Progress Report

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1 Study of PySOT

1.1 Brief Introduction to PySOT

PySOT is a tool box designed for solving both continuous and discontinuous surrogated optimization problems.

1.2 Apply PySOT to Two-node Network

Based on this paper??, we simply consider a network with one supplier and receiver. We use the case in part 7, only consider node 1 and node 4.

1.3 Importance Concepts

- On-hand inventory The inventory in stock
- On-order inventory The ordered inventory but not yet shipped
- Backorder Unsatisfied order
- Inventory position Amount of order we ́have: on-hand + on-order - backorder

1.3.1 Model Assumption

- A demand-driven inventory system under base-stock policy and order rationing policy
- General network structure for the inventory system (all the pri- mary supplier, secondary supplier and direct customer node(s) of each node are designated, if any) instead: one supplier and one director customer node
- Length of planning horizon: 200 days with 100 days of warm-up simulation
- Length of review cycle for each inventory
- Probability distributions of demands at sales regions node 2: Normal(150,30)
- Probability distributions of the delivery preparation times (include but not limited to time for reprocessing, transportation, sub-packaging, etc.) at each inventory node node 1: Uniform(2,4)
- Lower bounds for service levels at each node: node 1: 0.70 node 2: 0.95
- unit holding cost, unit backordering cost: 1 m.u./unit/day

1.3.2 Objective

1.3.3 Source of Uncertainties

1.4 Simulation Process