Gulftainer gears up for phase II emulation testing including KCT

CHESSCON

HOW IT WORKS? WHAT ARE THE STEPS OF EMULATION TESTING?
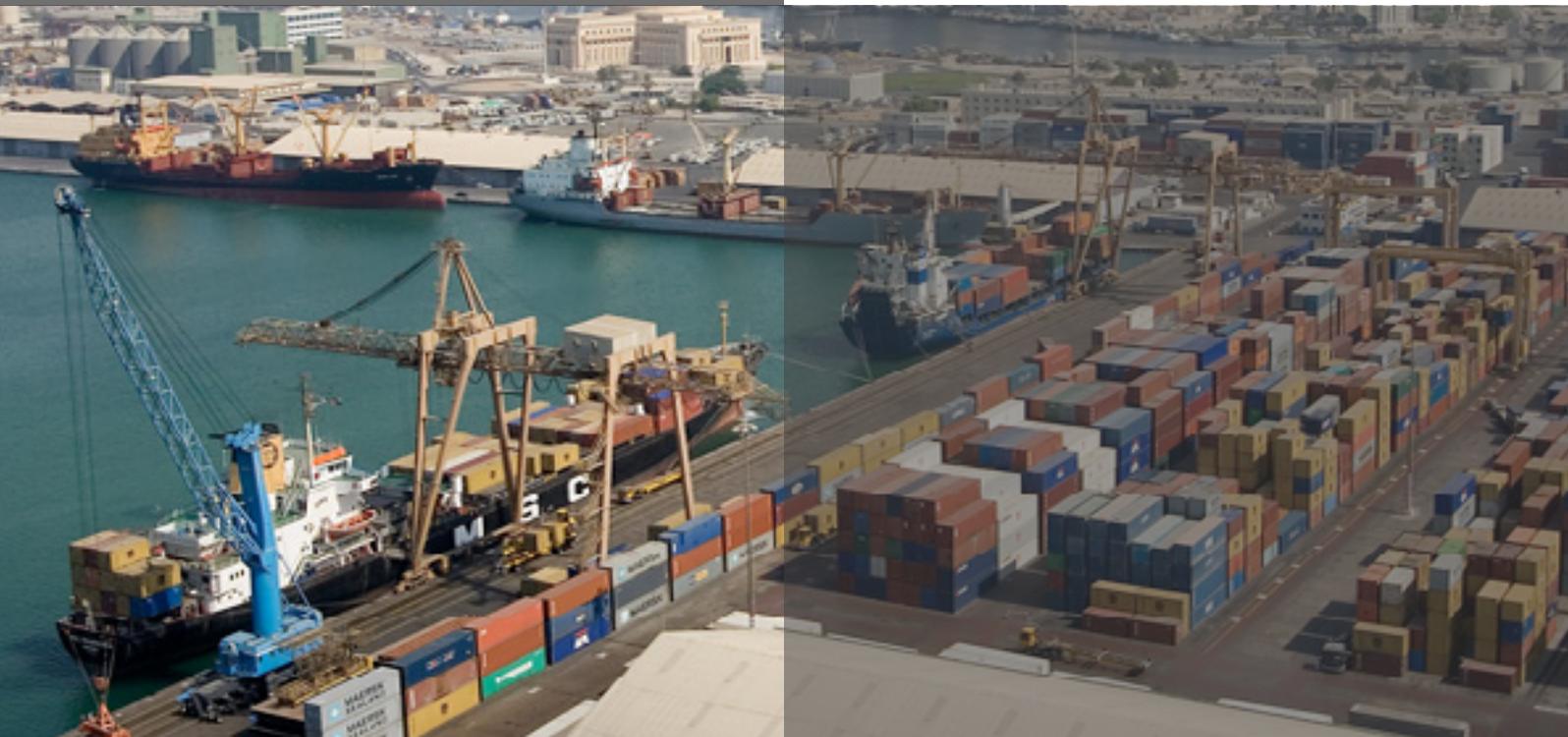
Gulftainer has again decided to use the CHESSCON Virtual Terminal software by akquinet port consulting GmbH for advanced scenario testing.
In October 2016 we have supported the Phase I emulation tests of their new Terminal Operating System by TCS/India.

In such tests our software imitates the physical terminal without interruptions to the on-going operations. It provides a risk-free environment for bug testing as well as for strategic decision-making and training.

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1 TOS interface

An interface from the TOS to our CHESSCON tool needs to be developed. This is usually done by the TOS suppliers themselves with the help of AKQUINET software development kit and it translates messages sent from the TOS to the format of the emulation software and vice versa. We have ready interfaces for Navis Sparcs 3.7 and 4, TSB's CATOS, RBS' TOPX and TCS' MACH and more to come soon.

2 Importing yard layout & technical data

The yard layout needs to be drawn in the CHESSCON terminal editor. This is very simple by drawing a few squares defining stacking areas -or importing them from the TOS- and the roads that trucks and other container handling equipment are allowed to use. And defining the stack height, distance between rows/slots and so forth.

Then the equipment such as Quay cranes, Straddles etc. is added and their technical specification, e.g. type, size, speeds, capacity defined. We have generic equipment simulators, but can also load specific quay crane profiles depending on suppliers and plug in external emulators developed by equipment suppliers themselves.
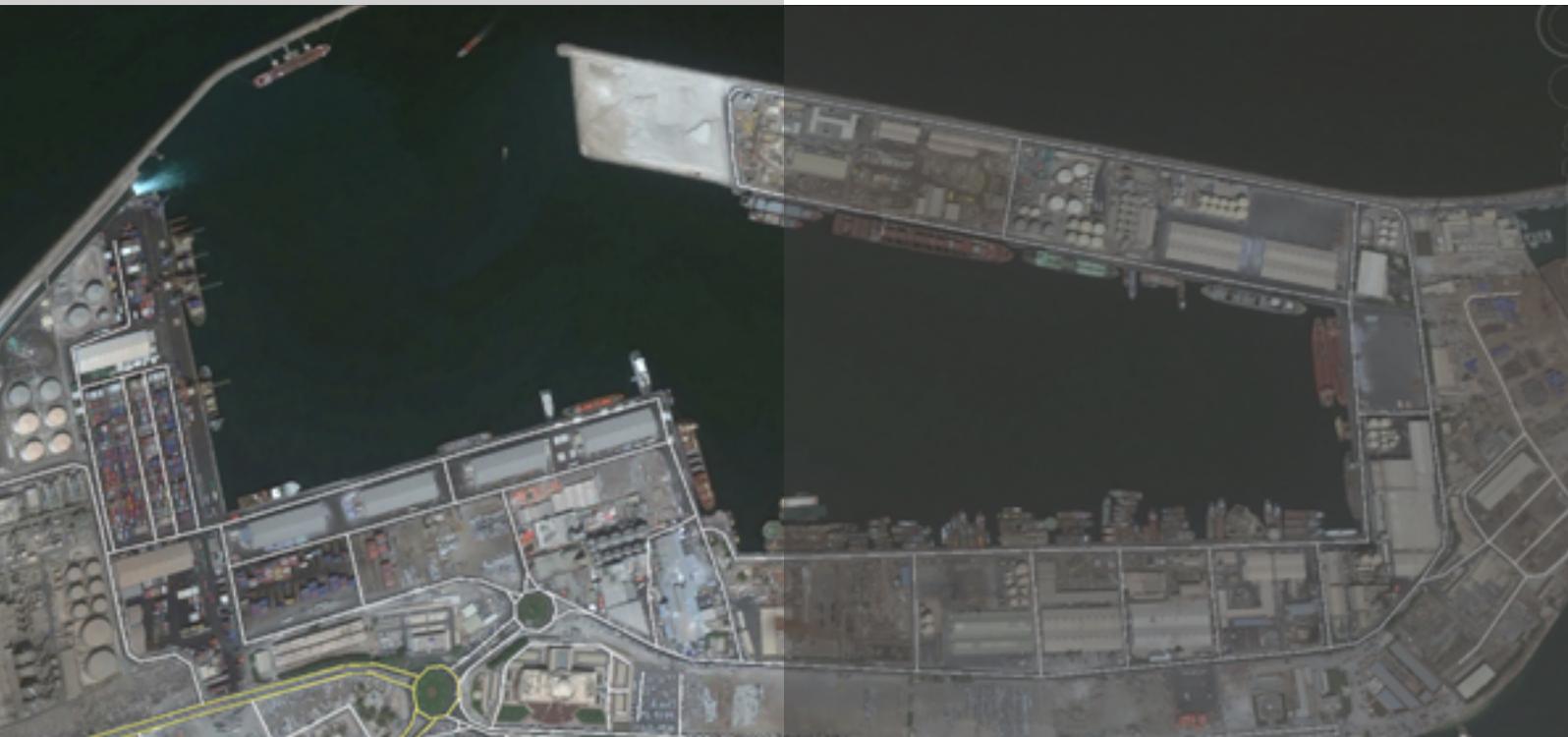
3 Defining Scenario and KPI's

In this step the scenario data will be loaded, this could be either a flat file of historic container movements like a peak day of the previous month or an expected future scenario for stress testing. CHESSCON can also help to generate scenarios from a few input parameters, see example below:

In case of Gulftainer they had developed several test scenarios in Excel files, defining the scenario details, acceptance criteria (KPI's), static work load and shift patterns, vessel workload, gate loads and stack height patterns. All these were used to model the scenario parameters in CHESSCON.

Then the TOS, the interface and the CHESSCON terminal will be installed together. The simulation will generate incoming vessels and trucks at gate and send messages to the TOS for the work orders. The TOS will then allocate slots and equipment and instead of sending these work orders to the real terminal, they are send to the emulation software. It will then calculate the path the equipment needs to take and any waiting time in case of blockage and report back once the task has been completed and logs any error messages, e.g. when a slot has been allocated twice, a container cannot be reached etc. This is valuable information for the TOS developers to detect and rectify bugs in the software before testing on the real terminal.

After the test run the CHESSCON tool offers a comprehensive report on equipment and yard utilization and the measured KPI's can be checked against the given acceptance criteria to decide whether the TOS in conjunction with the given layout, equipment and strategies is able to manage the port operations effectively. The team can then decide to change strategies and re-run the same scenario to see whether performance has improved. It also serves as a valuable tool to train operators on the new TOS to see the impact of their decisions.
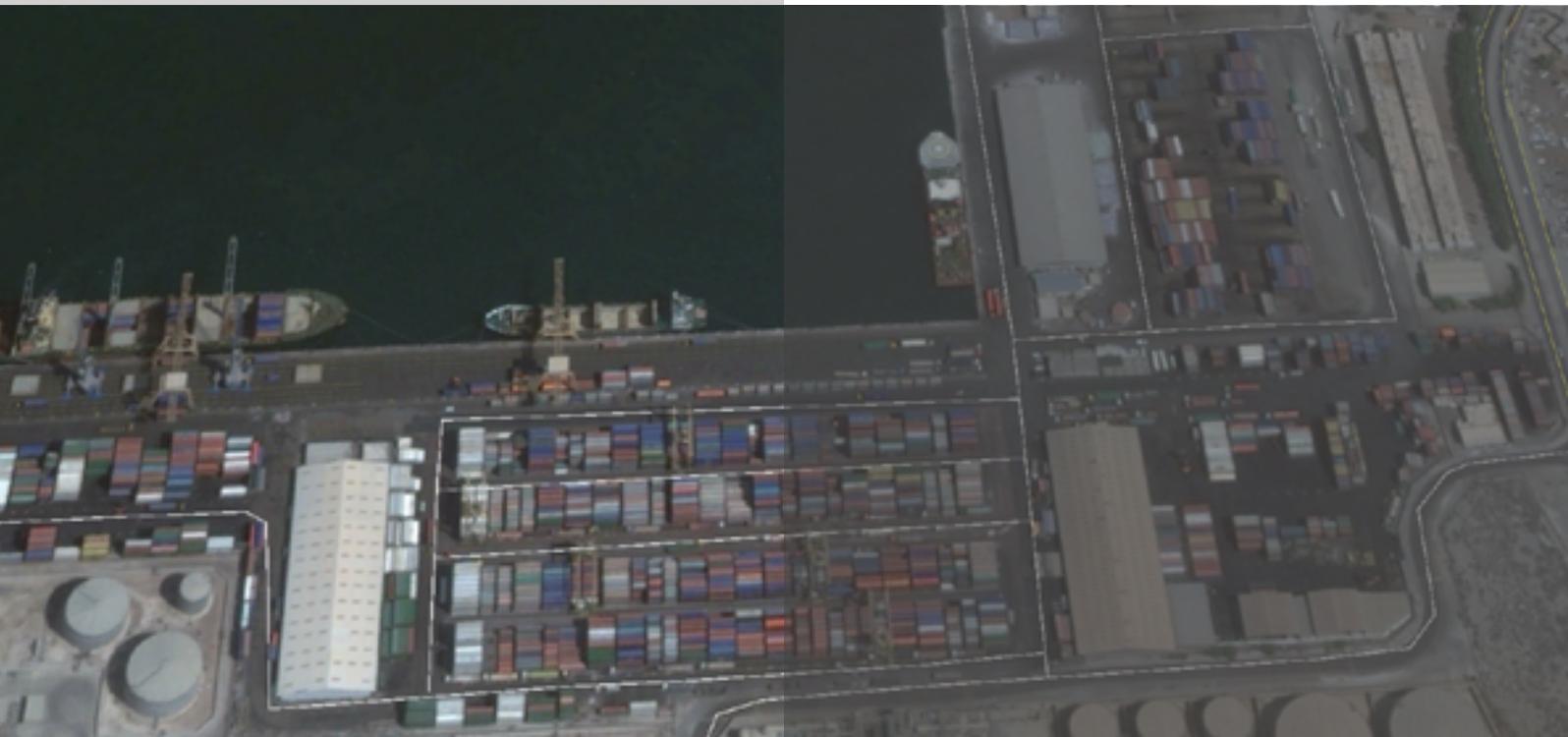
Vinay, anything you want to add here?

Vinay Sharma, Group IT Head, who was supervising the entire project added: "Hence Gulftainer has gained confidence in this testing method and are looking forward to deploy this technology again to test bigger scenarios including their Khorfakkan Container Terminal before implementing the TOS there as well. After the successful implementation, CHESSCON Virtual Terminal can be used for continuous improvement of processes and further raising efficiency and evaluating future capital investments."

For ports that do not have a TOS or supported interface to CHESSCON yet, but nevertheless want to use this technology for process optimization, they can make use of the in-built "Light-TOS" by AKQUINET to evaluate scenarios and improve operational strategies.

CHESSCON

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