Workload Merging Potential in SAP Hybris

DBTest, 2020

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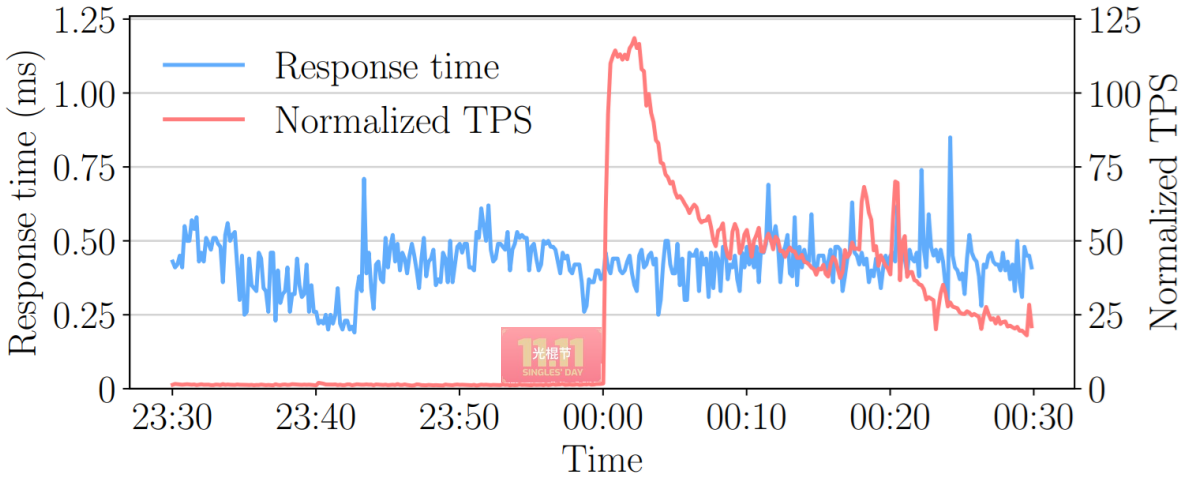
Motivation

High peak overload spikes on reoccuring events

- Black friday (1)
- Singles day (2)
- Christmas (3)



G. Huang, X. Cheng, J. Wang, Y. Wang, D. He, T. Zhang, F. Li, S. Wang, W. Cao,and Q. Li. X-engine: An optimized storage engine for large-scale e-commercetransaction processing, 2019

M. Armstrong. Chart: Unstoppable Amazon | Statista. https://www.statista.com/chart/11785/unstoppable-amazon/, July 2018.

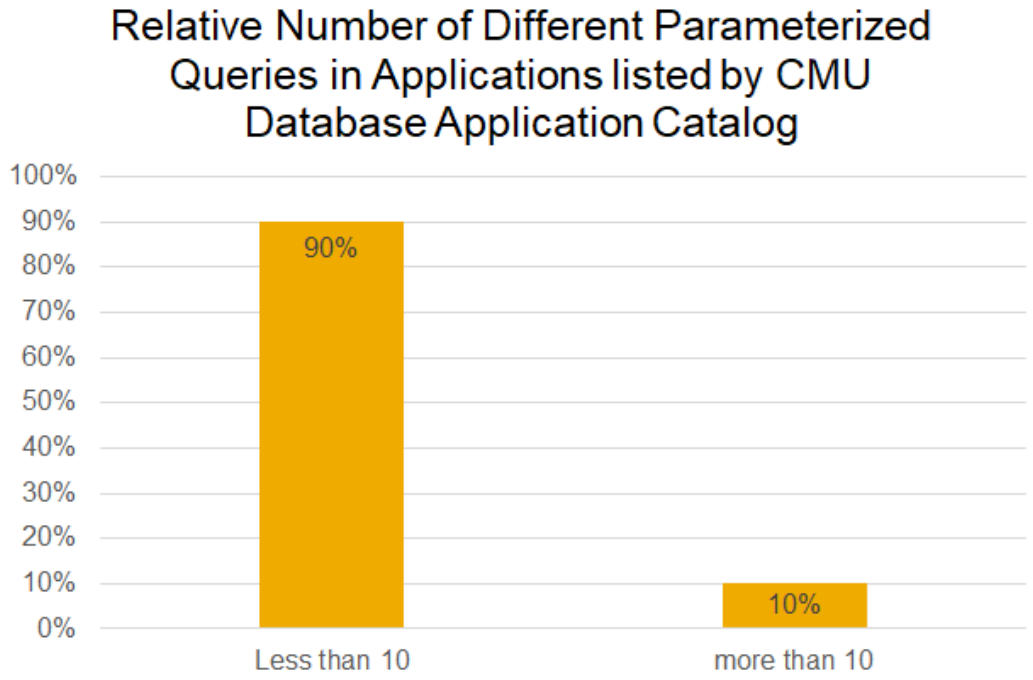
Workload optimization without acquiring extra hardware?

(1) https://www.trendreport.de/criteo-black-friday/
(2) https://t3n.de/news/singles-day-schnaeppchen-angebote-1216220/
(3) Icon made by Freepik from www.flaticon.com

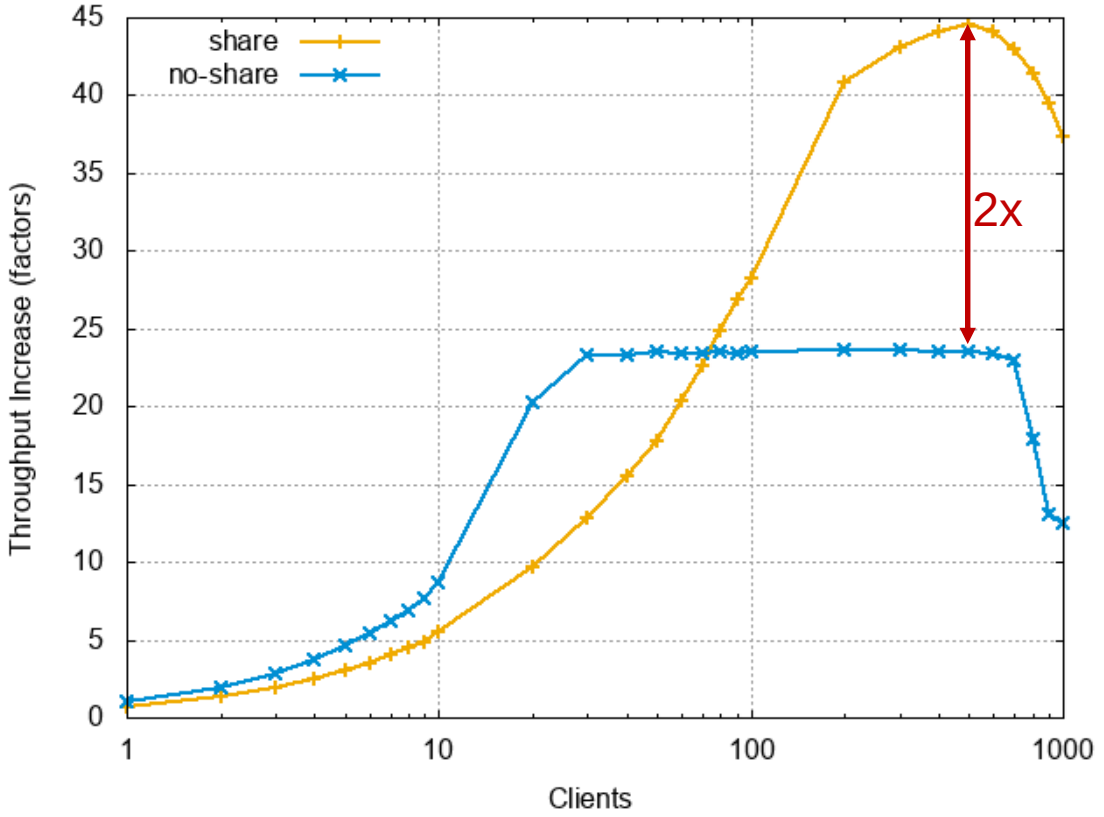
Previous Work: OLTPShare

Hypothesis 1: Workload Analysis

R. Rehrmann, C. Binnig, A. Böhm, K. Kim, W. Lehner, and A. Rizk. OLTPshare:The Case for Sharing in OLTP Workloads.Proc. VLDB Endow., 11(12):1769–1780,Aug. 2018



Hypothesis 2: Merging Benefit

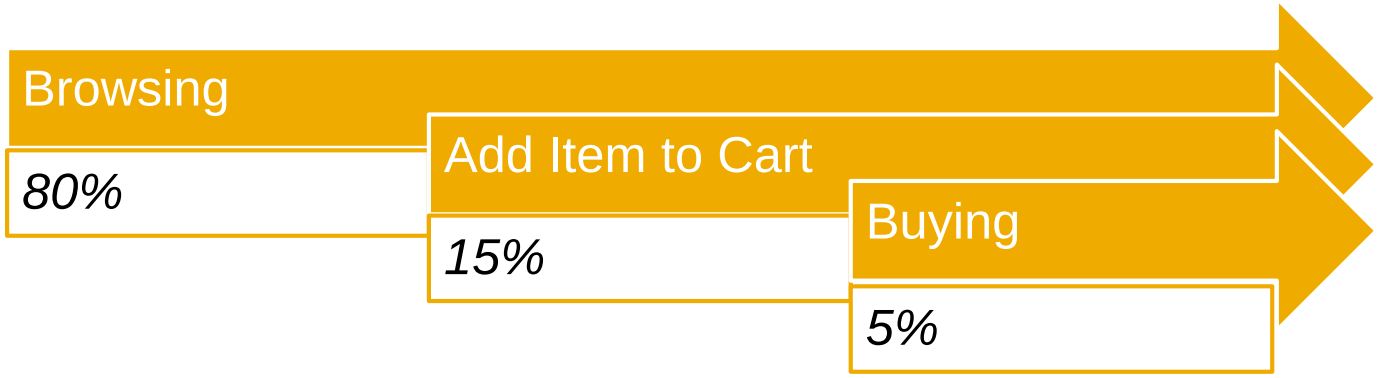


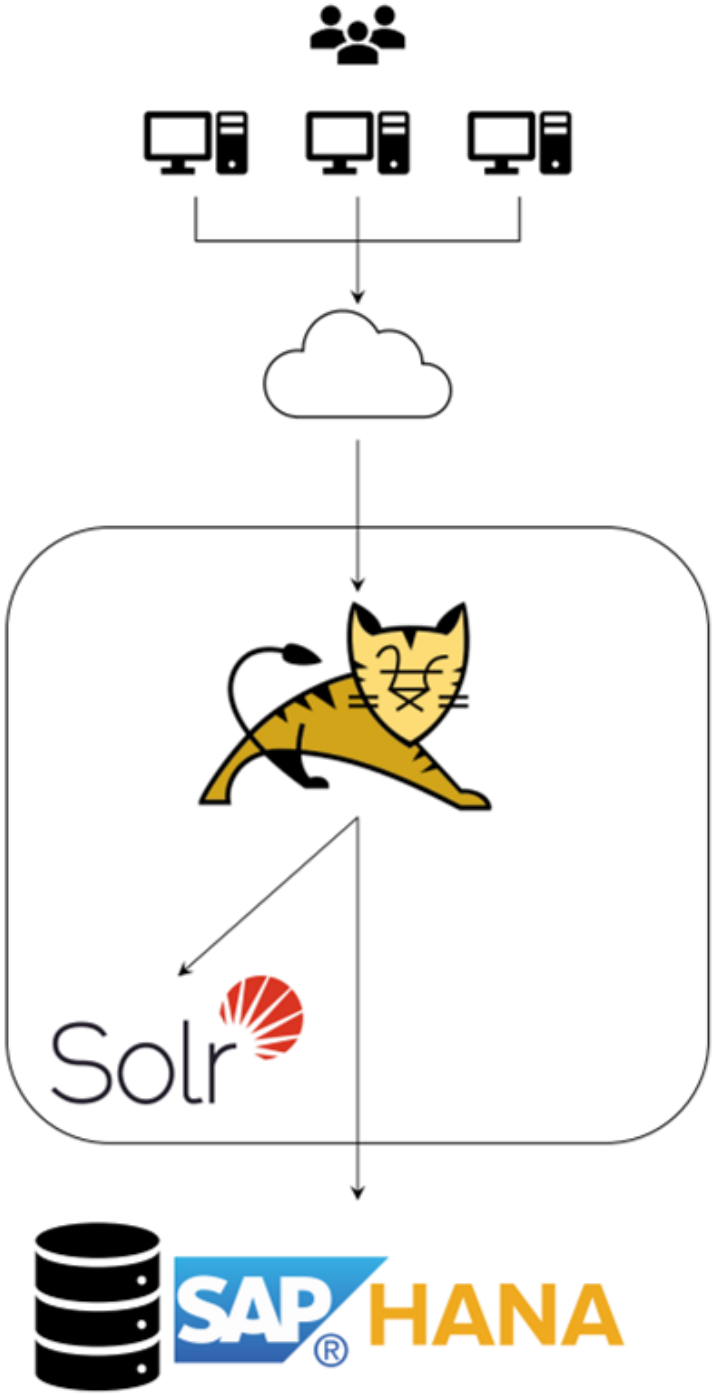
Do these hypthesis hold for enterprise workloads?

SAP Hybris: Workload Description

Platform for retailer with more than 160 customers(1)

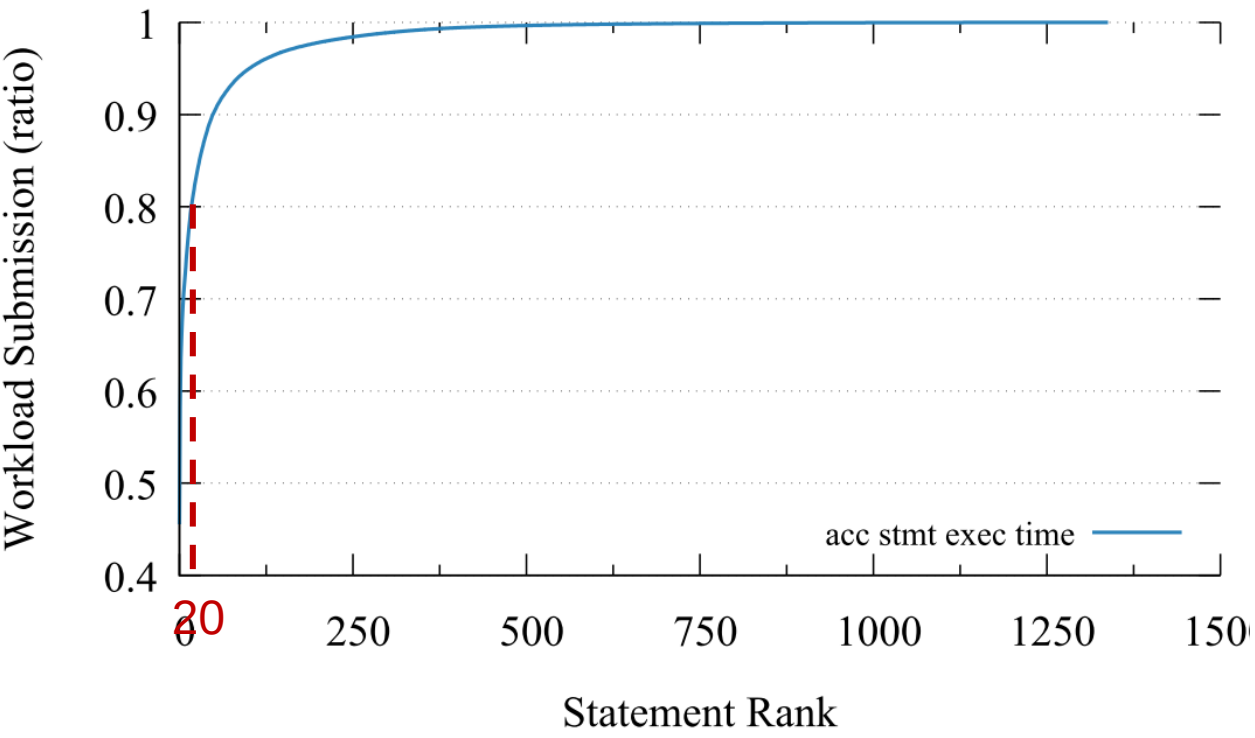
Workload Description

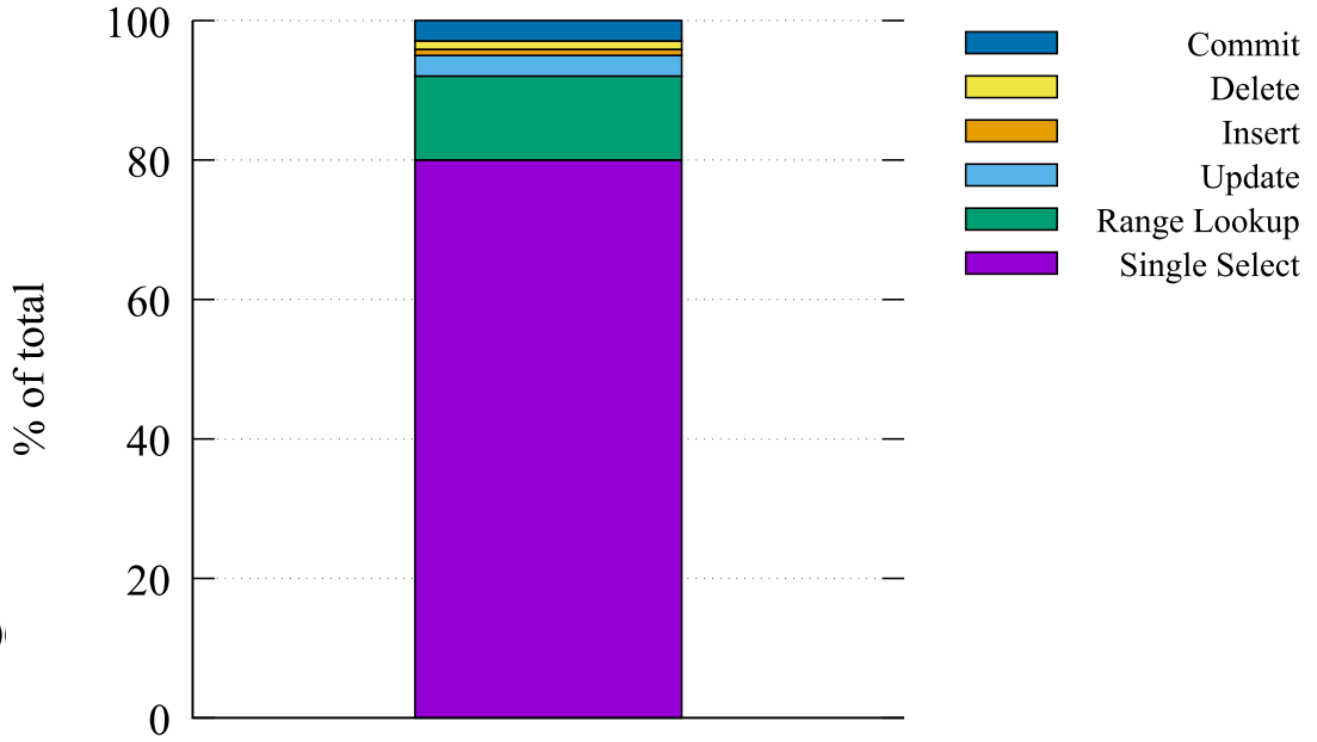




(1) featured customers. 163 Companies that are using Hybris eCommerce Plat-forms Software.https://www.featuredcustomers.com/vendor/hybris/customers, 2019. Accessed: 2020-05-01.

SAP Hybris : Analysis

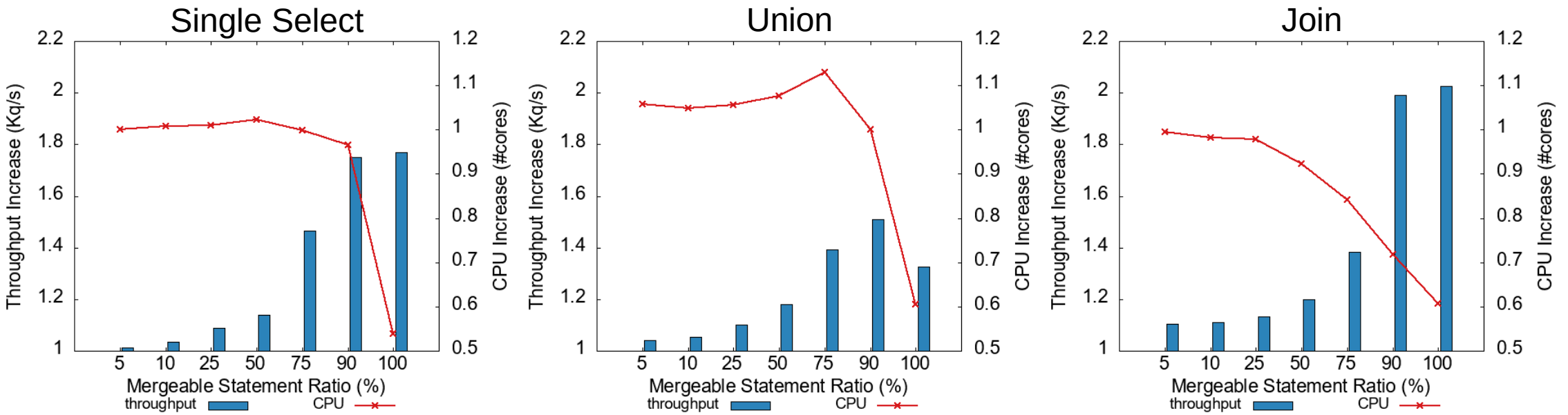




SAP Hybris is read heavy, with a few hotspot queries

SAP Hybris : Merging Potential Analysis

ODBC benchmark

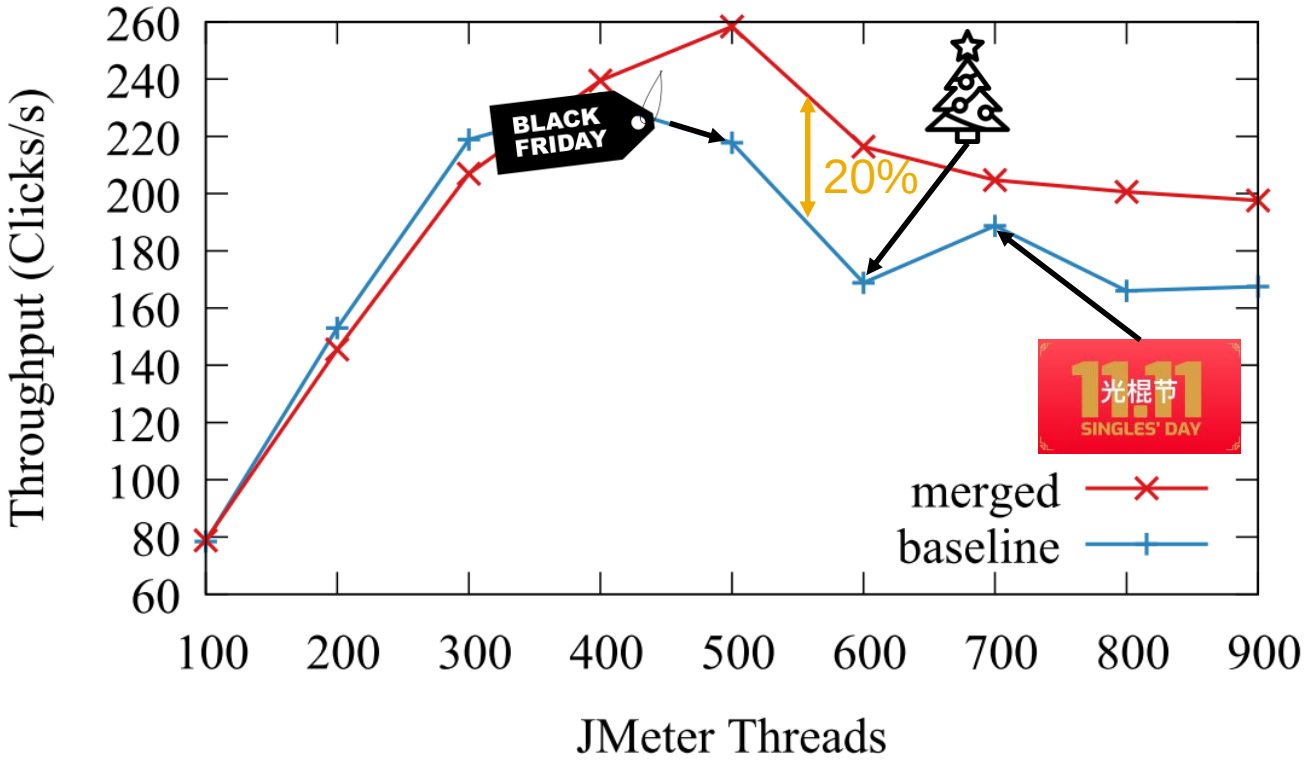


All statement types benefit in throughput and CPU

SAP Hybris : Merging End 2 End

Full landscape, end-to-end

Merge one single select, only



Throughput increase of 20%

Discussion & Summary

Two evaluation questions

1. Workload characteristics
   - Hypothesis: Ready-heavy, few hotspots
   - SAP Hybris
     - 80% single selects
     - 20 statement strings make 80% of workload
2. Throughput improvement through merging
   - Hypothesis : Throughput increase of 2x
   - SAP Hybris
     - CPU improvement of 50%
     - Throughput increase of 20%