APACHECON
ASIA 2021

Middleware

The Powerful Distributed Scheduling Solution

ElasticJob

Weijie Wu

Apache ShardingSphere Committer & Middleware Engineer at SphereEx

About Me

Weijie Wu 吴伟杰

- Apache ShardingSphere Committer
- Middleware Engineer at SphereEx
- Contributed to Apache ShardingSphere & Apache ShardingSphere ElasticJob
- Release Manager of ElasticJob 3.0.0

About the ElasticJob

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Abilities in distributed job scheduling

- Elastic Schedule
- Resource Assign
- Job Governance
- Job Open Ecosystem
- Console & UI

- Stars: 7.1k
- Forks: 3k
- Contributors: 84
- Using by at lease 83 companies

July, 2021
ElasticJob 3.0.0 GA

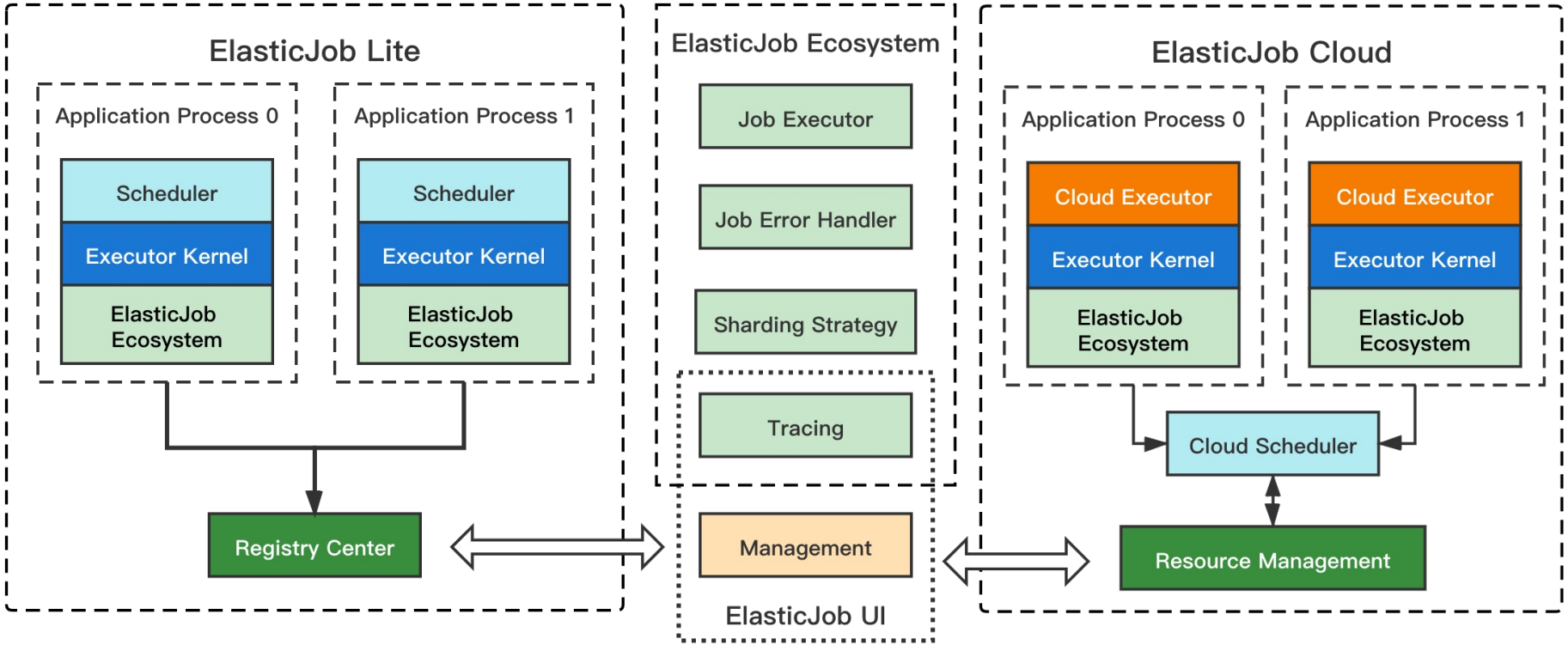
December, 2020
ElasticJob 3.0.0-RC1

June, 2020
Became sub project of
Apache ShardingSphere

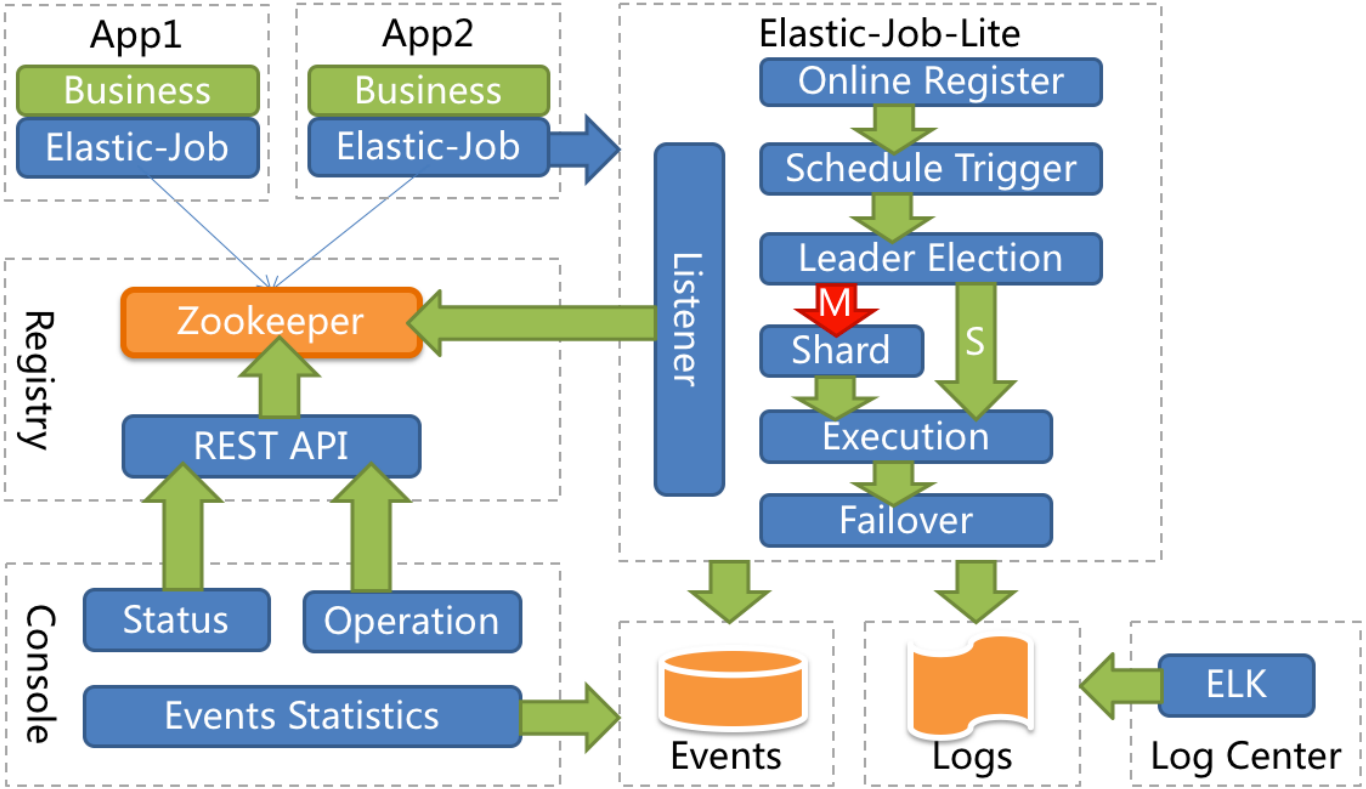
October, 2015
Open source by
dangdang.com

June, 2015
Project Started

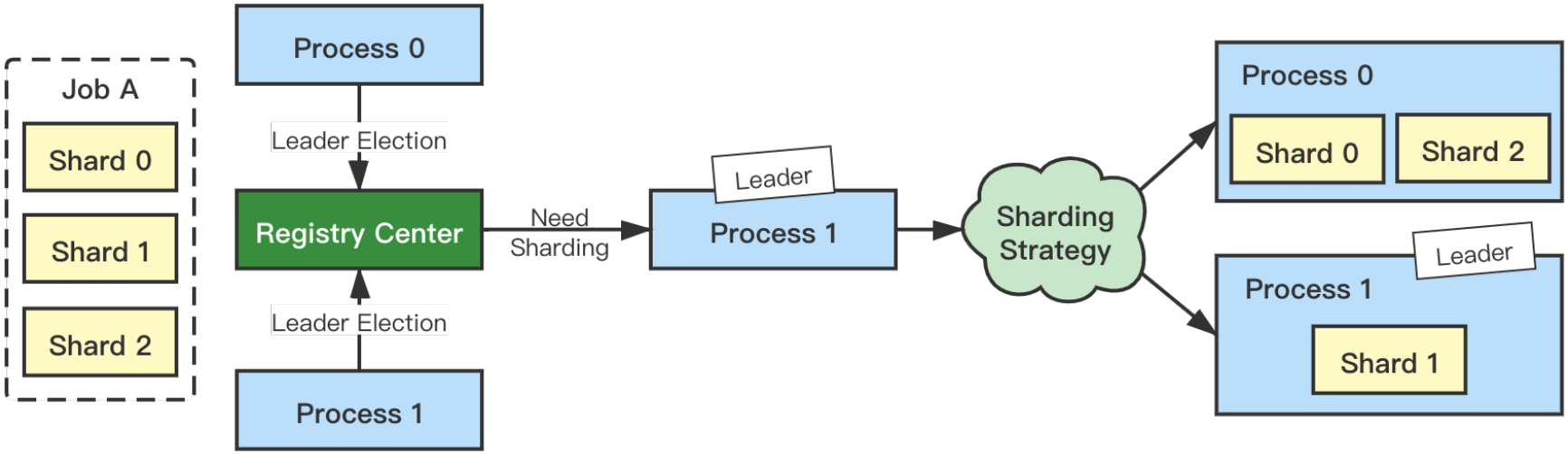
Architecture of ElasticJob



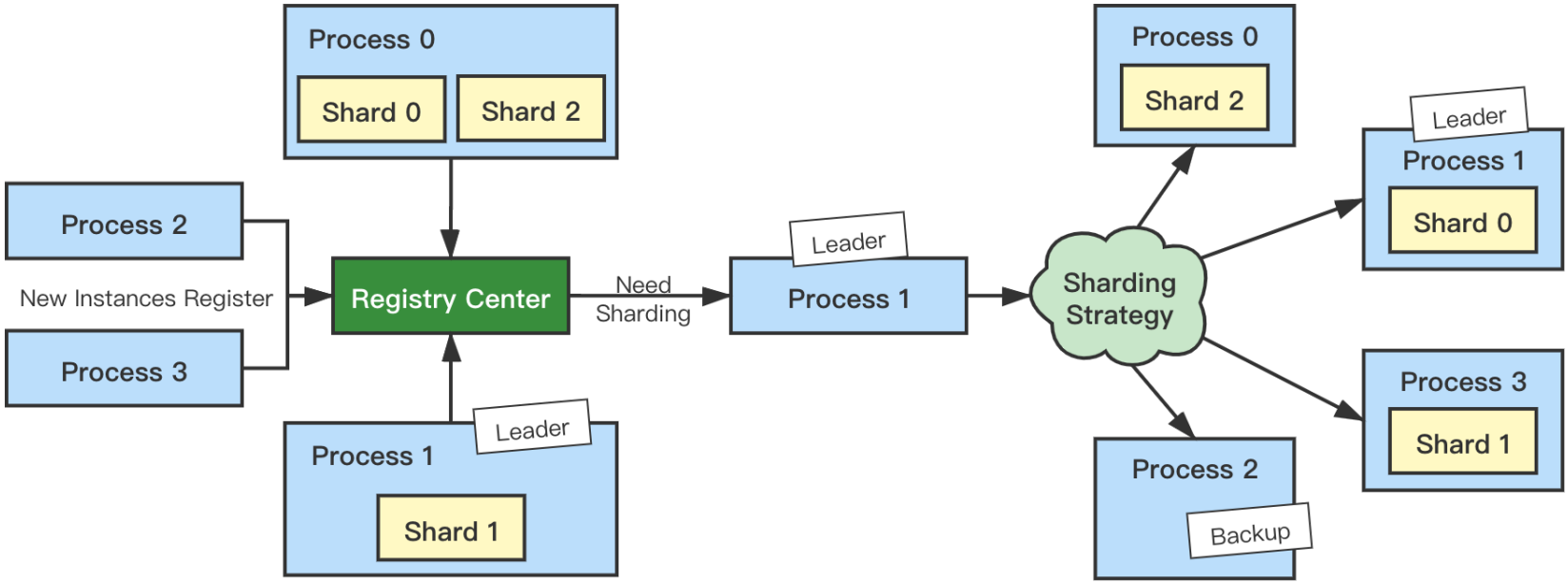
Architecture of ElasticJob Lite



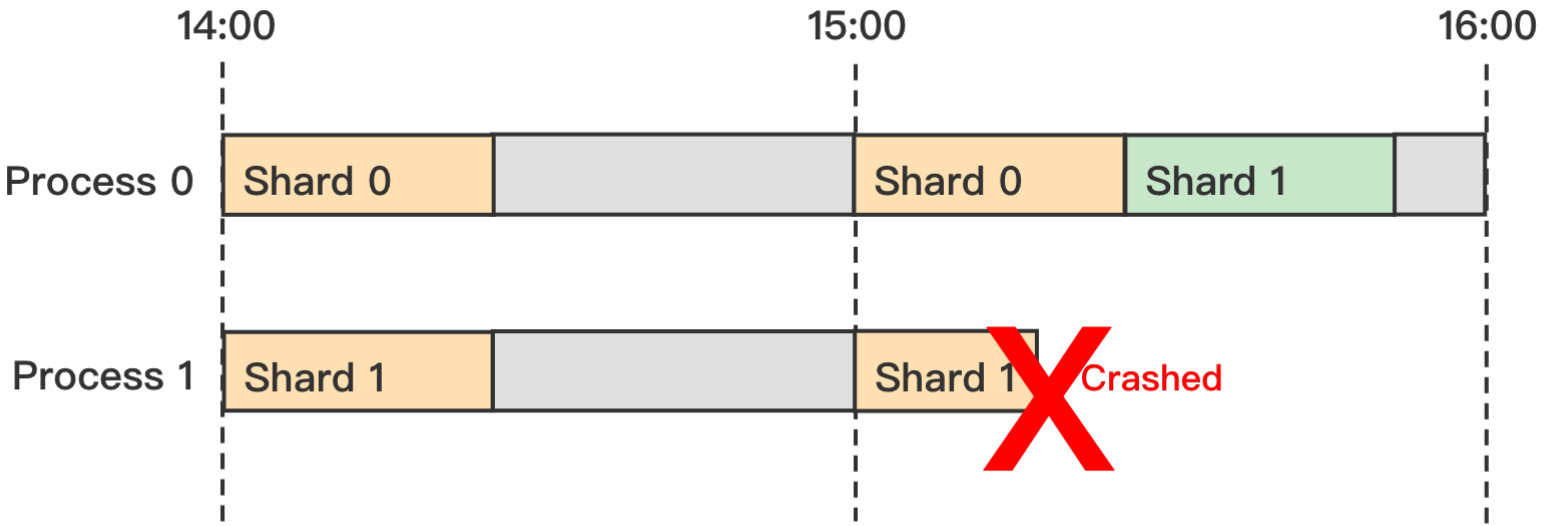
Job Sharding



Dynamic Sharding

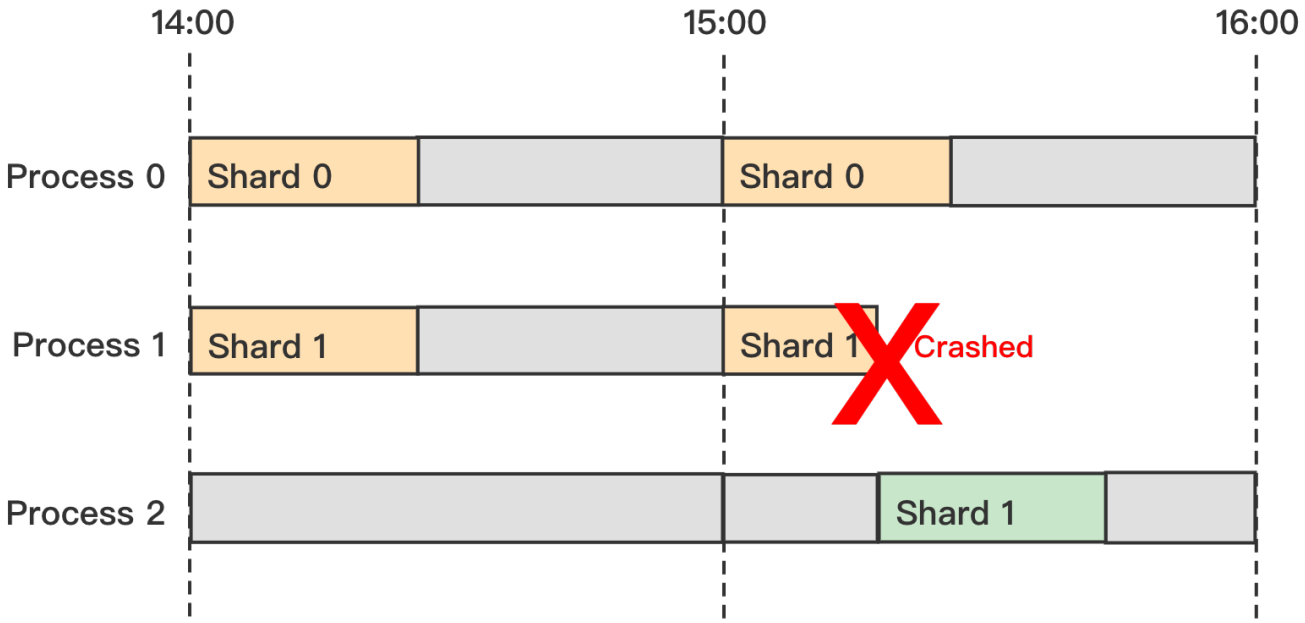


Failover



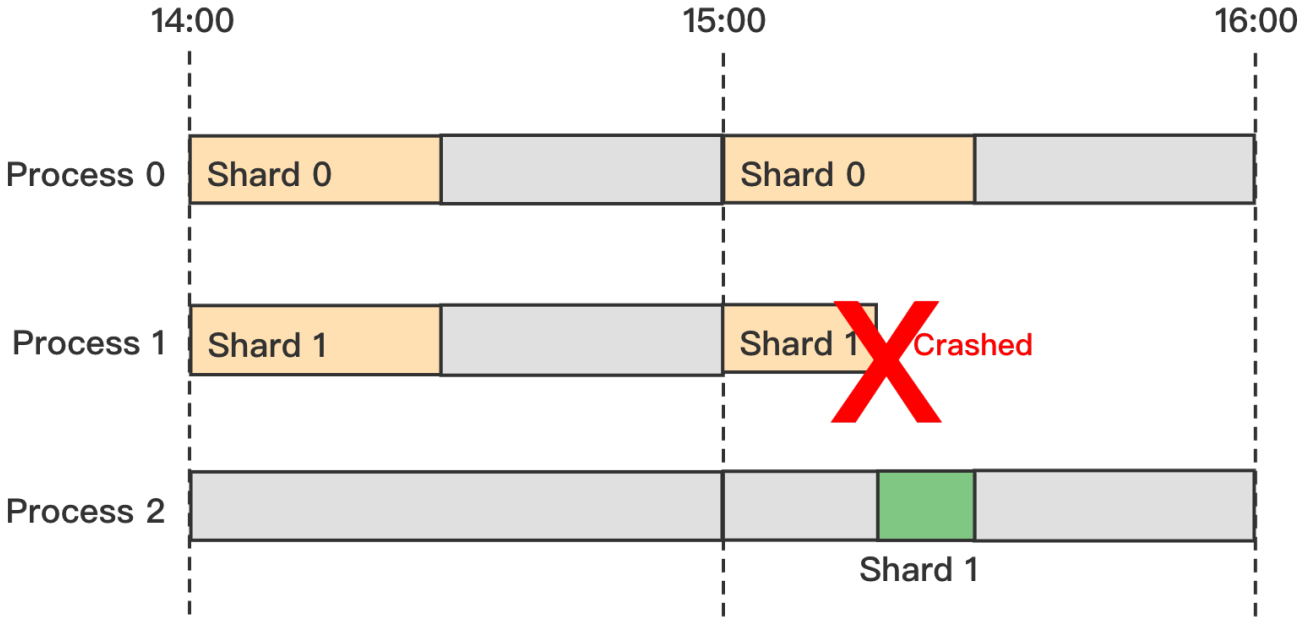
After finishing executing its job, the process will check if there is any shard that needs to be compensated.

Failover



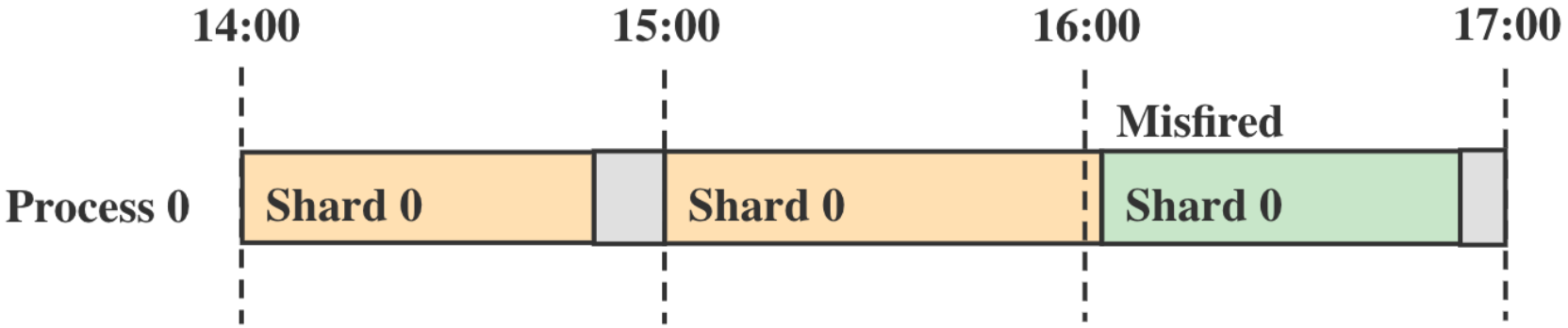
The process which scheduled the job but wasn't assigned any shards will compensate failover shards immediately once detected any instance crashed.

Failover



Ideally, the crashed shards still can be finished in time if the job's business logic supports breakpoint continuation.

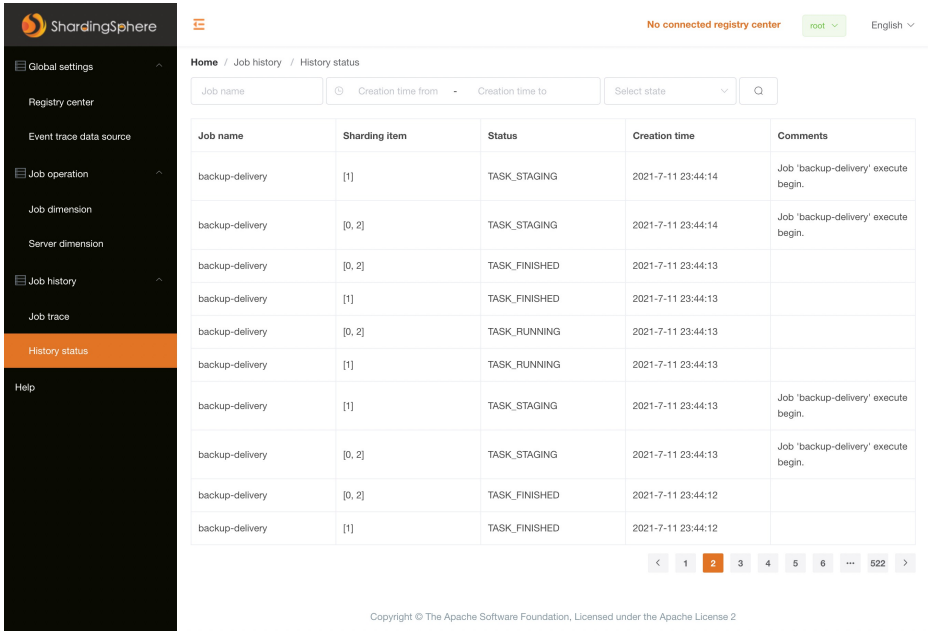
Misfire



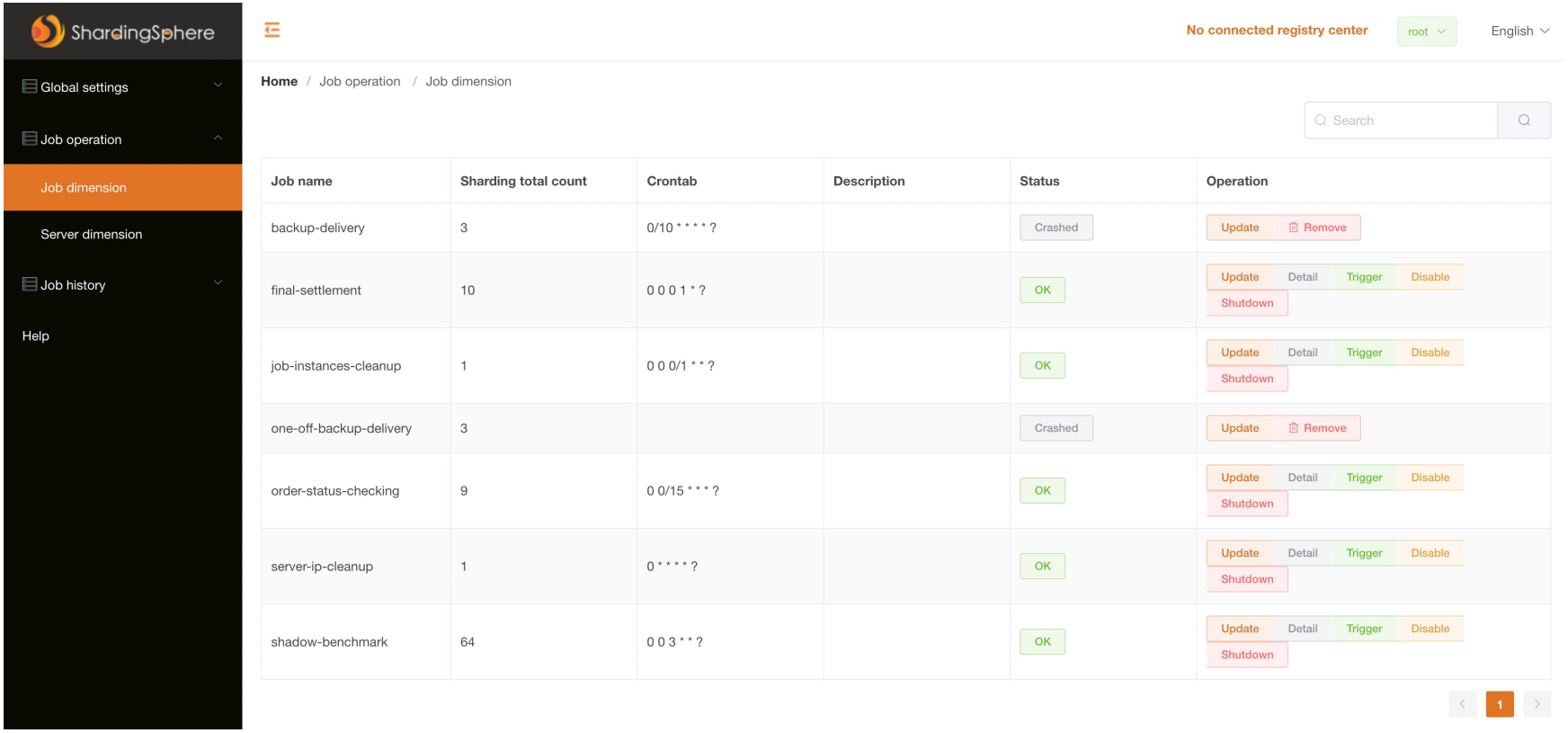
A job runs per hour : 0 0 * * * ?

ElasticJob UI

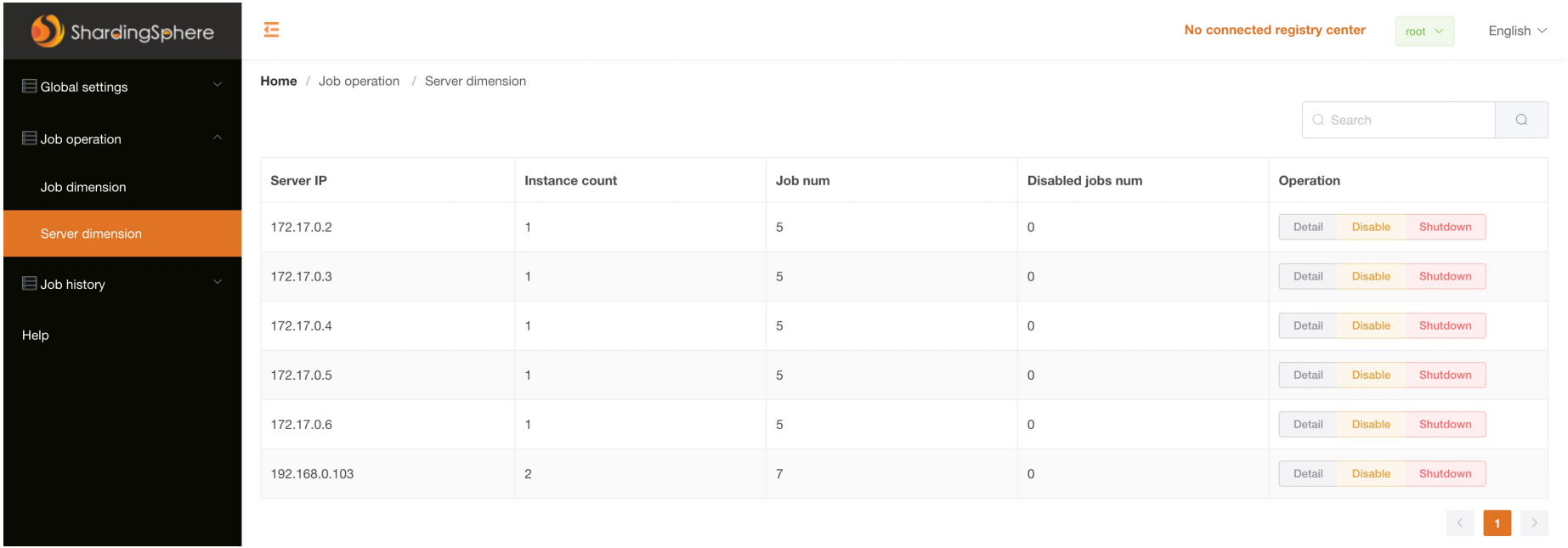
- Job Management
  - ✓ Job status
  - ✓ Configurations management
  - ✓ Trigger, enable/disable, shutdown…
- Server Management
  - ✓ Server status
  - ✓ Enable/disable, shutdown…
- Job History Tracking
  - ✓ Job execution log
  - ✓ Job status trace log



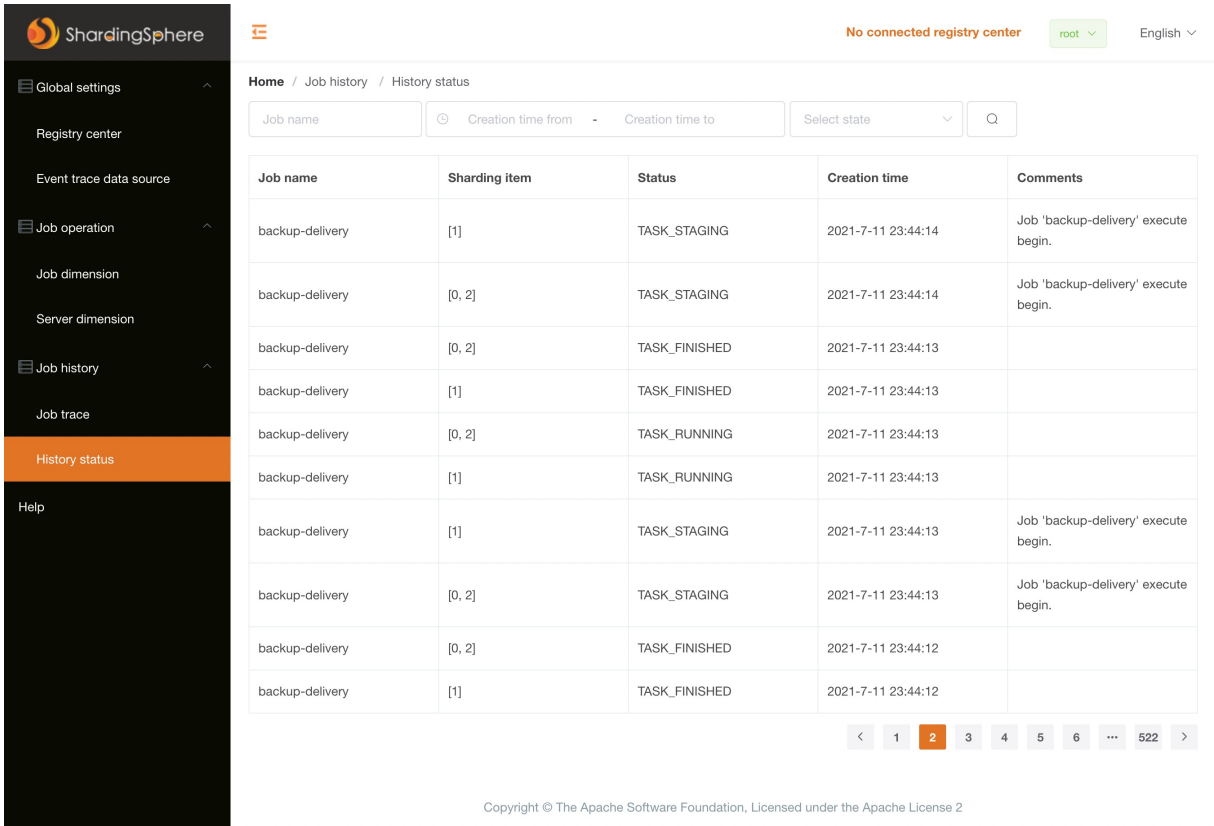
ElasticJob UI
Job Management



ElasticJob UI
Server Management



ElasticJob UI
Job History Tracing



Application Scenarios

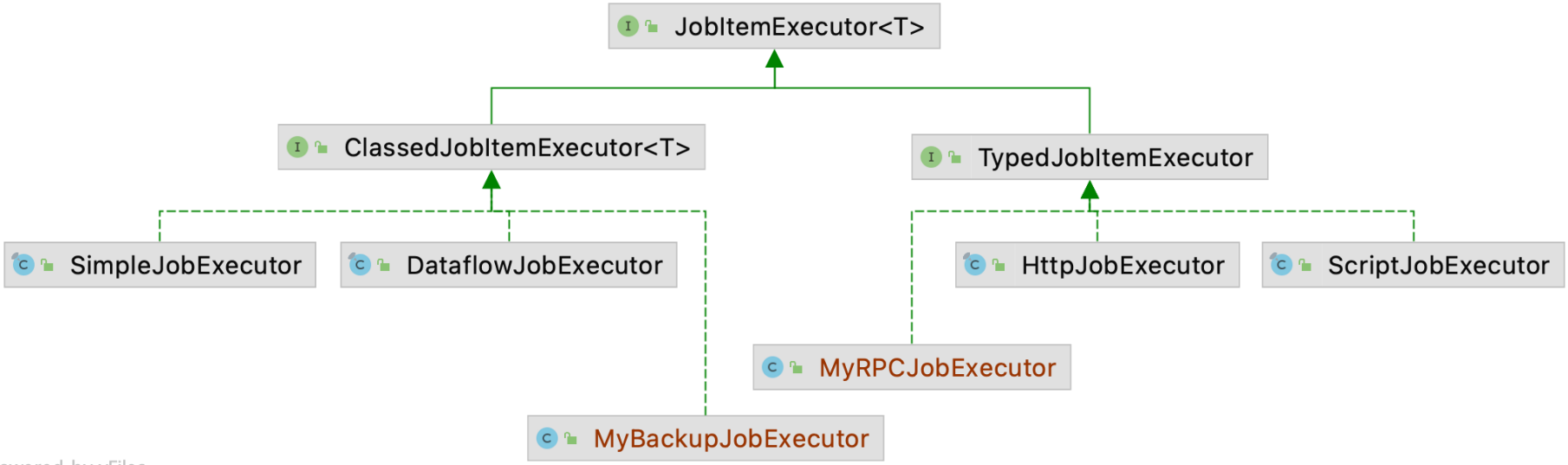
Job Sharding: Divides the work and makes it horizontal-scalable

```
public class FinalSettlementJob implements DataflowJob<Order> {

    @Override
    public List<Order> fetchData(ShardingContext shardingContext) {
        return getOrder("select * from order where id % ? = ?",
                shardingContext.getShardingTotalCount(),
                shardingContext.getShardingItem());
    }

    @Override
    public void processData(ShardingContext context, List<Order> data) {
        // Processing Data
    }
}
```

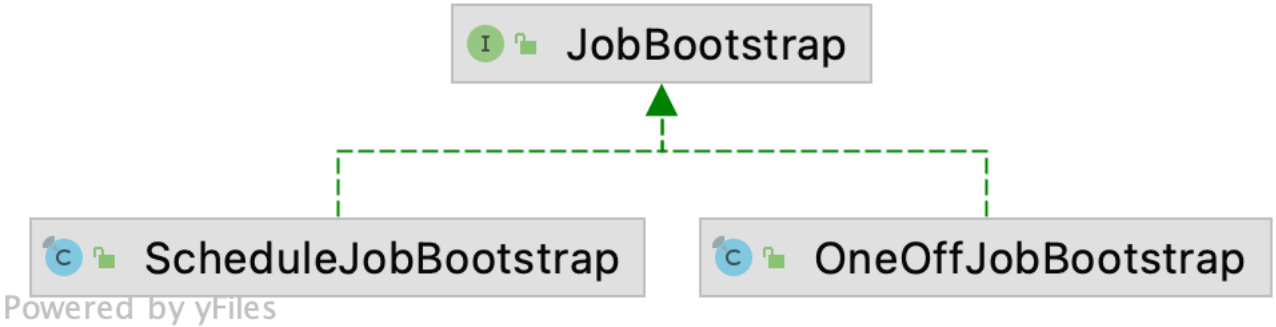
What's new in 3.0.0
New Extensible Job API



Create and use your own JobItemExecutor by SPI

What's new in 3.0.0

A New Way to Trigger




```
1.    OneOffJobBootstrap job = /* Job Configuration*/
2.    job.execute();
```

Schedule jobs by Cron, or execute as you need

What's new in 3.0.0

ElasticJob Ecosystem

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Job Executor

- Simple
- Dataflow
- Script
- **HTTP**

Tracing

- MySQL
- **PostgreSQL**
- **Oracle**
- **SQL Server**
- **DB2**
- **SQL92**

Job Error Handler

- **Email notification**
- **DingTalk notification**
- **WeCom notification**
- Ignore
- Log
- Throw

Bold: New in 3.0.0 and contributed by the community

What's new in 3.0.0

Spring Boot Starter

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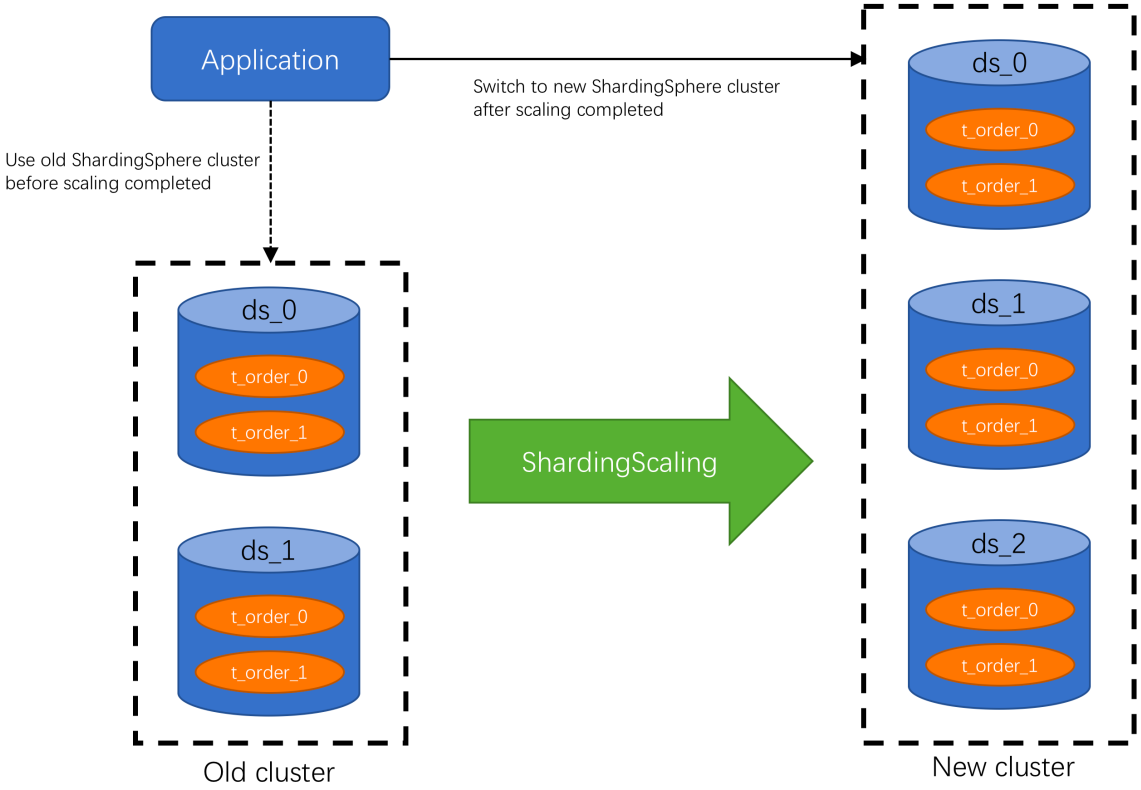
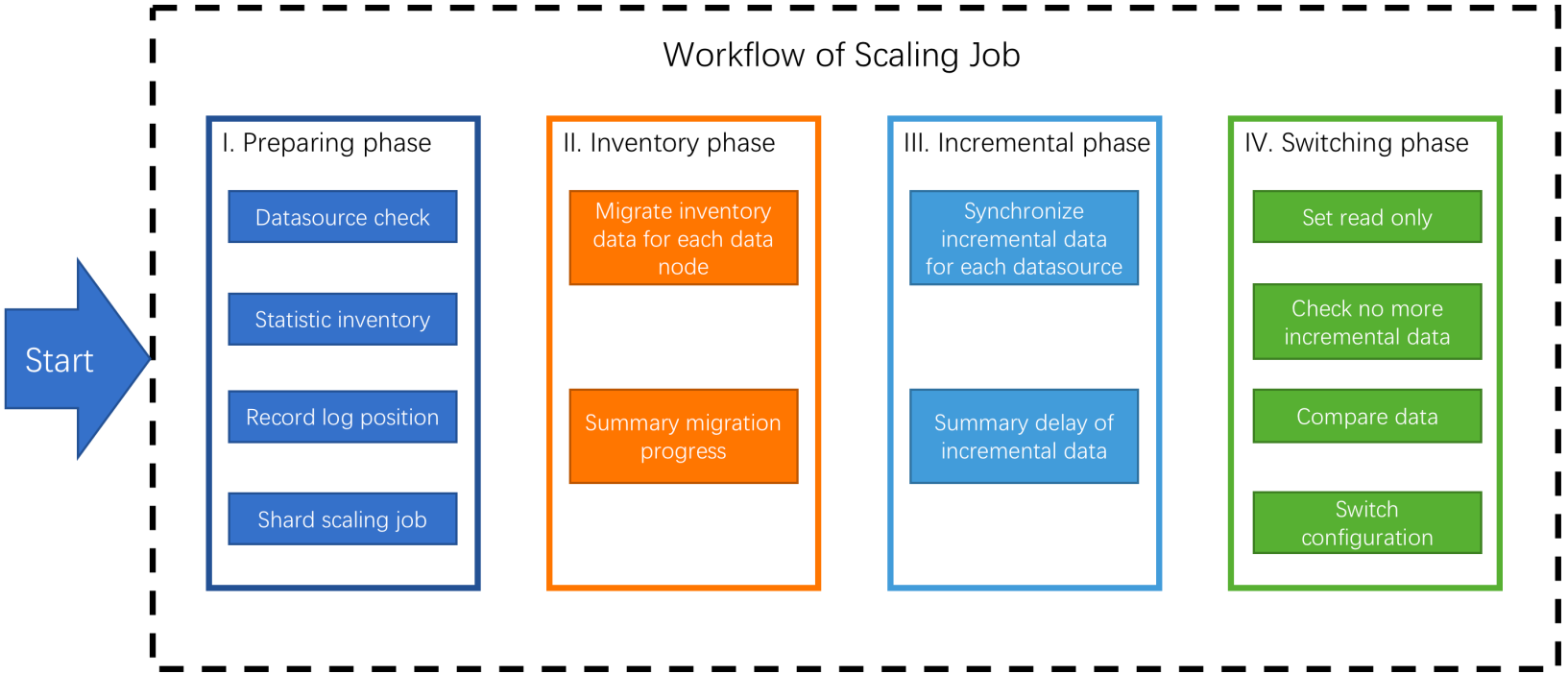
```java
@Component
public class DataRefreshJob implements SimpleJob {
    @Override
    public void execute(final ShardingContext shardingContext) {
        // Do something here
    }
}
```

```yaml
elasticjob:
  regCenter:
    serverLists: zookeeper0:2181,zookeeper1:2181,zookeeper2:2181
    namespace: schedule-jobs
  jobs:
    dataRefreshJob:
      elasticJobClass: org.path.to.DataRefreshJob
      cron: 0 0 0/6 * * ?
      shardingTotalCount: 3
      shardingItemParameters: 0=Beijing,1=Shanghai,2=Guangzhou
```

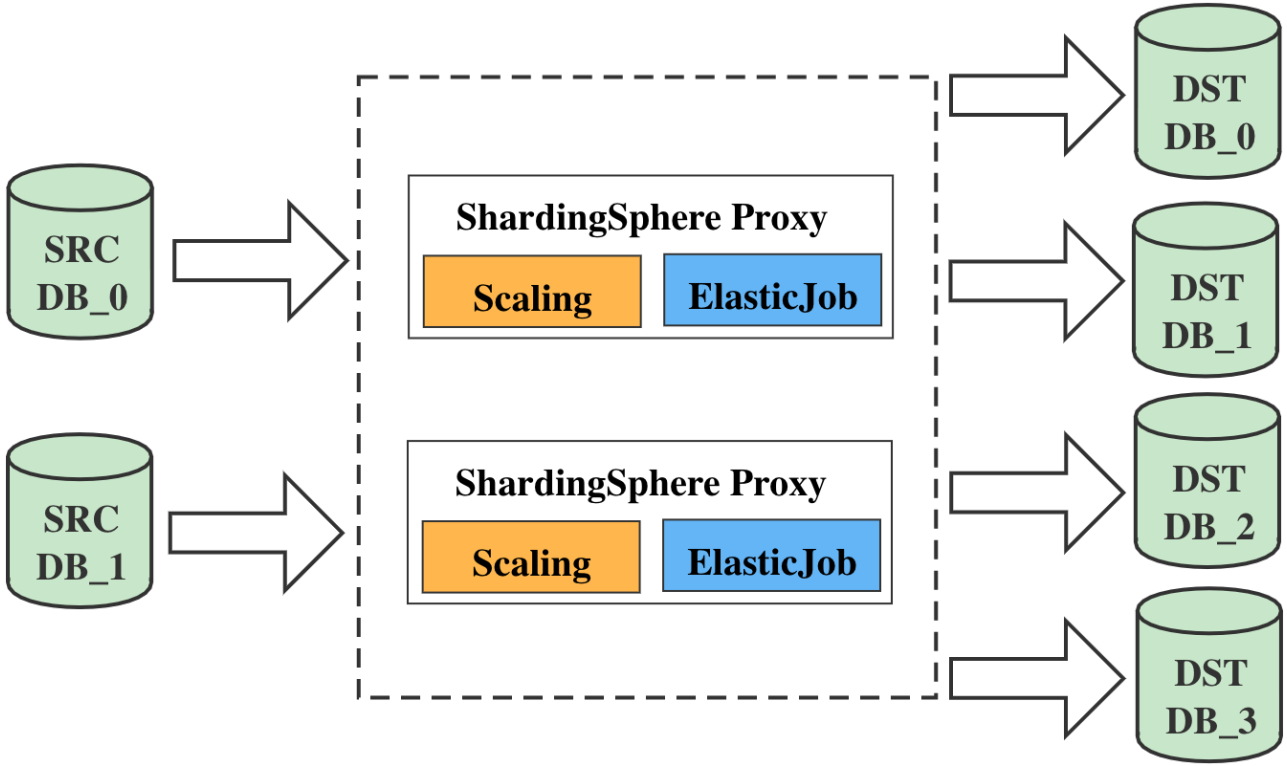
ShardingSphere Scaling



ShardingSphere Scaling



ElasticJob in ShardingSphere Scaling



Repository

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ElasticJob
https://github.com/apache/shardingsphere-elasticjob.git

ElasticJob-UI
https://github.com/apache/shardingsphere-elasticjob-ui.git

THANK YOU

QUESTIONS?

Join us in Slack