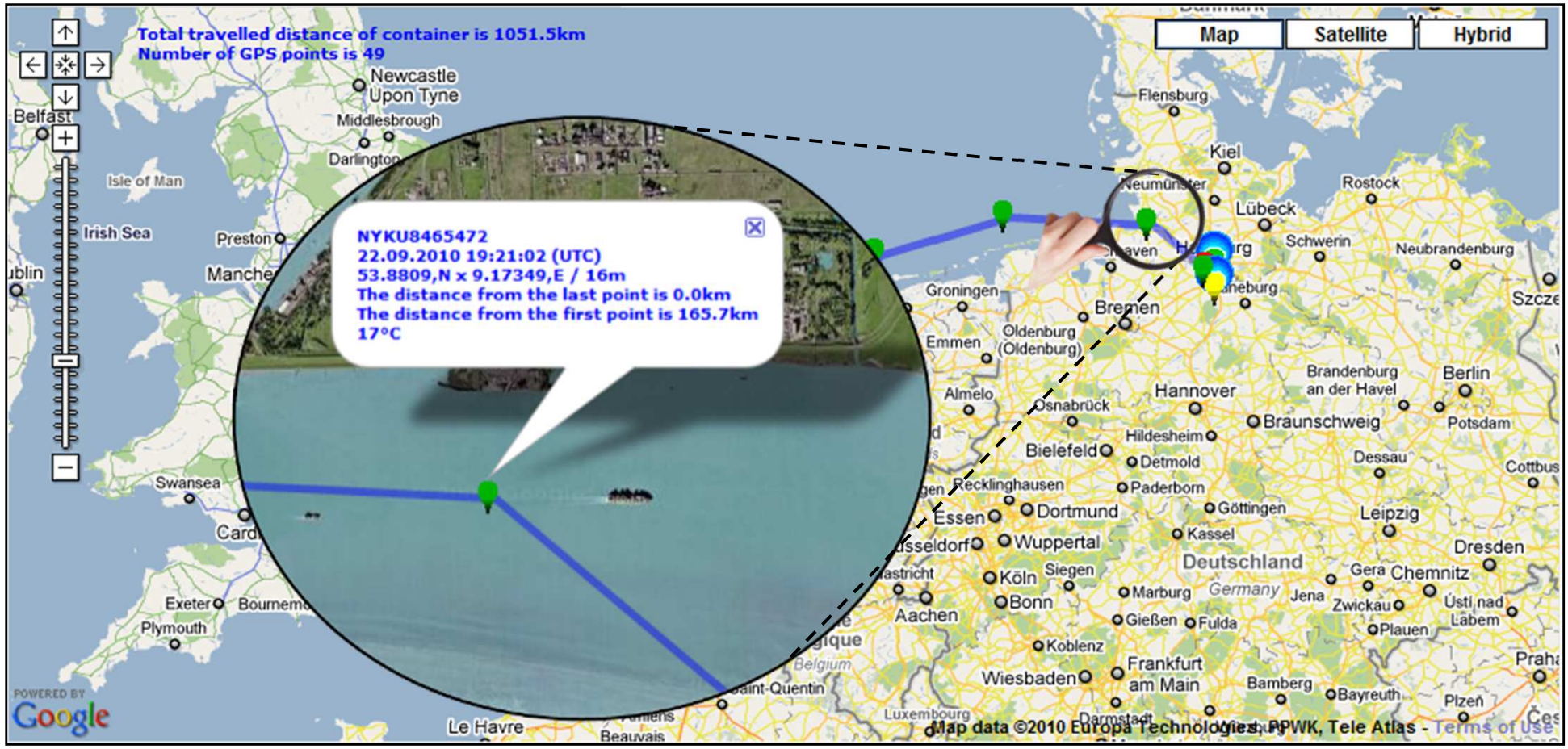
GPS route of SXXJ0004200 (2/5)



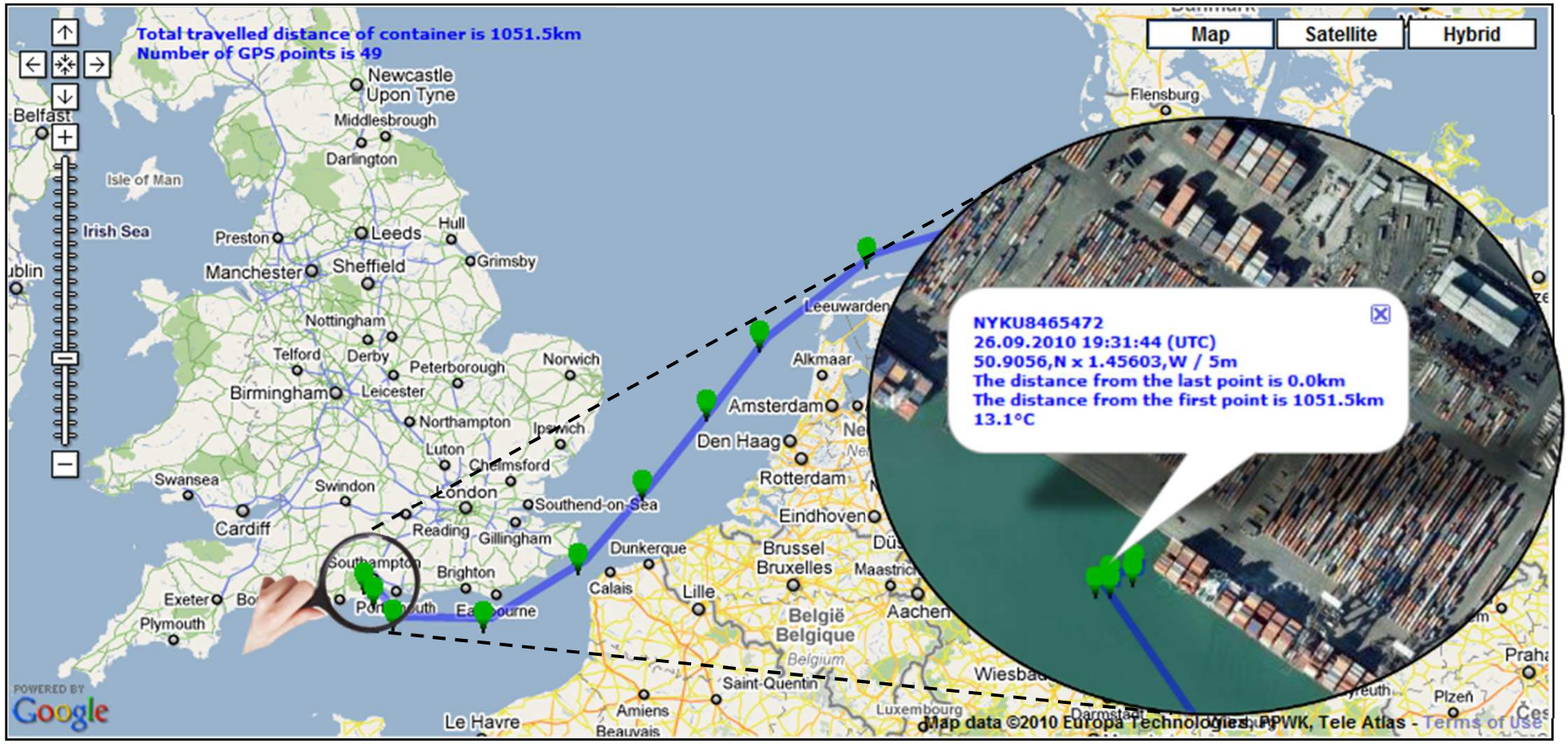
GPS route of SXXJ0004200 (3/5)



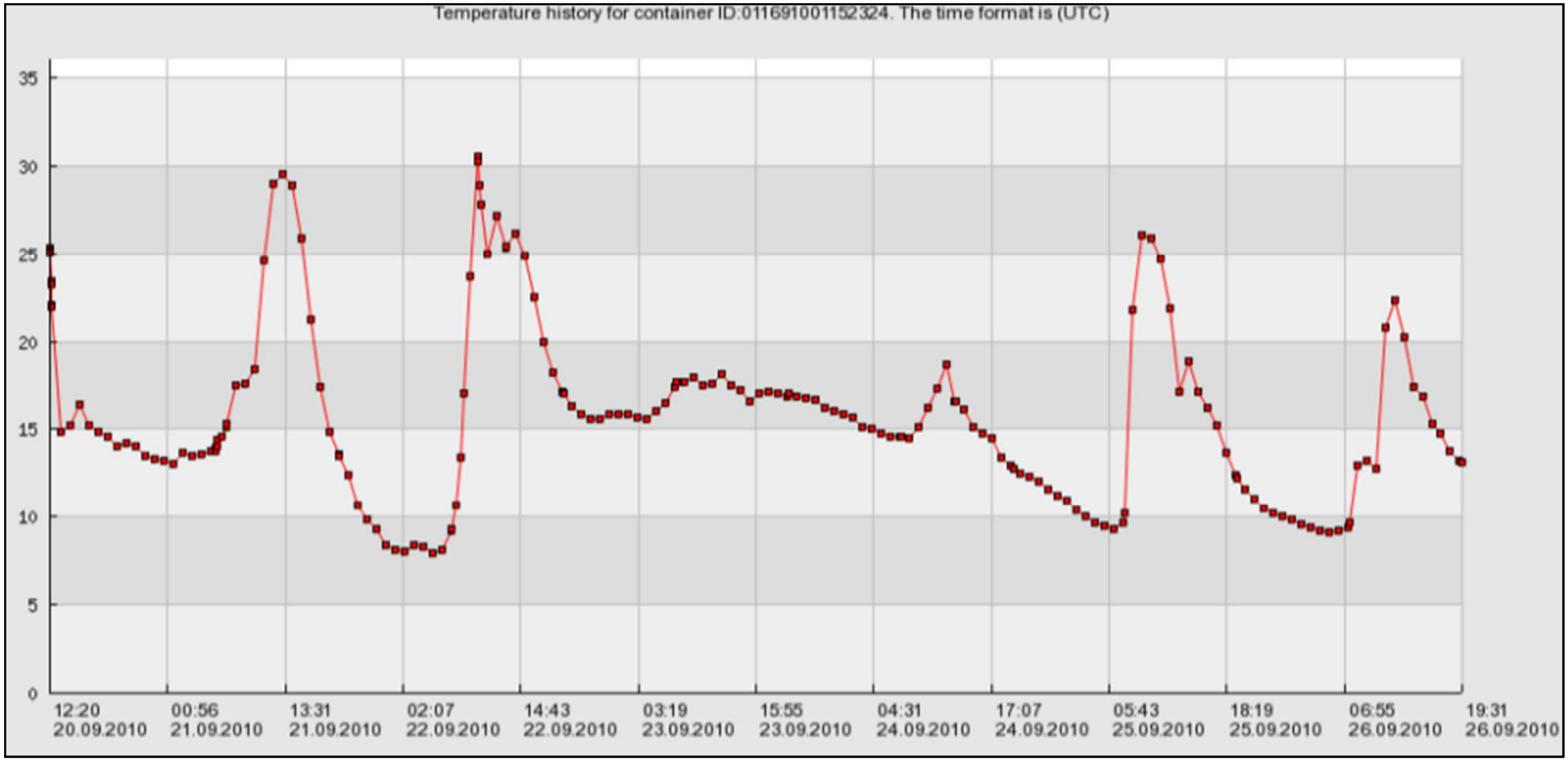
GPS route of SXXJ0004200 (4/5)



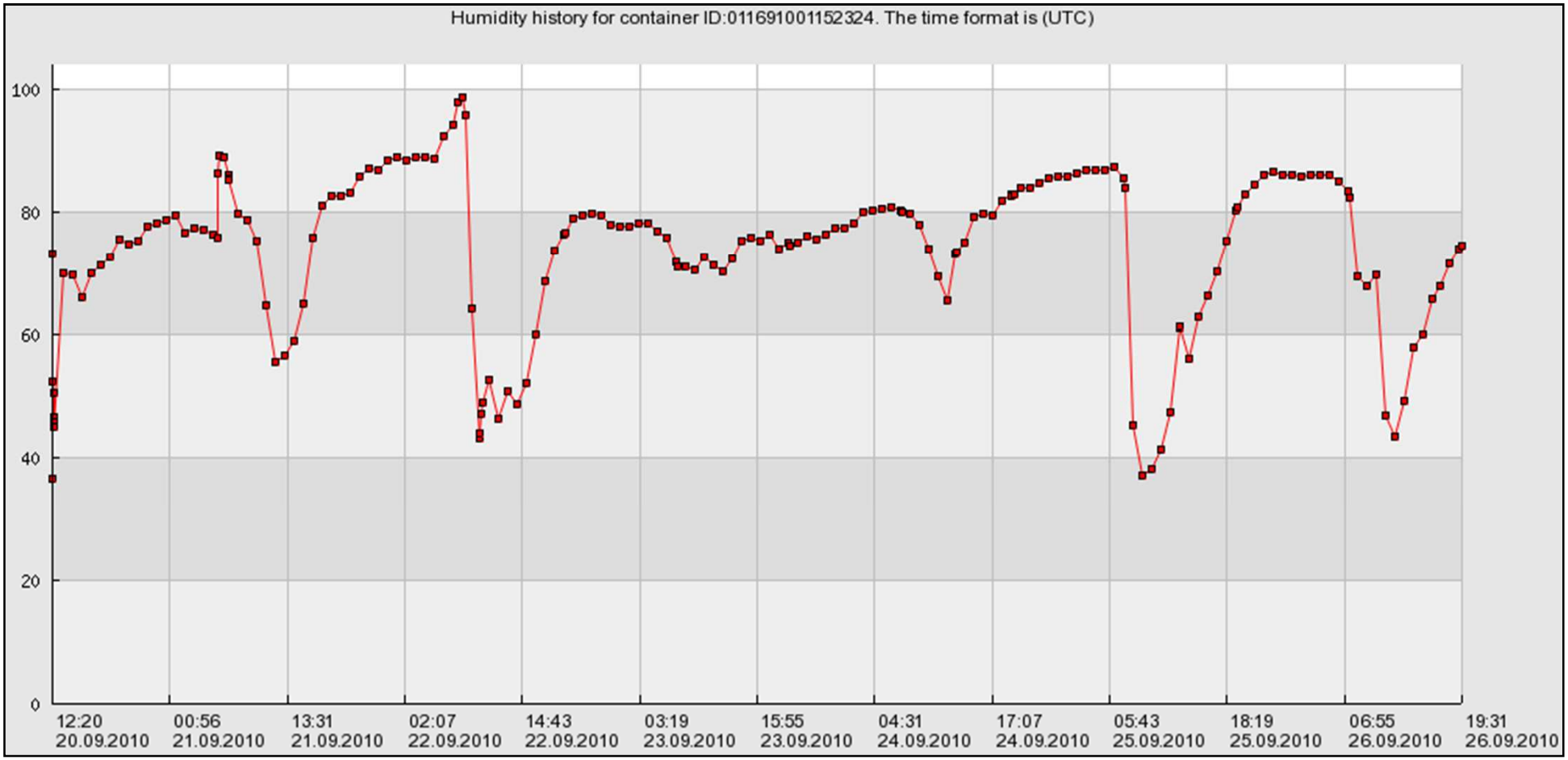
GPS route of SXXJ0004200 (5/5)



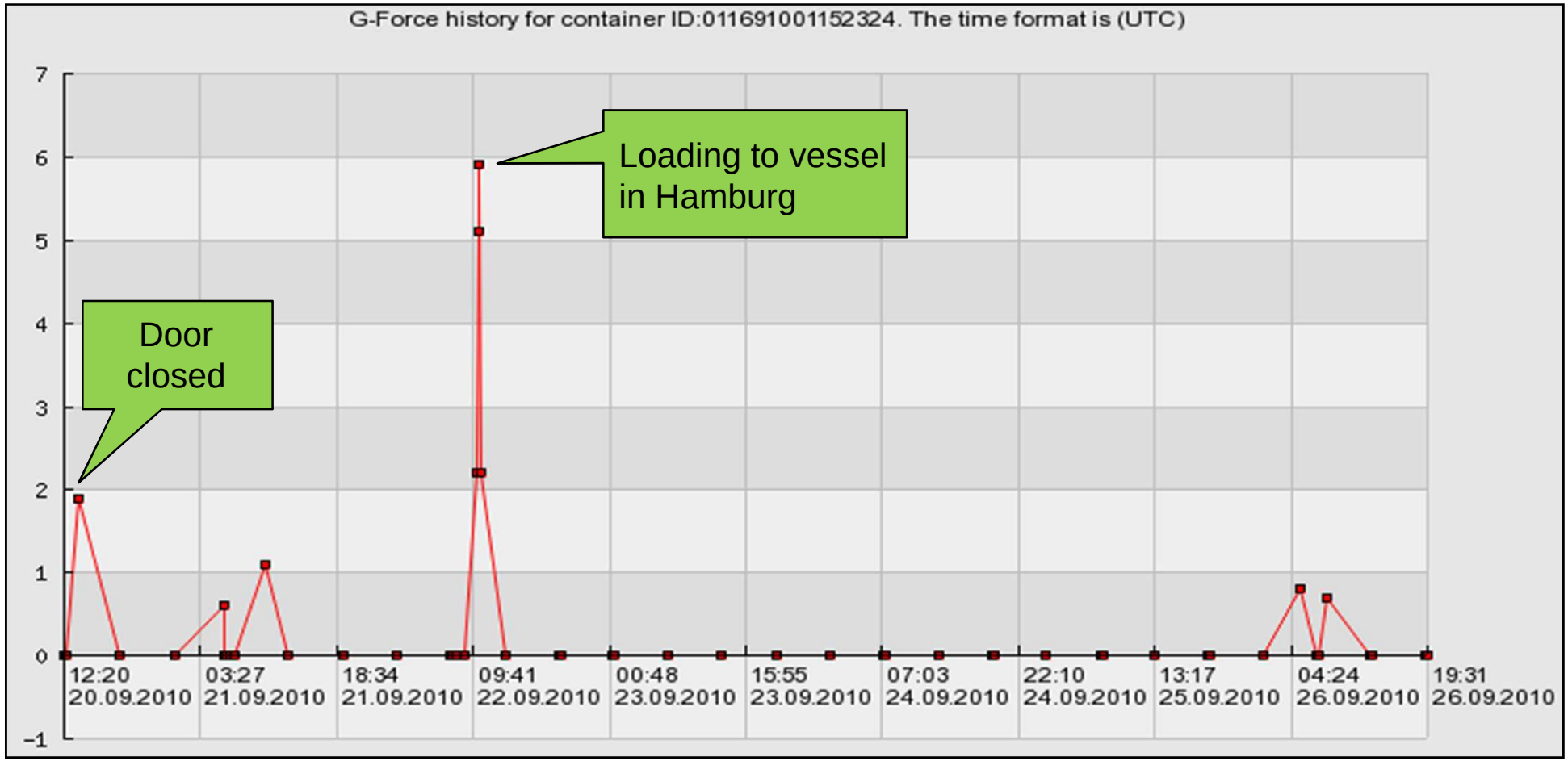
Temperature data of SXXJ0004200



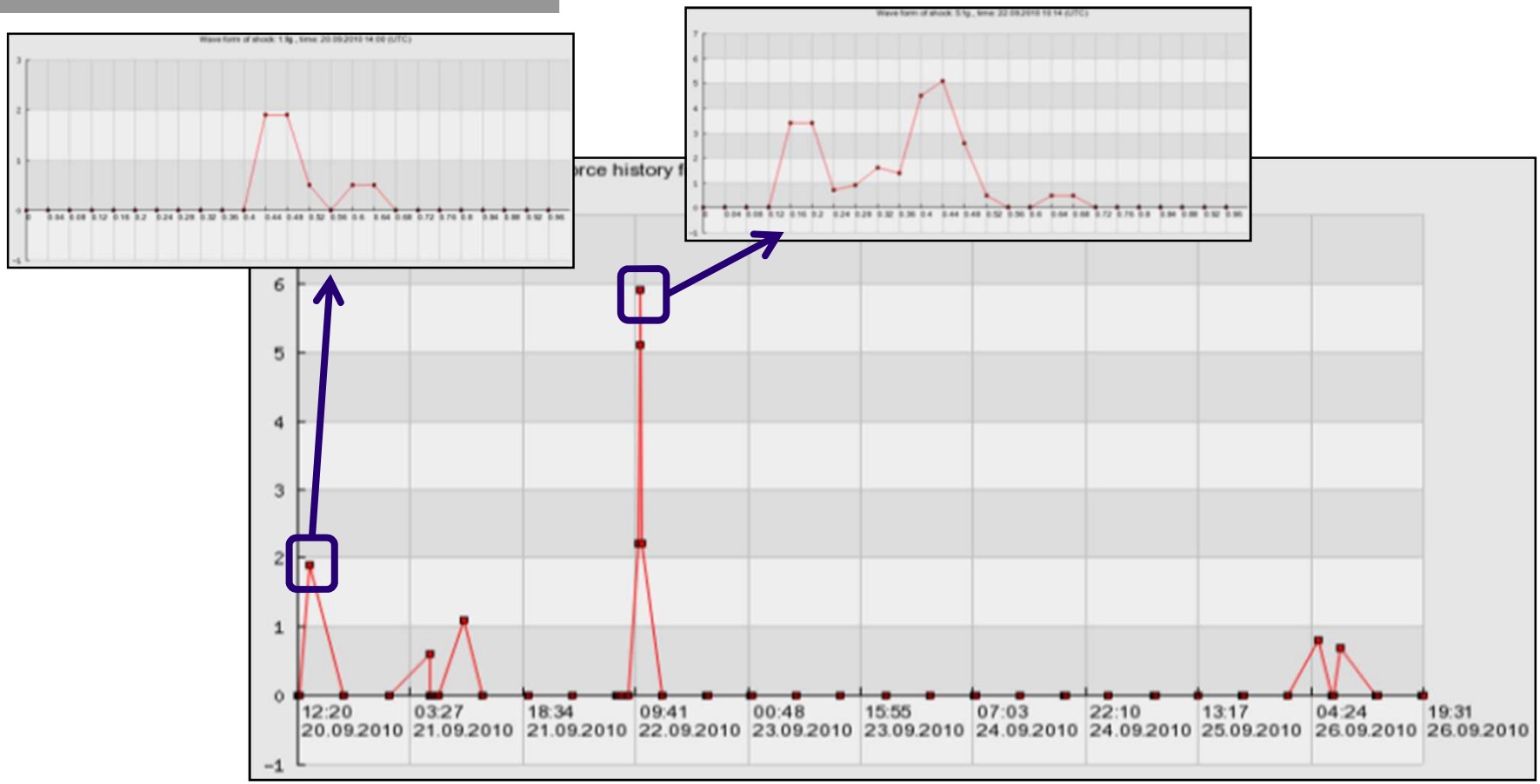
Humdity data of SXXJ0004200



G-force data for SXXJ0004200



In-depth analysis of G-force waveform of impact
50 milliseconds before and 50 milliseconds after the main impacts



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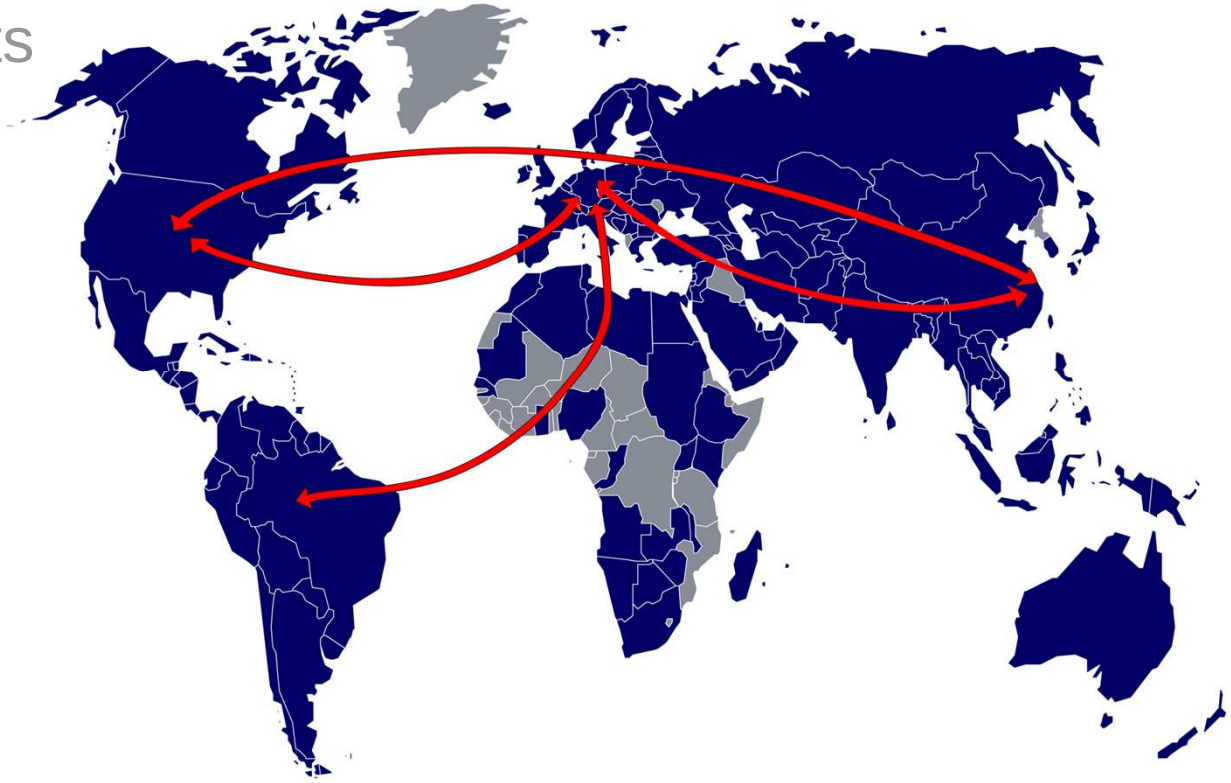
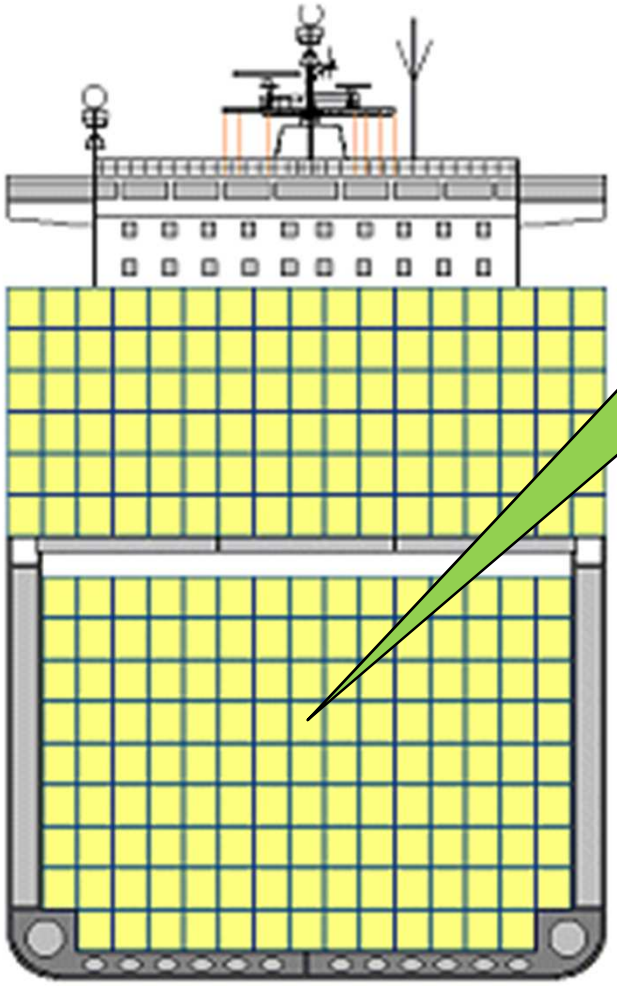


Possible storage position under deck leaves no view to the satellite networks for GPS data acquisition



Possible location of container on vessel – No chance to get satellite GPS data

http://www.containerhandbuch.de

Smartbox general functionality overview and requirements during different steps of the supply chain

	GPS position	Security status[1)]	Cargo status[2)]
	✓	✓	✓
	✓	✓	✓
	Yes, if loaded in top rows	✓	✓
	✓	✓	✓

General Requirements

- ✓ **GPS needs clear view to sky**
  - o No GPS available inside of building
  - o No GPS available if container stored under deck on vessel
- ✓ **Data transfer needs GPRS network**[3)]
  - o No communication in open water
  - o No communication in countries with no GPRS network
- ✓ **All security and cargo status sensors are active during journey**[4)]
  - o Data is stored and sent during first 12 hour update in area with available GPRS network

[1)] Door open/closed, Light, Motion inside, Mounting
[2)] Temperature, Humidity, Impact/Shock, Vibration, Tilt
[3)] Satellite communication available upon request for data transfer at almost every point in the world incl. open sea
[4)] Full battery status needed

DB SCHENKER*smartbox*
Standard schedule of sensor data acquisition

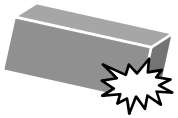
Individual settings possible based on customer request

Security

- ✓Permanent check of door, light, motion sensors
- ✓Status report every 12 hours

Temp./ Humidity

- ✓Hourly recording of data
- ✓Permanent threshold check



Impact/ Tilt/ Vibration

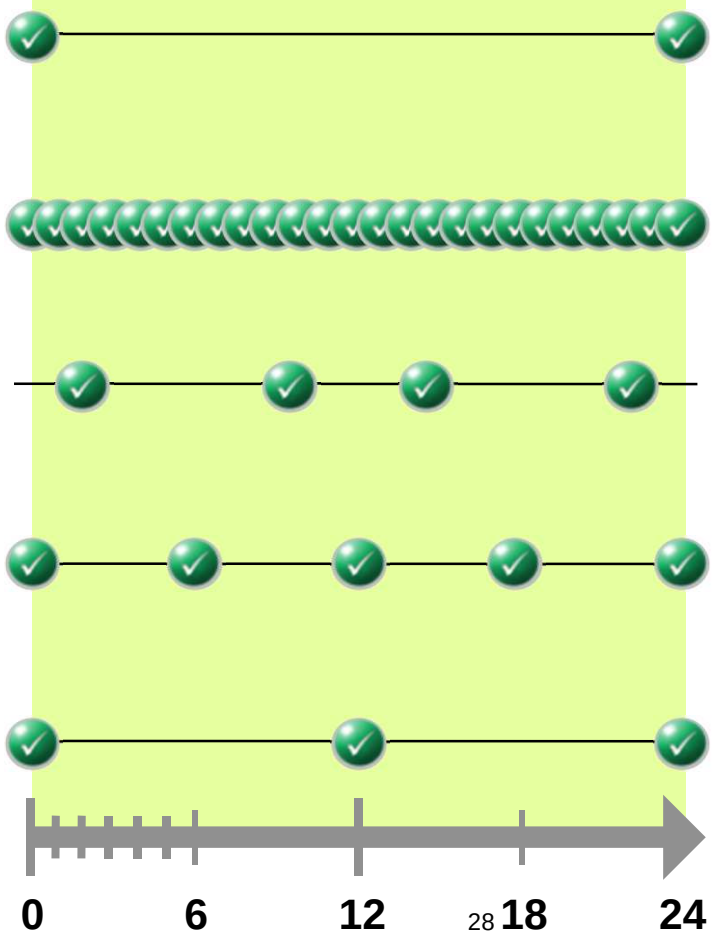
- ✓Max. value recorded every 6 hours
- ✓Permanent threshold check

GPS

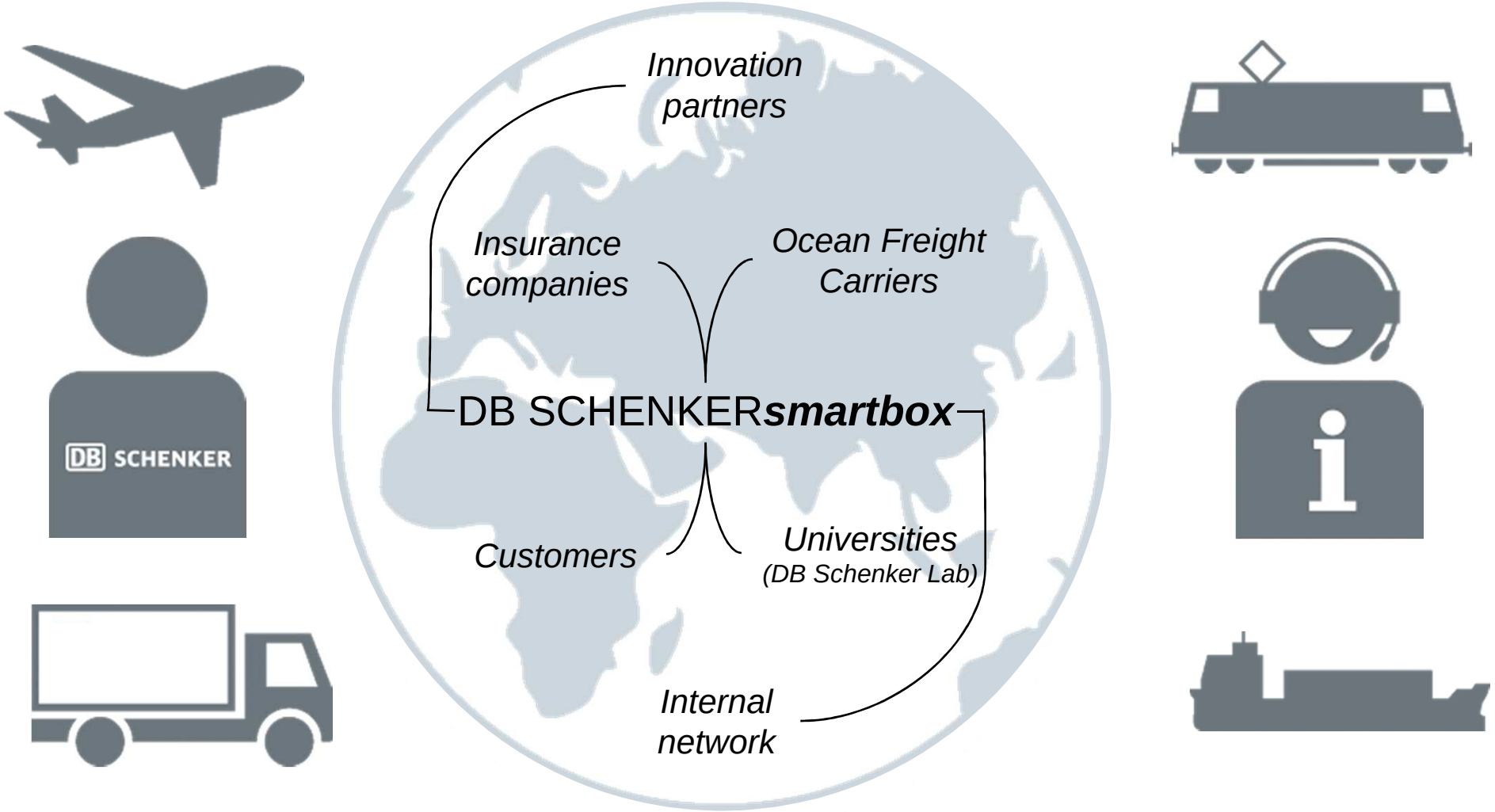
- ✓Position determined every 6 hours and 24/7 during alert if clear view to the sky

Data transfer

- ✓Data transferred every 12 hours and 24/7 during alert, if GPRS network available



DB SCHENKER*smartbox*
Innovative – Efficient – Secure



DB SCHENKER*smartbox*
Benefits

Transparency

- Highest level of transparency of the supply chain
- Monitoring of cargo conditions
- Increased lead time transparency
- GPS real time tracking via web (24/7…)

Savings

- Potential reduction of insurance premium
- Reduction of customer's logistics costs

Security

- Protection against theft and terror

Strategic advantages

- Increased product- & data quality
- Innovation marketing
- Enhanced strategic process planning capabilities

Strong partner

- 4 years of product development
- Excellent integration experiences
- Global network of cooperation and innovation partners
- Easy and flexible installation procedures
- Worldwide available

DB Schenker: leader in sensor technology for ocean freight

Thank you for your attention!

Christopher Regenhardt

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