

Heavy Workload Simulation Report

Date: 2025-12-11 14:21

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: ROUND_ROBIN
- Speedup: HYBRID_ML was 1.41x faster than ROUND_ROBIN.

2. DETAILED METRICS

Strategy	Makespan(s)	Avg Latency(s)	P95 Latency(s)	P99 Latency(s)	Throughput(T/s)
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round_robin	3863.41	0.1932	0.5367	2.6199	20.71
random	3729.11	0.1865	0.5114	2.4963	21.45
greedy	3518.26	0.1759	0.4745	2.3257	22.74
hybrid_ml	2740.19	0.1370	0.3931	1.7941	29.20
rl_agent	3101.03	0.1551	0.5738	1.8252	25.80

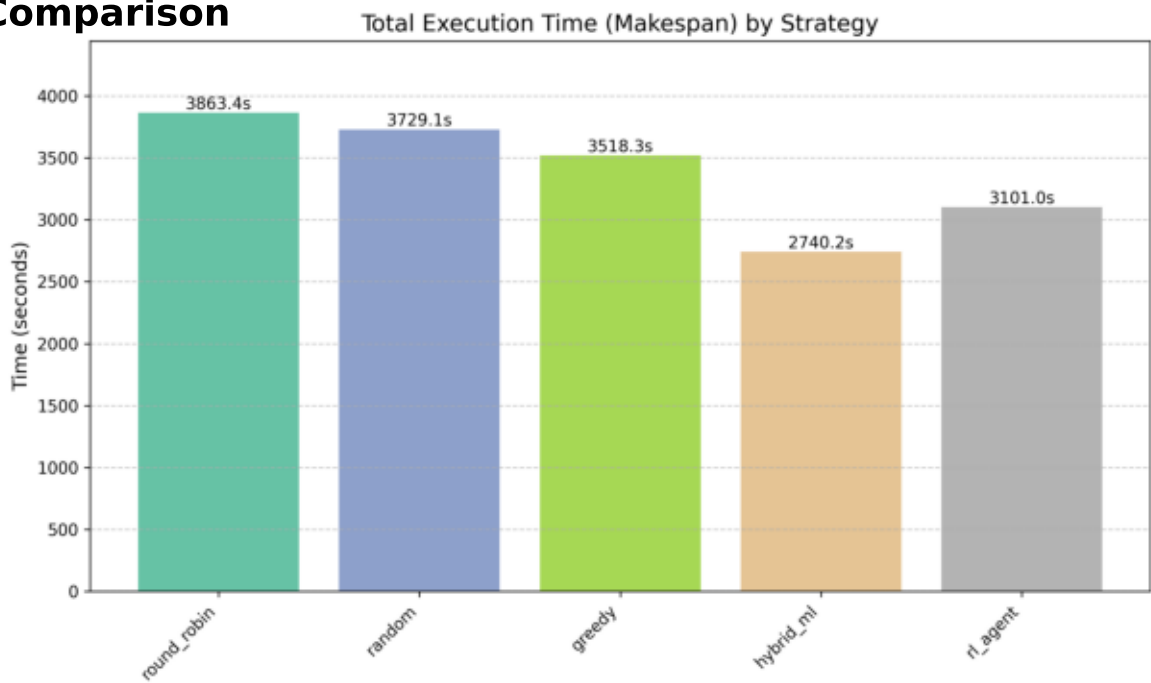
3. COST ANALYSIS

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

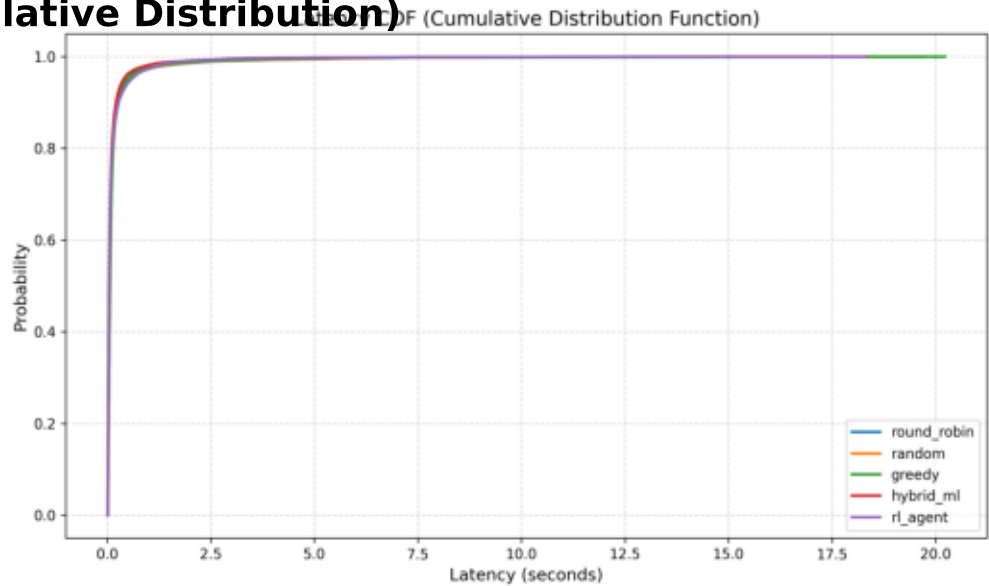
Strategy	Total Cost	Cost Efficiency
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round_robin	0.20	99879.05
random	0.22	90960.49
greedy	0.20	98844.17
hybrid_ml	0.24	83526.30
rl_agent	0.20	99742.62

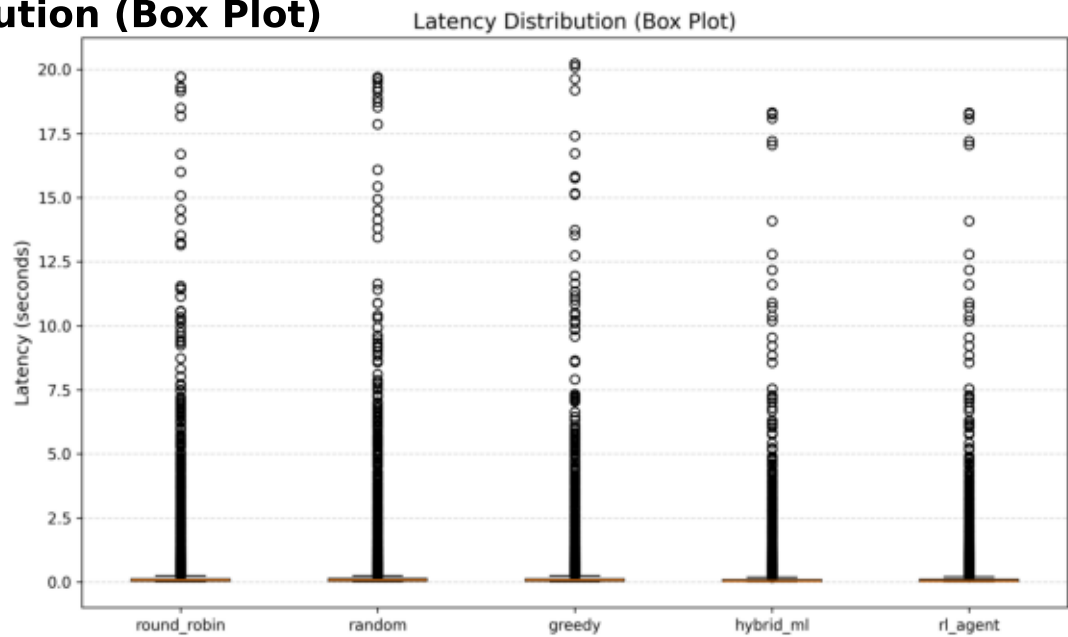
Makespan Comparison



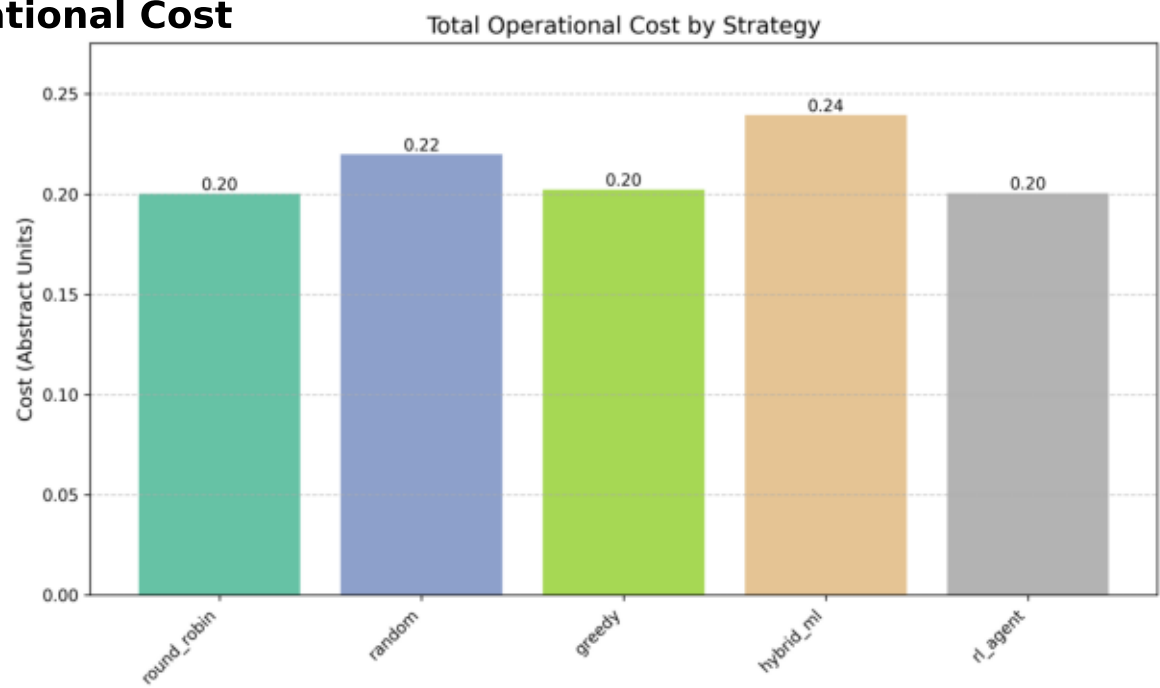
Latency CDF (Cumulative Distribution Function)



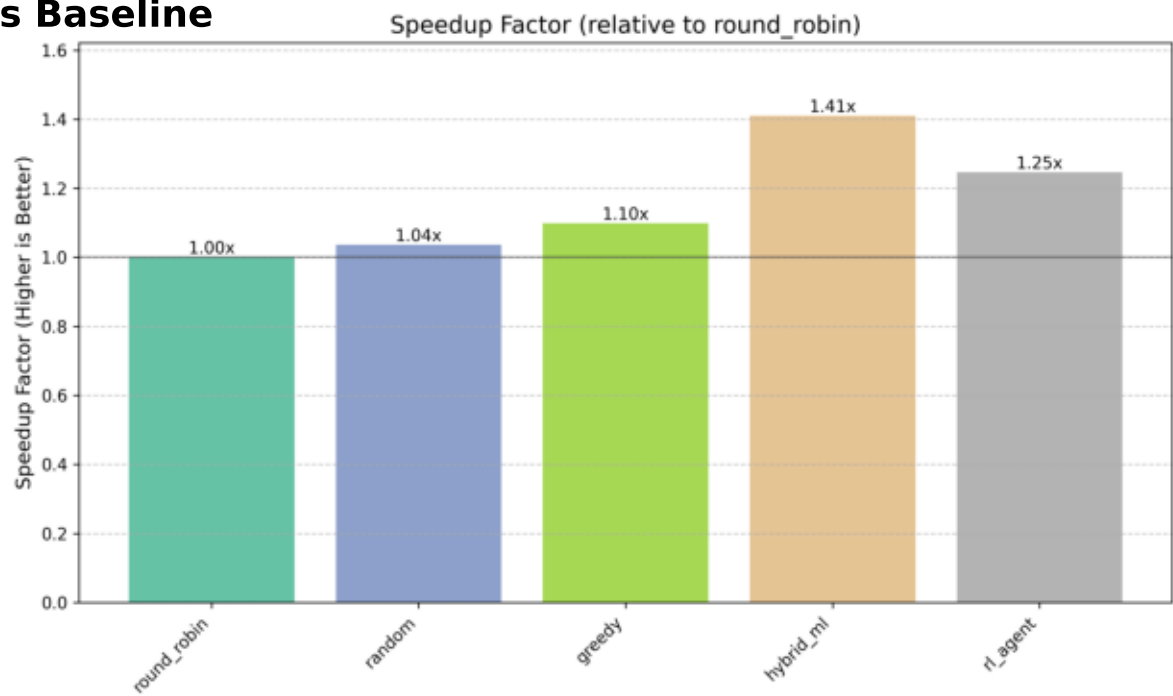
Latency Distribution (Box Plot)



Total Operational Cost



Speedup vs Baseline



Workload Characteristics

