

Heavy Workload Simulation Report

Date: 2025-12-10 20:50

1. EXECUTIVE SUMMARY

This report analyzes the performance of scheduling strategies under a HEAVY workload 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)
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round_robin	1952.39	0.1952	0.5266	2.7029	20.49
random	1886.80	0.1887	0.4966	2.8185	21.20
greedy	1765.95	0.1766	0.4644	2.3518	22.65
hybrid_ml	1369.71	0.1370	0.3775	1.7934	29.20
rl_agent	2242.71	0.2243	0.6278	3.5585	17.84

3. COST ANALYSIS

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

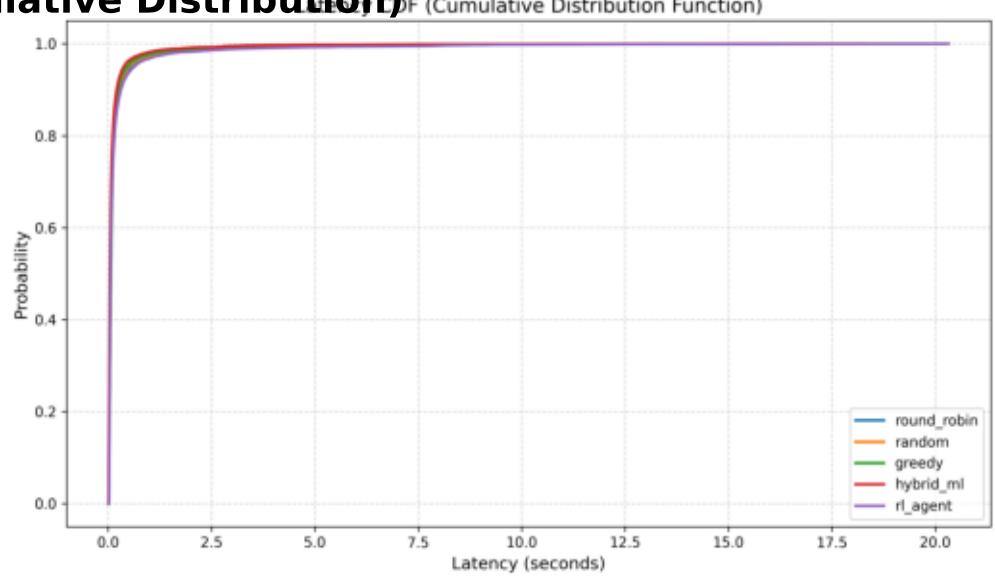
Strategy	Total Cost	Cost Efficiency
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round_robin	0.10	99130.37
random	0.11	89201.78
greedy	0.10	97238.82
hybrid_ml	0.12	83460.16
rl_agent	0.05	221880.98

Makespan Comparison

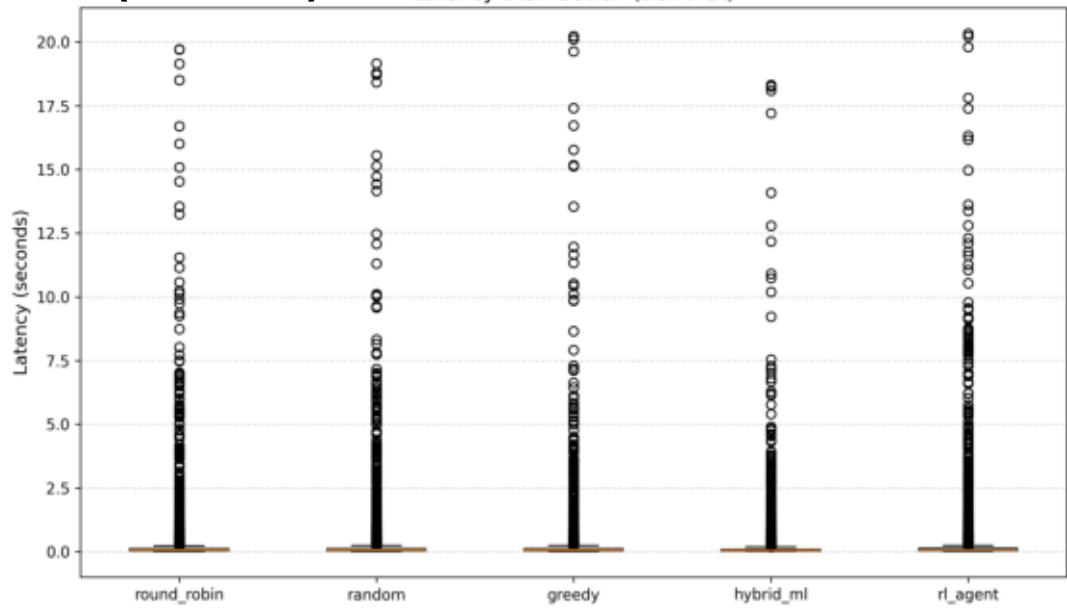


Latency CDF (Cumulative Distribution)



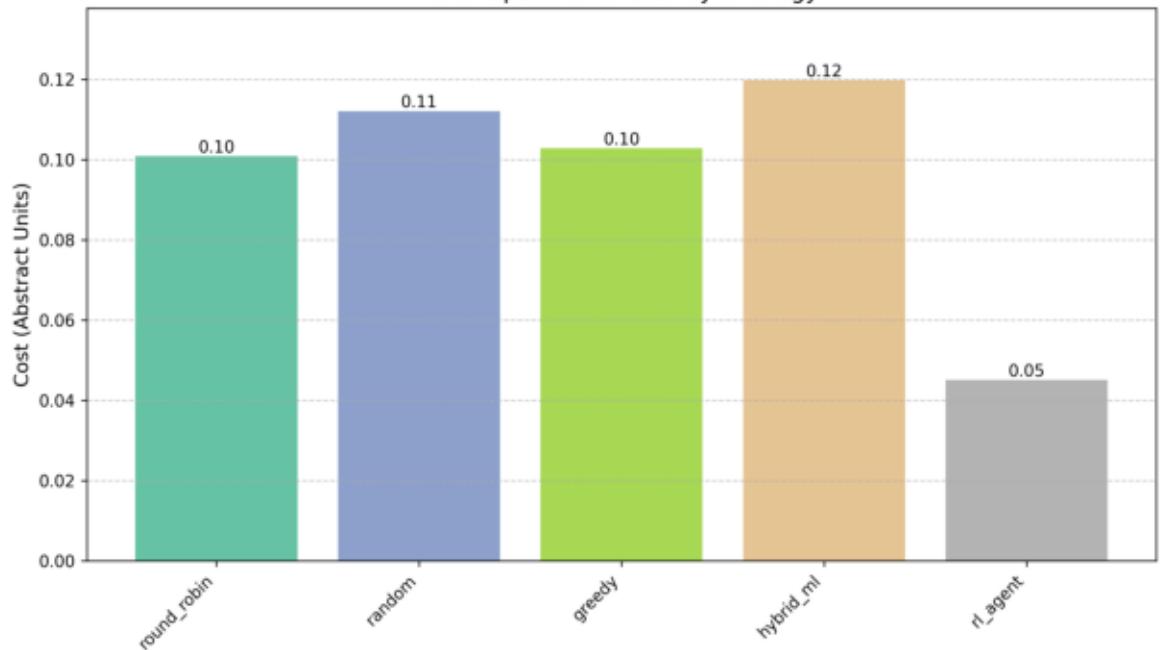
Latency Distribution (Box Plot)

Latency Distribution (Box Plot)

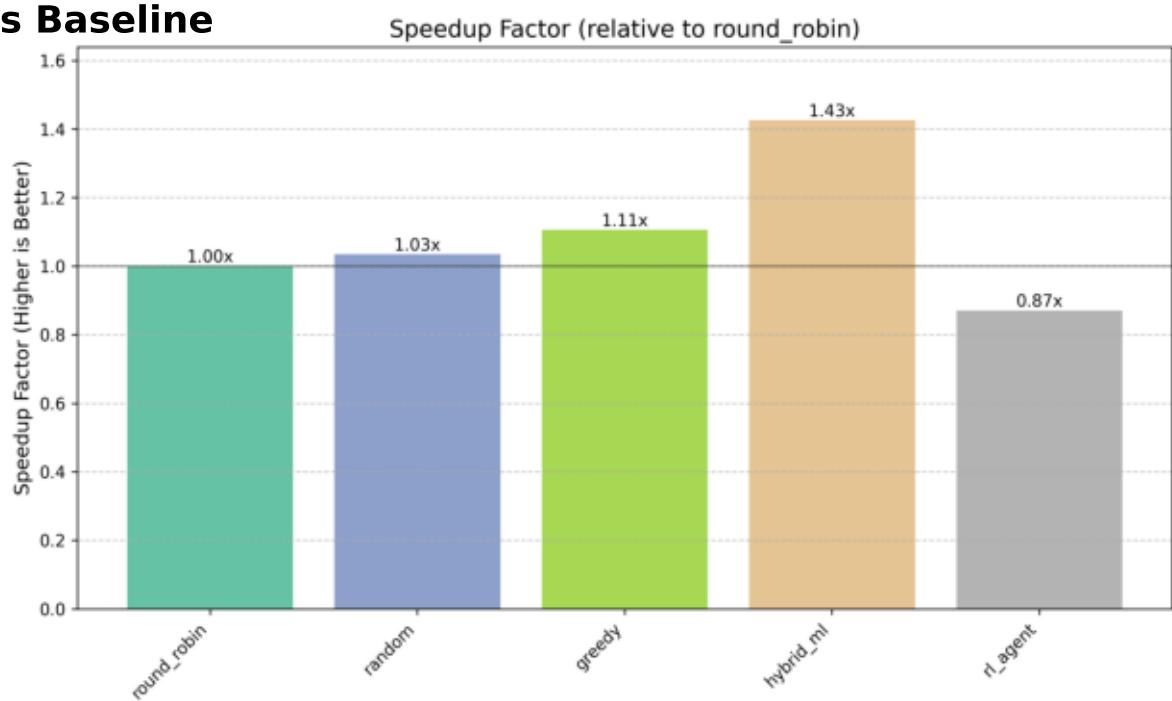


Total Operational Cost

Total Operational Cost by Strategy



Speedup vs Baseline



Workload Characteristics

