**Detailed Timing Analysis: Performance Breakdown and Optimization Training vs Prediction Time Breakdown Total Processing Time vs Cores** -- SVD Total (0.112s) -- SVD Total Time ALS Total Time Training Time **Prediction Time** Total Time (seconds) Time (seconds) 2 3 4 5 6 7 8 2 3 5 6 7 8 **Number of Cores Number of Cores Training Time Scaling Analysis Time per Core: Resource Utilization Efficiency**  $10^{1}$ 8.12s -- Ideal Scaling Actual Training Time Time per Core (seconds) Training Time (seconds) 2.11s 0.75s0.28s $10^{0}$ 3 8 2 5 1 4 6 8 **Number of Cores Number of Cores**