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12.1.3 Hidden Gems

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Note: The speaker notes for this slide include instructions for when to use Safe Harbor Statement slides.

Tip! Remember to remove this text box.

Program Agenda

1. Deserialization Accelerator
2. Asynchronous Index Build
3. Guardian stats
4. Project Shrapnel
5. Asynchronous EntryProcessors
6. Pop the hood…

Deserialization Accelerator

- Anybody want ObjectLocalBackingMap?
- Hold deserialized value in MapIndex
- ReflectionExtractor queries (BinaryEntry.getValue) will use deserialized value

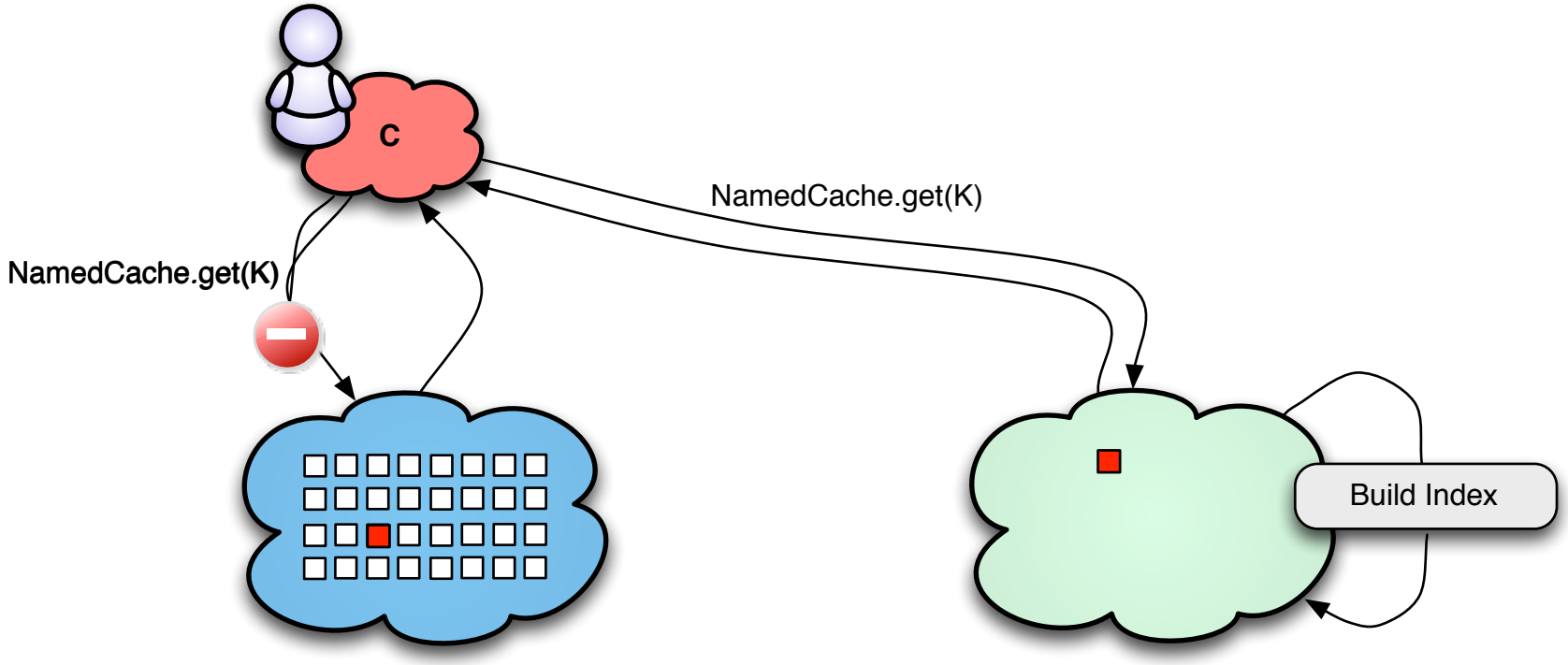
```
cache.addIndex(new DeserializationAccelerator(), false, null);

cache.addIndex(IdentityExtractor.INSTANCE, false, null);
```

- Optimized MapIndex implementation

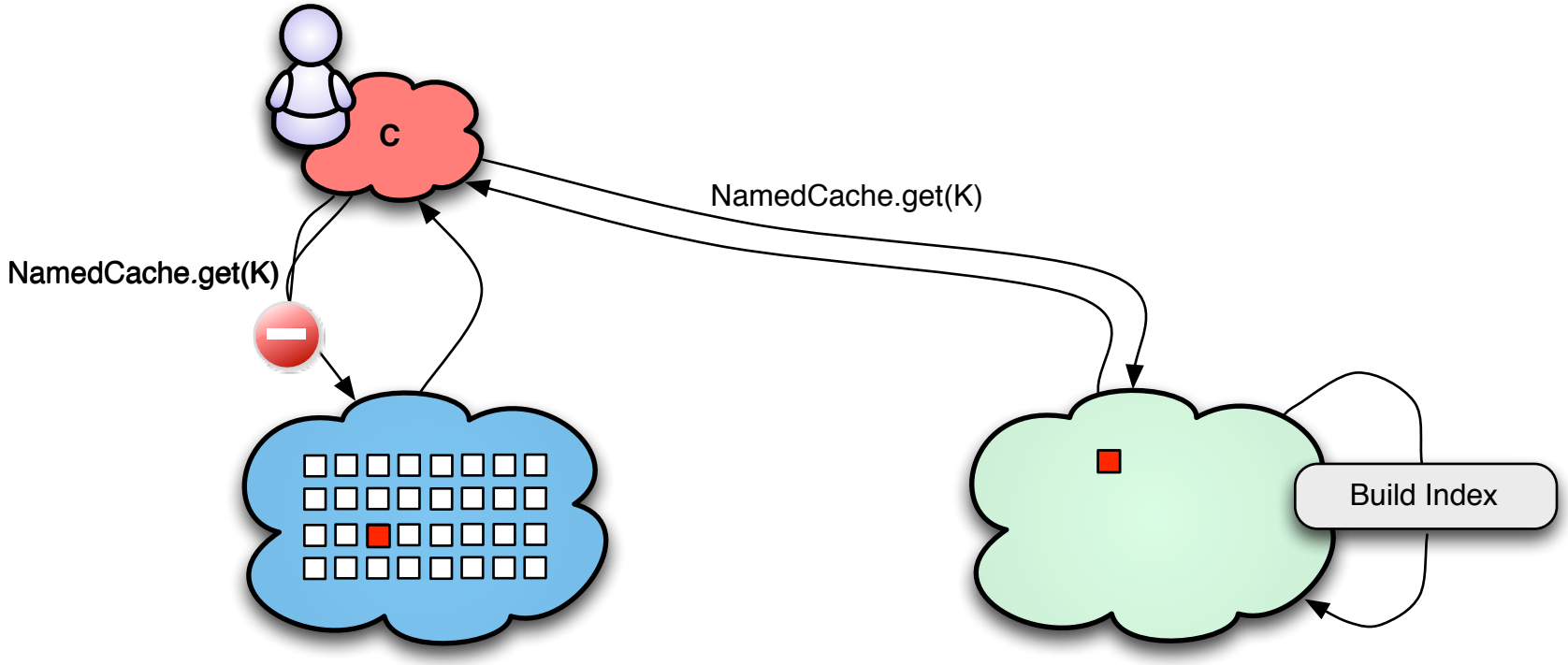
Asynchronous Index Maintenance

- Partition Transfer blocks access to the partition for the window of transfer
- Pre 12.1.3 this included updated MapIndex with the newly owned entries
- 12.1.3 MapIndex is updated asynchronously by a thread in the pool
- Query request waits until index update job completes

Synchronous Index Update



Asynchronous Index Update

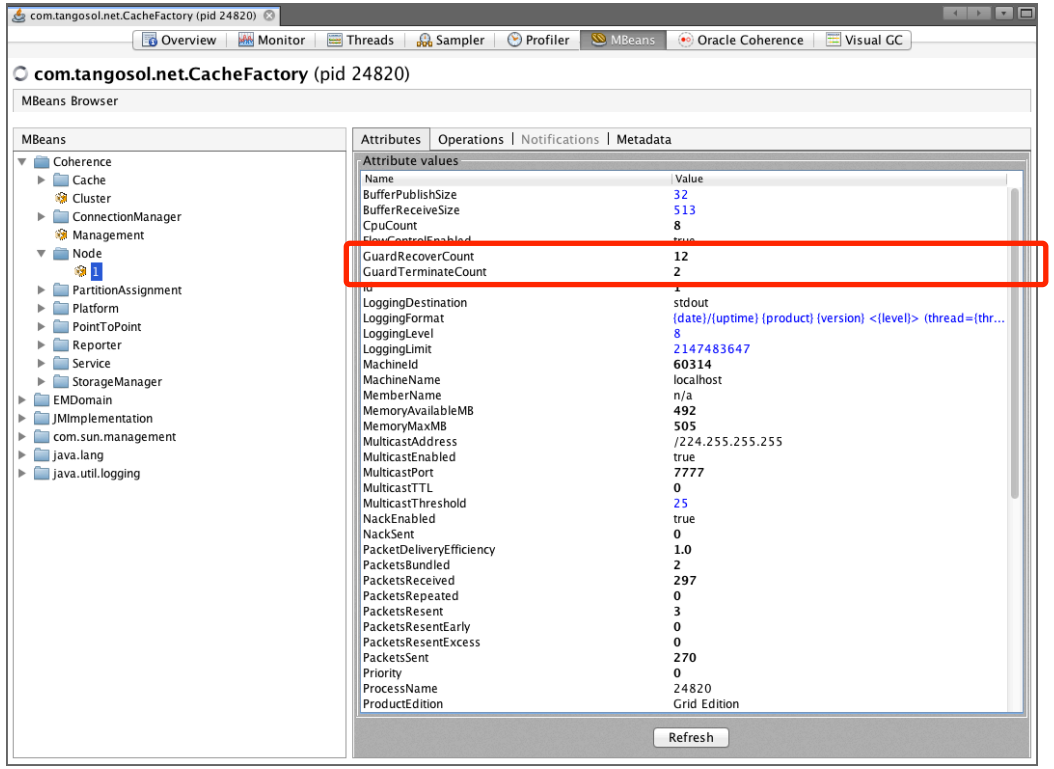


Guardian Improvements

- Public Guardian

```
Guardian guardian = CacheFactory.getCluster().getResourceRegistry().getResource(Guardian.class);
guardian.guard(me);
```

- JMX Statistics:



Shrapnel

- PartialResultAggregator
  - Single invocation of aggregatePartialResults per member
- NamedCache.putAll/invokeAll -> CacheStore.storeAll
- Deadlock avoidance
  - Always were able to detect
  - Tried to prevent
  - Now avoid
- Service Quiesce

1. Deserialization Accelerator
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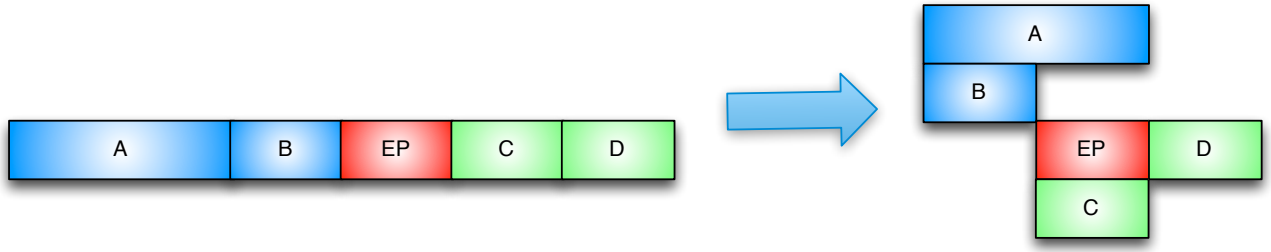
Entry Processors

- Avoids lock(K), get(K), mutate(V), put(K, V), unlock(K)
- Executed on the member that owns K
- Possible to be invoked with a Collection<K> or a Filter (Predicate)
- Allow features such as Partition Lite Transactions

Entry Processors

- Are the steps in a processing pipeline parallelizable?



- If so the answer is simple:

```
final NamedCache cache = CacheFactory.getCache("foo");

Thread thread = new Thread(new Runnable()
    {
    public void run()
        {
        cache.invoke(1, new ConditionalPut(AlwaysFilter.INSTANCE, 1));
        }
    });
thread.start();

// do some other work

// no that all parallelizable work is complete, make sure the EP thread finished
thread.join();
```

Entry Processors

- As of 12.1.3 OOTB we provide an AsynchronousProcessor
- Wrapper processor
- AsynchronousProcessor extends AsyncAgent implements **Future**
- Can specify
  - Unit of Order {default: `Thread.getId()`}
  - Automatic Flow Control {default: `true`}

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