

# IOGP: An Incremental Online Graph Partitioning Algorithm for Distributed Graph Databases

Dong Dai \*, Wei Zhang, Yong Chen; Texas Tech University

## 1. Why Another Graph Partitioning Algorithm?

- Existing algorithms are not designed for OLTP workloads (graph databases)
- Need to re-partitioning the graphs after a batch of changes
- Need global connectivity of the graphs to deliver reasonable results
- Optimized for better overall throughput not for less individual response time

## 2. What Is IOGP?

- An Incremental **O**nline **G**raph **P**artitioning algorithm
- Designed for transactional workloads in graph databases

## 3. How IOGP Works?

- Include three stages: Quiet stage; Vertex Reassign stage; Edge Splitting stage
- Maintain four set of counters to record the status of the partitioning

## 4. What Is the Performance?

- Less than 10% write overhead
- As much as 2x better query performance
- Better than state-of-the-art online partitioning algorithm

**More details are in the presentation this afternoon!**