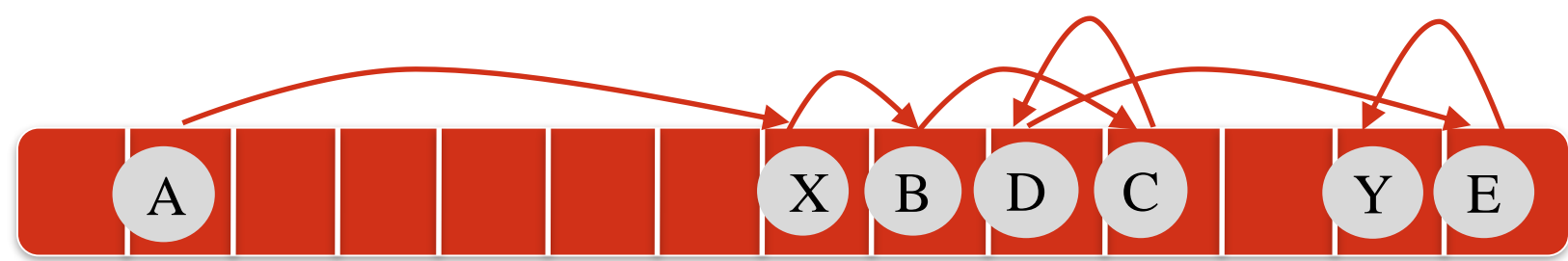


Temporal Prefetching Without The Off-Chip Metadata

Hao Wu, Krishnendra Nathella, Joseph Pusdesris, Dam Sunwoo, Akanksha Jain, Calvin Lin

Irregular Data Prefetching

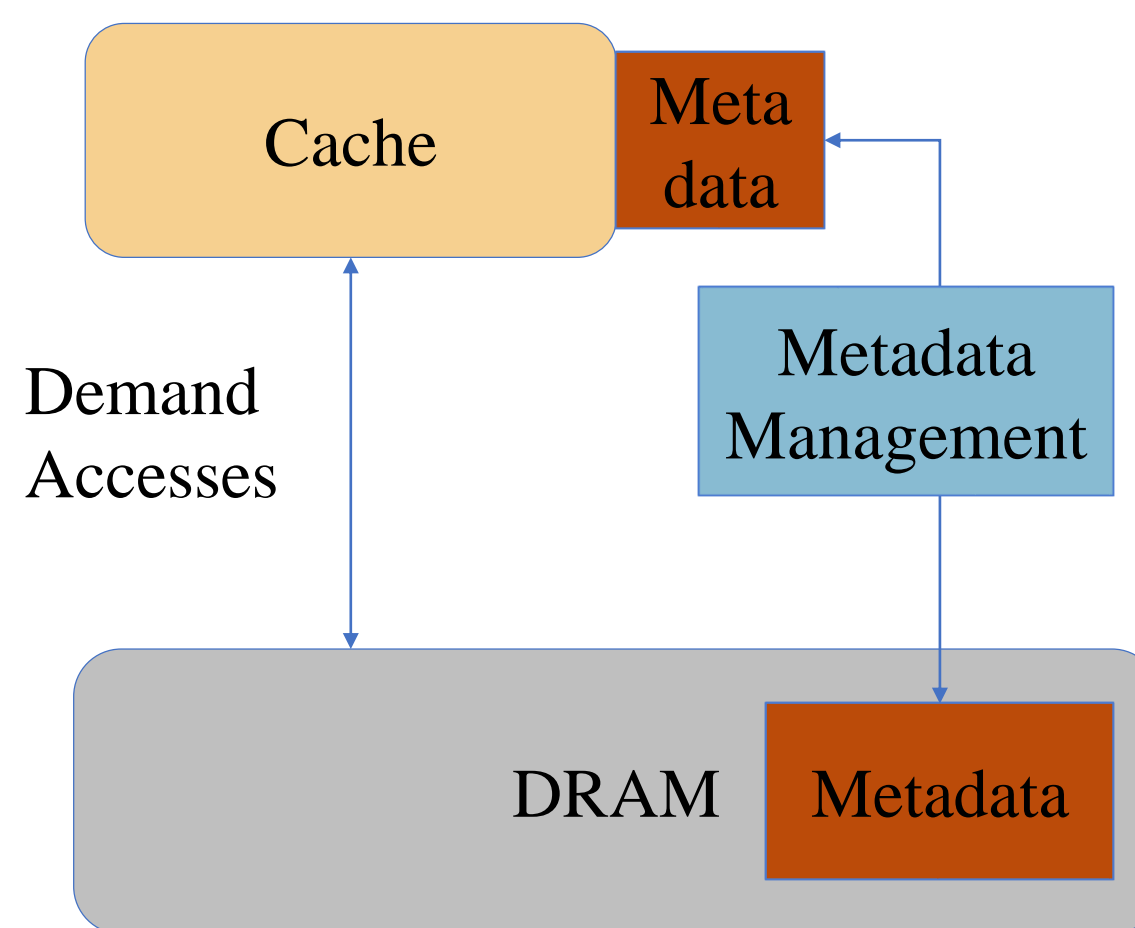


Memorize correlations



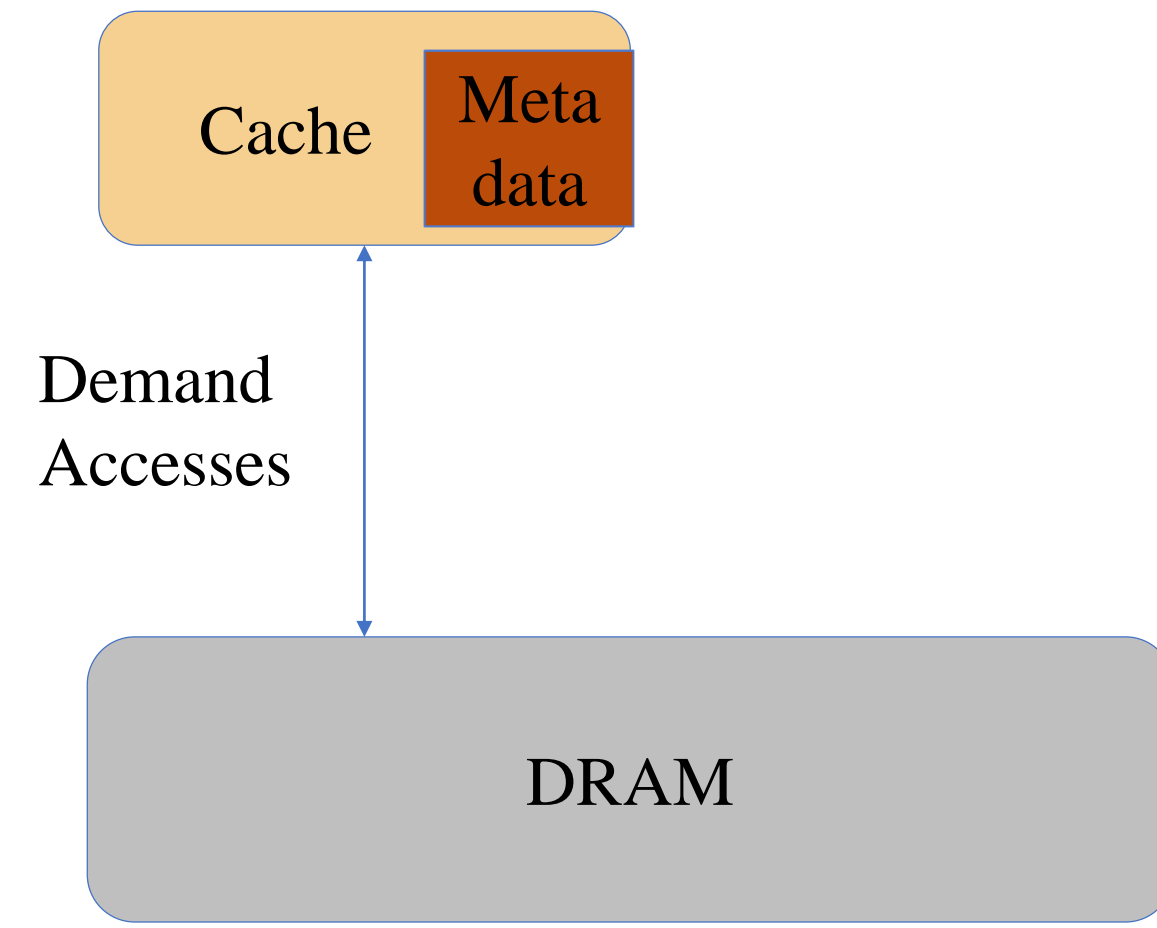
~100MB Metadata

Prior Work



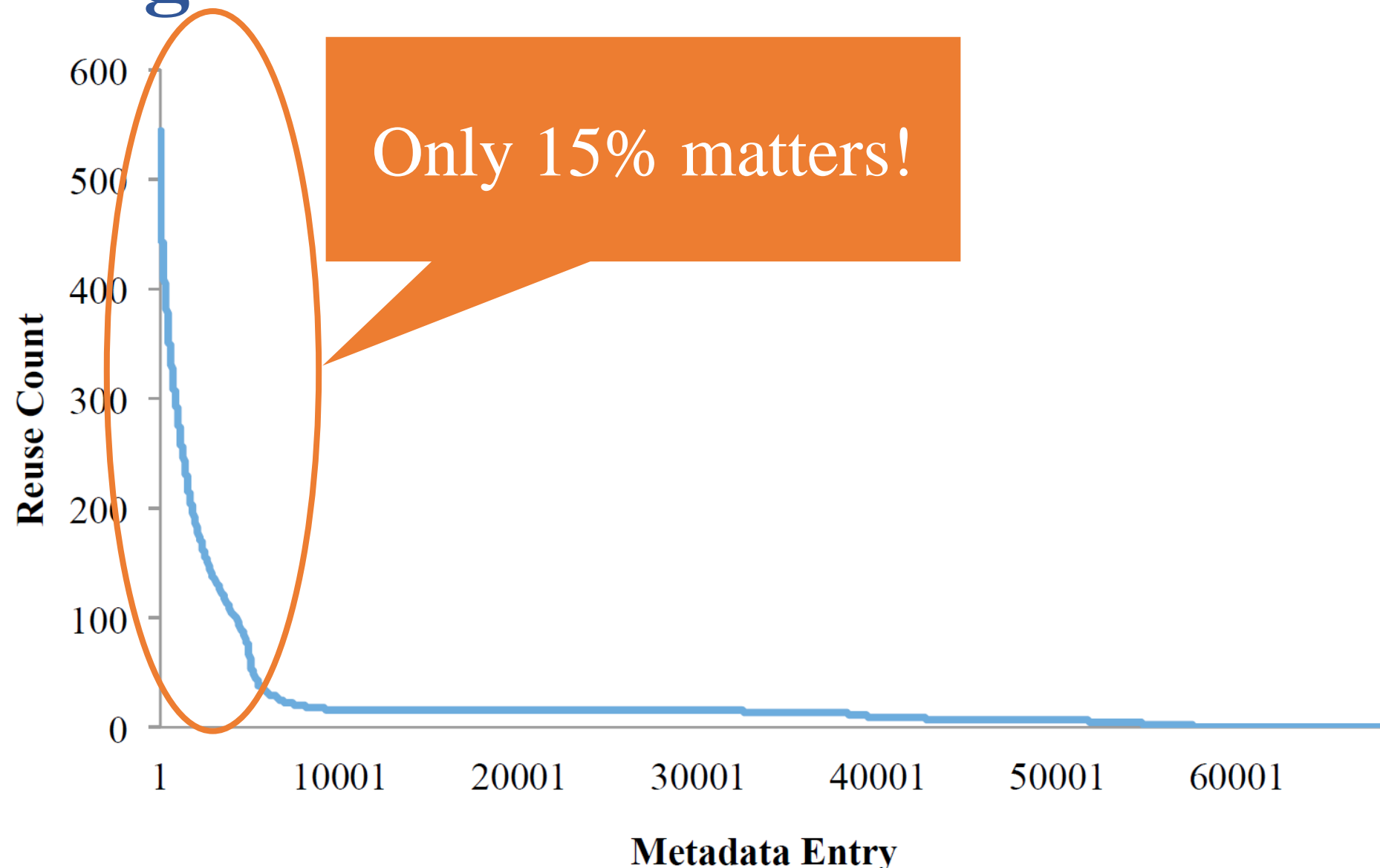
Large Traffic Overhead ☒
Large Energy Cost ☒

Our Solution

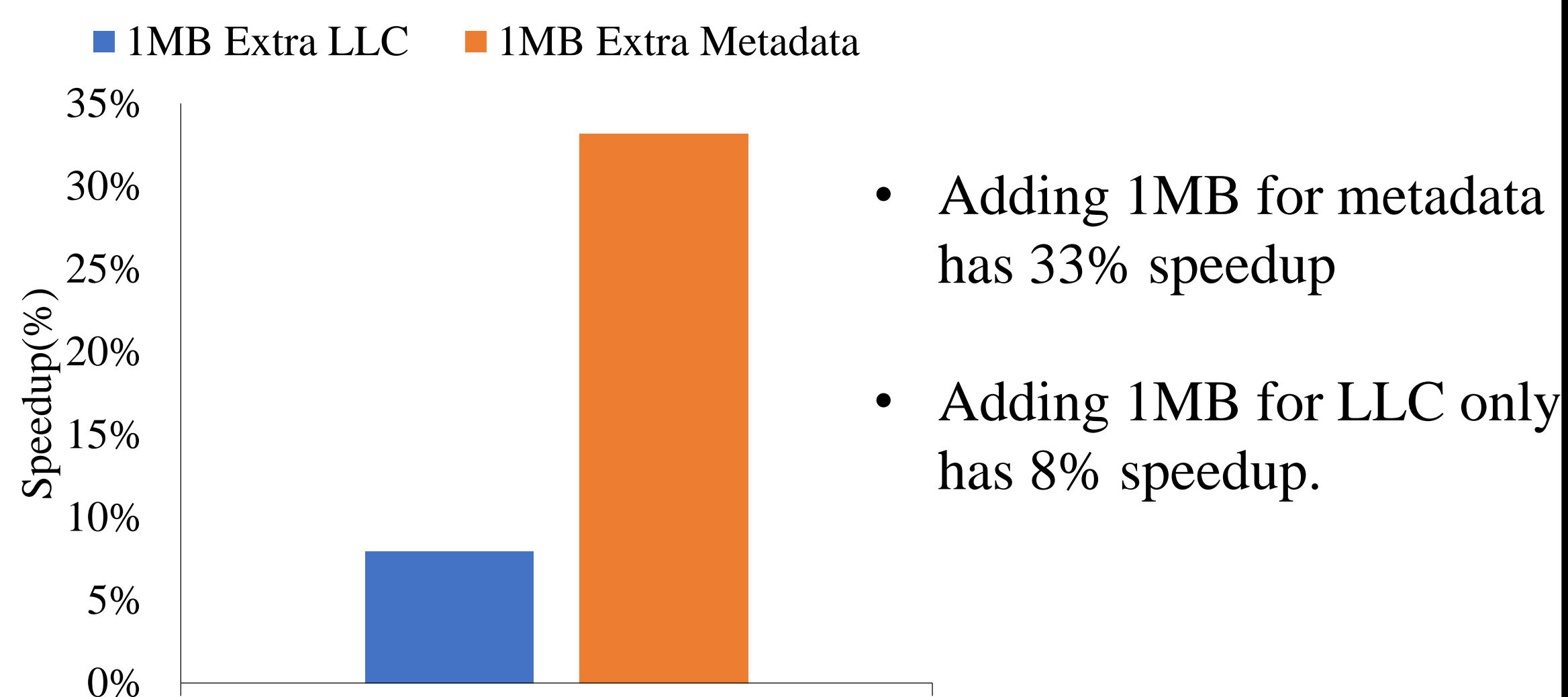


Reuse part of LLC as metadata storage

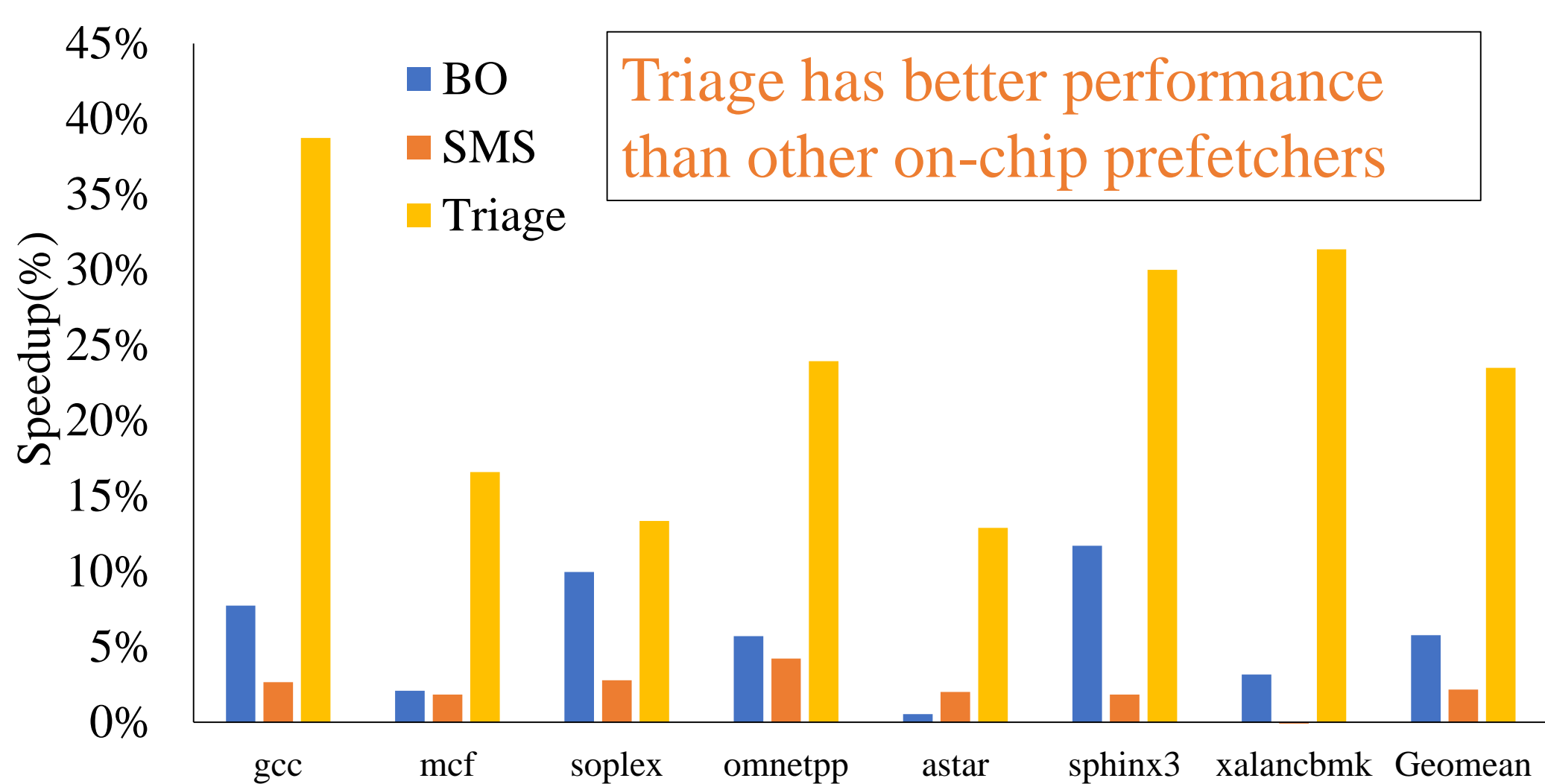
Insight 1: Not all metadata is useful



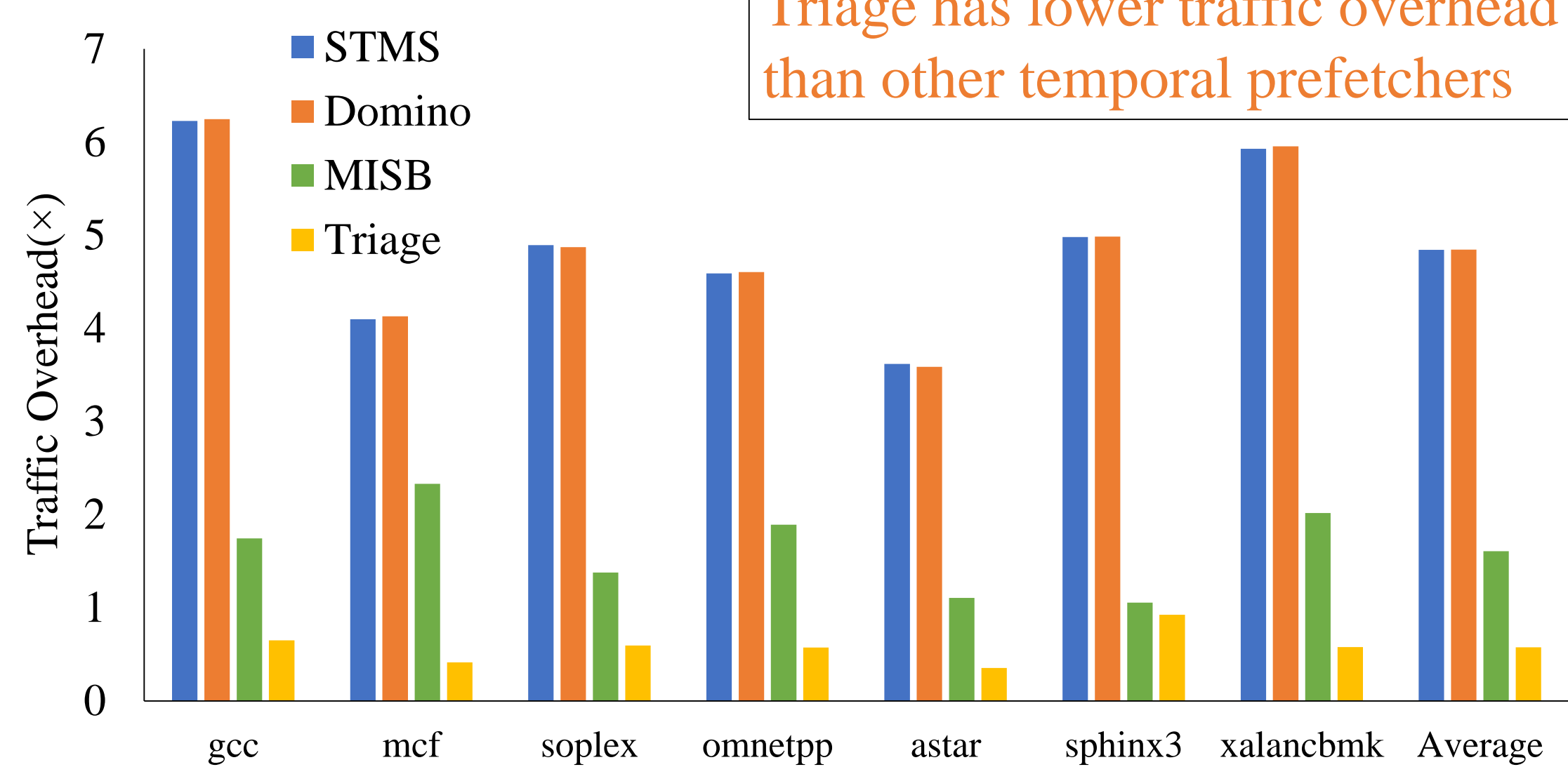
Insight 2: Metadata more useful than data



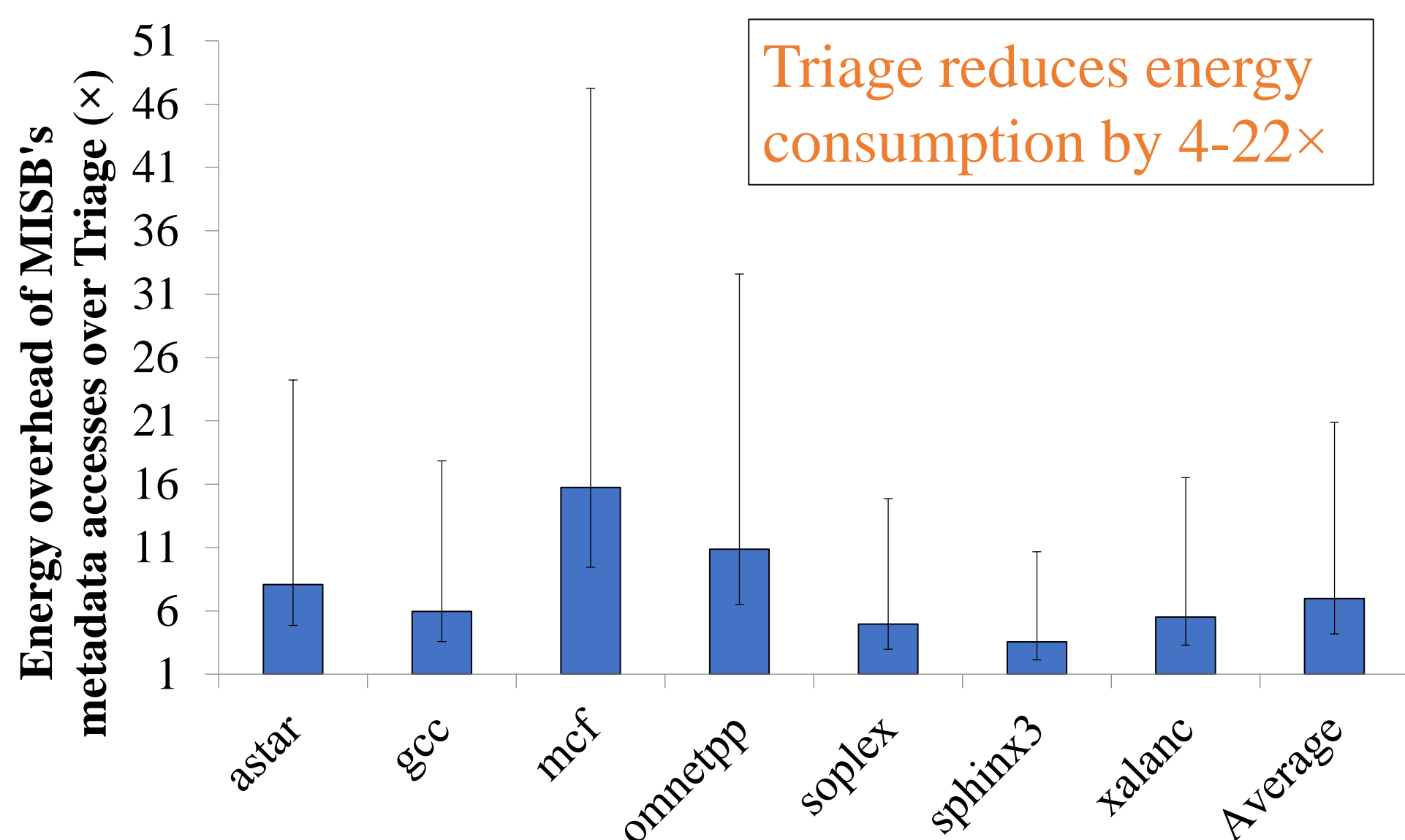
Performance



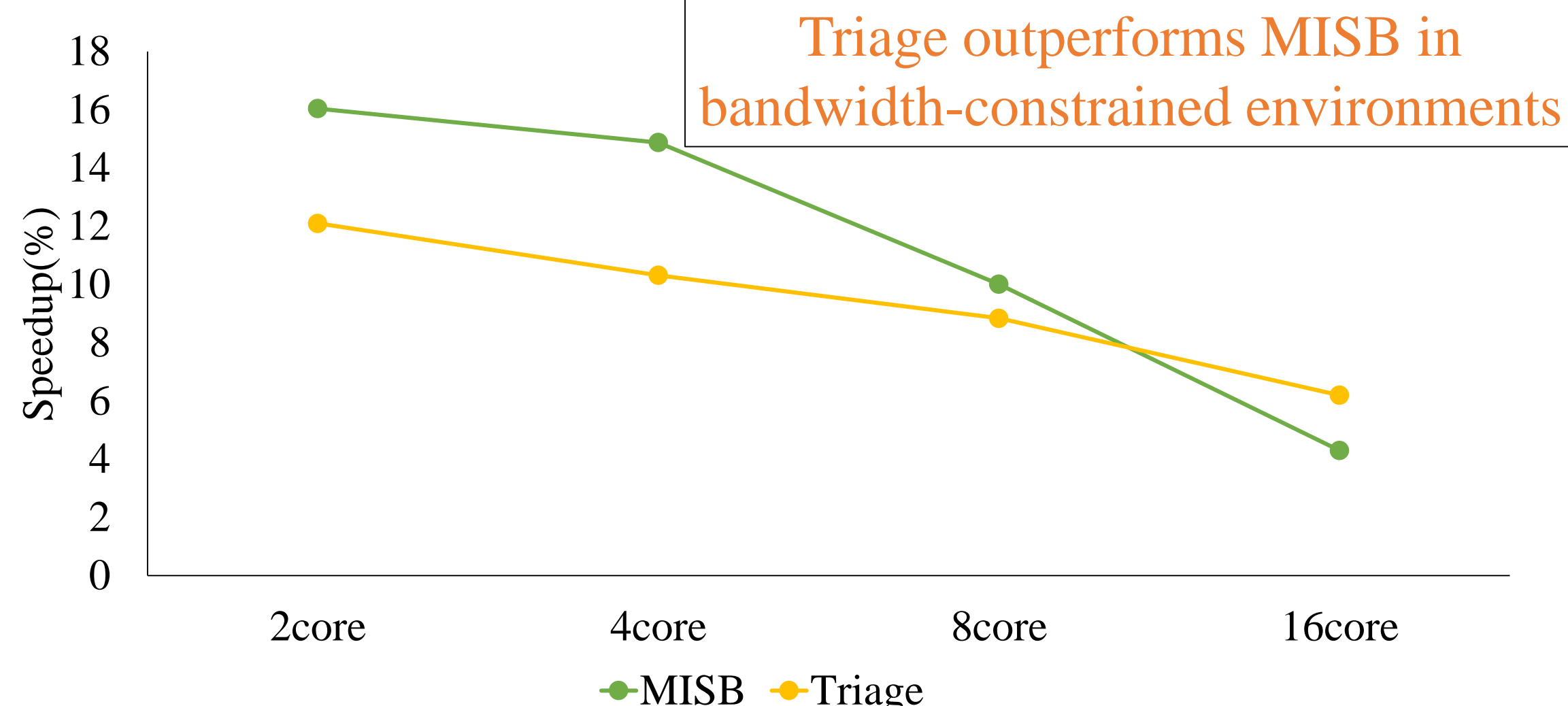
Traffic Overhead



Energy Consumption



Performance for multi-core



Talk: Wednesday 11:00AM
Session VIII-A