Batching System

Contents

Data Structures

Batch

List of `BatchItem`

BatchItem

Blob Name
Blob reference
`std::promise` (optional)

Scopes

1. Rank - Solve placement, no queuing. Synchronous.

2. Node - Solve placement

3. Global - Either redirect or do a global solve.

- Destinations are pre-partitioned.
- DPE calculates per rank first, then offloads to next hierarchical level if necessary. Similar for node to global.
- "System" DPE makes decisions on which node to forward batches.
- Each Put should be fully successful (no partial Puts yet).
- The destinations associated with a scope are disjoint. (?)

Synchronous Put

```
Status Bucket::Put(const std::string &blob_name, Blob &blob)
```

1. Every `Put` will incur an additional copy.

2. Where do we "stage" the blobs that are waiting to be buffered?

Asynchronous Put

```
std::Future<Status> Bucket::AsyncPut(const std::string &blob_name, Blob &blob)
```

1. A background thread adds a `BatchItem` to a `Batch`.

2. Caller synchronizes on `std::future::get`.

Epoch Timing

Each time a request is added to a `Batch`, we check to see if it's time to trigger the DPE.

Can each scope have different epoch lengths?

Priorities

High and low priority `Batch`es.
