The Batch Pattern

given:

set of items

function f(item) to apply to each item

solution:

collect k items (batch them)

then apply modified f() on all items in batch simultaneously
The Batch Pattern

advantages:

might be cheaper to apply $f()$ on a set of items

drawbacks:

delays processing of individual items

implementation hints:

must limit time delay (latency) for individual item
The Batch Pattern

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must find sweet spot: latency vs. throughput
Latency versus Throughput

non-batched:

\[
\frac{10}{70} = \frac{1}{7}
\]

batched:

\[
\frac{10}{7} = \frac{7.43}{7}
\]