RADIO HOLLAND

Service Agreements & Remote Monitoring

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Nautisch-Technischer Inspektoren-Kreis Hamburg e.V. - April 4, 2018

Agenda

- Company introduction
- Service agreements
- Global vessel service database & Online Portal
- Remote Monitoring & Support

SOLUTIONS

Navigation
Communication
Ship to Shore Comm.
On Board ICT
Service & Maintenance

MARKET SEGMENTS

Cargo
Oil & Gas
Yachts
Tug & Workboats
Cruise
Naval
Inland

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Wherever you are – We are always near!

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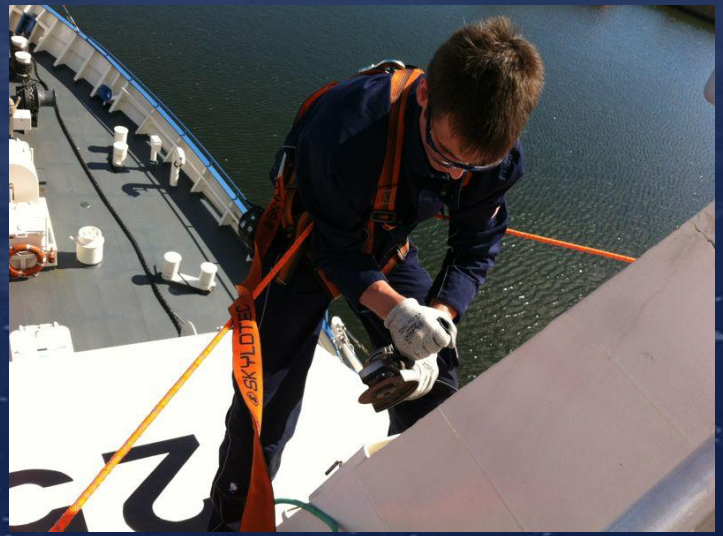
Scope of Supply – RH Germany

- Navigation & communication specialist
- Installation & retrofit experts
- Maintenance Contracts
- 24/7 service & support
- Radio, navigational & (S)VDR class survey
- Retrofit solutions
- Remote monitoring & diagnostics



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Service Quality as a standard

We are tracking our services world wide and we are proud to have experts all over the world

- Certified Technicians
- State of the Art Installation & Services
- First Time Right Rate: >95 %

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Scope of Products

(S)VDR

ECDIS

COMPASS

GMDSS

AIRTIME

VSAT

SAFETY

RADAR

SENSORS

MULTI DISPLAYS

IRIDIUM

FBB / FX

INTERCOM

IBS

STEERING

REMOTE MAINTENACE

GSM

and many more

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Our main brands

Classifications & Certifications

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Radio Holland solutions

- **Customer needs**
  - Managed cost of ownership
  - Uninterrupted schedule
  - Hassle free compliance
- **Radio Holland solutions**
  - Service Agreements
  - Global vessel service database & Online portal
  - Remote Monitoring & Support

Why service agreements?

"Everything looks OK from here Captain"

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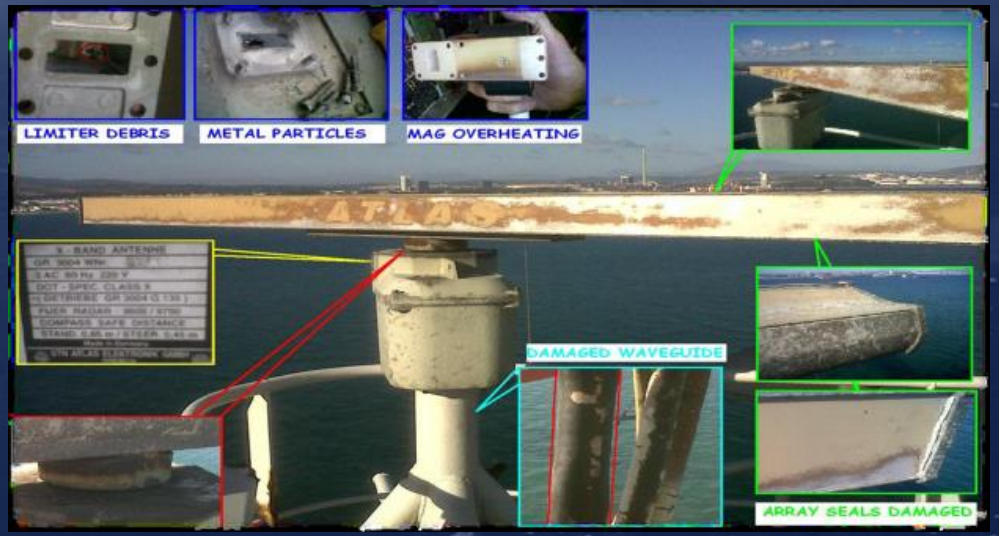
Why service agreements?

From Up Top Looks a Little Different…

Why service agreements?

Further Investigation…



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Most frequently used maintenance agreements:

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Our PMA agreements, your benefit

Preventive Mandatory Agreement

Why choose PMA

- ✓ We will de-risk your Nav-Com related requirements
- ✓ Fully compliant to SOLAS chapter IV Reg.15 and Port State
- ✓ Increase employability, availability and reliability of equipment and vessel
- ✓ Increased asset / equipment uptime reducing unscheduled maintenance and unexpected costs
- ✓ Benefit from our priority service

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Our MSA agreements, your benefit

Managed Service Agreement

Why choose MSA

- ✓ Build on additional benefits of PMA
- ✓ Remove the hassle of managing multiple suppliers by outsourcing all work to our experts
- ✓ Reduce unplanned maintenance & breakdowns
- ✓ Increase employability, availability and reliability of equipment and vessel
- ✓ Start cost saving now with extensive fleet, vessel and equipment reporting
- ✓ Comply with regulations and radio maintenance guidelines for Shore-Based Maintenance contracts
- ✓ Prolong certificates and equipment obsolescence management

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Our SRA agreements, your benefit

Service Rate Agreement

Why choose SRA

- ✓ Our globally agreed rates make your life easy an projectable:
- ✓ Manage your service and maintenance with pre-set rates globally
- ✓ Reduce operational costs and the overall cost of ownership
- ✓ Reduce administration of purchase orders and invoices
- ✓ No unexpected costs - simple rates agreed in advance

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Global vessel service database

Radio Holland Global vessel service database (GSS)
Radio Holland Supportal

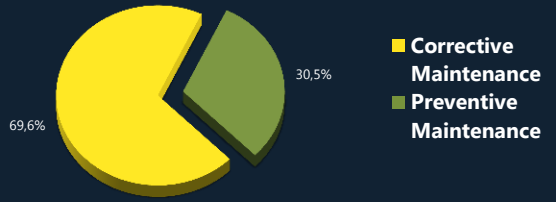
GSS is a data bases containing all relevant vessel, equipment & service data used for worldwide service processing but also **enabling cost of ownership analysis**

Reporting on KPI's

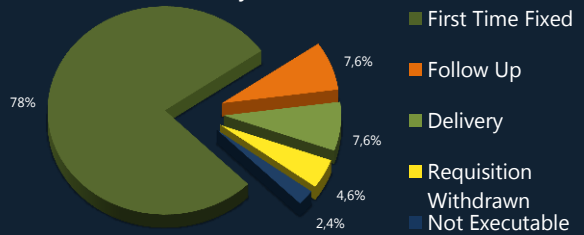
General Review of Requested Period
(Based on Closed Calls)

Period	# Vessels Under Contract	# Calls	Calls Average per vessel	Successful Average
2015-Q1	23	86	3,7	91,9%
2015-Q2	23	63	2,7	95,2%
2015-Q3	23	74	3,2	89,2%
2015 Q4	23	52	2,3	92,3%
Requested Period	23	275	12,0	92,0%

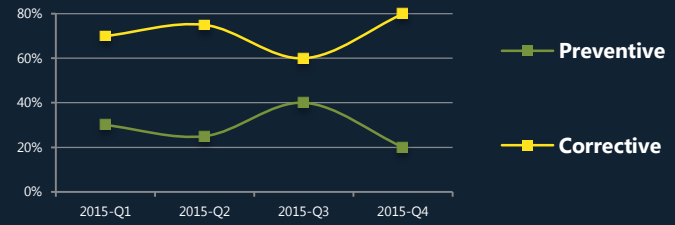
Maintenance: Preventive vs Corrective
(Based on Closed Calls, for Projected Period)



General Service Call Review subdivided by Outcome
(Based on Closed Calls, for Projected Period on All Vessels)



Calls: Preventive/Corrective



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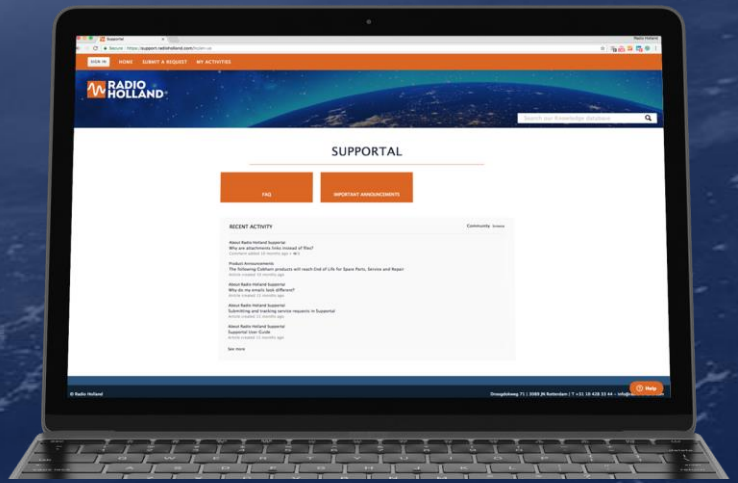
Online Portal

How we manage your services:



RH-Supportal, your access to:

- **Unique product knowledge**
- **Prioritized global service access**
- **“Real time” reporting on your service agreements**
- **Regulatory compliance**
- **Analytics and planning tool for equipment, services & lifecycle based on 20 years of manufacturer and service data history**

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Remote Monitoring & Support

- What is Internet of Things?
- Suitable data sources on board vessels
- Remote Monitoring & Remote Support

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Internet of Things

- Infrastructure of machines, sensors and human interfaces to communicate and interact
- First vision in 1990's, today fully integrated in our daily life
- IoT≠ Everything needs to be in the Internet
- Used to share sensor data with related system parts / components
- Used to collect big data

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What data is suitable for remote?

- Automation / Engine / Generator Data
- Cargo Data (e.g. Reefer, Crane or Tank conditions)
- Nautical sensor & Weather data
- Communication / VSAT
- Safety Equipment
- ICT on board
- Ballast Water, Trim & BWTS

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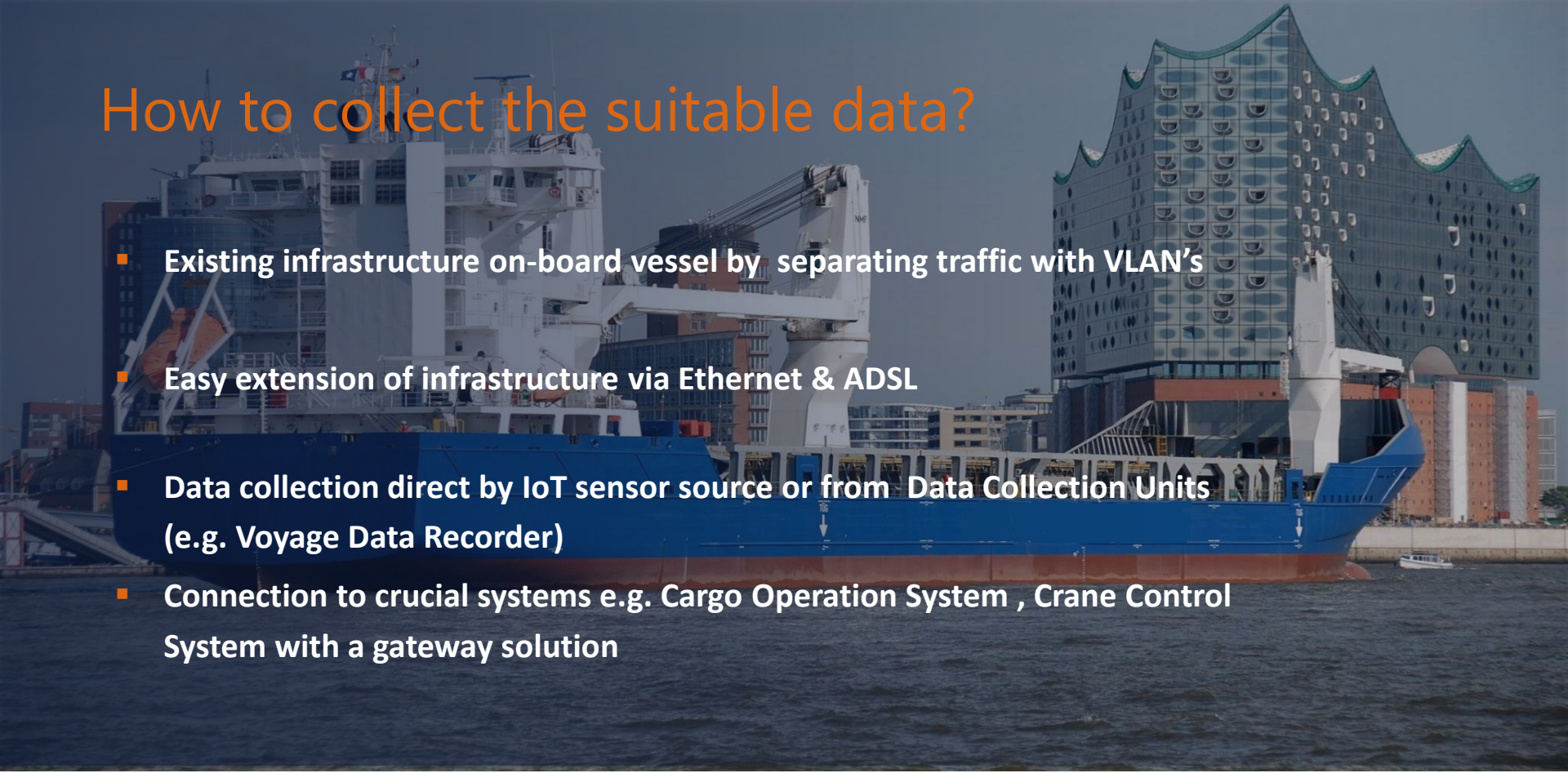
How to collect the suitable data?



- Existing infrastructure on-board vessel by separating traffic with VLAN's
- Easy extension of infrastructure via Ethernet & ADSL
- Data collection direct by IoT sensor source or from Data Collection Units (e.g. Voyage Data Recorder)
- Connection to crucial systems e.g. Cargo Operation System , Crane Control System with a gateway solution

Is old equipment compatible?

- Data interfaces (e.g. Ethernet converter)
- Data interpreter for many types of data are available
  - Modbus
  - CAN-Bus
  - NMEA
- Free scalable as per your demands

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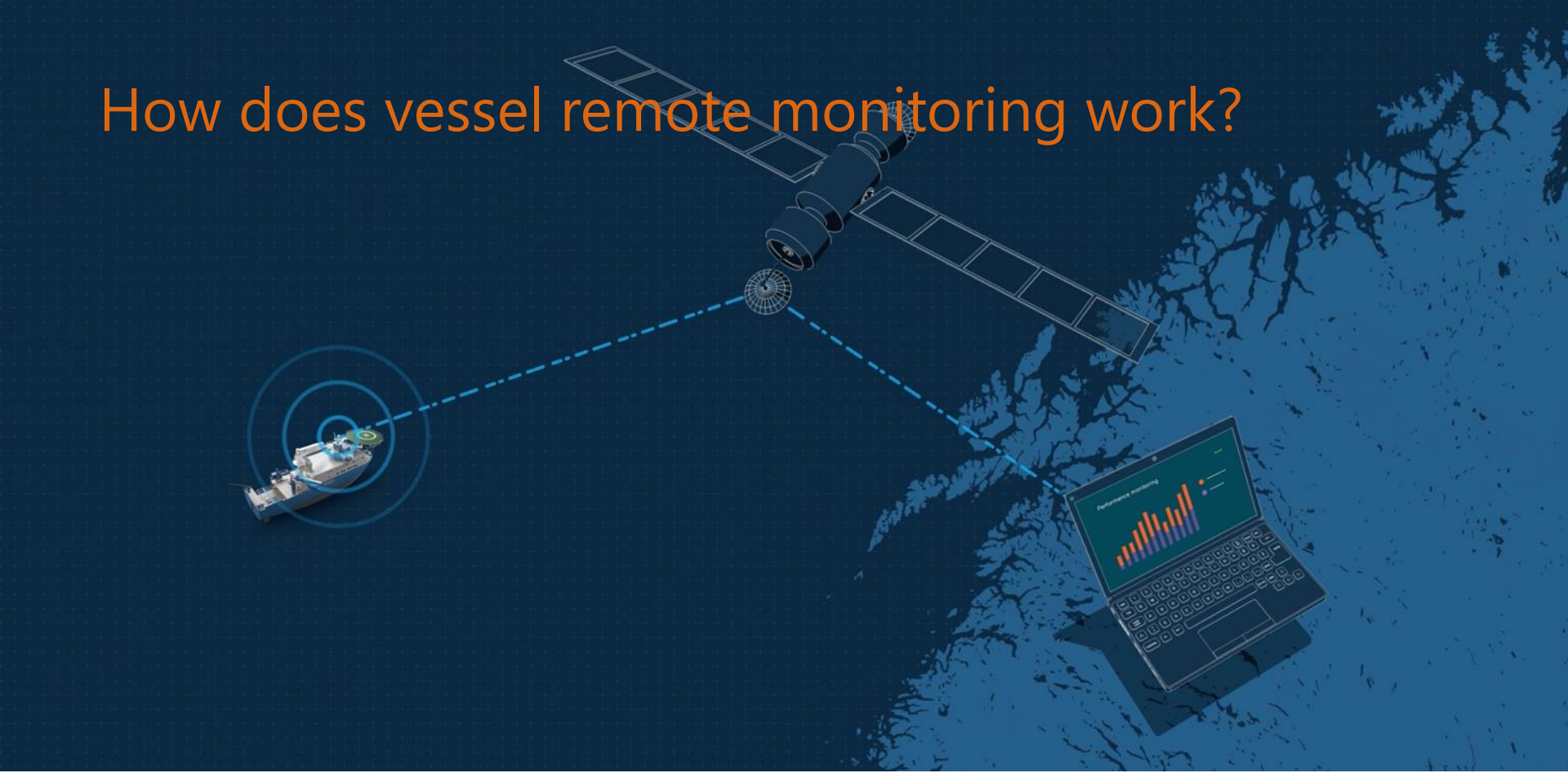
How does vessel remote monitoring work?



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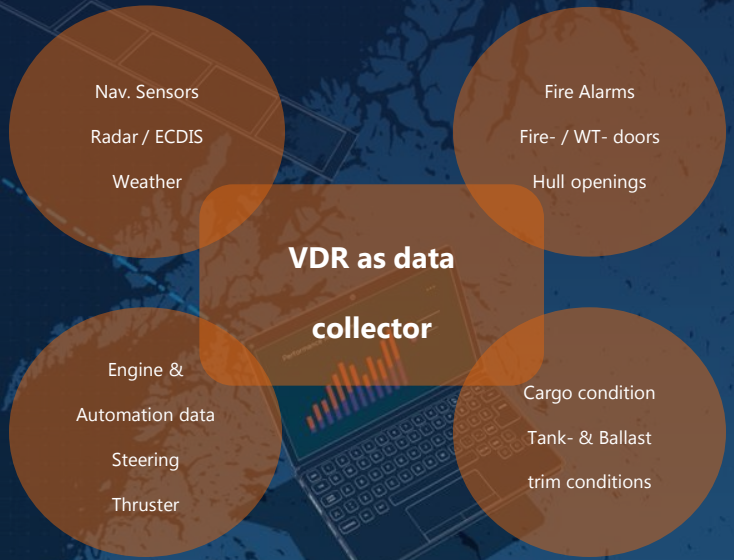
1. Collect

- **IoT infrastructure on-board vessel by vessel remote server unit**
- **Data collection from source (e.g. VDR or cargo operation systems)**
- **Collection interpreter / data converter norming data**



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2. Selection

- **The remote server unit collects the data via network. Nomination as per configuration can be modified remotely.**
- **“Unlimited” sample points are possible from software.**

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3. Pre-Procession

- **Data is pre-processed on board in the Vessel Remote Server unit (VRS) to data reports.**

- **Each data transfer => 25 KB in order to establish a secure connection.**
- **Each data channel tag with 5 minute sampling => 3 KB per 24 hour sampling in compressed format.**
- **Example: 200 data channel tags transferred 2 times per day**

= 200 x 3 KB + 2 x 25 KB = <u>650 KB</u>

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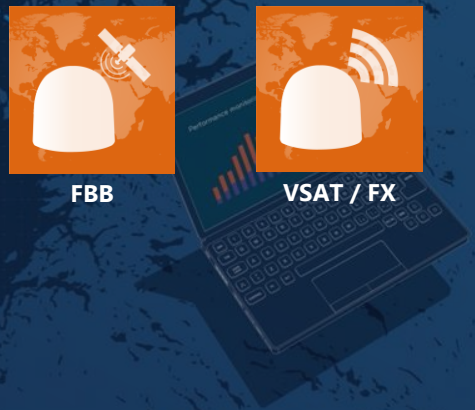
4. Transfer to shore

- **The Vessel Remote Severs (VRS) is connected to the ship's communication network (VSAT; Fleet Broadband, etc.) and reports are transferred at fixed intervals (user defined) or manually.**



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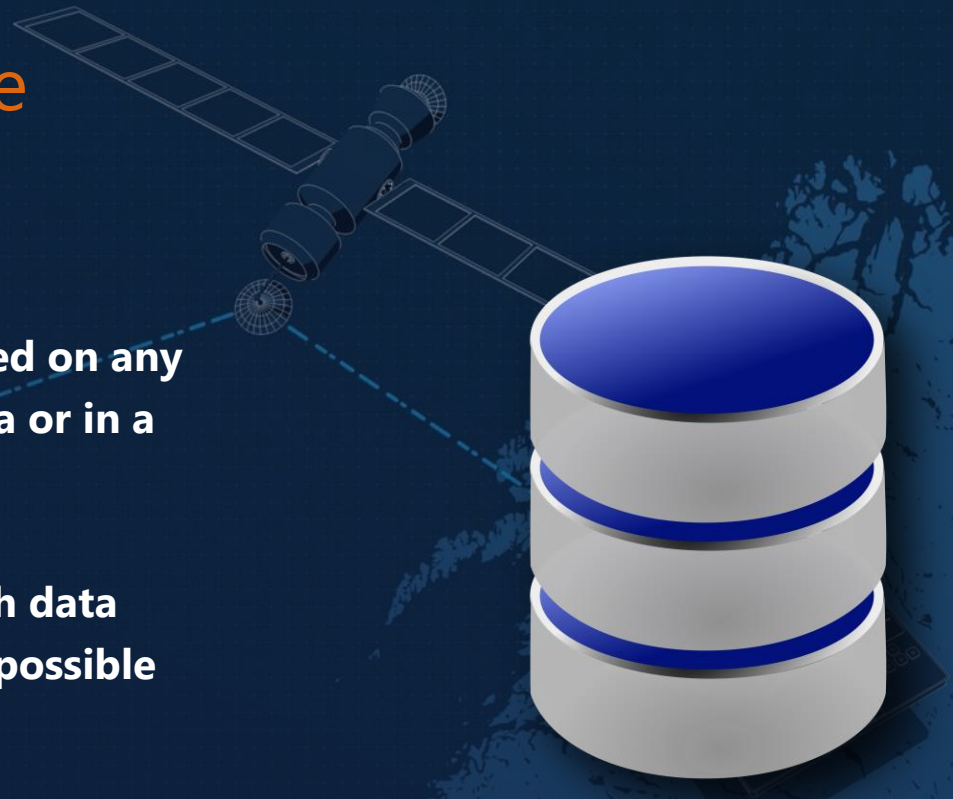
5. Shore database

- **Data reports can be stored on any server either in plain data or in a database in SQL-format**
- **Cloud-based storage with data quality check on receipt possible**



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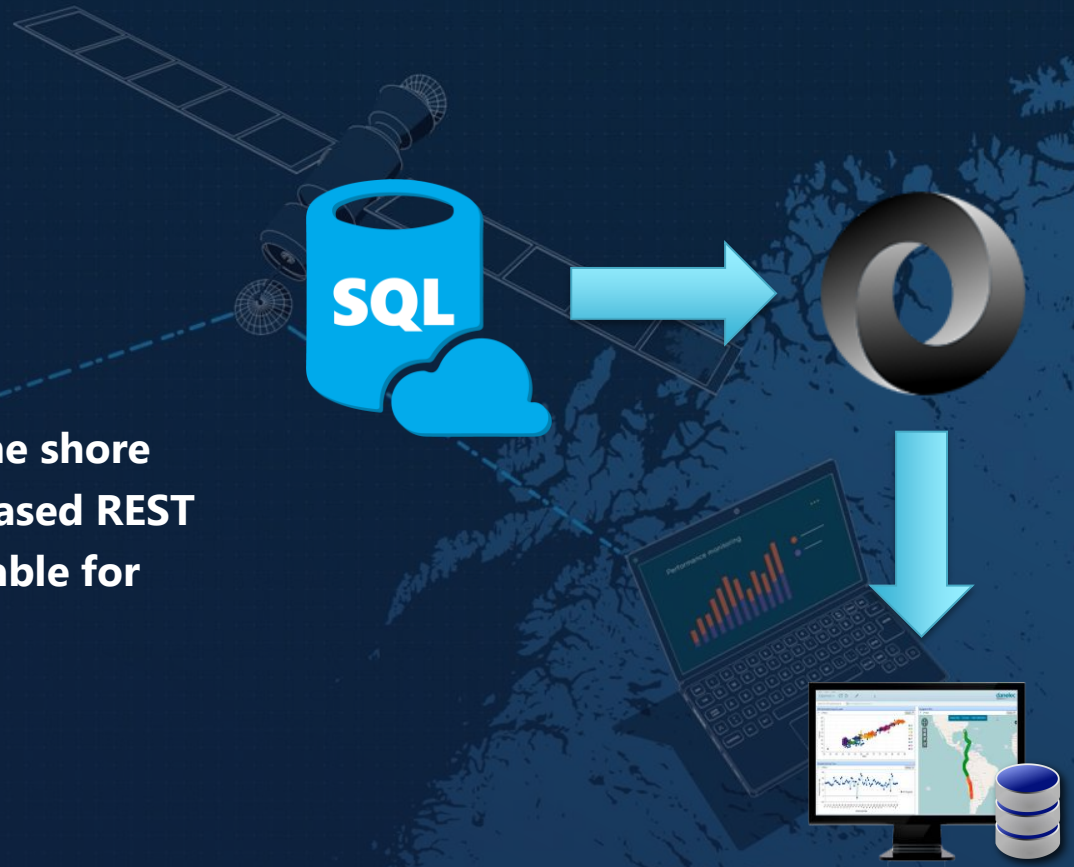
6. Extraction

- **Data is extracted from the shore data server via an API (based REST JSON) and is made available for analytic software**



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7. Analytics

- **Data can be analysed either by own applications or third party applications or companies.**

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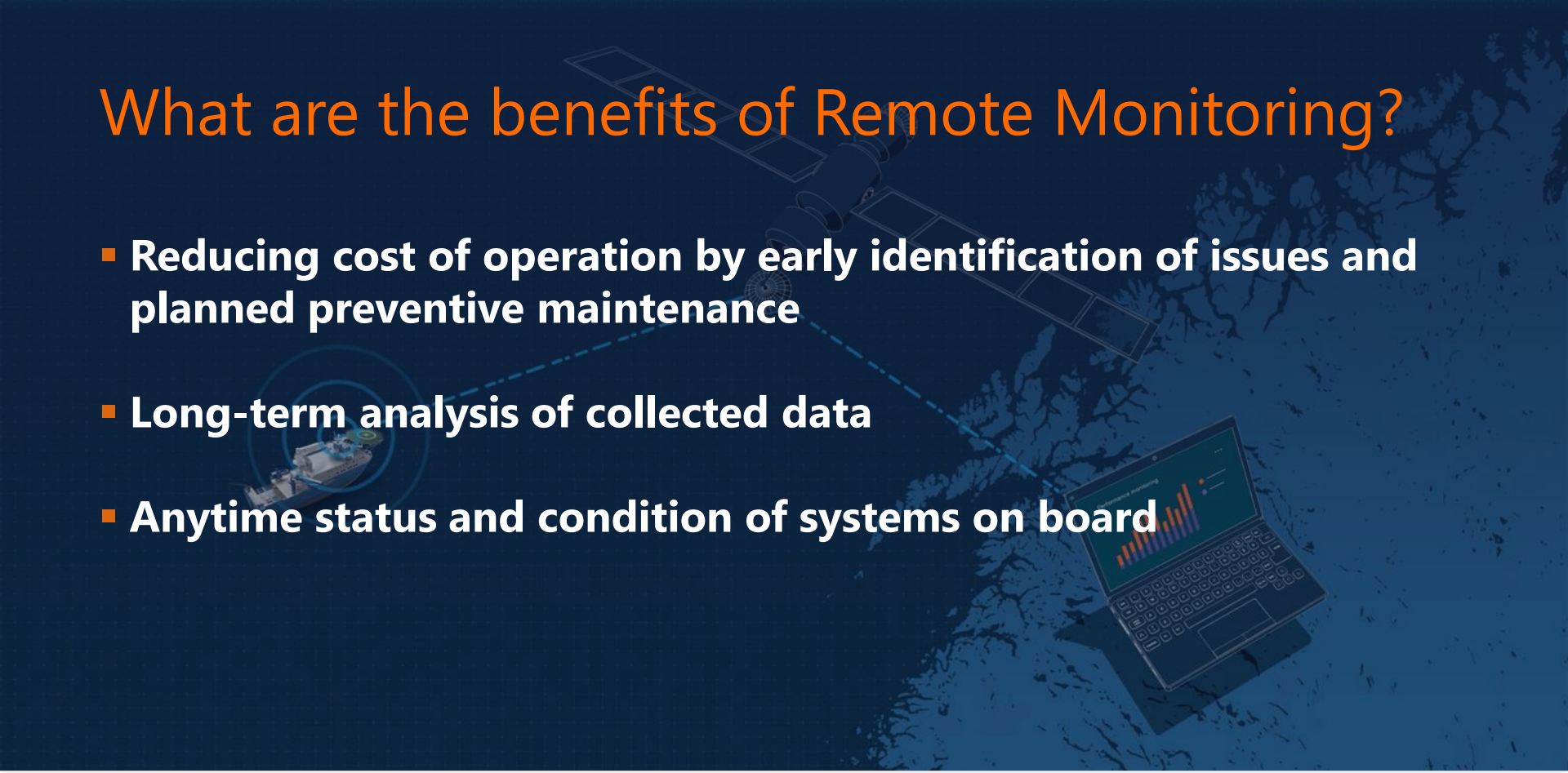
What are the benefits of Remote Monitoring?

- **Reducing cost of operation by early identification of issues and planned preventive maintenance**
- **Long-term analysis of collected data**
- **Anytime status and condition of systems on board**



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Remote Support?

- How many times do you have a navigational alert on your systems?
- How many times are these alerts critical?
- How much time is spent on board for these alerts?
- How much time are you spending to identify the reason?

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Remote Support!

- **Faster response time on spot service**
- **Lower cost of ownership, lower maintenance cost**
- **Increasing uptime of crucial equipment**

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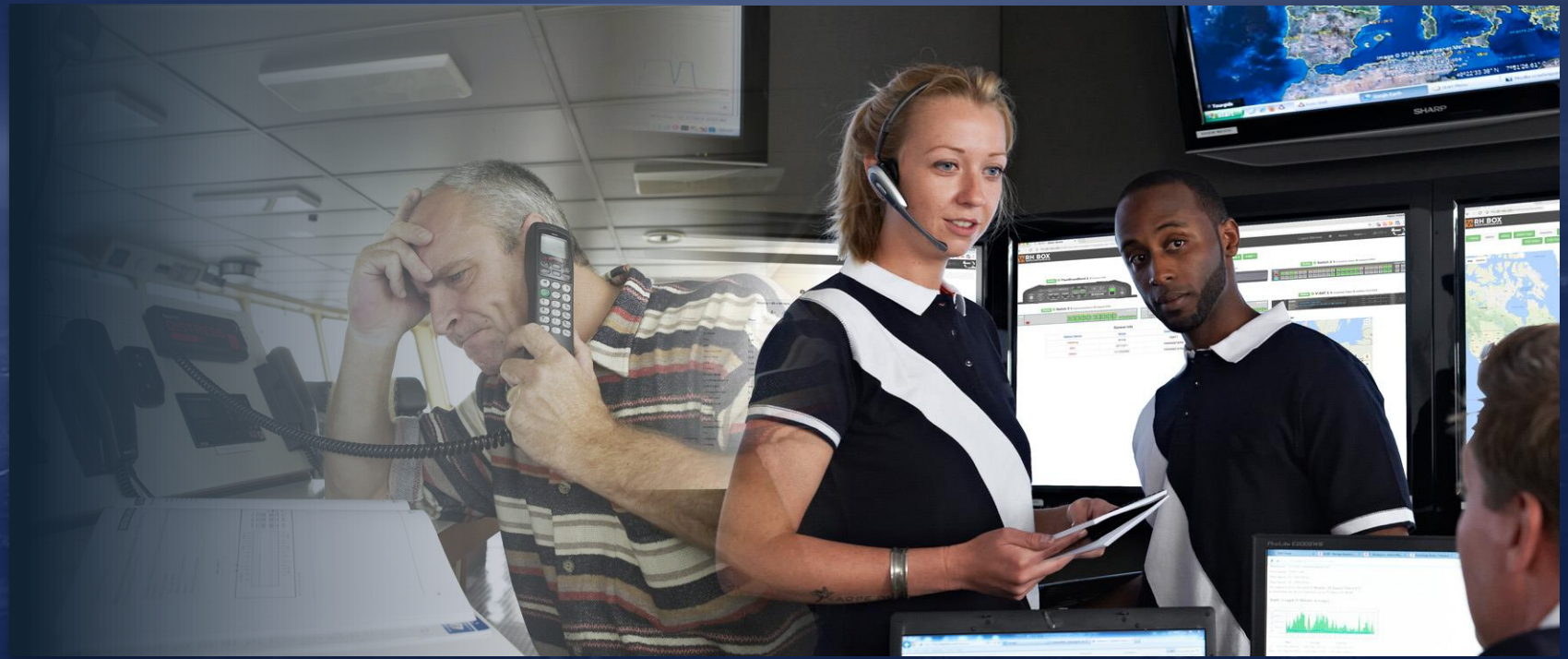
The future of service business



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Remote Support with Radio Holland!

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RH Remote Support Box

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Systems we already cover for Remote Support

- Natical Equipment (e.g. Radar, ECDIS)
- GMDSS / SatCom
- Voyage Data Recorder Systems
- ICT on board (e.g. Servers)
- Ballast Water Treatment Systems

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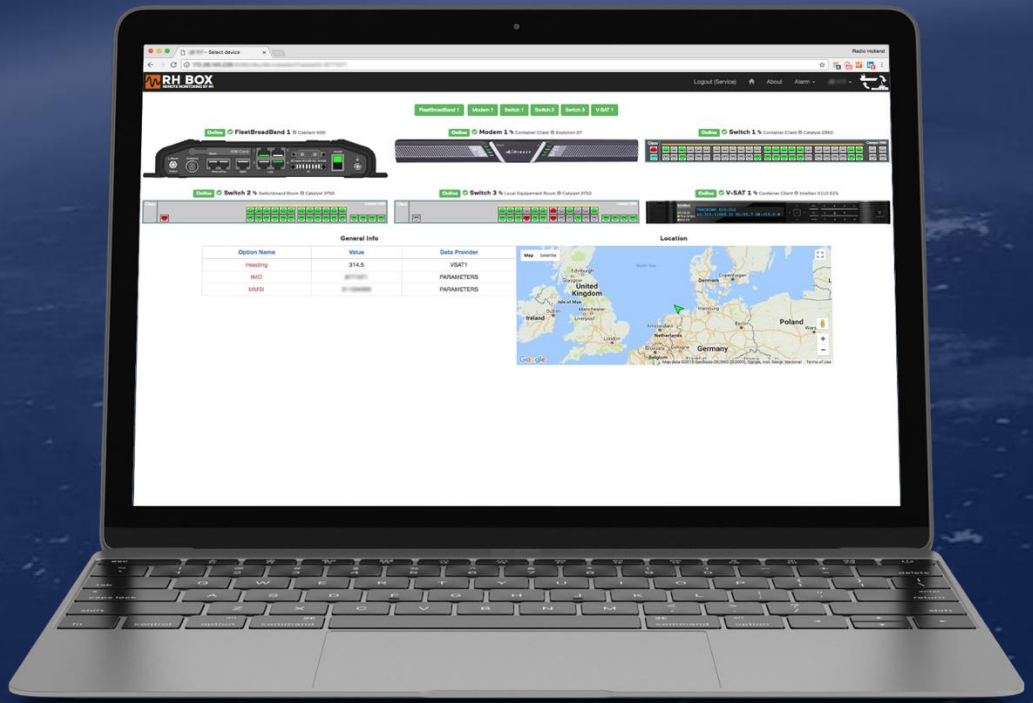
Remote Support



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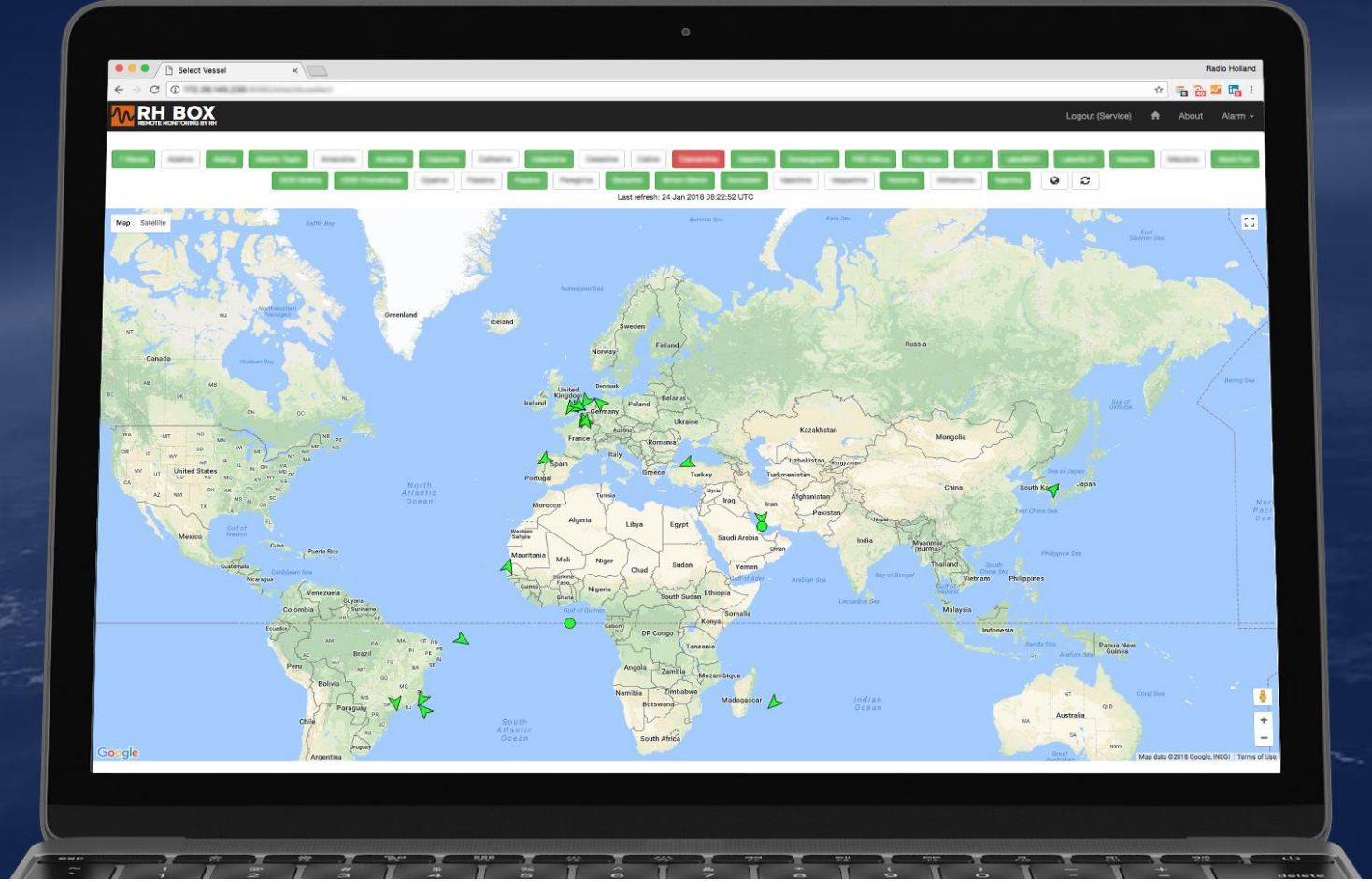

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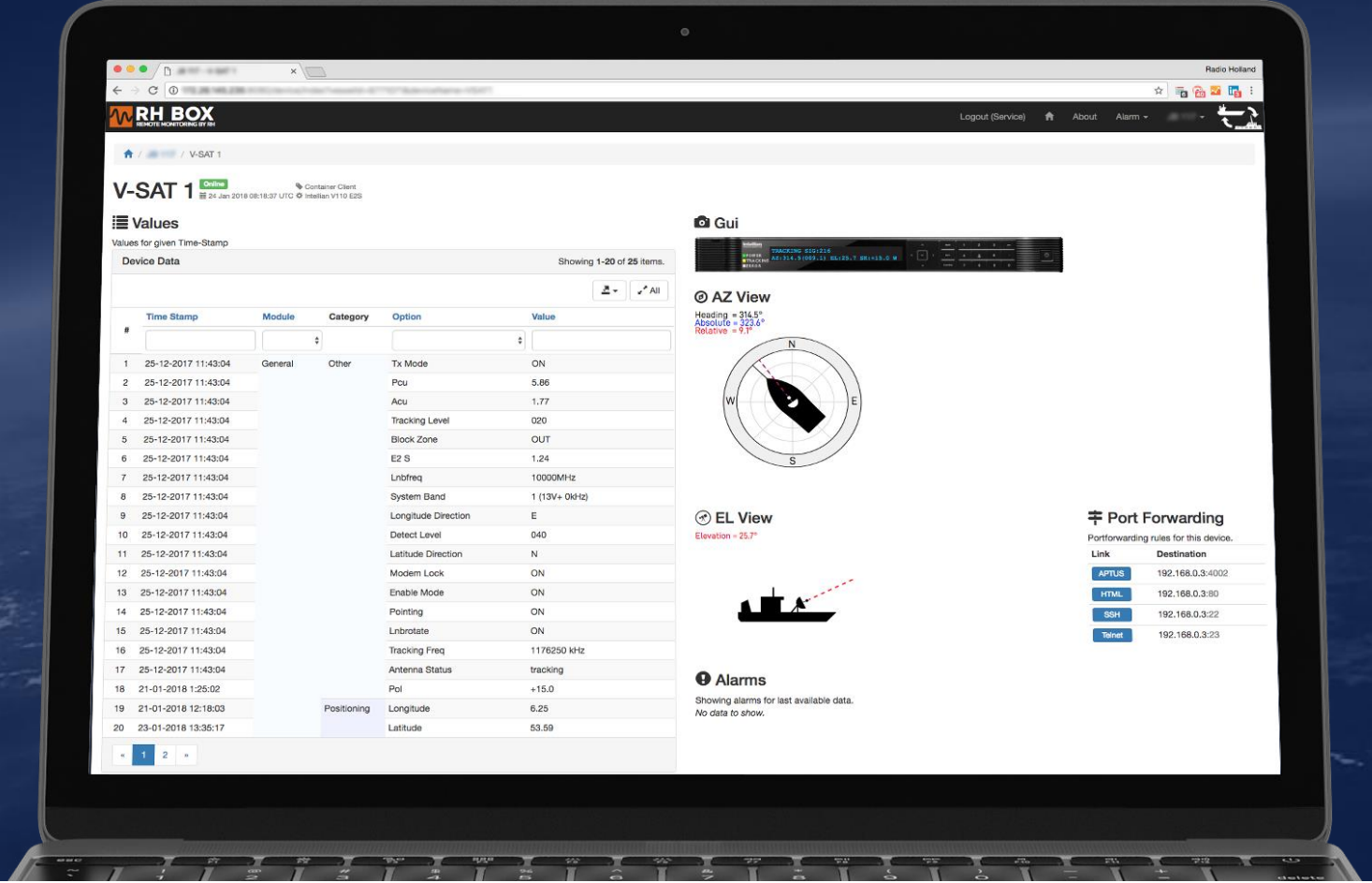
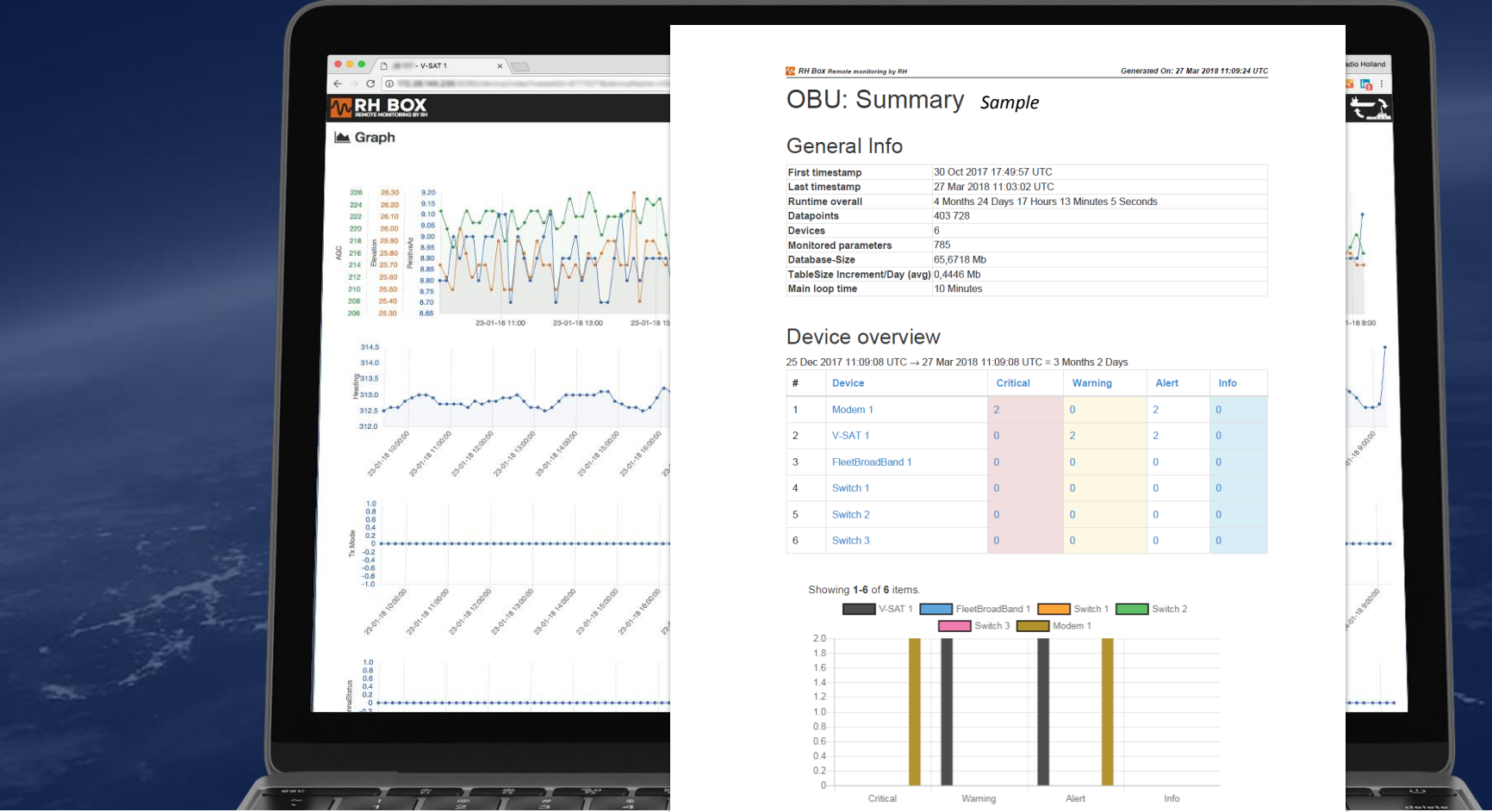

Radio Holland
RH BOX
REMOTE MONITORING BY RH
Logout (Service)
About
Alarm
V-SAT 1
V-SAT 1
Online
Container Client
24 Jan 2018 08:18:37 UTC
Intellian V110 E2S
Values
Values for given Time-Stamp
Device Data
Showing 1-20 of 25 items.
All
| Time Stamp | Module | Category | Option | Value
1 | 25-12-2017 11:43:04 | General | Other | Tx Mode | ON
2 | 25-12-2017 11:43:04 | | | Pcu | 5.86
3 | 25-12-2017 11:43:04 | | | Acu | 1.77
4 | 25-12-2017 11:43:04 | | | Tracking Level | 020
5 | 25-12-2017 11:43:04 | | | Block Zone | OUT
6 | 25-12-2017 11:43:04 | | | E2 S | 1.24
7 | 25-12-2017 11:43:04 | | | Lnbfreq | 10000MHz
8 | 25-12-2017 11:43:04 | | | System Band | 1 (13V+ 0kHz)
9 | 25-12-2017 11:43:04 | | | Longitude Direction | E
10 | 25-12-2017 11:43:04 | | | Detect Level | 040
11 | 25-12-2017 11:43:04 | | | Latitude Direction | N
12 | 25-12-2017 11:43:04 | | | Modem Lock | ON
13 | 25-12-2017 11:43:04 | | | Enable Mode | ON
14 | 25-12-2017 11:43:04 | | | Pointing | ON
15 | 25-12-2017 11:43:04 | | | Lnbrotate | ON
16 | 25-12-2017 11:43:04 | | | Tracking Freq | 1176250 kHz
17 | 25-12-2017 11:43:04 | | | Antenna Status | tracking
18 | 21-01-2018 1:25:02 | | | Pol | +15.0
19 | 21-01-2018 12:18:03 | | Positioning | Longitude | 6.25
20 | 23-01-2018 13:35:17 | | | Latitude | 53.59
« 1 2 »
Gui
AZ View
Heading = 314.5°
Absolute = 323.6°
Relative = 9.1°
N
W
E
S
EL View
Elevation = 25.7°
Alarms
Showing alarms for last available data.
No data to show.
Port Forwarding
Portforwarding rules for this device.
Link | Destination
APTUS | 192.168.0.3:4002
HTML | 192.168.0.3:80
SSH | 192.168.0.3:22
Telnet | 192.168.0.3:23



RH Box Remote monitoring by RH — Generated On: 27 Mar 2018 11:09:24 UTC

OBU: Summary *Sample*

General Info

First timestamp	30 Oct 2017 17:49:57 UTC
Last timestamp	27 Mar 2018 11:03:02 UTC
Runtime overall	4 Months 24 Days 17 Hours 13 Minutes 5 Seconds
Datapoints	403 728
Devices	6
Monitored parameters	785
Database-Size	65,6718 Mb
TableSize Increment/Day (avg)	0,4446 Mb
Main loop time	10 Minutes

Device overview

25 Dec 2017 11:09:08 UTC → 27 Mar 2018 11:09:08 UTC = 3 Months 2 Days

#	Device	Critical	Warning	Alert	Info
1	Modem 1	2	0	2	0
2	V-SAT 1	0	2	2	0
3	FleetBroadBand 1	0	0	0	0
4	Switch 1	0	0	0	0
5	Switch 2	0	0	0	0
6	Switch 3	0	0	0	0

Showing **1-6** of **6** items.

Remote Monitoring & Support:

What are your worries?

Summary

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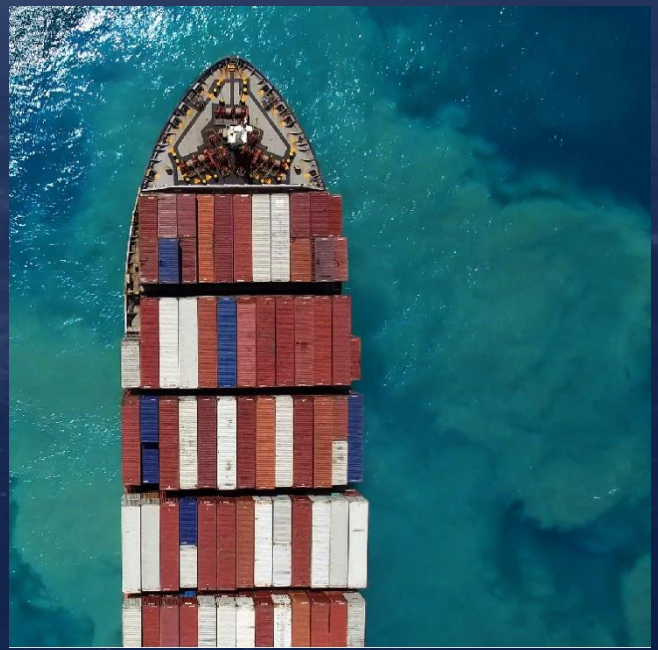
SMART SOLUTIONS

RADIO HOLLAND SERVICE AGREEMENTS

- **Predict your costs**
- **Reduce your admin**
- **Streamline operations**
- **Know that your crew and vessel is safe and compliant**
- **Reduce your total cost of ownership**



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SMART SOLUTIONS

RADIO HOLLAND SERVICE AGREEMENTS

Managed Service Agreement

Fully outsource your NavCom Equipment maintenance to our experts

Preventive Mandatory Agreement

Keeps your vessel's NavCom compliant at all times

Service Rate Agreement

Manage your service and maintenance costs with pre-agreed global rates

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SMART SOLUTIONS
RADIO HOLLAND remote monitoring & support

- **Big Data and transparency will be key for insurance, vetting etc.**
- **Track and trace of cargo, vessels and performance**
- **IoT had an influence in logistics and will impact shipping in future**
- **Effective Monitoring allows long term analysis and founded decisions**
- **Effective Remote Support reduces time on board and travel time**

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Questions?

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