Heavy Workload Simulation Report

Date: 2025-12-10 20:50

1. EXECUTIVE SUMMARY

This report analyzes the performance of scheduling strategies under a HEAVY workl
regime.

Workload Characteristics:

- Total Tasks: ~10,000 per strategy
- Compute Bias: High (0.6 - 1.0 intensity)
- Size Range: 100 - 5000 units
- Memory Range: 100 - 10000 MB

Key Findings:

- Best Performing Strategy: HYBRID_ML
- Worst Performing Strategy: RL_AGENT
- Speedup: HYBRID_ML was 1.64x faster than RL_AGENT.

2. DETAILED METRICS

Strategy | Makespan(s) | Avg Latency(s) | P95 Latency(s) | P99 Latency(s) |
Throughput(T/s)

greedy | 1765.95 | 0.1766 | 0.4644 | 2.3518 | 5.66
hybrid_ml | 1369.71 | 0.1370 | 0.3775 | 1.7934 | 7.30
random | 1886.80 | 0.1887 | 0.4966 | 2.8185 | 5.30
rl_agent | 2242.71 | 0.2243 | 0.6278 | 3.5585 | 4.46
round_robin | 1952.39 | 0.1952 | 0.5266 | 2.7029 | 5.12

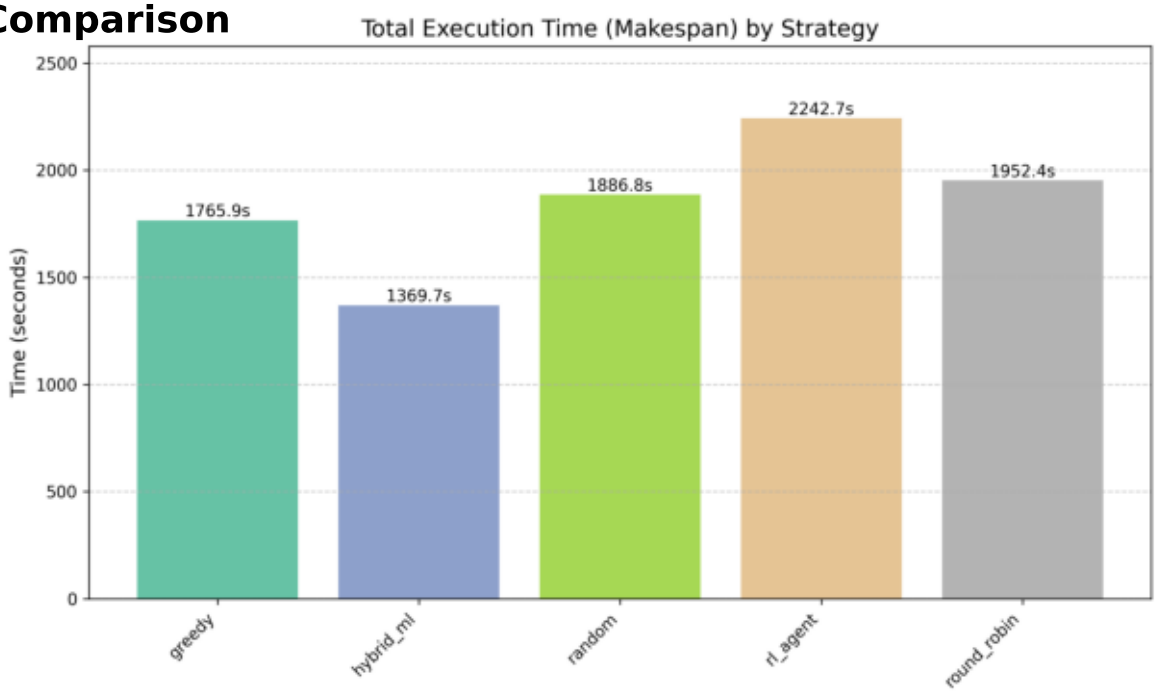
3. COST ANALYSIS

(Abstract Cost units based on compute time and resource usage)

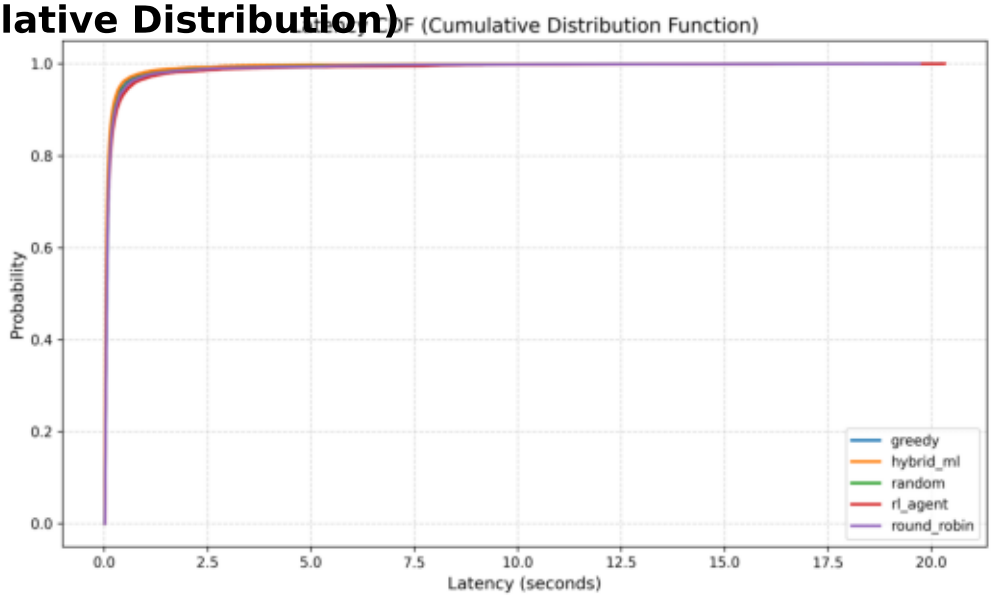
Strategy | Total Cost | Cost Efficiency

greedy | 0.10 | 97238.82
hybrid_ml | 0.12 | 83460.16
random | 0.11 | 89201.78
rl_agent | 0.05 | 221880.98
round_robin | 0.10 | 99130.37

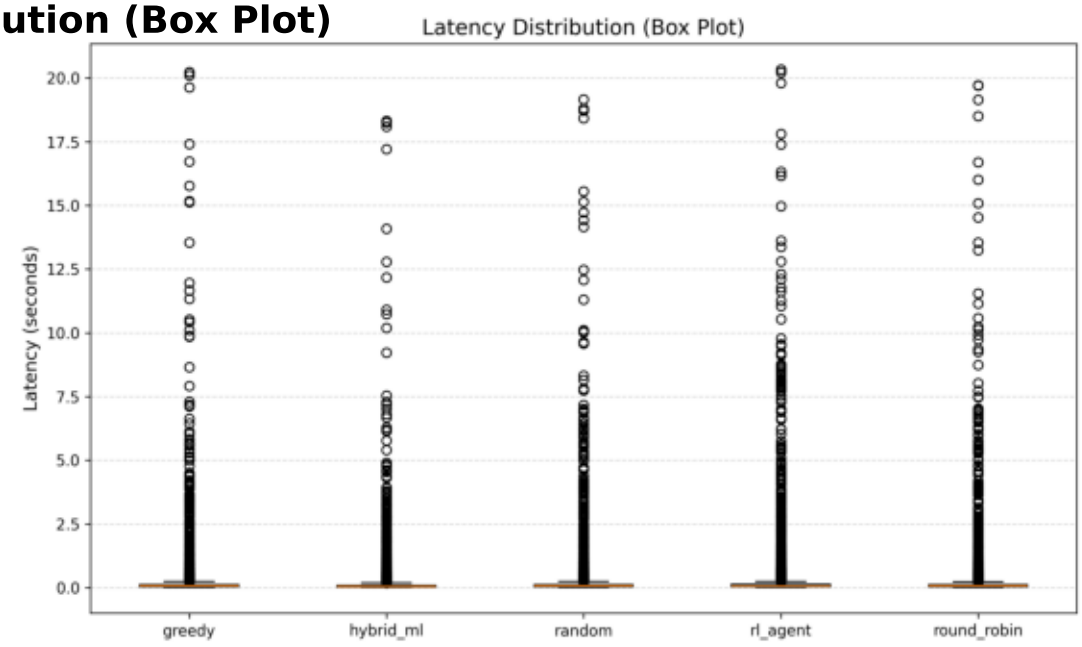
Makespan Comparison



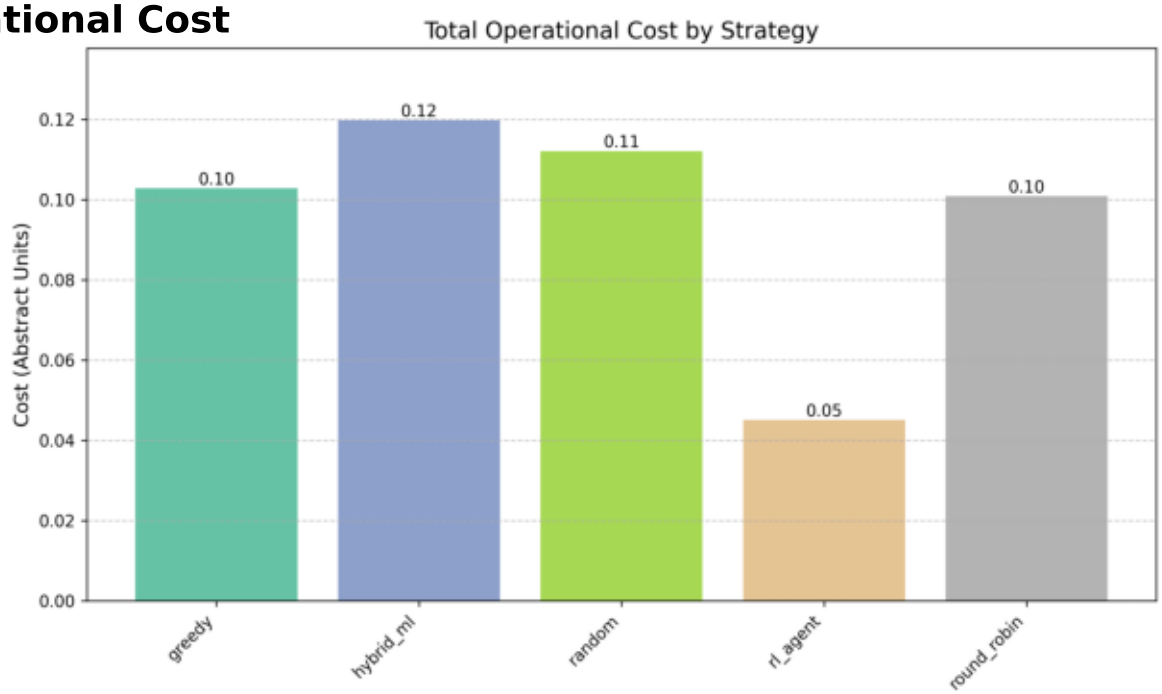
Latency CDF (Cumulative Distribution)



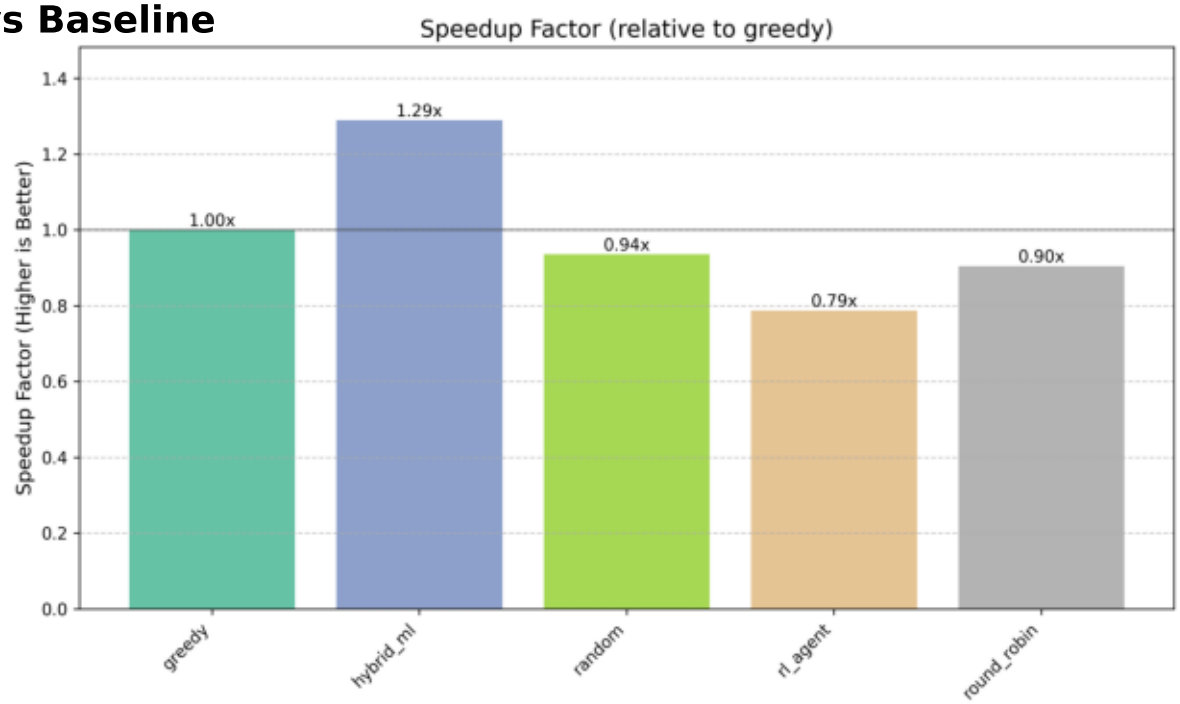
Latency Distribution (Box Plot)



Total Operational Cost



Speedup vs Baseline



Workload Characteristics