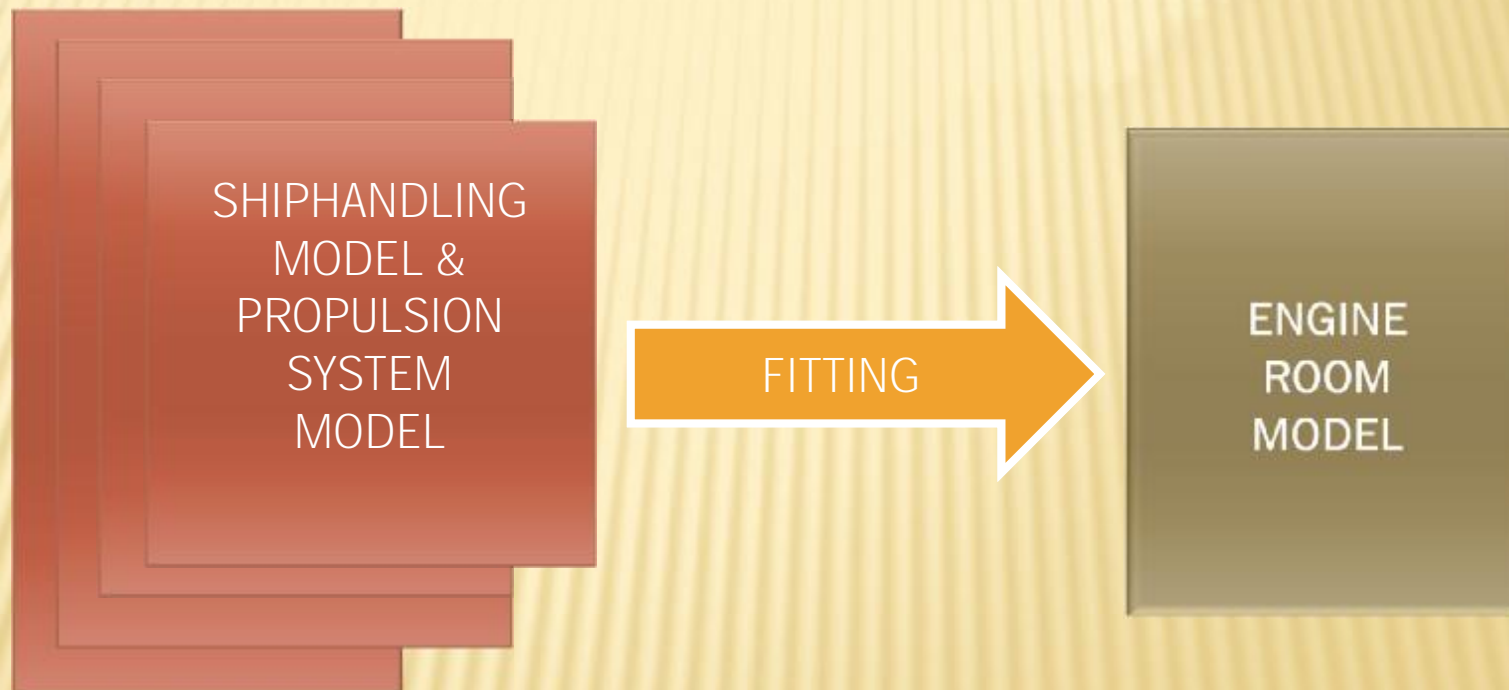


Vasco Da Gama Meeting Brussels, 20th April 2015

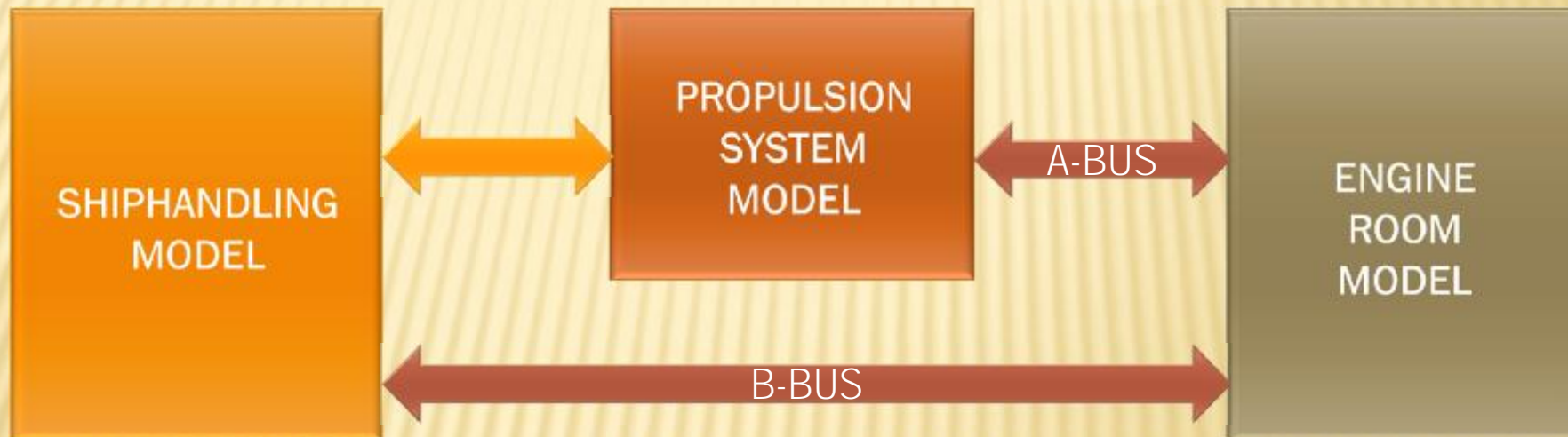
THE MAIN CHALLENGES IN DEVELOPING THE STANDARDS OF THE SIMULATOR COMMUNICATION

Dr. Stefan KLUJ – Vice President

MODEL FITTING



MODEL ENCAPSULATION



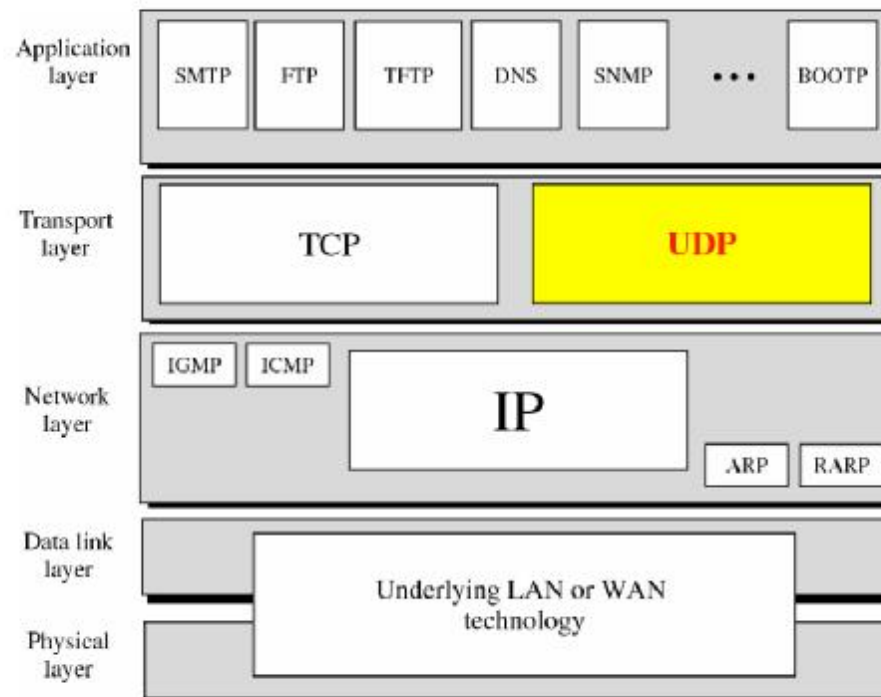
COMMUNICATION STANDARDS

- Several protocols can be considered (UDP, CANBUS, ISO 11783, NMEA 2000).
- However, User Datagram Protocol (UDP) is recommended, because it is cheap, easy to use and flexible (see example).

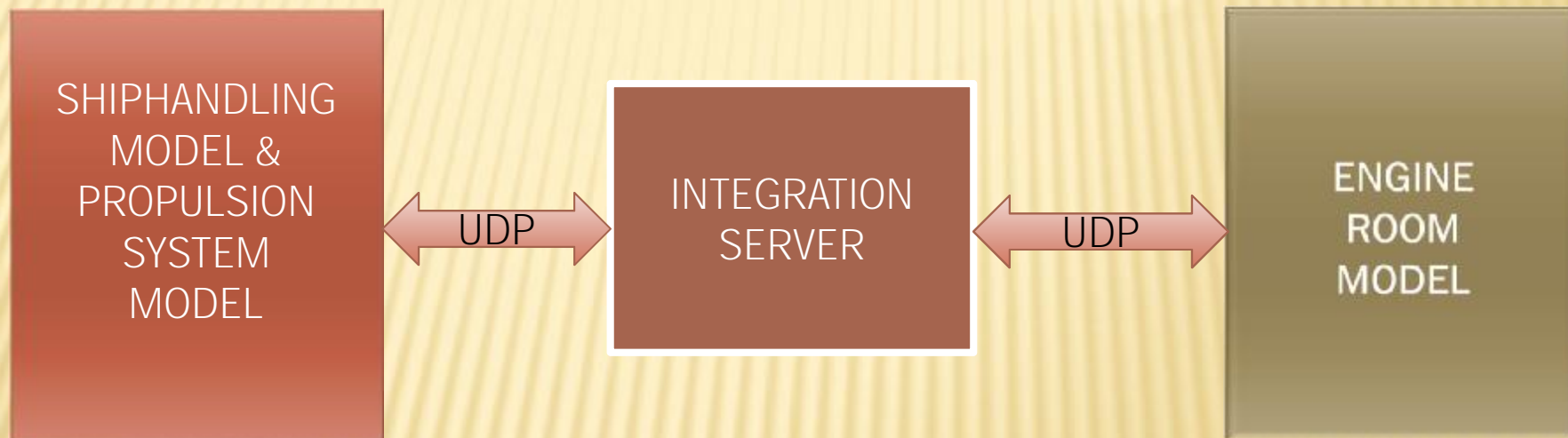
```
"R ERS_SG_ANGLE 0.000000;R ERS_SG_PUMP1_FAILURE 0.000000;R ERS_SG_PUMP2_FAILURE 0.000000;R ERS_SG_PUMP1_RUNNING 1.000000;R ERS_SG_PUMP2_RUNNING 1.000000;R ERS_POWER_SUPPLY 1.000000;R ERS_BRIDGE_CONTROL 1.000000;R ERS_ME_RUNNING 0.000000;R ERS_ME_EM_STOP_BRIDGE 0.000000;R ERS_ME_NOT_READY 0.000000;R ERS_ME_ST_AIR_PRESS 2.793000;R ERS_PITCH 0.000000;R ERS_RPM 0.000000;R ERS_BOW_THR_REQUEST 0.000000;R ERS_BOW_THR_REQ_GR 0.000000;R ERS_BOW_THR_READY 0.000000;R ERS_BOW_THR_POWER 0.000000;"
```

WHY UDP?

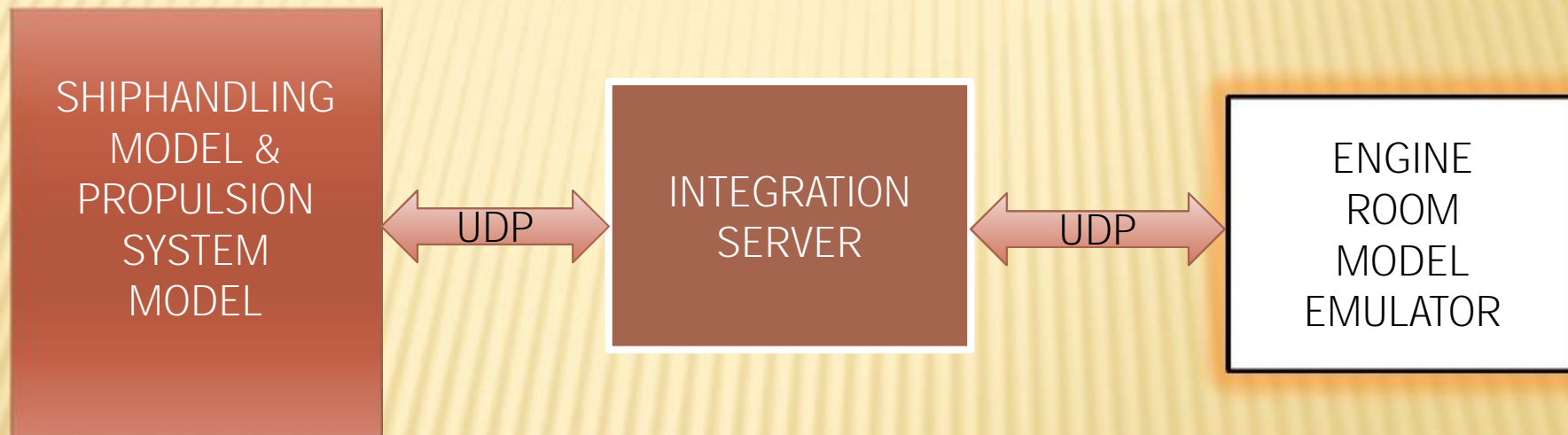
Position of UDP in the TCP/IP protocol suite 11-2



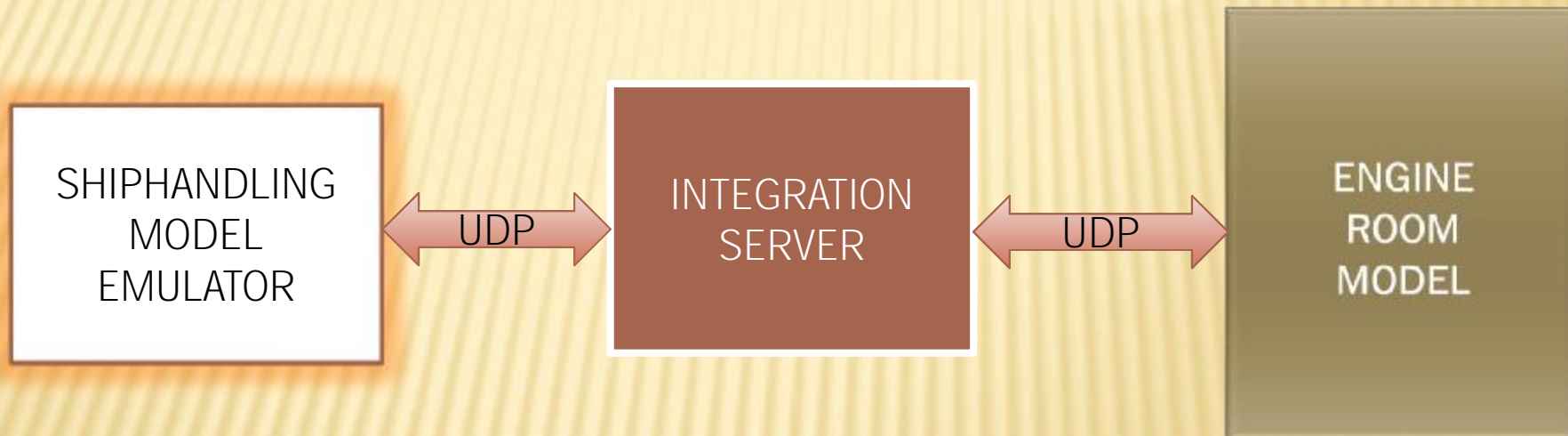
SERVER IN THE MIDDLE



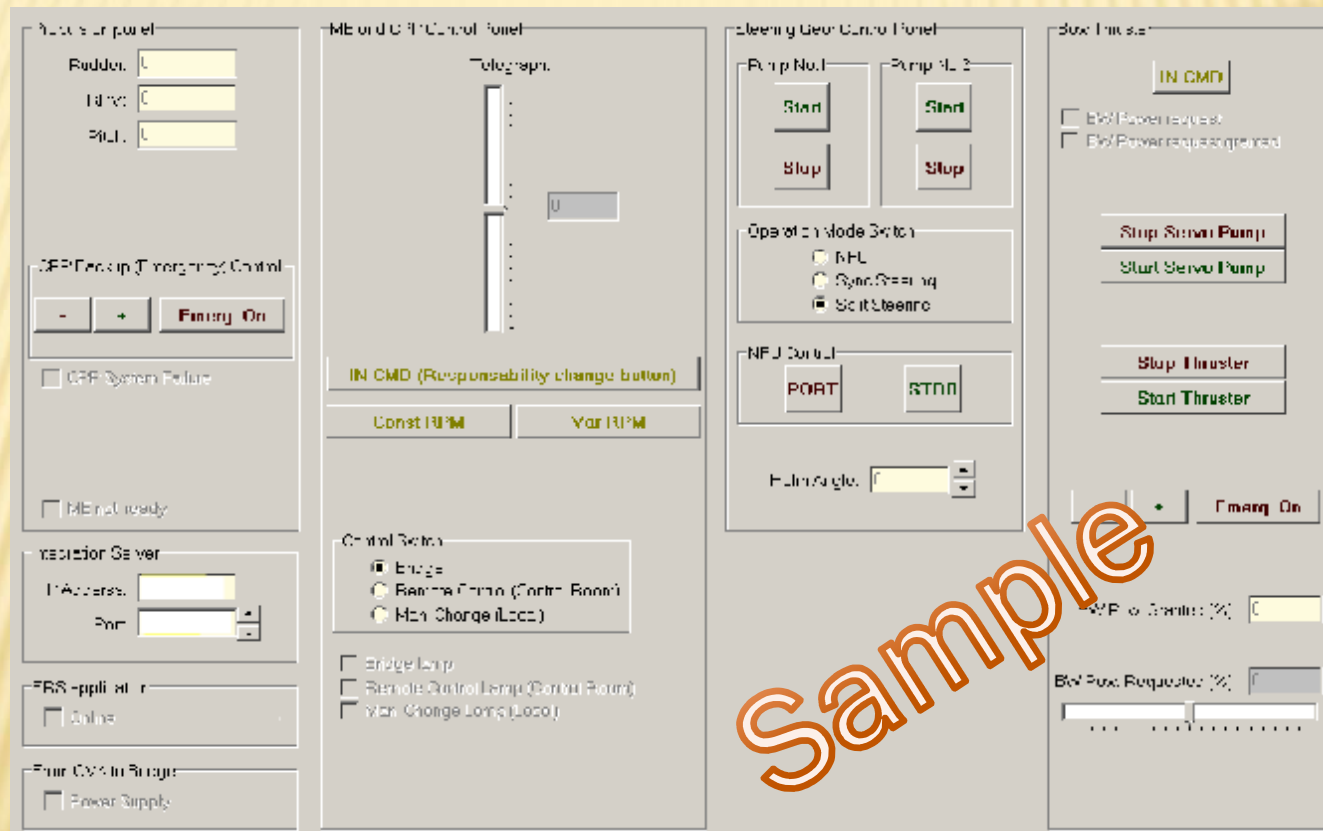
SERVER IN THE MIDDLE



SERVER IN THE MIDDLE



SHIPHANDLING EMULATOR EXAMPLE



DIFFERENT SHIPS – DIFFERENT DATA



Vasco Da Gama WP2 Core Group Meeting, Brussels, 20.04.2015

DIFFERENT SHIPS – DIFFERENT DATA



Vasco Da Gama WP2 Core Group Meeting, Brussels, 20.04.2015

DIFFERENT SHIPS – DIFFERENT DATA



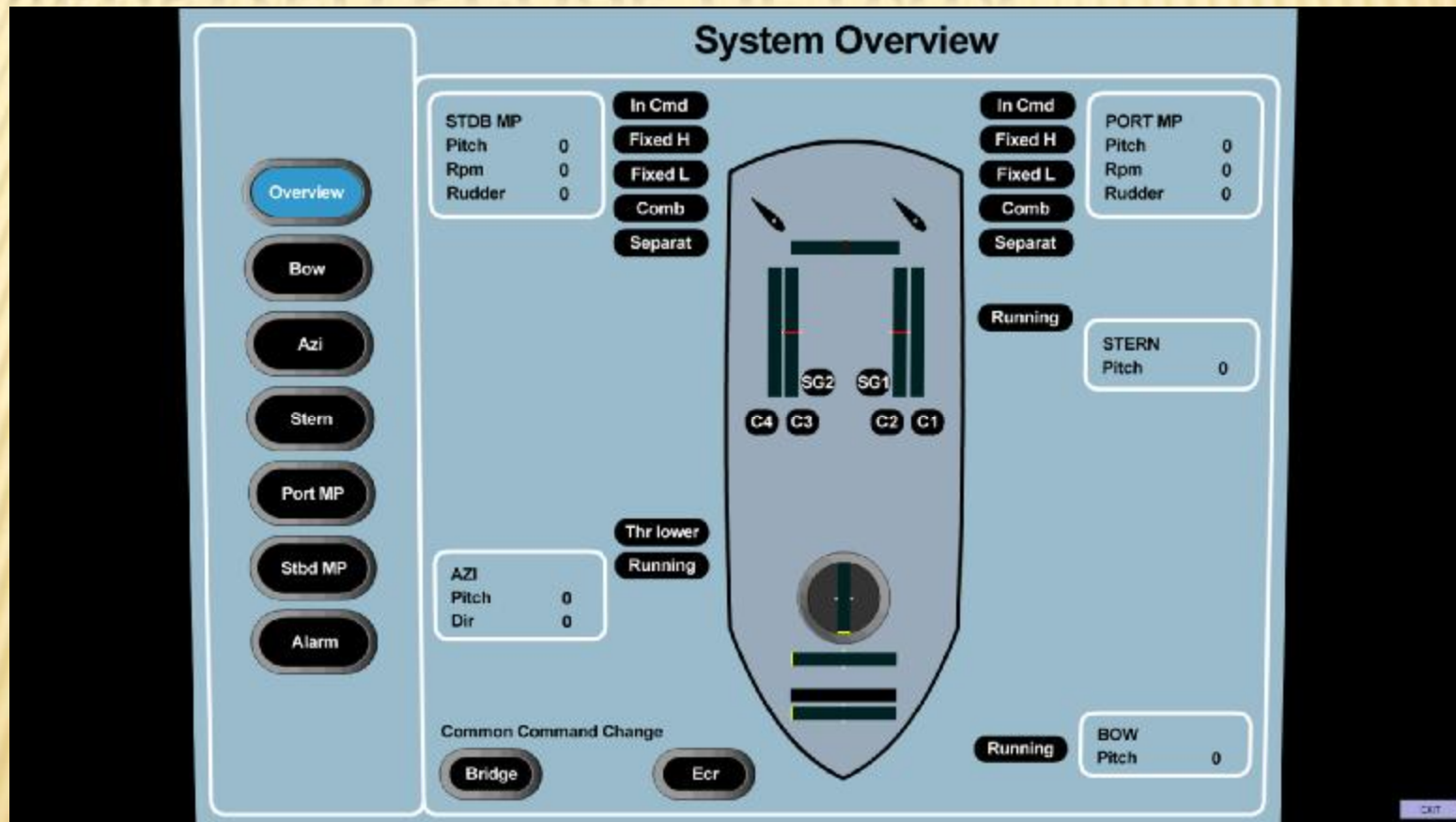
Vasco Da Gama WP2 Core Group Meeting, Brussels, 20.04.2015

DIFFERENT SHIPS – DIFFERENT DATA



Vasco Da Gama WP2 Core Group Meeting, Brussels, 20.04.2015

OVERSIZED SCOPE OF DATA



Vasco Da Gama WP2 Core Group Meeting, Brussels, 20.04.2015

OVERSIZED SCOPE OF DATA

Variable	Range	Description	Medium Speed	Low Speed
ERS_SG_ANGLE	-45.0 ... 45.0 [°]	Current rudder angle	X	X
ERS_SG_PUMP1_RUNNING	0, 1	Steering gear Servo pump No.1 running	X	X
ERS_SG_PUMP2_RUNNING	0, 1	Steering gear Servo pump No.2 running	X	X
ERS_POWER_SUPPLY	0, 1	Electrical power supply	X	X
ERS_ME_NOT_READY	0, 1	ME failure		+
		or ME Control not from the Bridge	X	X
		or CPP Pitch not 0		
		or Alarms in CMK not confirmed		
ERS_PITCH	-10.0 ... 10.0 [x10%]	Current Pitch	X	-
ERS_RPM	0.0 ... 158.6 [RPM]	Current Shaft RPM	X	X
ERS_BOW_THR_REQ_GR	0, 1	Bow thruster power request granted	X	X
ERS_BOW_THR_POWER	0 ... 100 [%]	Bow thruster granted power	X	X
ERS_BOW_THR_READY	0, 1	Bow thruster ready for operation	X	X
ERS_BOW_THR_REQUEST	0, 1	Bow thruster power request on		X
ERS_ONLINE	0, 1	ERS application is running	X	X
ERS_CPP_NFU_CONTROL	0, 1	CPP NFU control indicator (Backup pitch control)	X	-
		In Command indicator (Resp. Change)		
ERS_IN_COMMAND	0, 1, 2, 3	0 - light off - not in command		
		1 - slow light blinking - waiting for confirmation	X	-
		2 - fast light blinking - confirmar and waiting for lever		

Sample

ENGINE ROOM DISPLAYS GO TO BRIDGE

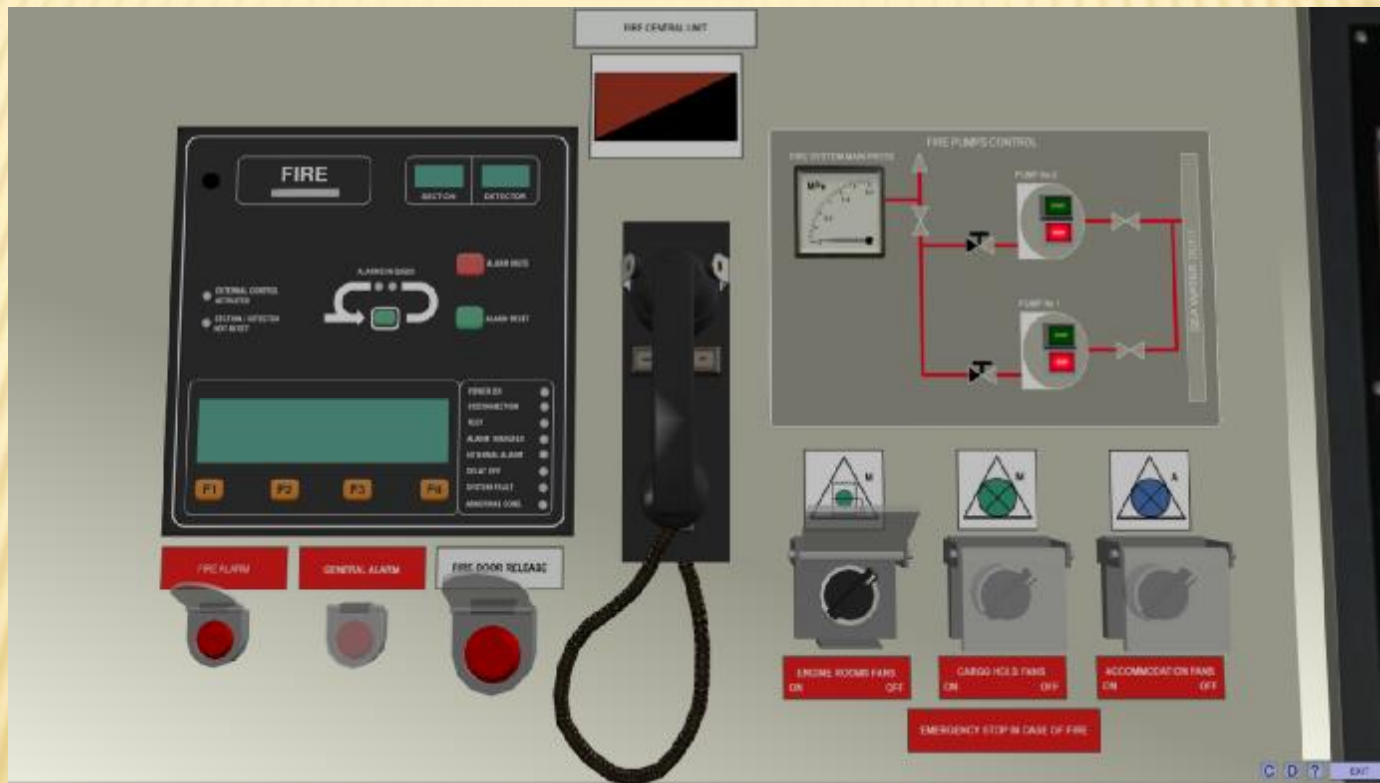
The screenshot displays a software interface for a marine simulator. At the top, there are several menu tabs: ME 4 SB, ME 3 SB, ME Exh. SB, Electrical System, Thrusters, ME Exh. PS, ME 2 PS, ME 1 PS, Propulsion SB, LO System, FO System, Cooling water, Bilge Cargo System, Miscellaneous, UMAS System, and Propulsion PS. A status bar at the top right indicates 'Unattended ECR' and 'Chief on 80 duty'. The main area is dominated by an 'Alarmlog' window with the following table:

Alarmlog Date	Time	REFERENCE	LONG DESCRIPTION	SHORT DESCRIPTION
13/04/2015	15:44:04	ME 4	Oil Misc. Detector Failure	Confirmed
13/04/2015	15:44:04	ME 3	Oil Misc. Detector Failure	Confirmed
13/04/2015	15:44:04	ME 2	Oil Misc. Detector Failure	Confirmed
13/04/2015	15:44:04	ME 1	Oil Misc. Detector Failure	Confirmed
13/04/2015	15:44:04	FO	Settling Tank Low Level	Confirmed
13/04/2015	15:44:04	ME 2	Interlock	Confirmed
13/04/2015	15:44:04	ME 1	Interlock	Confirmed
13/04/2015	15:44:04	ME 4	Stn Reducion Gear LO Low Press	Confirmed
13/04/2015	15:44:04	ME 4	Interlock	Confirmed
13/04/2015	15:44:04		Hydraphone Low Press	Confirmed
13/04/2015	15:44:04		LO before ME 3 Low Press	Confirmed
13/04/2015	15:44:04		ME 2 SW Low Press	Confirmed
13/04/2015	15:44:04		LO before ME 2 Low Press	Confirmed
13/04/2015	15:44:04		ME 1 SW Low Press	Confirmed
13/04/2015	15:44:04		ME 3 SW Low Press	Confirmed
13/04/2015	15:44:04		LO before ME 1 Low Press	Confirmed
13/04/2015	15:44:04		DD 1 Fuel Oil Low Press	Confirmed
13/04/2015	15:44:04		ME 4 Control Air Low Press	Confirmed
13/04/2015	15:44:04		ME 4 SW Low Press	Confirmed
13/04/2015	15:44:04		ME 2 Control Air Low Press	Confirmed
13/04/2015	15:44:04		ME 3 Control Air Low Press	Confirmed
13/04/2015	15:44:04		ME 1 Control Air Low Press	Confirmed
13/04/2015	15:44:04		ME 4 Starting Air Low Press	Confirmed
13/04/2015	15:44:04		ME 3 Starting Air Low Press	Confirmed
13/04/2015	15:44:04		Stn Reducion Gear LO Low Press	Confirmed
13/04/2015	15:44:04		ME 2 Starting Air Low Press	Confirmed
13/04/2015	15:44:04		ME 2 Interlock	Confirmed
13/04/2015	15:44:04		ME 1 Starting Air Low Press	Confirmed
13/04/2015	15:44:04		Air Receiver 2 Low Press	Confirmed
13/04/2015	15:44:04		Sewery Water Tank no 2 High Level	Confirmed
13/04/2015	15:44:04		ME Sea Water Cooling Low Press	Confirmed
13/04/2015	15:44:04		LO before ME 4 Low Press	Confirmed
13/04/2015	15:44:04		Air Receiver 1 Low Press	Confirmed

At the bottom of the screen, there is a status bar with 'ALARM' and 'YANKS' indicators, and a bottom right corner showing '37:59:55' and '23/10/2011'.

Vasco Da Gama WP2 Core Group Meeting, Brussels, 20.04.2015

ENGINE ROOM DISPLAYS GO TO BRIDGE



Vasco Da Gama WP2 Core Group Meeting, Brussels, 20.04.2015

THANK YOU FOR YOUR ATTENTION

