Ray on ODH

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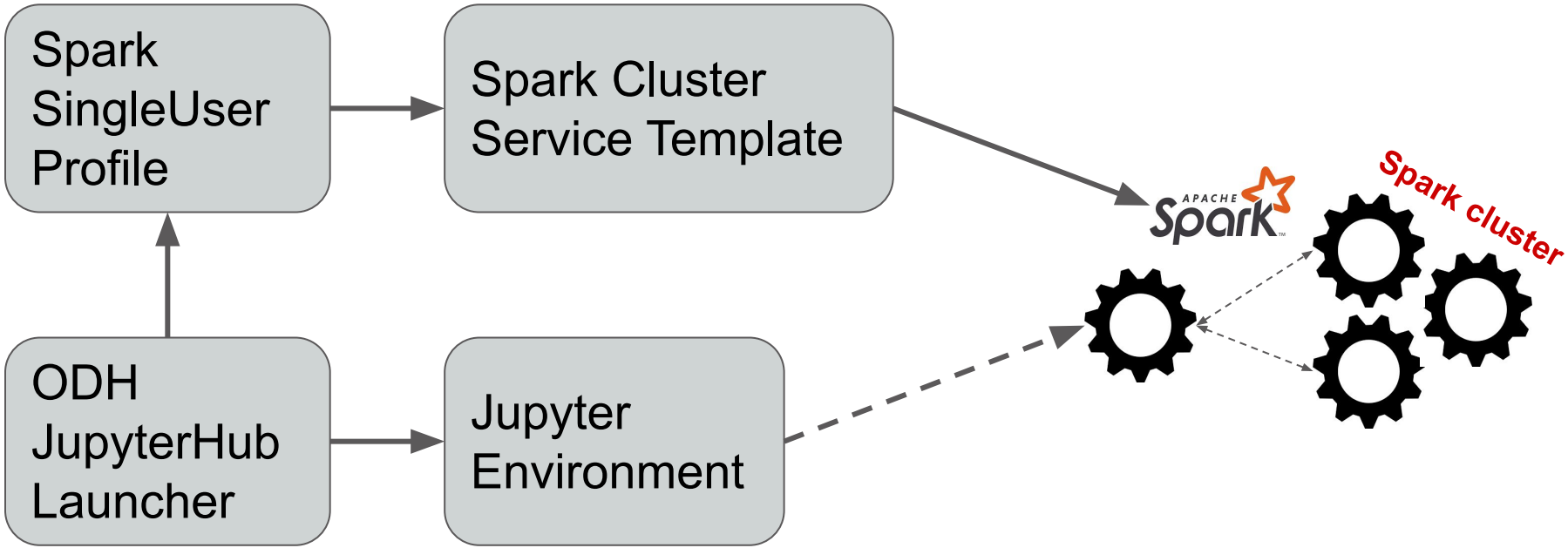
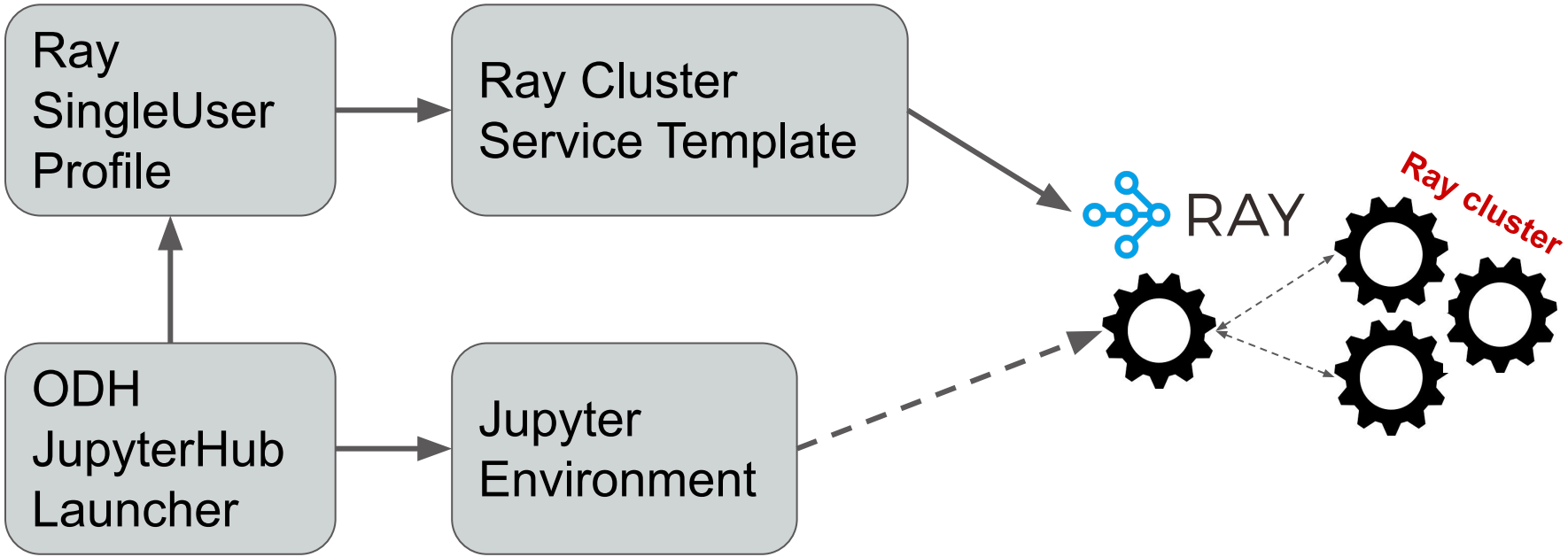
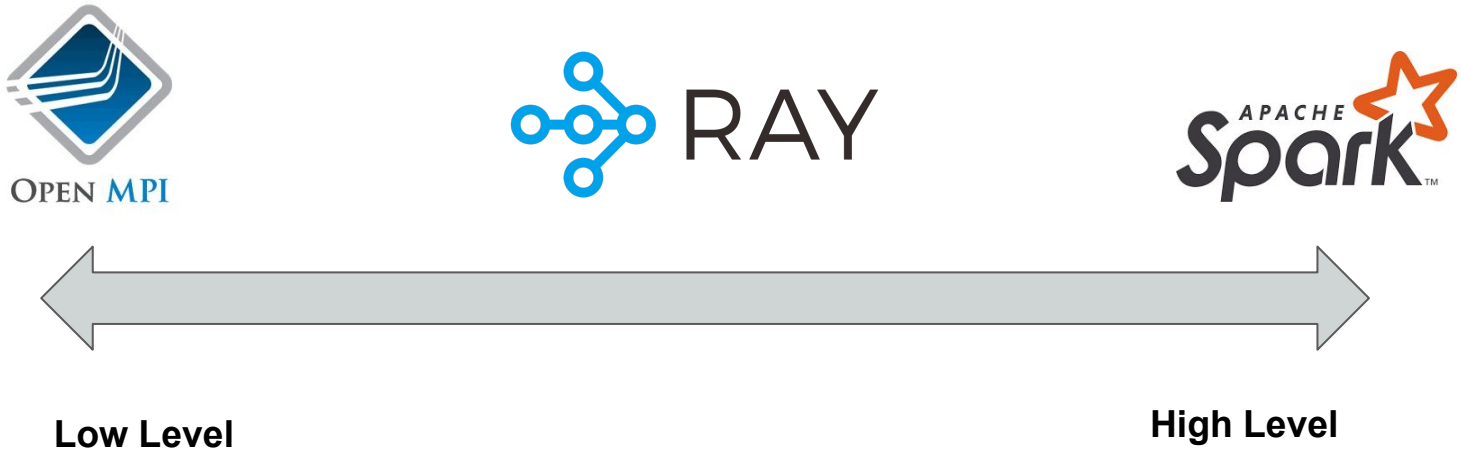
Model: Spark on ODH



Ray on ODH?


Ray
SingleUser
Profile
Ray Cluster
Service Template
ODH
JupyterHub
Launcher
Jupyter
Environment
RAY
Ray cluster

Ecosystem Niche



Ray's Compute Model

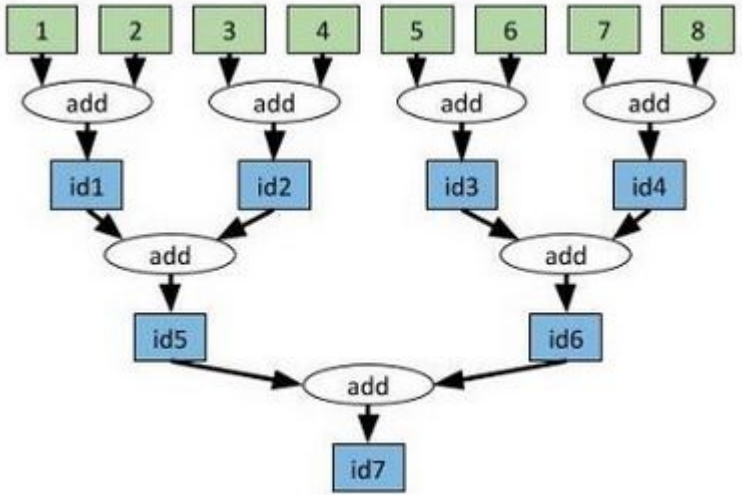
Tasks

```
@ray.remote
def f(x):
    # body
```

Actors

```
@ray.remote
class foo(object):
    # body
```

Dependency DAG




```
id1 = add.remote(1, 2)
id2 = add.remote(3, 4)
id3 = add.remote(5, 6)
id4 = add.remote(7, 8)
id5 = add.remote(id1, id2)
id6 = add.remote(id3, id4)
id7 = add.remote(id5, id6)
result = ray.get(id7)
```

https://towardsdatascience.com/modern-parallel-and-distributed-python-a-quick-tutorial-on-ray-99f8d70369b8

Ray's Data Model

- Plasma Object Store
- Typeless and Schemaless
- "Local First"
  - Pull remote data when needed
  - Read/Write is all local to worker node

Ray's Scheduling Model

- "Local First"
  - Prefers to run tasks on local scheduler
  - Submits to global scheduler if necessary

Native Ray Libraries

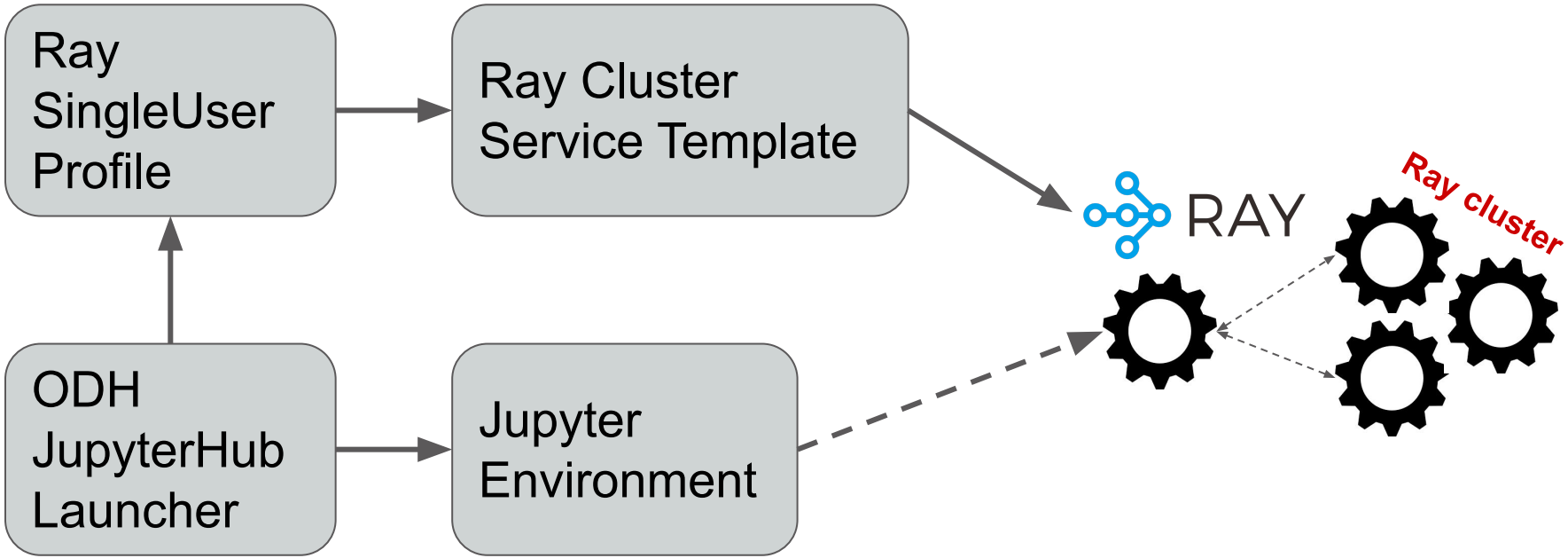
- **Tune**: Scalable Hyperparameter Tuning
- **RLlib**: Scalable Reinforcement Learning
- **RaySGD**: Distributed Training Wrappers
- **Ray Serve**: Scalable and Programmable Serving

Ray Community Integrations

- XGBoost
- Dask
- Horovod
- sklearn
- Spacy
- huggingface

https://docs.ray.io/en/master/ray-libraries.html

Demo: Ray on ODH!



Future

- Migrate to Operator
- Autoscaling from Operator
- Community Operator in Catalog?
- UBI based Ray images

Call To Action

- Install Demo On Your ODH
- Play with Ray on Jupyter
- Report Back!

https://github.com/erikerlandson/ray-odh-demo