We implemented an evaluated out algorithm FLAT in Spark Streaming using several streaming workloads.

Compared to PID controller, FLAT achieves 10%-20% throughput improvement measured by the mean average of five runs (10 minutes each).

We consider delay as the integral error, and available time left for processing as the proportional error.

Our approach
Our algorithm (FLAT) anticipates check-pointing costs and factors into back-pressure mechanism. FLAT has low overhead and robustness to high variability. Minimizes interference of check-pointing on throughput, guaranteeing smoother stream processing.

Checkpointing in stream processing must be handled carefully.

**Key insight:** No need to decrease the input rate whenever delay is detected, unlike PID.

FAST gradually adjusts stream processing input size to reduce checkpointing delays without affecting the processing rate.