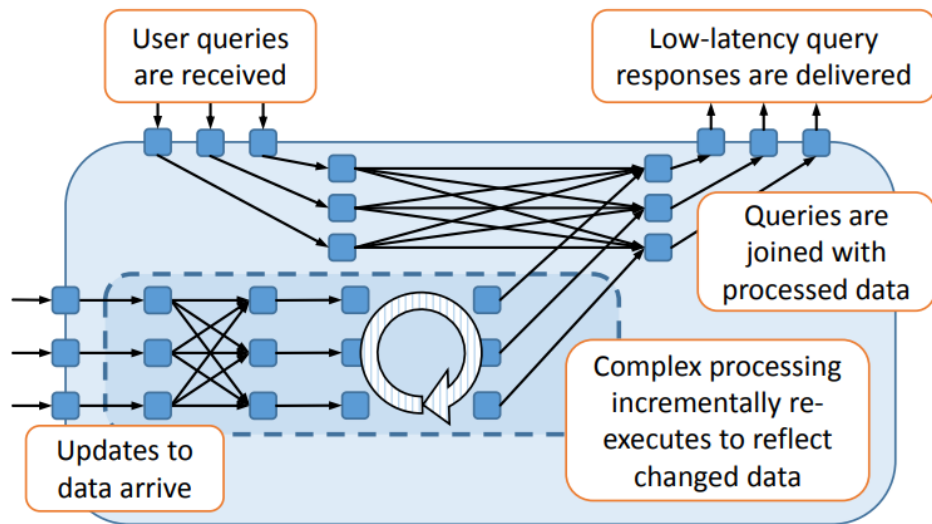# Exploring Naiad: a timely dataflow system with X-Stream
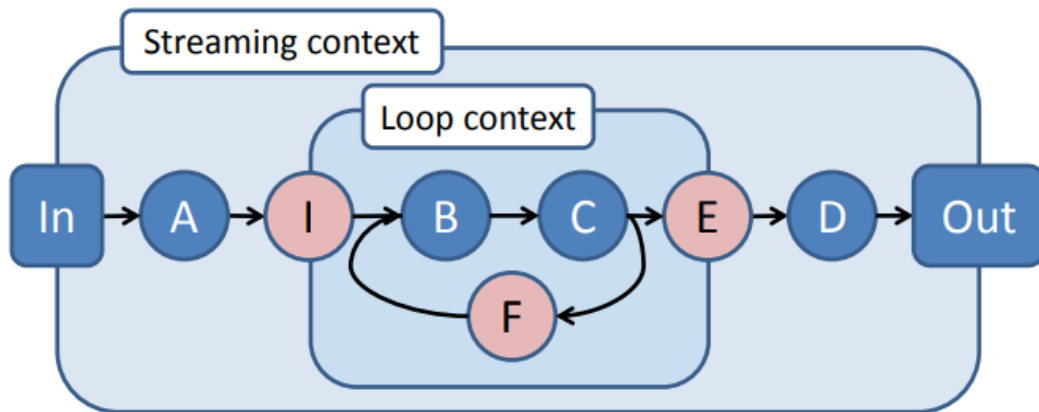
Balázs Tóth

Recap of Naiad

- Distributed system for executing data parallel, cyclic dataflow programs
- High throughput, low latency

Timely dataflow

- Directed graph with stateful vertices, possibly containing cycles
- Vertices send and receive time stamped messages
- Naiad implements this model in a distributed manner

Mini-project

- Using Naiad and its implementation in Rust:
  https://github.com/frankmcsherry/timely-dataflow
- Implement graph processing algorithms
- Attempt to combine X-Stream with Naiad
  - X-Stream relies on streams
  - Edge-centric Scatter-Gather
- Measure communication overheads

Discussion