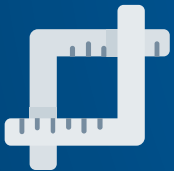


A Port Digital Twin Software: SINGAPort Studio v1.0 and Toolkit

Designer and editor for next-generation analytical
port simulation.

Integrated with PortML.



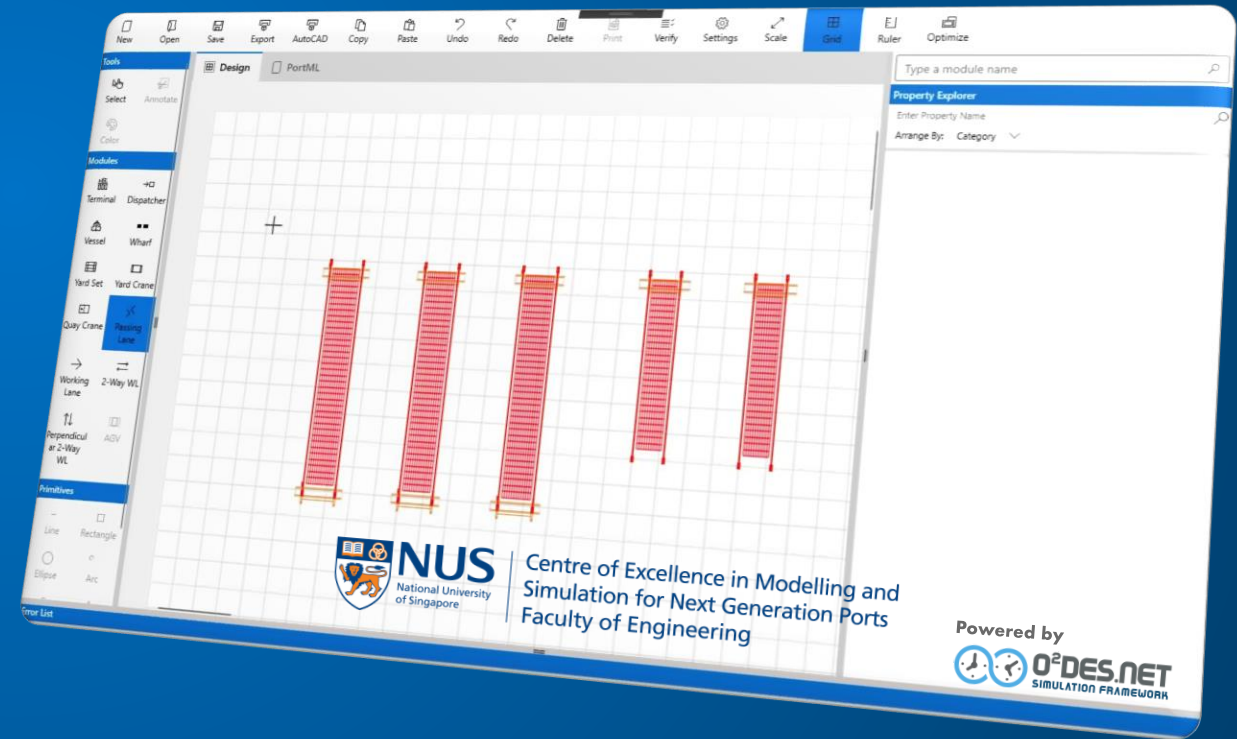
Scalability



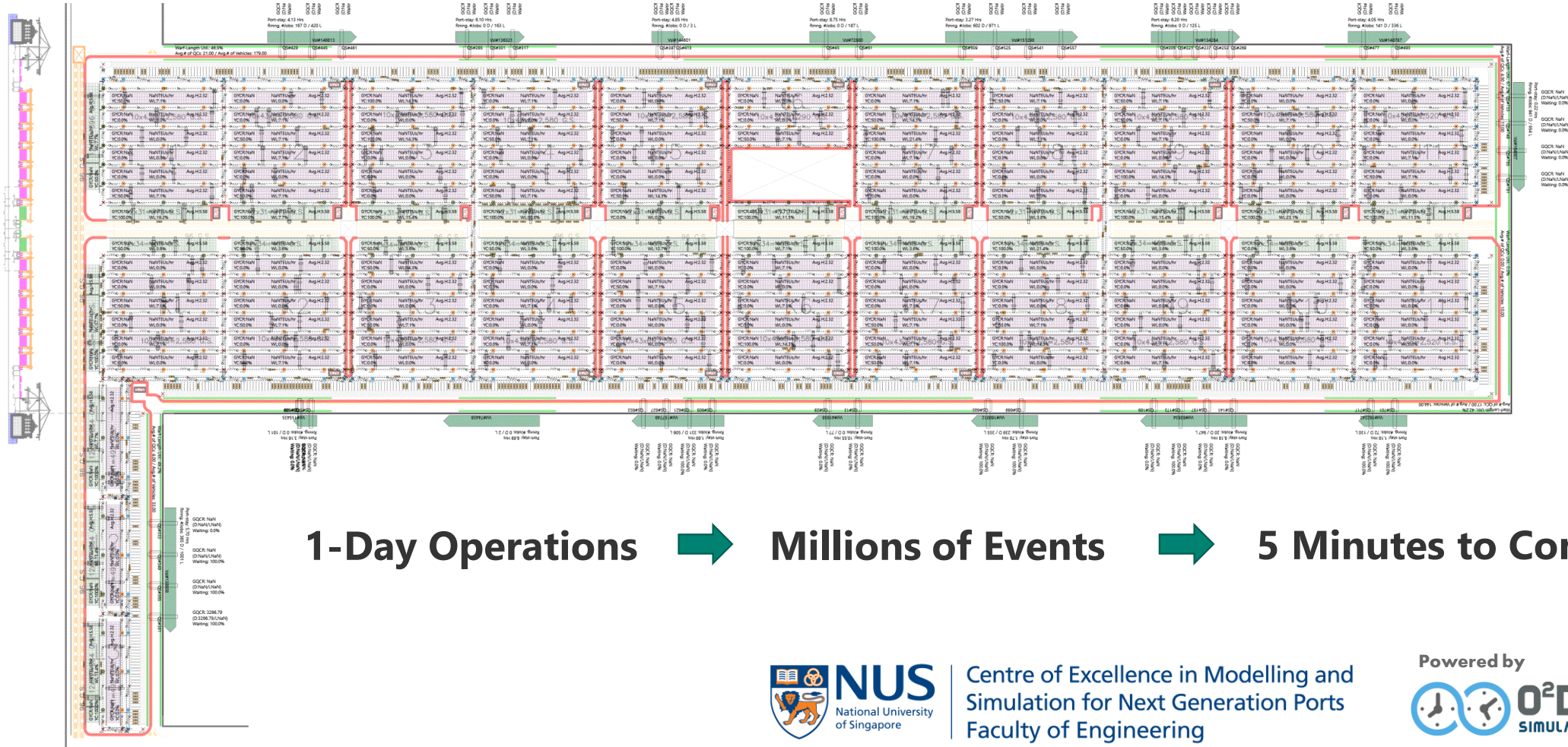
Fidelity



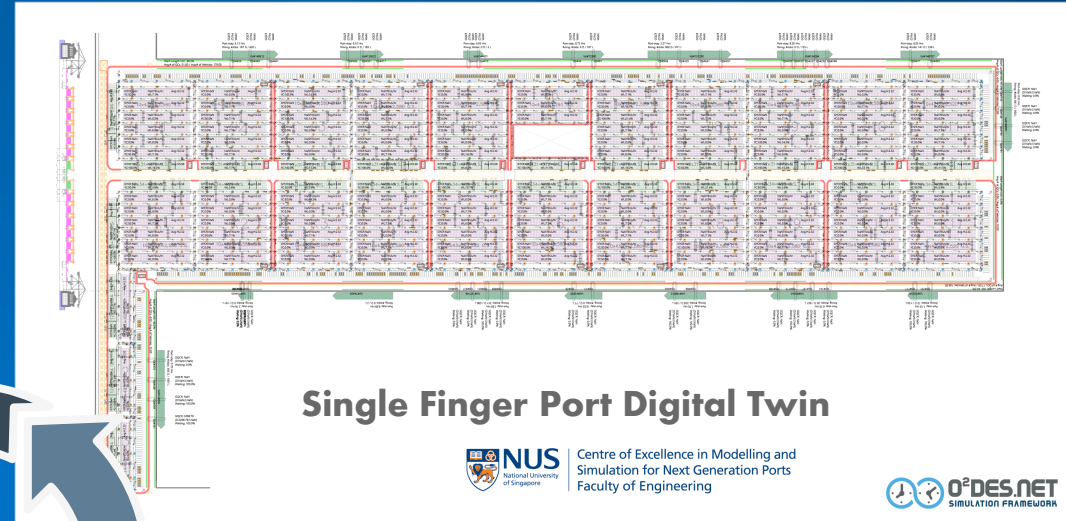
Efficiency



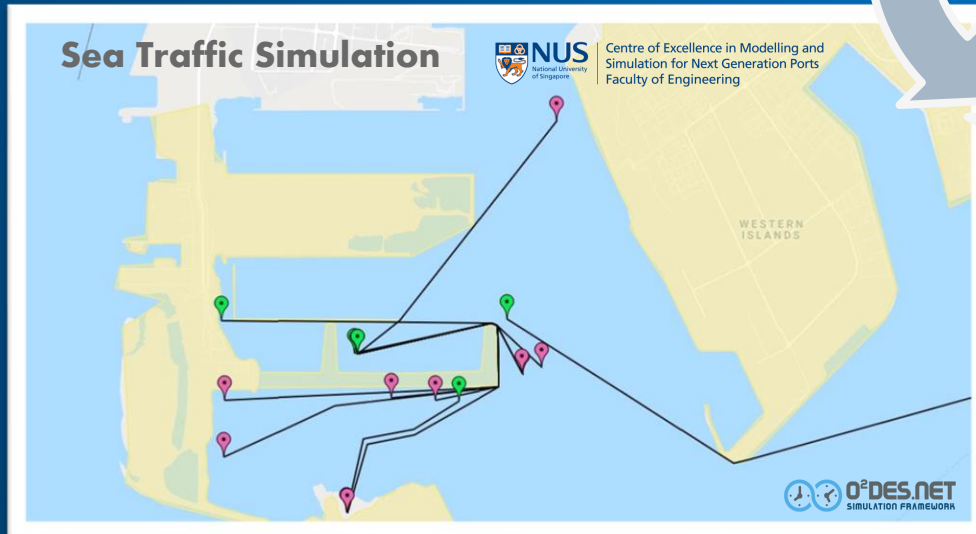
Scalability – SINGAPort Studio



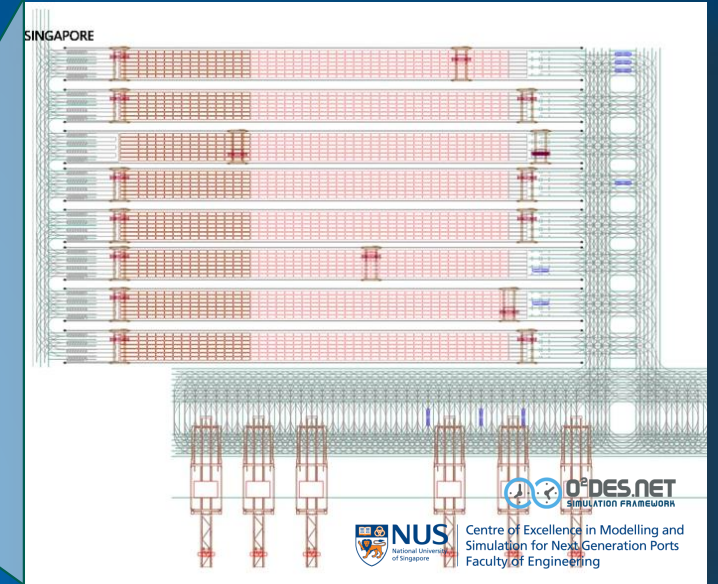
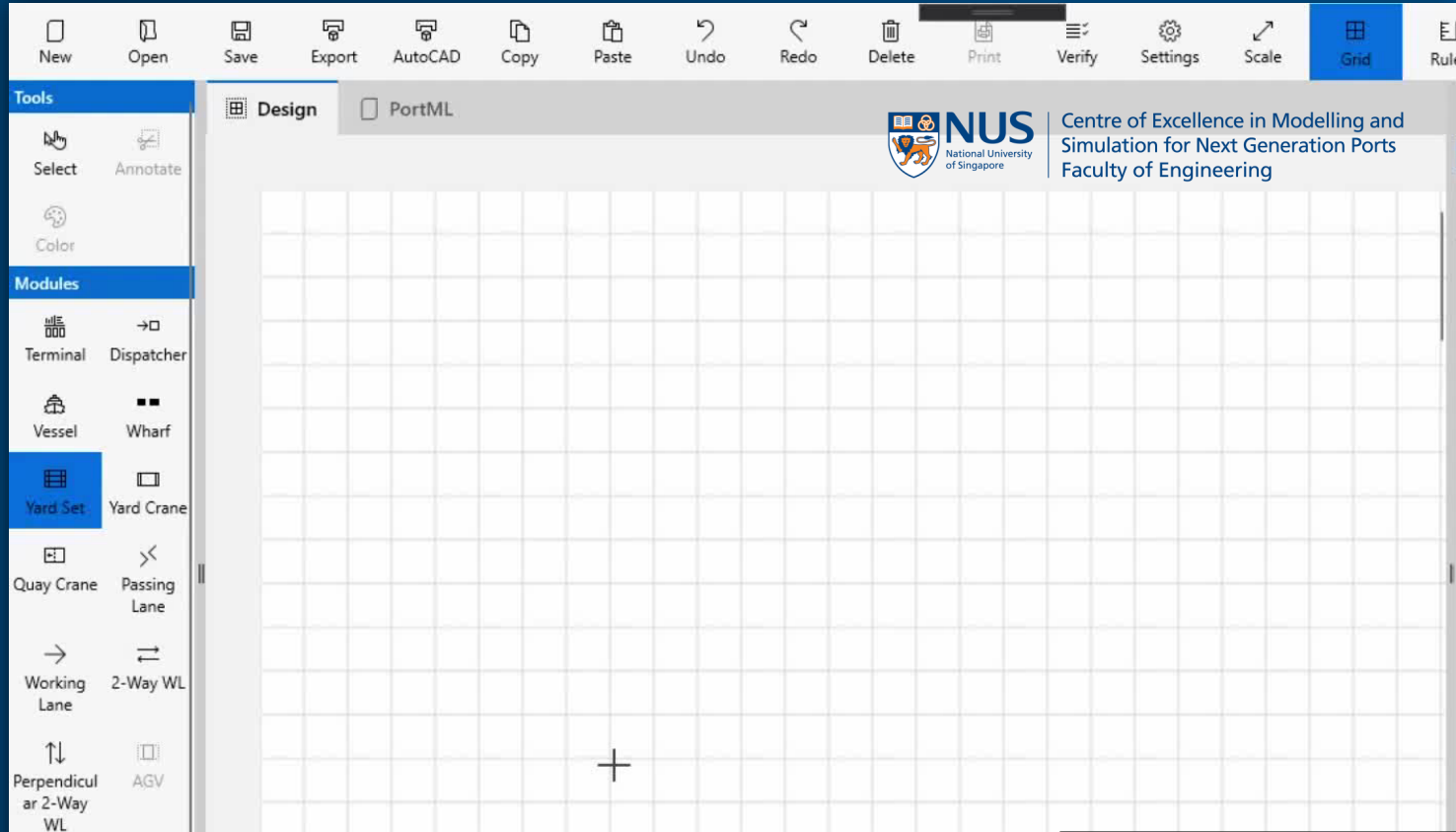
Scalability – SINGAPort Studio



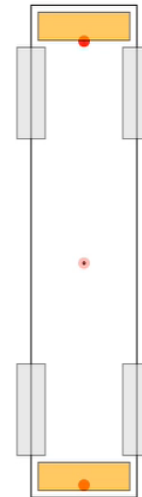
Future Plan: High-Level Architecture / Cloud-Native Technologies



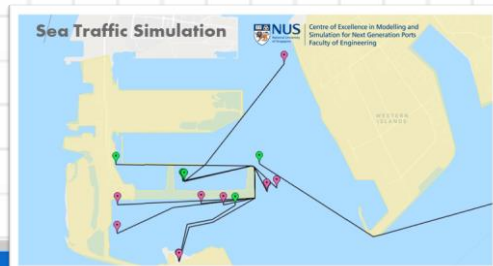
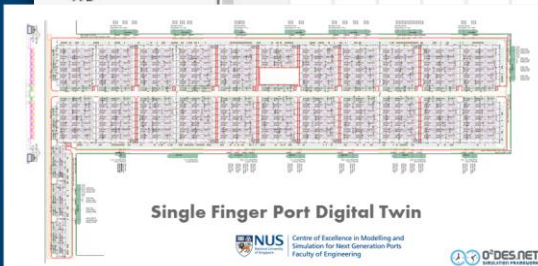
Fidelity – SINGAPort Studio



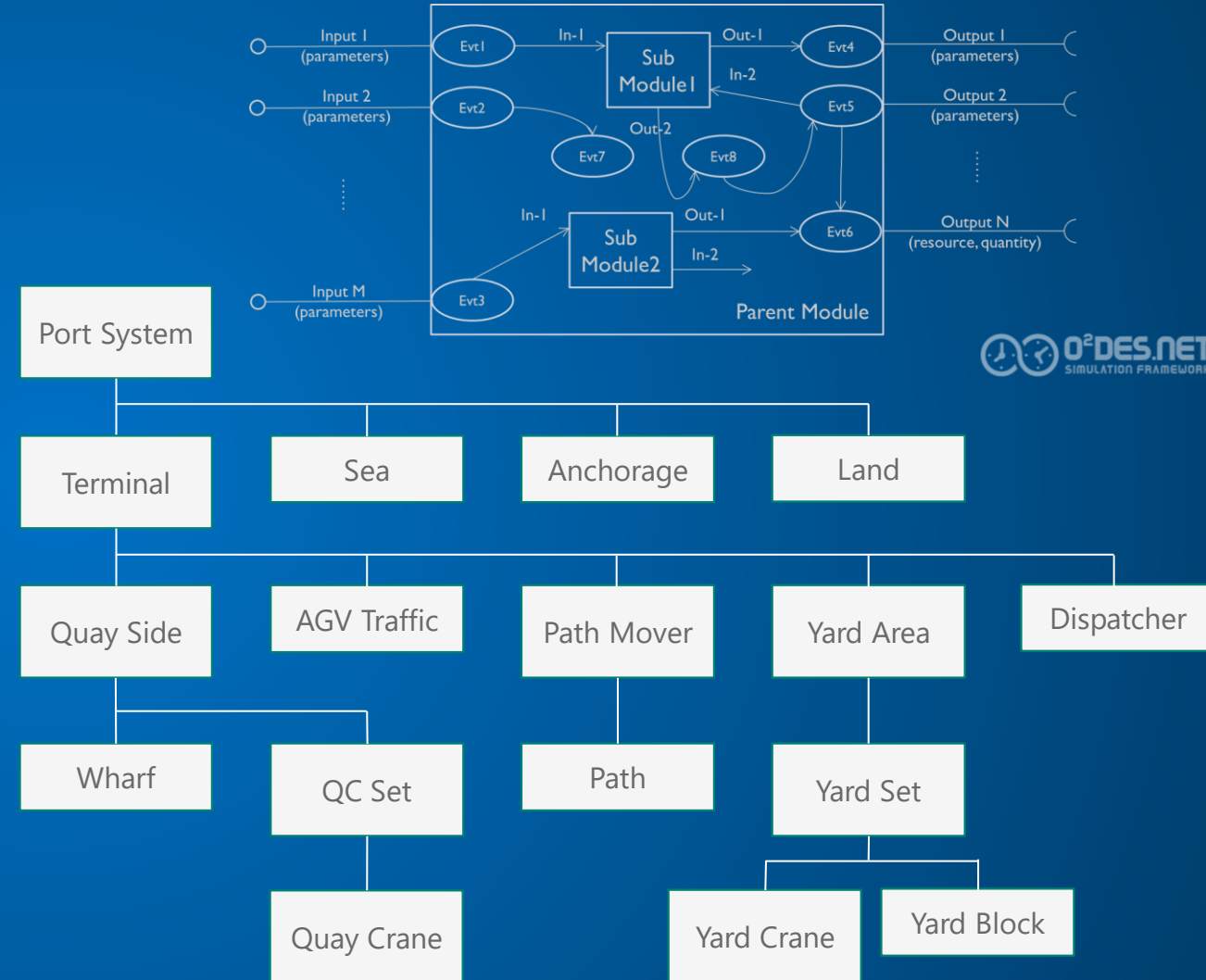
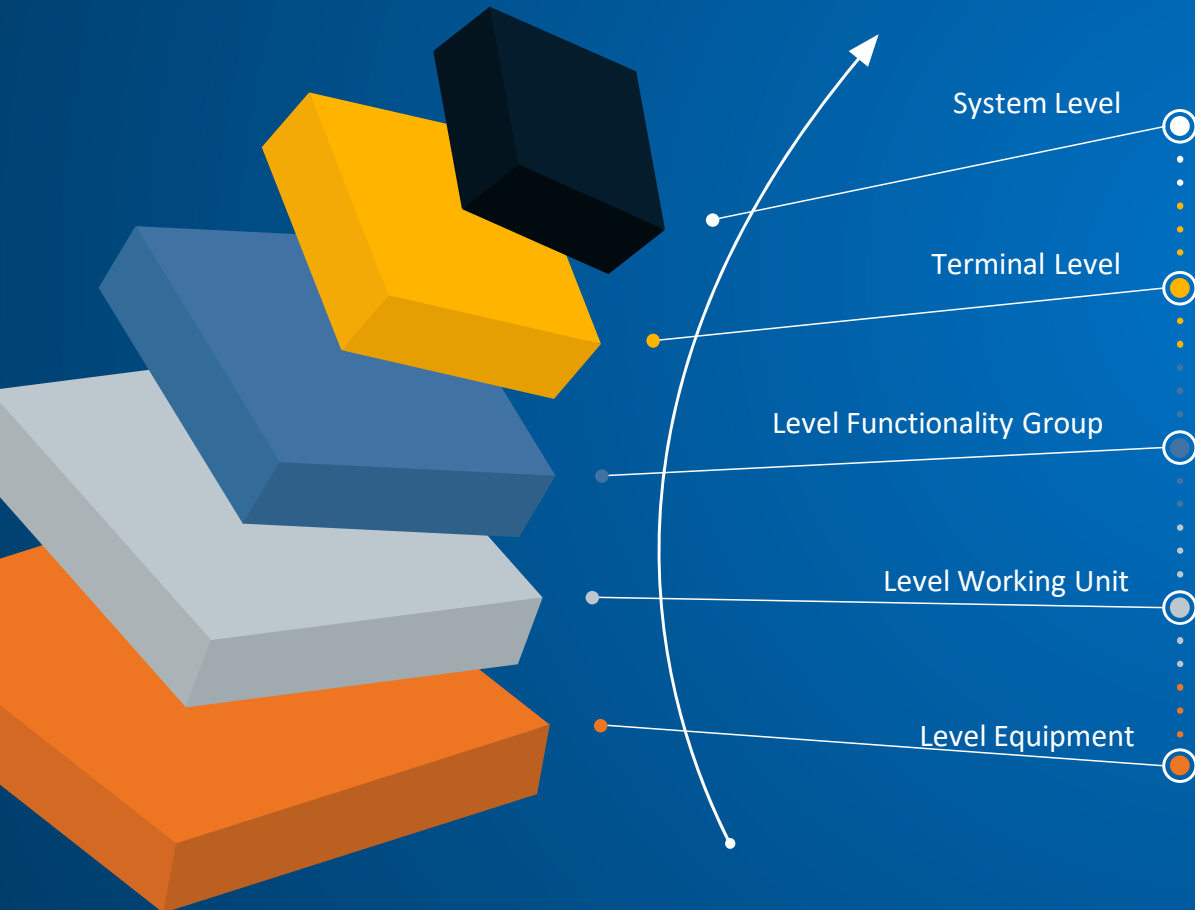
Simulation of AGV Movement



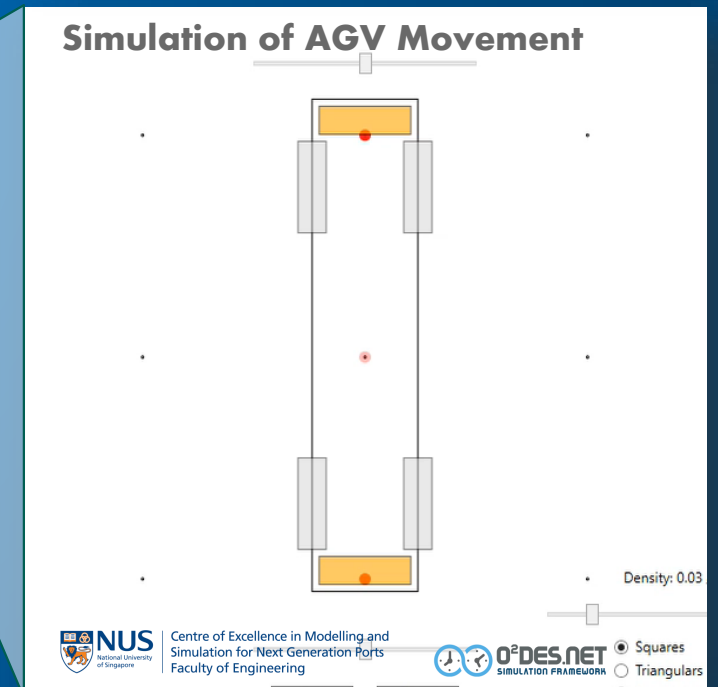
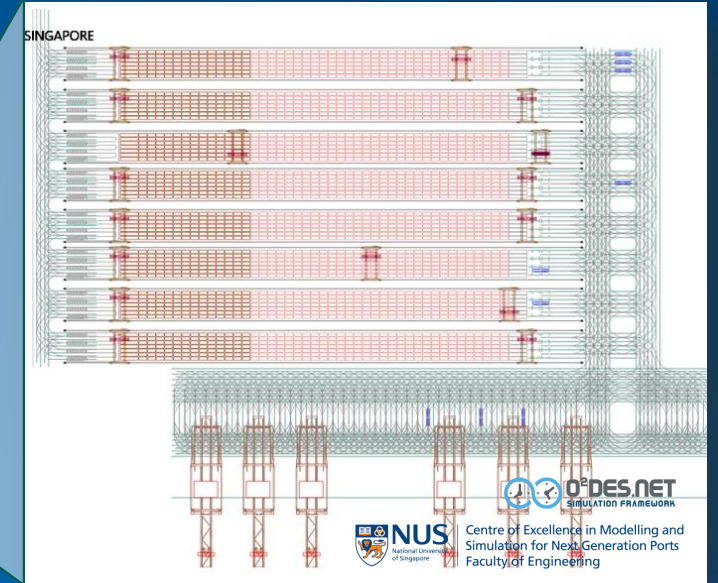
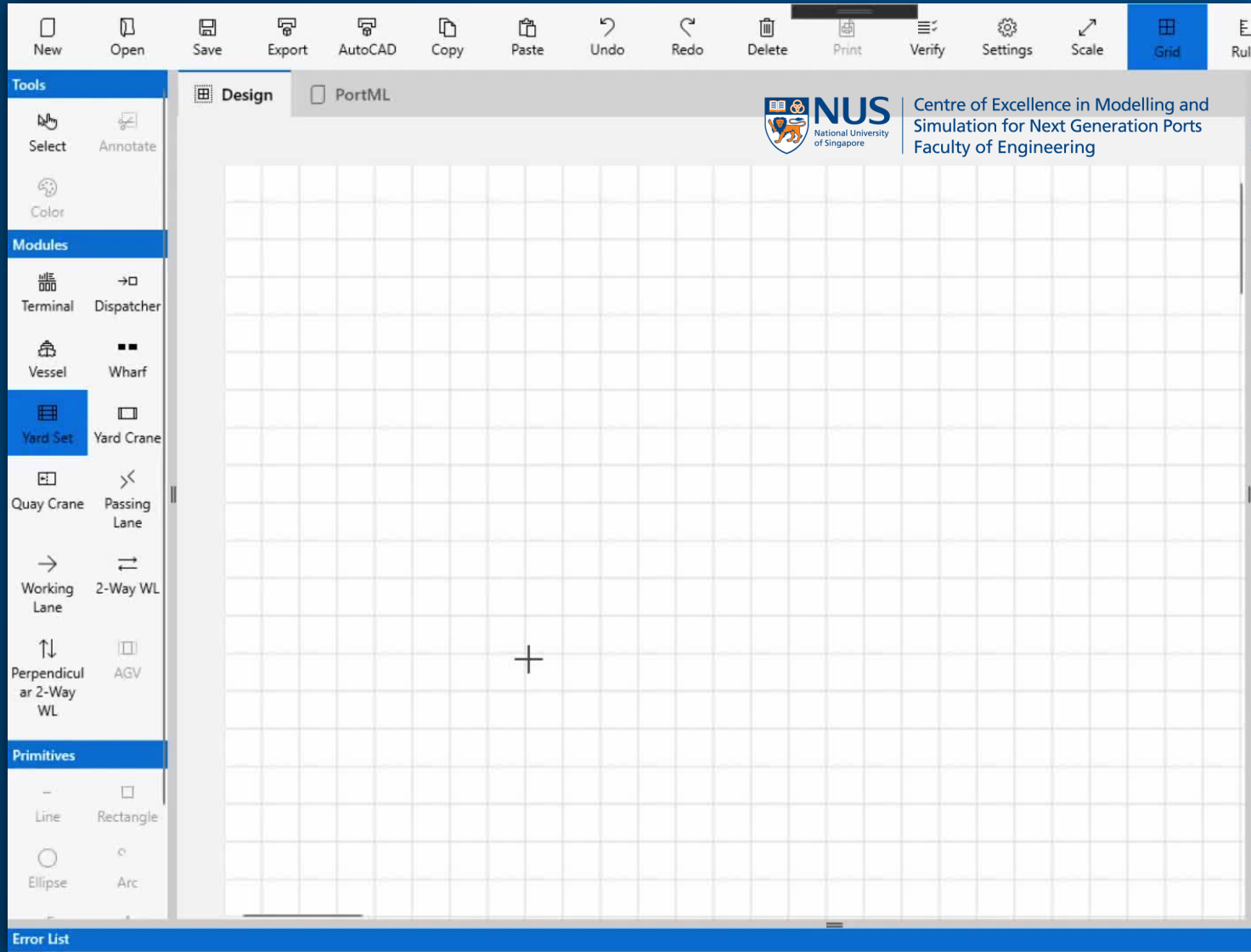
Density: 0.03



Fidelity – SINGAPort Studio

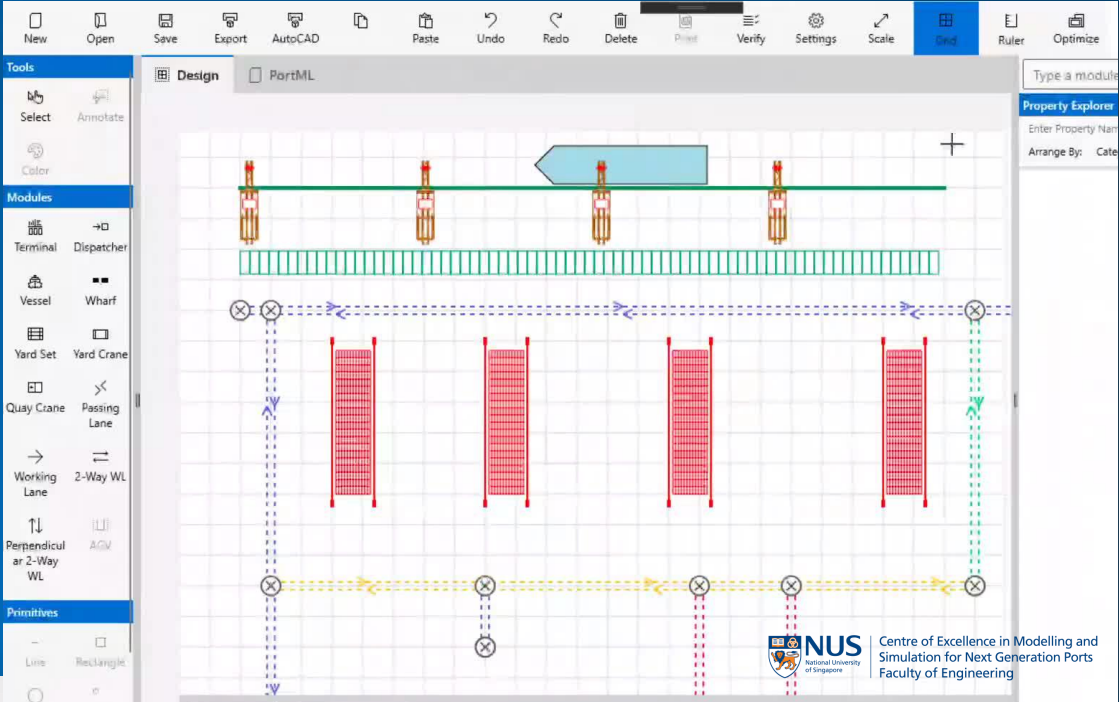
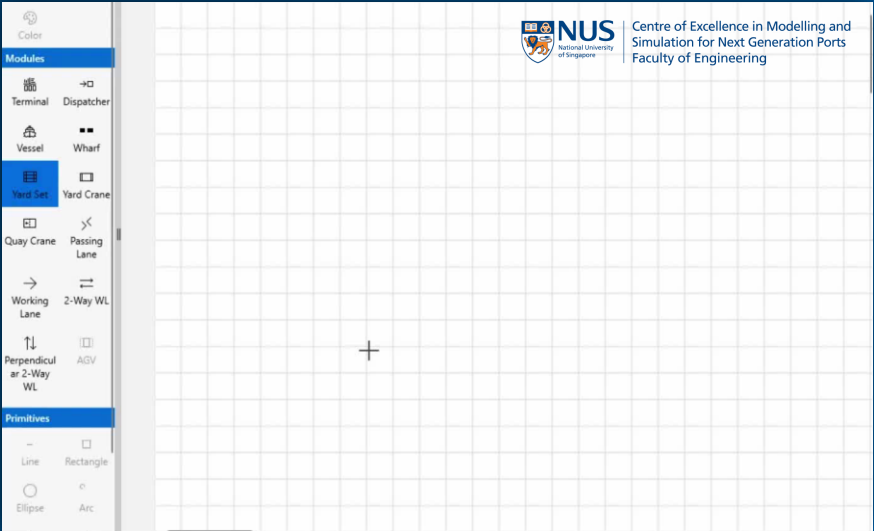


Fidelity – SINGAPort Studio

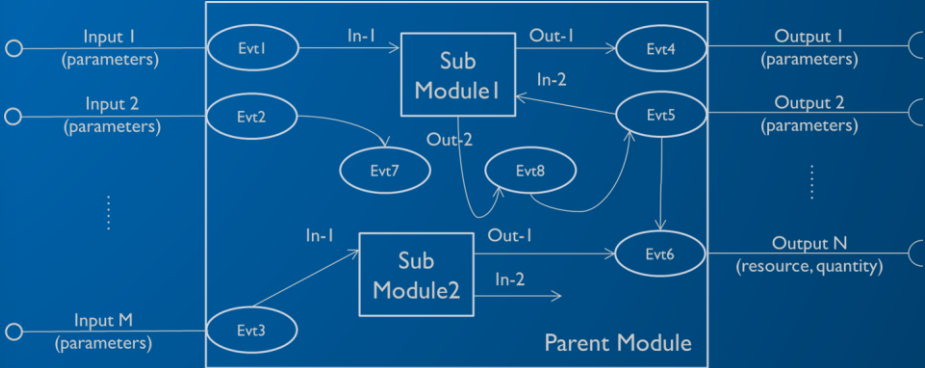
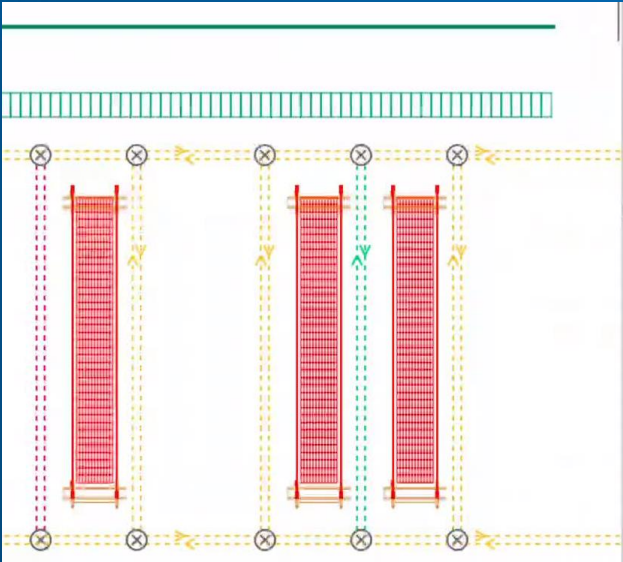


Efficiency – SINGAPort Studio

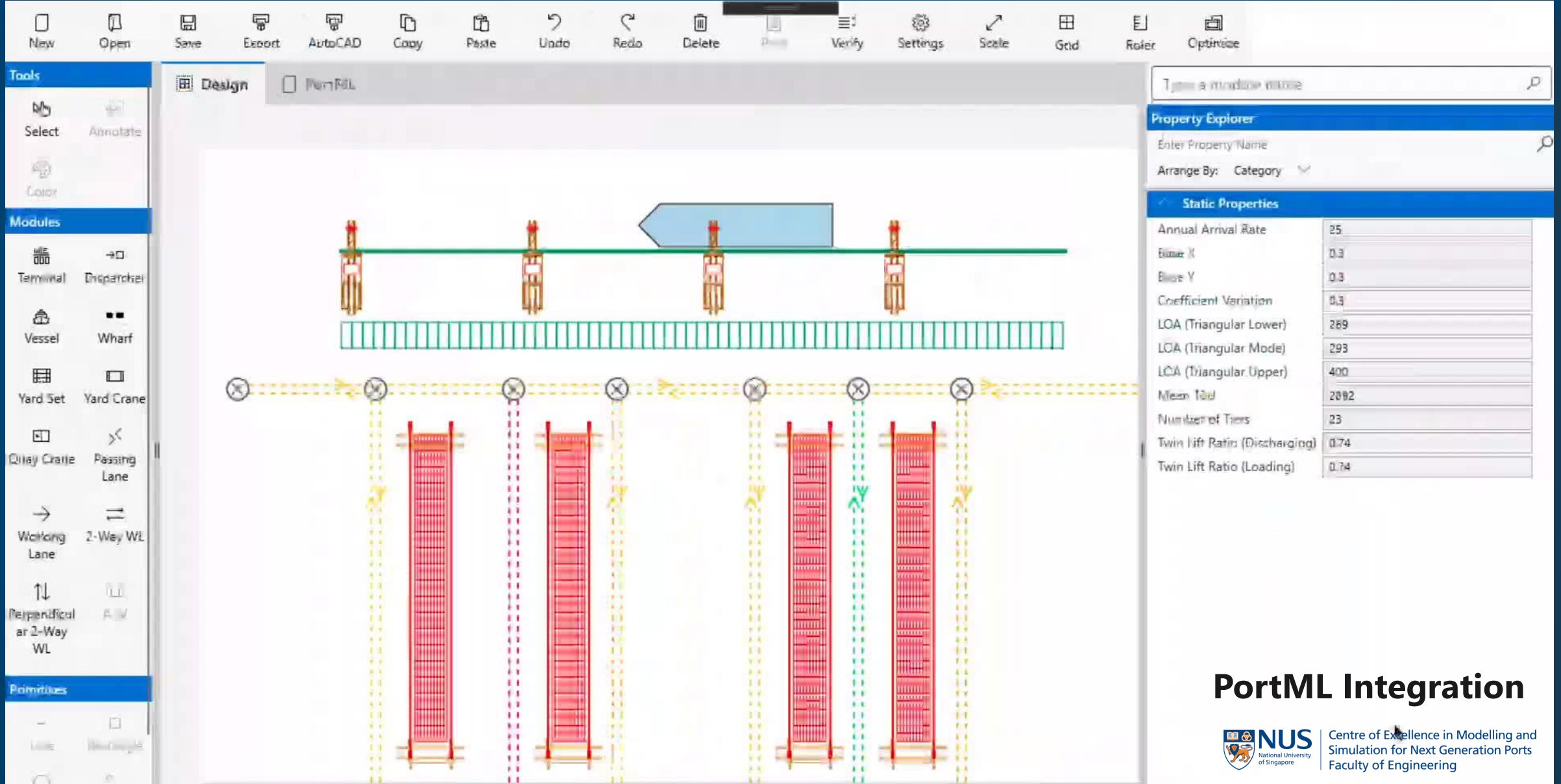
Explore and Identify the Optimal Design



Detachable
Reusable
Reconfigurable




Efficiency – SINGAPort Studio



The screenshot displays the SINGAPort Studio software interface. The top toolbar includes icons for New, Open, Save, Export, AutoCAD, Copy, Paste, Undo, Redo, Delete, Print, Verify, Settings, Scale, Grid, Ruler, and Optimize. The left sidebar contains a 'Tools' section with Select, Annotate, and Color, and a 'Modules' section with Terminal, Dispatcher, Vessel, Wharf, Yard Set, Yard Crane, Quay Crane, Passing Lane, Working Lane, 2-Way WL, Reversible or 2-Way WL, and A-W. The main workspace shows a port layout with a ship at a quay, yard cranes, and various lanes. The right sidebar features a 'Property Explorer' with a search bar and a 'Static Properties' table.

Static Properties	
Annual Arrival Rate	25
Enter K	0.3
Enter Y	0.3
Coefficient Variation	0.3
LOA (Triangular Lower)	269
LOA (Triangular Mode)	293
LCA (Triangular Upper)	400
Mean Told	2892
Number of Tiers	23
Twin Lift Ratio (Discharging)	0.74
Twin Lift Ratio (Loading)	0.74

PortML Integration

 NUS
National University
of Singapore

Centre of Excellence in Modelling and
Simulation for Next Generation Ports
Faculty of Engineering

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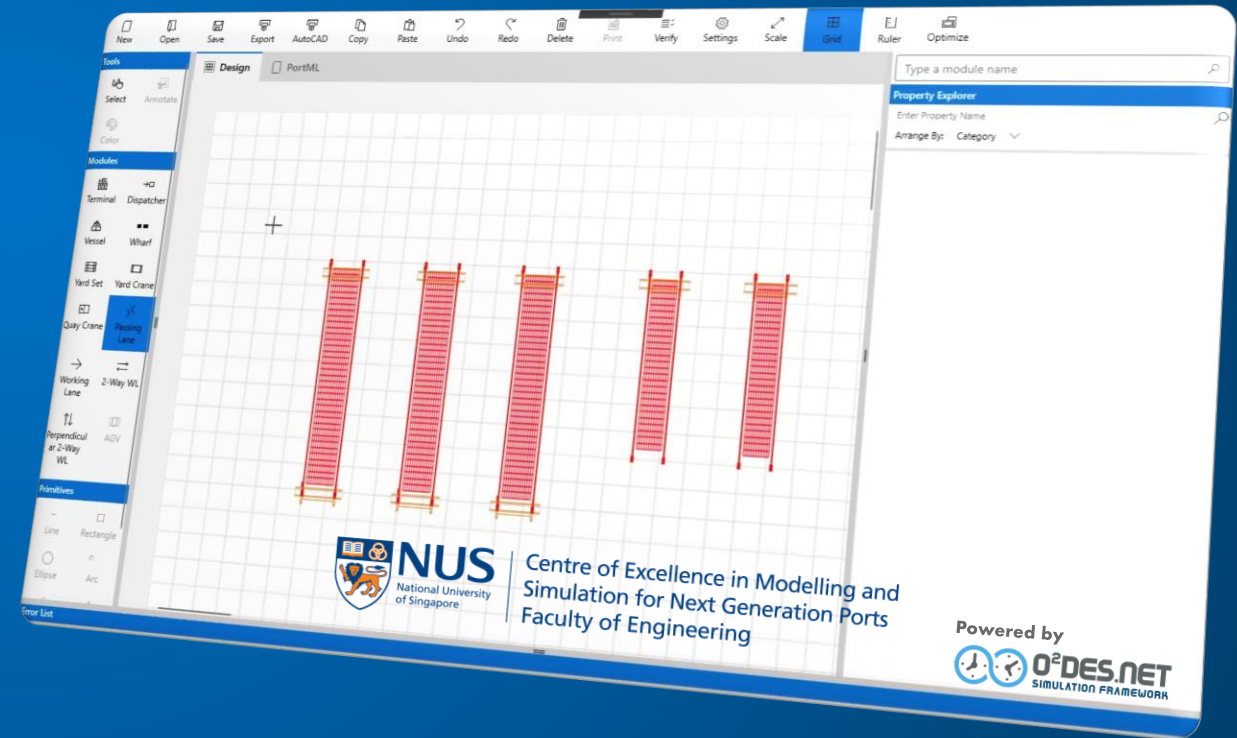
Muhammad Riza
Marhaban,
Senior IT Architect



Goh Chun Lin,
Senior IT Engineer



Chung Yuk Kay Carl,
Senior IT Engineer



THANK YOU!

