Application of Simulation for Supplier Negotiation

Victor Chang

Software Engineer

Intel Corporation

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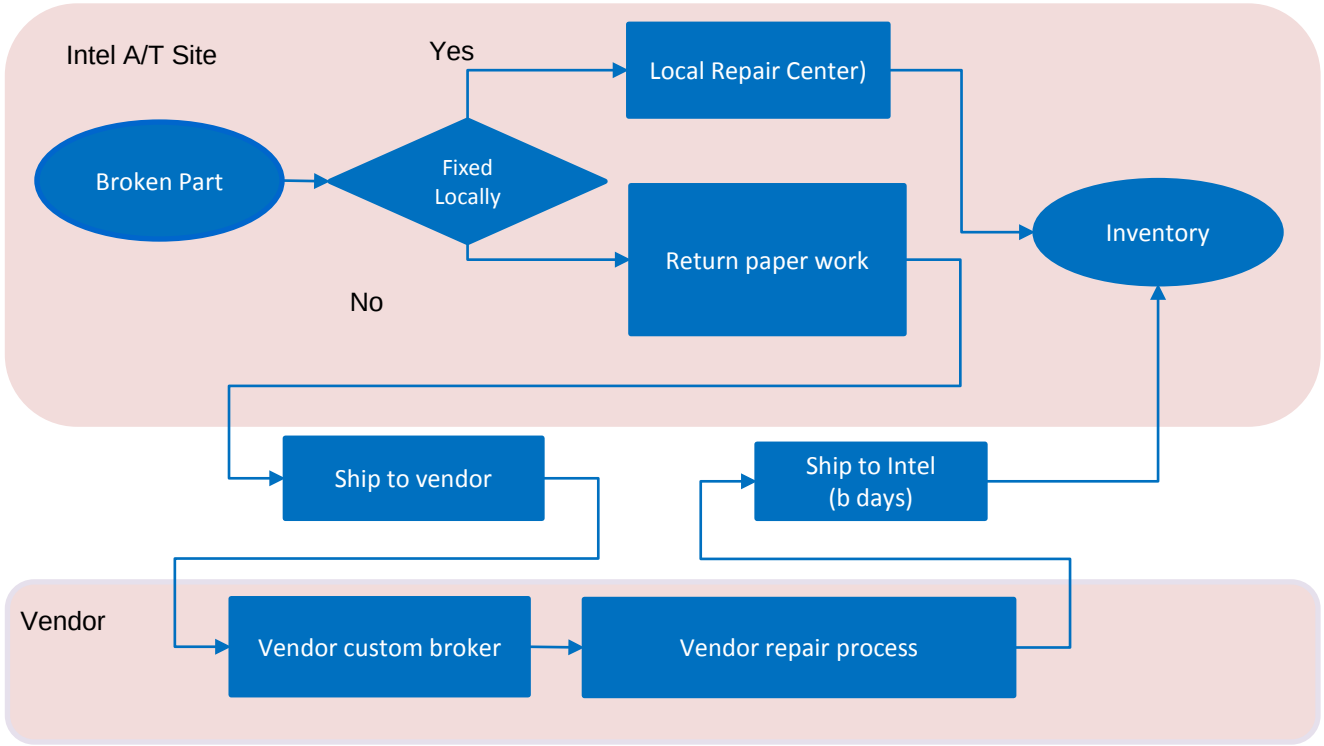
Problem Statement

- Broken parts cause capacity constraints at Intel factories
- Broken parts “stacking up” at the supplier repair center
- Intel and the vendor have different opinions on the root cause of initial situation
- Commodity manager needs data to understand how many spares we need to keep our factory running and use the data for negotiation with the vendor

Some facts about the part

- These parts are expensive and is used on the critical tools (constraint tools in the factory)
- These parts breaks from time to time. And failure rate usually increase with new products been made.
- The broken parts can be repaired locally or may require shipping to the vendor for repair.
- The repair loop takes significant time, it is necessary to have extra spare parts on-hand to keep the equipment running while broken parts are repaired.
- Broken parts cause constraints at some of the sites while some other sites over buying spares

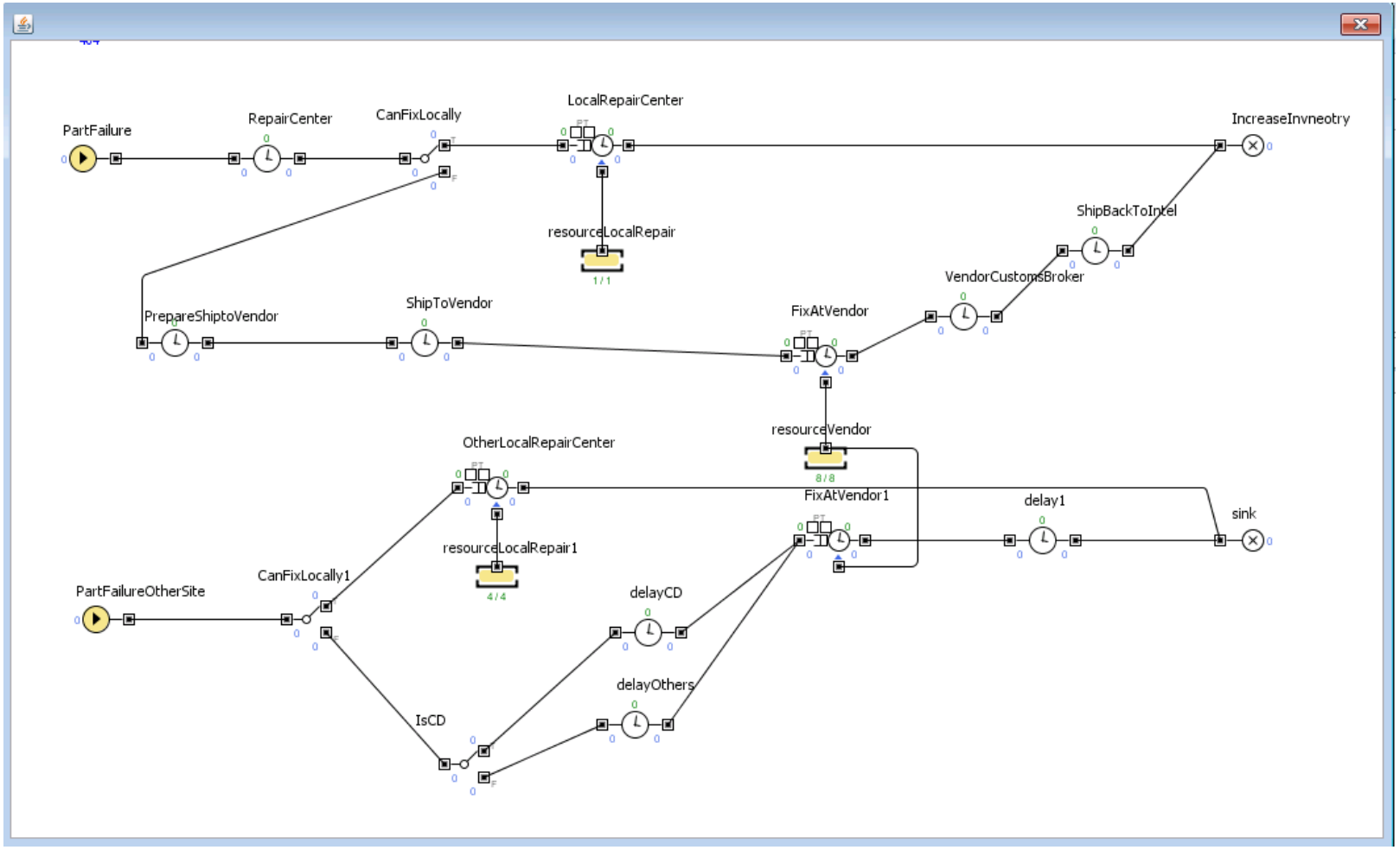
The repair loop



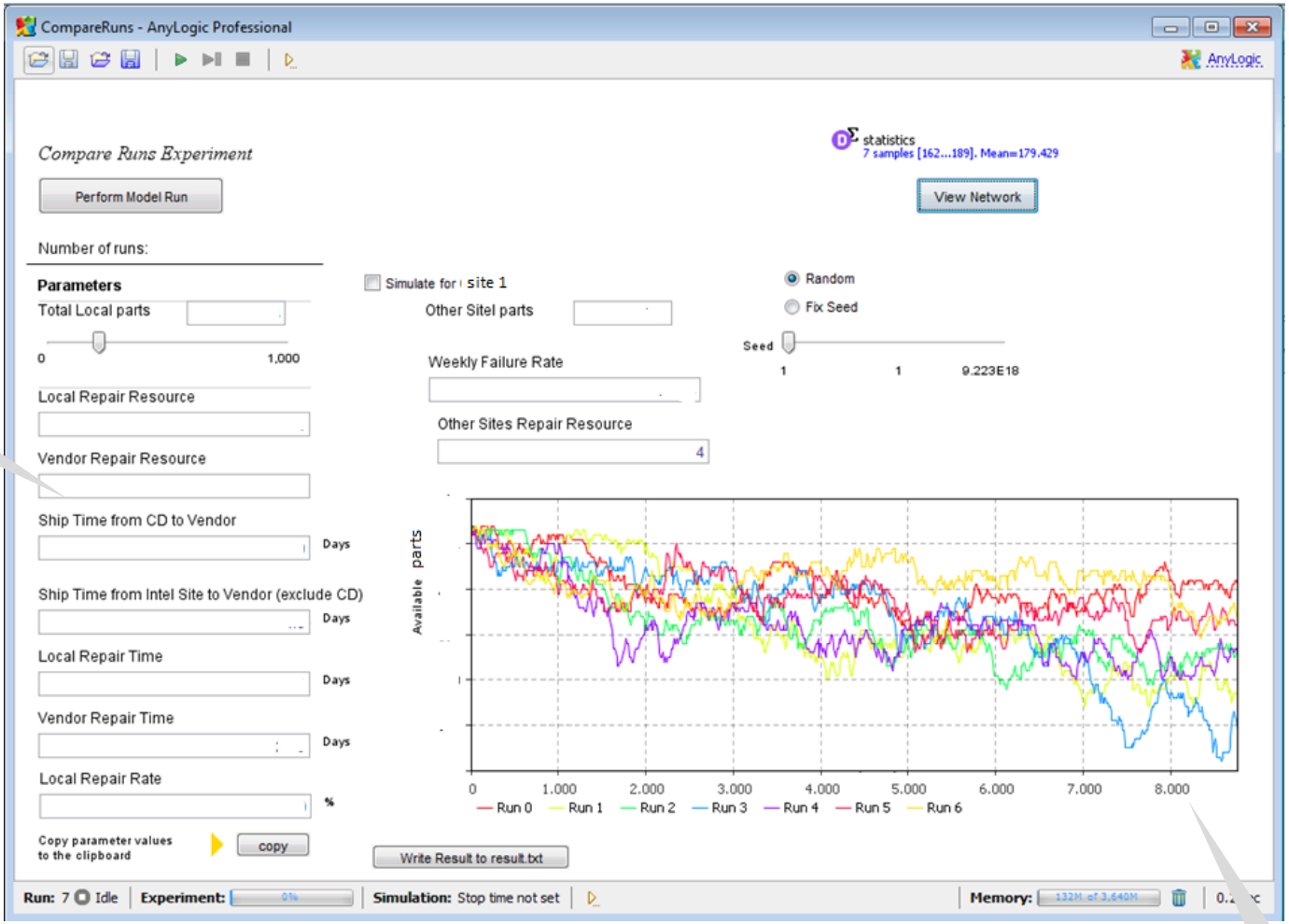
Objective/Goal:

- How many spares should be purchased to:
  - Avoid equipment downtime due to lacks of this part
  - Avoid significantly overbuying the spares.
  - Take into account various failure rate scenarios
- How might changing local and at-supplier repair center staffing/capacity help?
- Support vendor negotiation on the correct part consignment quantity

Anylogic simulation



Anylogic simulation



User Inputs

Results

Conclusion

- The simulation model takes only a few days to complete after we spoke to the user, identify required data for simulation.
- Commodity managers was able to use the simulation data to convince the supplier that an additional spare parts consignment is needed (A significant saving to Intel).
- The simulation tool is an easy to use standalone application that commodity managers and engineers use to run their own scenarios by changing predefined parameters.
- This simulation can be modify easily to used on other spare parts.