

# 方向：机器学习平台基础能力

## 01 资源算力问题

算力散落无法复用、资源抢占时间浪费，资源总体利用率低

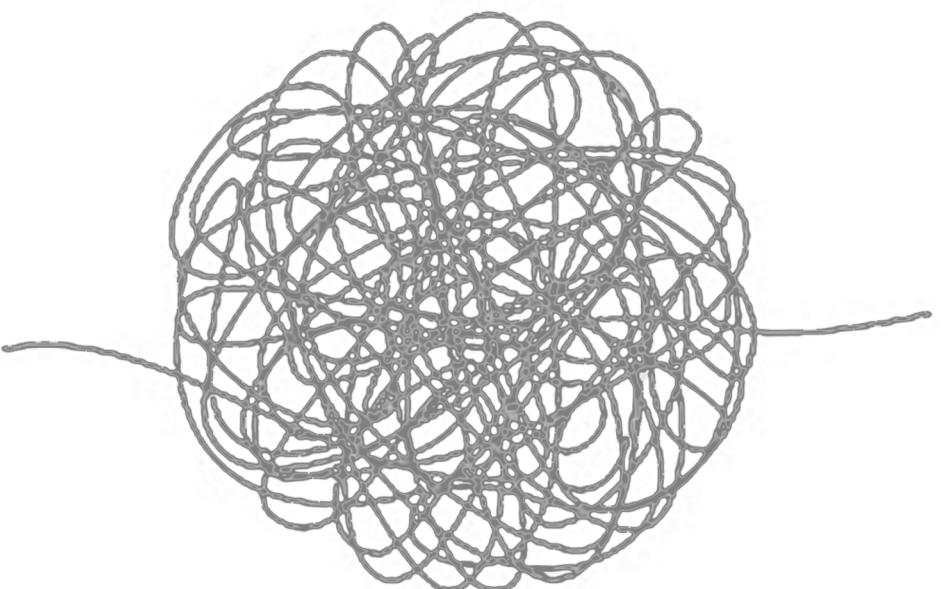
## 02 工作内容定时重复

模型变动少，只是训练数据的更新

## 03 框架多样，版本多样

tf, pytorch, xgb以及各类框架的各种版本都有使用

## 工程化问题



## 04 训练耗时问题

数据量大，训练非常耗时；训练模型大，单机无法承载，模型更新速度慢

## 05 超参搜索问题

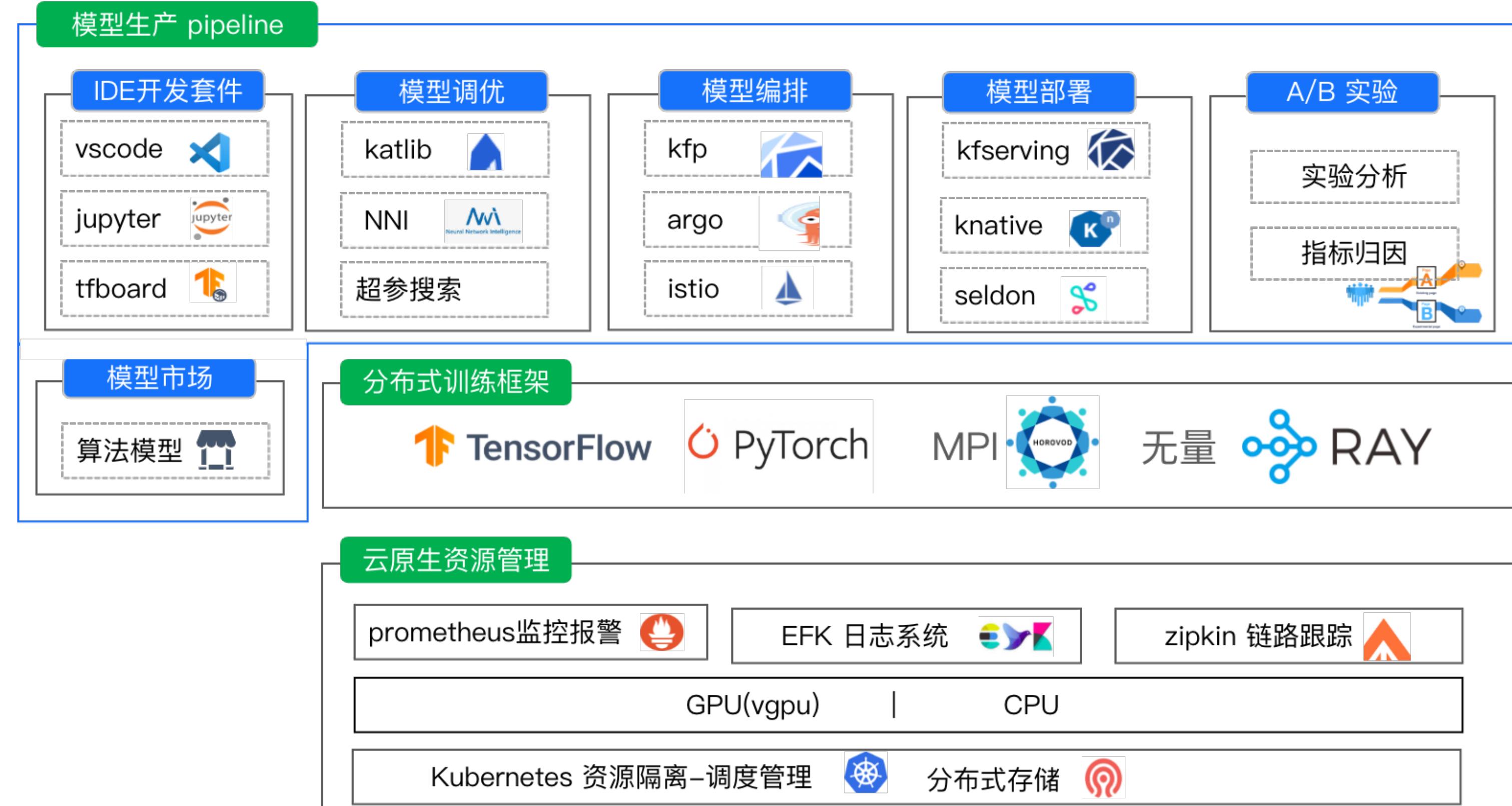
无法多机并行化，脚本运行时间长

## 06 模型服务化

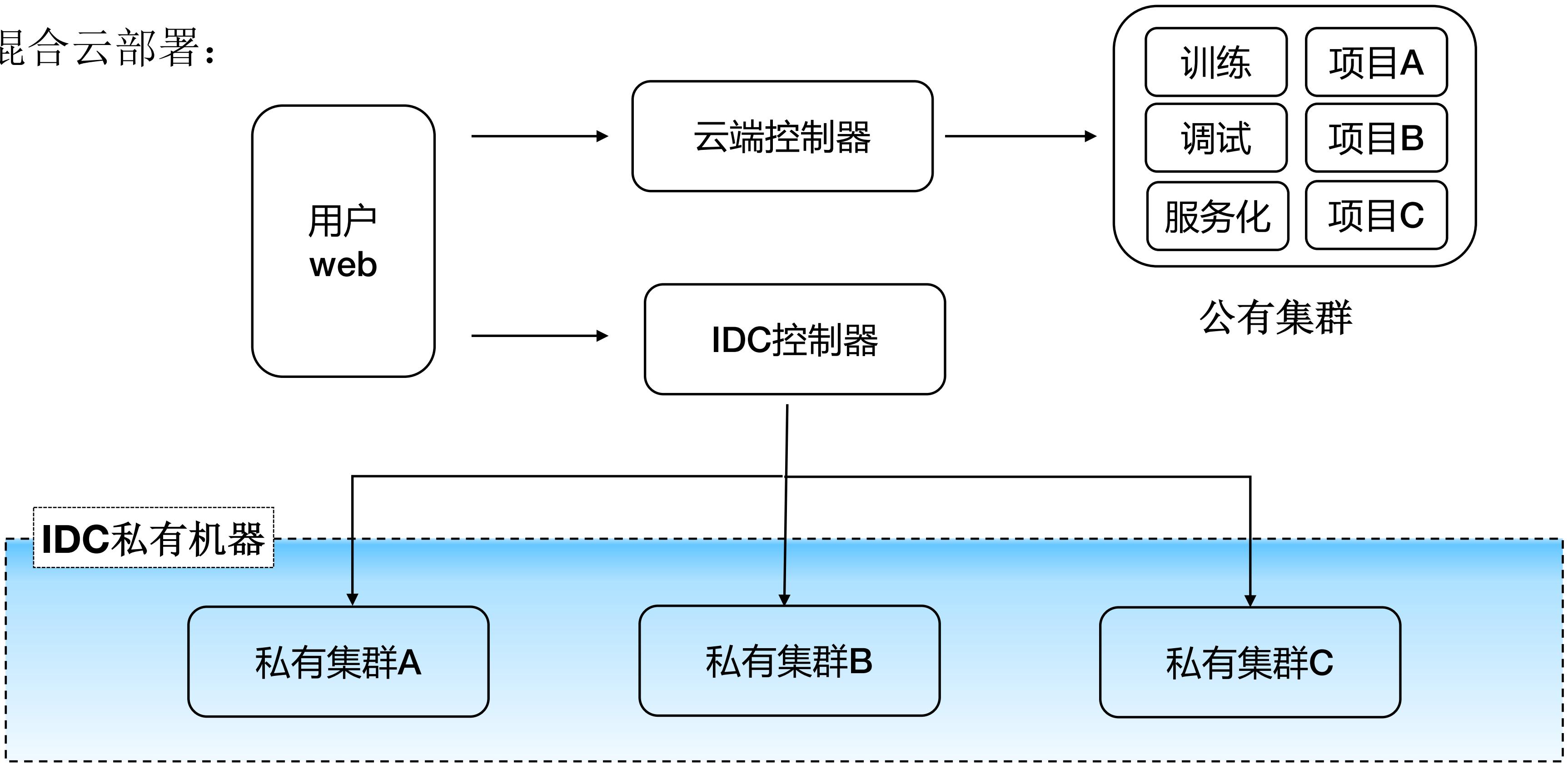
模型服务化的负载均衡，伸缩容。gpu服务化资源无法隔离，资源浪费

## 技术性问题

# 构建一站式机器学习平台，提高模型生产效率



## 混合云部署：

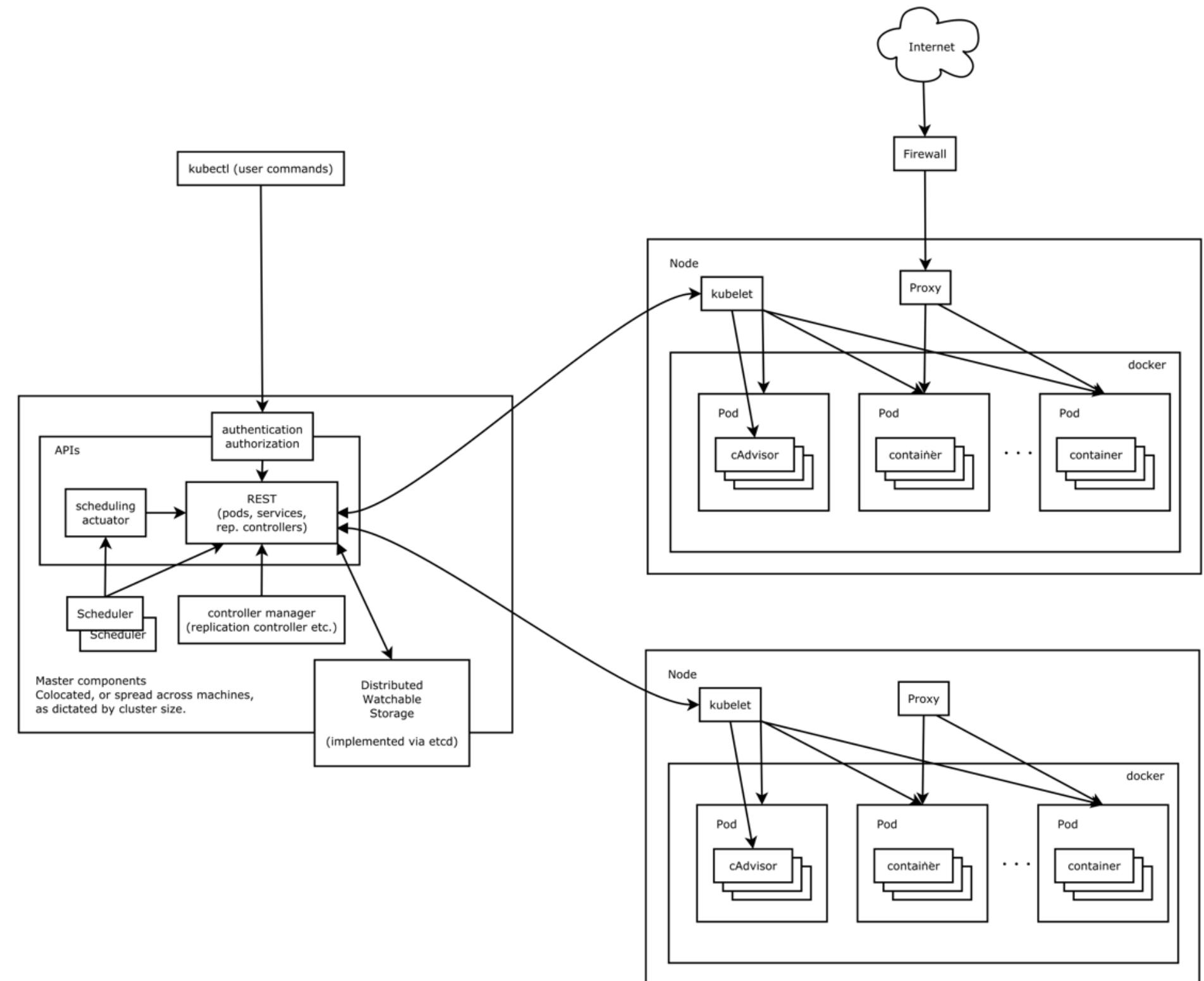


统筹算力、多k8s集群、私有仓库/https仓库、TKE下支持vgpu、资源组划分、功能机器隔离

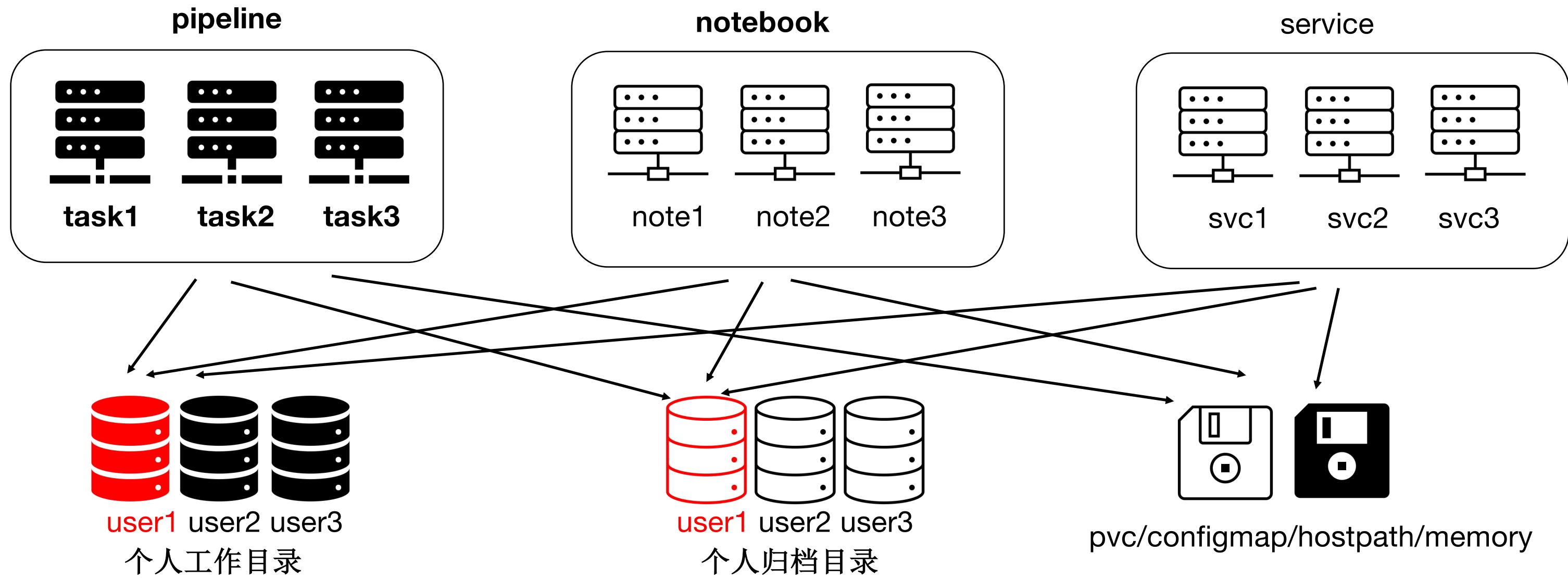
# Kubernetes: TKE (v1.18)

## 云原生基础能力

- 镜像的环境隔离
- 任务排队调度
- 计算资源(CPU/GPU)限制+隔离
- 分布式数据处理+cpu/gpu多机多卡训练
- 服务化：熔断/HPA/负载均衡/高可用
- 集成较为成熟的监控/日志/告警
- api 集群调度+监控通知



## 分布式存储：



## ssd ceph 集群训练存储：

写入，单客户端900MB/S

读取，单客户端8G/S

## cfs:

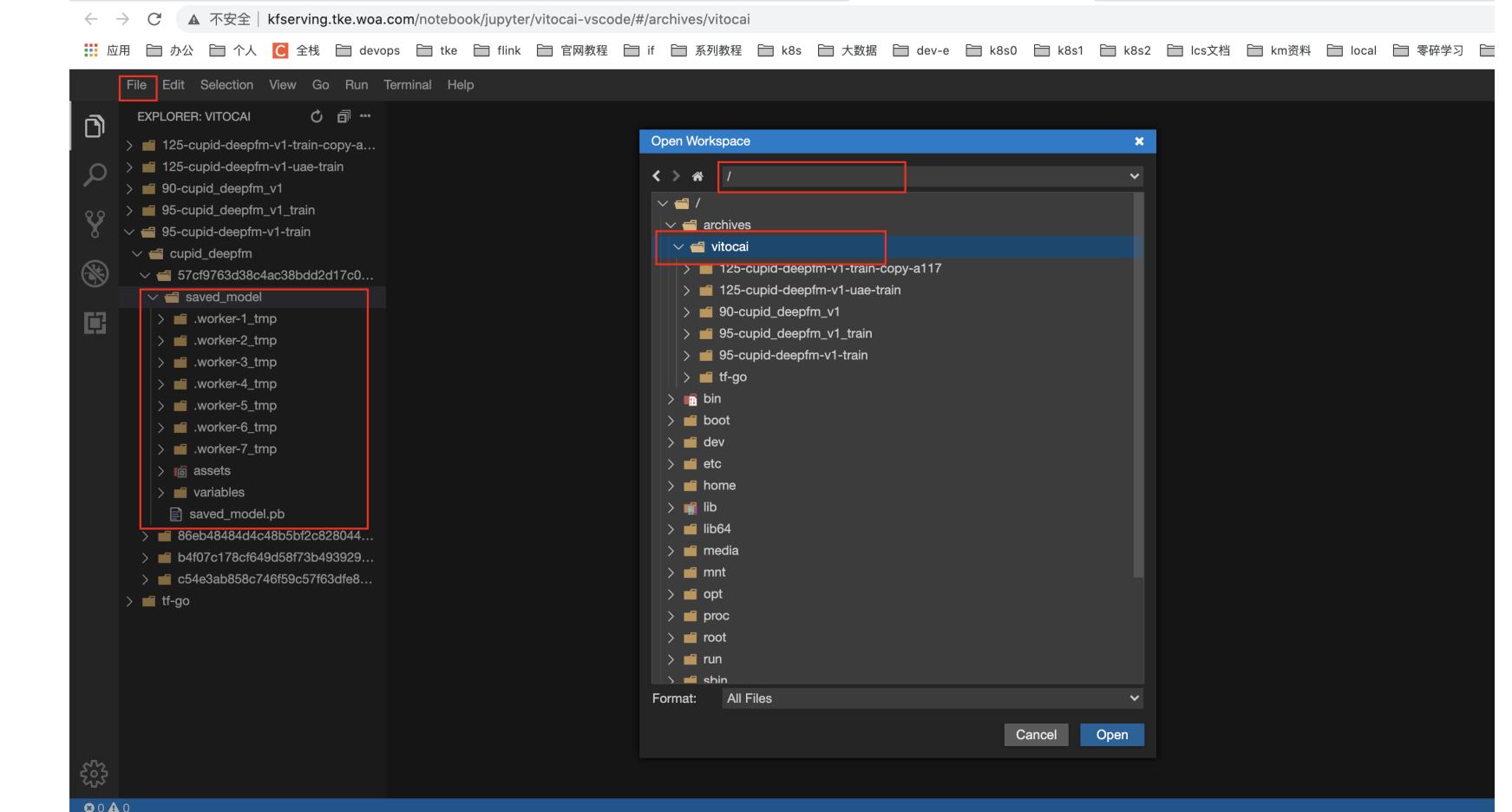
非训练存储，交互分布式，与其他集群打通存储

## notebook-vscode:

The screenshot shows a Jupyter Notebook interface with the following components:

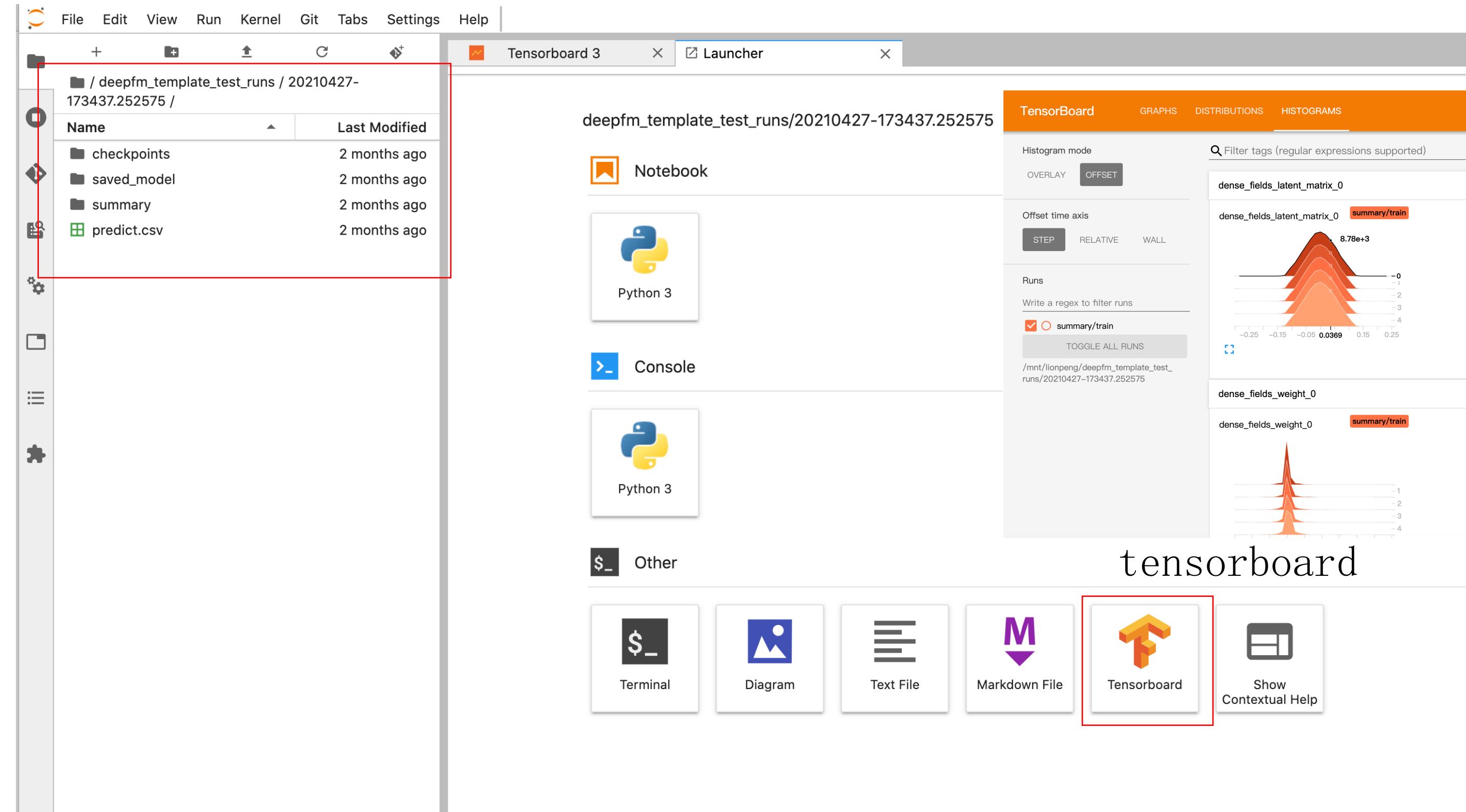
- Top Bar:** Includes back, forward, and search icons, followed by the URL: `△ 不安全 | kfserving.music.woa.com/notebook/jupyter/pengluan-theia/#/mnt/pengluan`.
- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Left Sidebar:** Icons for file operations like Open, Save, Copy, Paste, Delete, and a search icon.
- File Explorer:** Shows a tree view of files and folders:
  - REPL: demo.py
  - ... (ellipsis)
  - EXPLORER: PENGLUAN
    - > .ipynb\_checkpoints
    - > .virtual\_documents
    - > gpu
    - > init
    - > kubeflow
      - demo.py
    - > model
    - > push
    - > stock
    - 未命名.ipynb
    - 未命名1.ipynb
    - 未命名2.ipynb
    - ddl.py
- Code Editor:** The `demo.py` file is open, showing Python code for interacting with a Kubeflow API using `pysnooper`. The code defines a `ModelRepoClient` class and sets various API URLs.
- Terminal:** A terminal window titled "Terminal 1" is open, showing the command `pip3 install pysnooper` being run as root. It indicates that requirement is already satisfied but warns about using an old pip version (19.2.3) and suggests upgrading to 21.0.1.

theia (cpu多实例)  
更像本地IDE，主要服务纯代码开发（多实例）



工作目录/mnt, 归档目录/archives  
文件/文件夹, 上传下载

# notebook-jupyter:

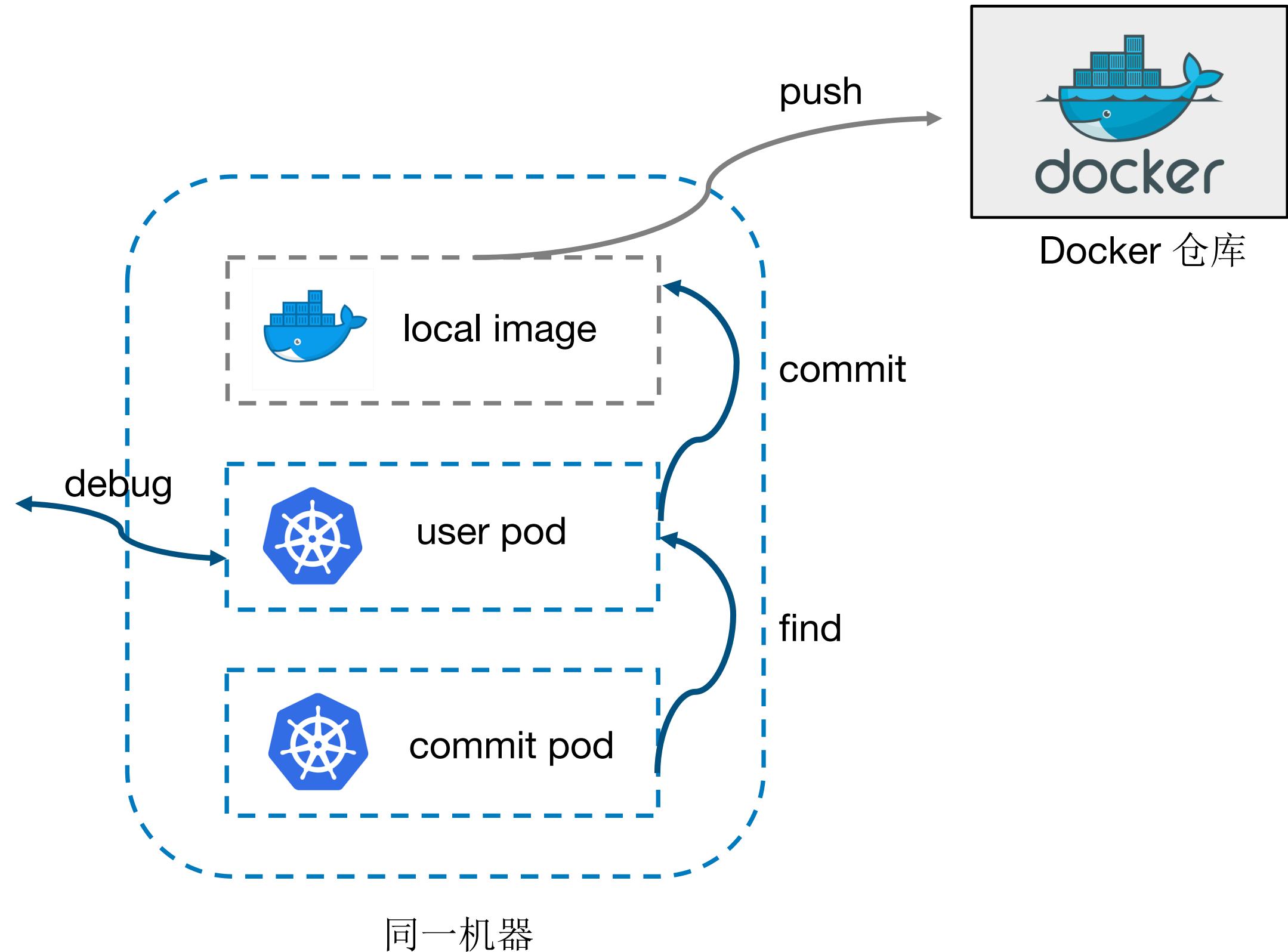


jupyter (cpu/gpu多实例)  
更偏重于算法数据可视化 (多实例)

# 镜像调试-在线构建：

```
Shell in docker-pengluan... in docker-pengluan-2  
root@docker-pengluan-2:/mnt/pengluan# apt update  
Get:1 http://archive.ubuntu.com/ubuntu xenial InRelease [247 kB]  
Get:2 http://security.ubuntu.com/ubuntu xenial-security InRelease [109 kB]  
Get:3 http://security.ubuntu.com/ubuntu xenial-security/main amd64 Packages [2051 kB]  
0% [1 InRelease 212 kB/247 kB 86%] [3 Packages 824 kB/2051 kB 40%]
```

web bash命令行



# Pipeline编排训练：

Search by name, tags and description

putoo-deepfm-cross

36 assets in total

基础命令  
数据导入导出  
数据处理  
tf分布式训练  
standalone\_tf2.3\_runner\_model\_train  
standalone\_tf2.3\_plain\_model\_train  
distribute\_tf2.3\_model\_train  
tf2.3\_model\_evaluation  
tf\_model\_offline\_predict  
pytorch分布式训练  
xgb训练  
算法模板  
超参搜索  
搜索组件  
模型服务化

运行 复制 已保存

```
graph TD; sample-generator --> hdfs-train-data-fetch; sample-generator --> hdfs-test-data-fetch; sample-generator --> hdfs-val-data-fetch; hdfs-train-data-fetch --> train-data-transform; hdfs-test-data-fetch --> test-data-transform; hdfs-val-data-fetch --> val-data-transform; train-data-transform --> model-train-and-eval; test-data-transform --> model-train-and-eval; val-data-transform --> model-train-and-eval;
```

任务模板  
hdfs\_data\_fetch  
模板描述  
从tdw hdfs拉取数据  
名称  
hdfs-val-data-fetch  
英文名(字母、数字、-组成), 最长50个字符  
标签 \*  
hdfs数据拉取  
中文名  
挂载目录  
kubeflow-user-workspace(pvc):/mnt,kubefl...  
外部挂载, 格式:\$pvc\_name1(pvc):\$container\_path1,\$hostpath1(host path):\$container\_path2,注意pvc会自动挂载对应目录下的个人rtx子目录  
启动目录  
工作目录, 容器启动的初始所在目录, 不填默认使用Dockerfile内定义的工作目录

新人配置一个pipeline

公共参数+模板个性化参数

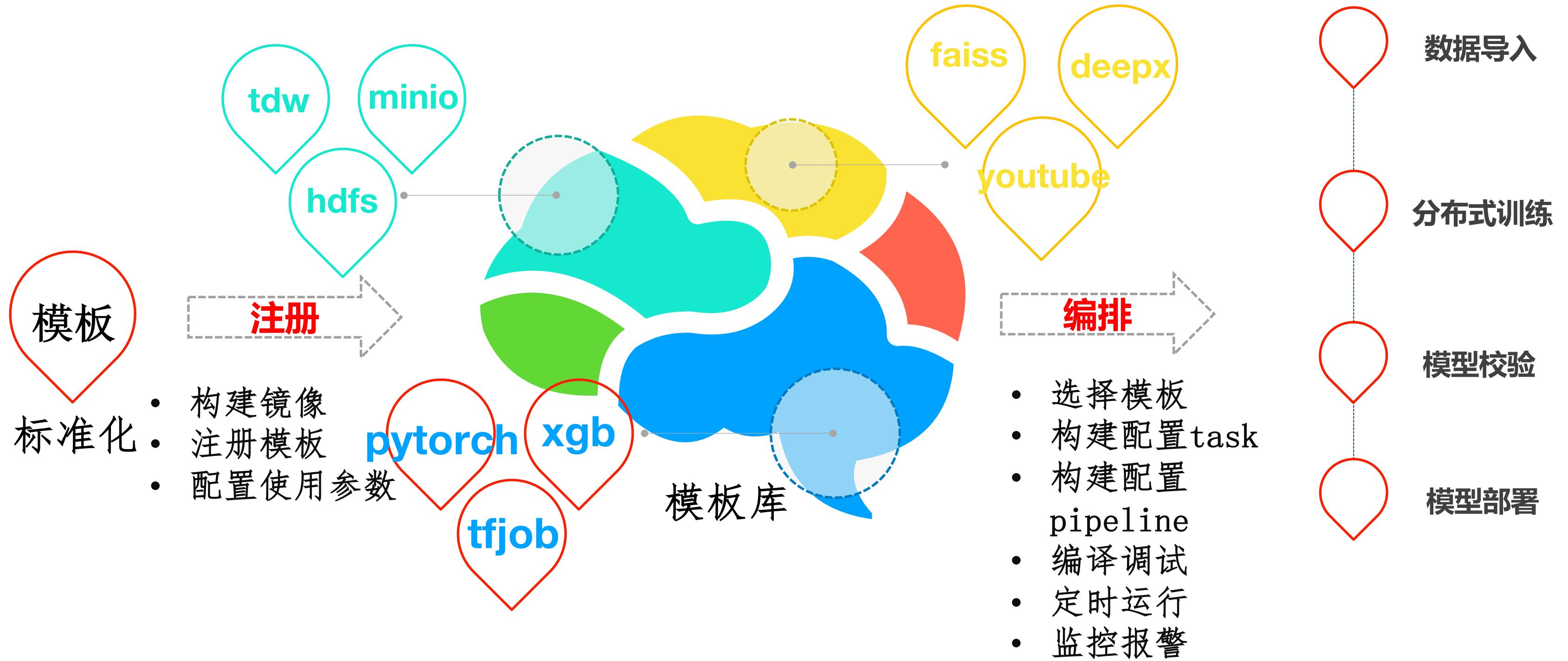
# 开放的模板框架：

The screenshot displays a user interface for an open template framework, organized into several sections:

- 基础命令**: Includes tlinux2.2-cpu, tlinux2.2-gpu, docker, and 自定义镜像.
- 数据处理**: Includes file\_splitter, lhotse\_job\_handler, tesla\_job\_handler, standalone\_data\_transform, ray-cpu, and ray-gpu.
- 数据导入导出**: Includes pull, push, hdfs\_data\_fetch, hdfs\_data\_upload, and tdw\_data\_process.
- pytorch分布式训练**: Includes standalone\_pytorch1.4\_runner\_model\_train, distribute\_pytorch1.4\_model\_train, distribute\_pytorch1.4\_model\_train\_UserDefin..., pytorch-distributed-train-k8s, and pytorch1.4\_model\_evaluation.
- xgb训练**: Includes xgb训练模版新, phonix xgb模型离线评估, and phonix xgb模型离线评估第二版.
- 模型服务化**: Includes tf\_model\_deploy.
- 推荐算法模板**: Includes tf\_ple\_v1, tf\_esmm\_model\_template, tf\_dtower\_model\_template, embedx2\_predictor, embedx2\_trainer, random\_walk, tf\_mmoe\_model\_template, mmoe\_demo, tf\_deepfm\_model\_template, tf\_youtube\_dnn\_model\_template, and youtube\_dnn.
- 超参搜索**: Includes nni.
- 搜索组件**: Includes tera\_search\_push\_template\_v2.
- 音视频组件**: Includes media-download, video-img, and video-audio.

模板：linux基础命令/数据导入导出/hdfs/tf job/pytorch job/mxnet/mpi job/horovod/xgb/ray/volcano/nni  
使用场景：搜索组件/推荐各种类型模板/音视频的各种类型模板

# 模板开发



# Task调试 (debug+run) :

```
root@debug-mnist-test-pytorch-distributed-train-k8s-1625713588175:/app# ls
build.sh  Dockerfile  job  mnist  mnist.py  multi_worker_pytorch.yaml  pytorchjob_launcher.py
root@debug-mnist-test-pytorch-distributed-train-k8s-1625713588175:/app# ls
build.sh  Dockerfile  job  mnist  mnist.py  multi_worker_pytorch.yaml  pytorchjob_launcher.py
root@debug-mnist-test-pytorch-distributed-train-k8s-1625713588175:/app#
```

debug到命令行

当前pod状态: Running

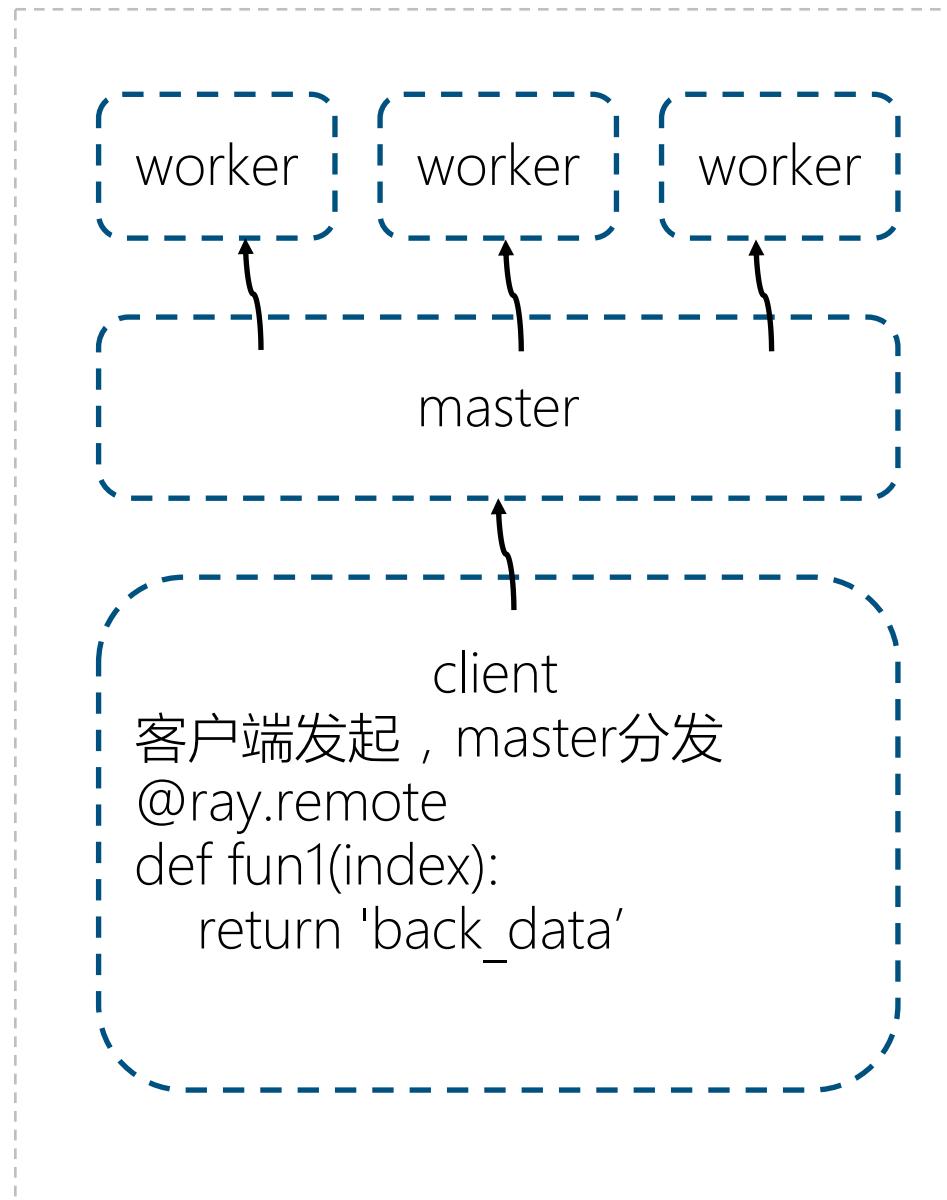
```
日志 run-mnist-test-pytorch-distributed-train-k8s-1625713588175 - in run-mnist-test-pytorch-distributed-train-k8s-16
[{"name': 'kubeflow-user-workspace', 'persistentVolumeClaim': {'claimName': 'kubeflow-user-workspace'}}, {"name': 'kubeflow-archives'}, {"name': 'memory-4', 'emptyDir': {'medium': 'Memory', 'sizeLimit': '4Gi'}}, {"name': 'tz-config', 'hostPath': [{"name': 'kubeflow-user-workspace', 'mountPath': '/mnt/pengluan', 'subPath': 'pengluan'}, {"name': 'kubeflow-archives', 'memory-4', 'mountPath': '/dev/shm'}, {"name': 'tz-config', 'mountPath': '/etc/localtime'}]}
TENCENT 100,13
pytorchjob_launcher.py args: Namespace(command='python3 mnist.py', image='csighub.tencentyun.com/tme-kubeflow/pytorchjob:w
begin run shell: echo '10.101.140.98 cls-g9v4gmm0.ccs.tencent-cloud.com' >> /etc/hosts
shell finish 0
delete old pytorch, run-id run-71-1610
```

log日志聚合查询

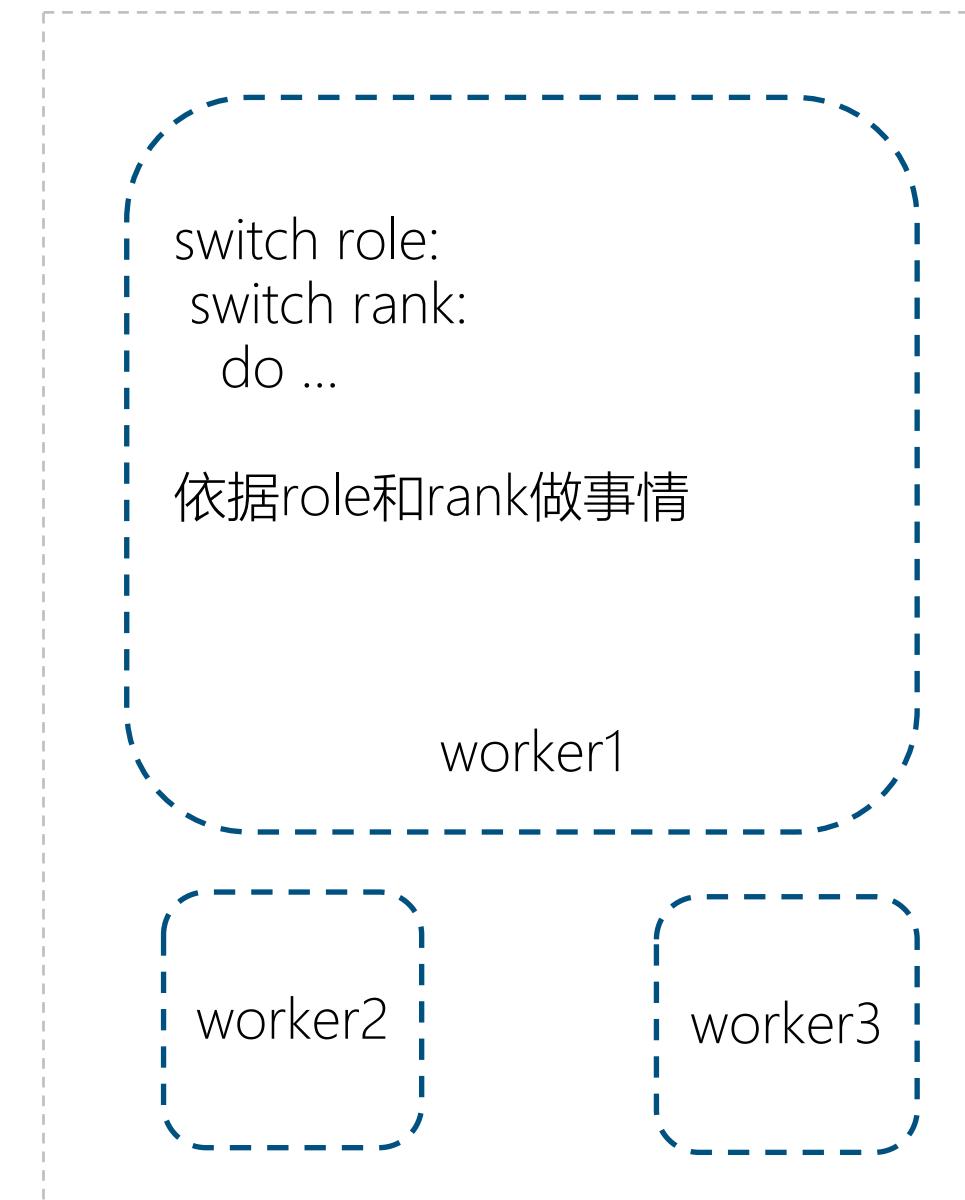
名称	标签	节点	状态	重启	CPU 使用率 (cores)	内存使用 (bytes)	创建时间 ↑
✓ pytorchjob-mnist-test-pytorch-distributed-train-k8s-16-master-0	component: pytorchjob-mnist-test-pytorch-distributed-train-k8s-16	10.101.135.179	Running	0	-	-	28 seconds ago
?] pytorchjob-mnist-test-pytorch-distributed-train-k8s-16-worker-0	component: pytorchjob-mnist-test-pytorch-distributed-train-k8s-16	10.101.140.56	PodInitializing	0	-	-	28 seconds ago
?] pytorchjob-mnist-test-pytorch-distributed-train-k8s-16-worker-1	component: pytorchjob-mnist-test-pytorch-distributed-train-k8s-16	10.101.141.11	PodInitializing	0	-	-	28 seconds ago
✓ run-mnist-test-pytorch-distributed-train-k8s-1625713588175	pipeline: mnist-test	显示所有	10.101.140.123	Running	0	0.00m 5.46Mi	53 seconds ago
✓ debug-mnist-test-pytorch-distributed-train-k8s-1625713588175	pipeline: mnist-test	显示所有	10.101.134.171	Running	0	0.00m 3.65Mi	2 minutes ago

pod资源一目了然

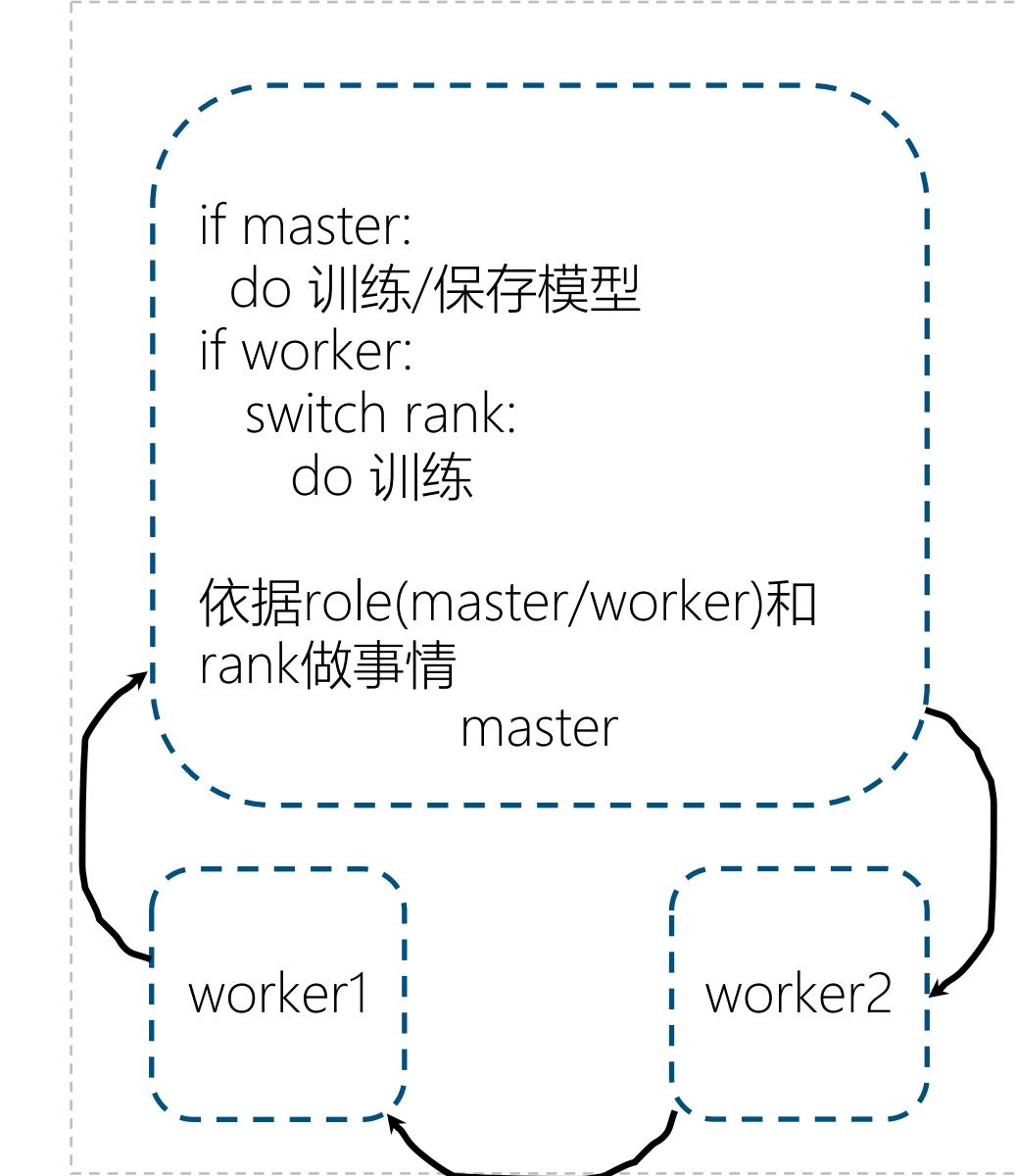
# 分布式框架选择-ray/volcanojob/tfjob/pytorchjob/mpi/kaldi



Ray 序列化分发函数任务

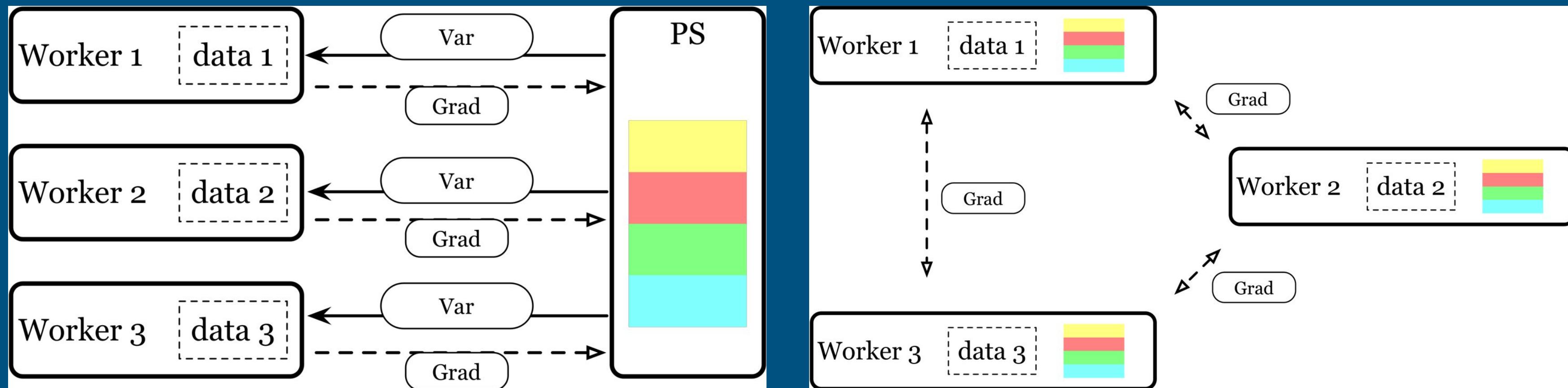


index job有序多副本任务

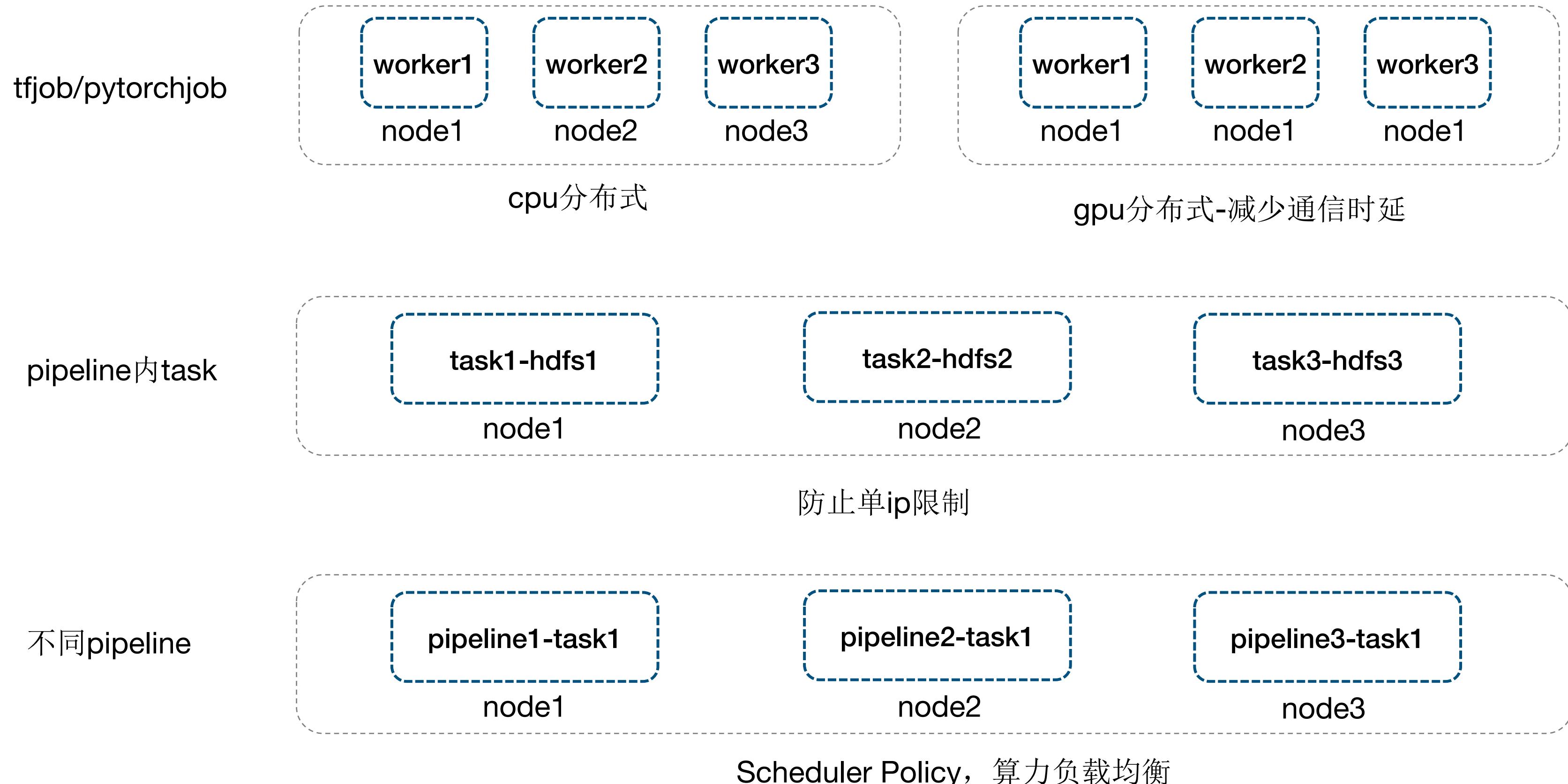


有角色有序任务

# 分布式训练-框架选择优化 (ps + ring allreduce) :



# 分布式任务worker分配



# 分布式训练-单卡多进程优化（提高gpu利用率）：



# pipeline运行：

Experiments > putoo-deepfm-cross-full

← ✓ putoo-deepfm-cross-full\_version\_at\_2021-06-02T09:30:03

Retry Clone run Terminate Archive

**Graph** Run output Config

```
graph TD; sample-generator --> hdfs-test-data-fetch1[hdfs-test-data-fetch]; sample-generator --> hdfs-val-data-fetch1[hdfs-val-data-fetch]; hdfs-test-data-fetch1 --> hdfs-test-data-fetch2[hdfs-test-data-fetch]; hdfs-test-data-fetch2 --> test-data-transform1[test-data-transform]; hdfs-test-data-fetch2 --> hdfs-train-data-fetch1[hdfs-train-data-fetch]; hdfs-train-data-fetch1 --> hdfs-train-data-fetch2[hdfs-train-data-fetch]; hdfs-train-data-fetch2 --> train-data-transform1[train-data-transform]; hdfs-val-data-fetch1 --> hdfs-val-data-fetch2[hdfs-val-data-fetch]; hdfs-val-data-fetch2 --> val-data-transform1[val-data-transform]; train-data-transform1 --> model-train-and-eval1[model-train-and-eval]; val-data-transform1 --> model-train-and-eval1; model-train-and-eval1 --> model-train-and-eval2[model-train-and-eval]; model-train-and-eval2 --> model-train-and-eval3[model-train-and-eval];
```

! This step is in Failed state with this message: failed with exit code 1

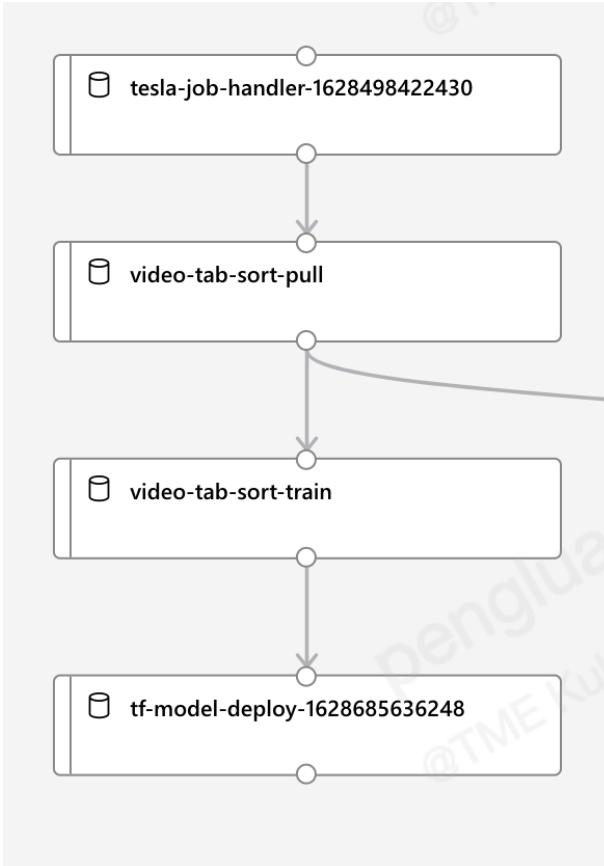
Input/Output Visualizations ML Metadata Volumes Logs Pod Events

```
93 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
94 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
95 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
96 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
97 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
98 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
99 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
100 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
101 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
102 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
103 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
104 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
105 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
106 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
107 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
108 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
109 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
110 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
111 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
112 waiting k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' to reach conditions '['Succ
113 Traceback (most recent call last):
114   File "/usr/local/lib/python3.7/runpy.py", line 193, in _run_module_as_main
115     "__main__", mod_spec)
116   File "/usr/local/lib/python3.7/runpy.py", line 85, in _run_code
117     exec(code, run_globals)
118   File "/app/job/model_template/tf/deepfm/driver.py", line 30, in <module>
119     driver.run()
120   File "/app/job/pkgs/context.py", line 268, in run
121     jc_entry.register_finish_callback(self.on_finish, jc_entry, outputs)
122   File "/app/job/pkgs/context.py", line 252, in run
123     outputs = self.job_func(jc_entry)
124   File "/app/job/model_template/utils.py", line 224, in job_func
125     train_output_file = self._train_proc(jc_entry)
126   File "/app/job/model_template/utils.py", line 184, in _train_proc
127     tfjob_launcher.run()
128   File "/app/job/pkgs/context.py", line 268, in run
129     jc_entry.register_finish_callback(self.on_finish, jc_entry, outputs)
130   File "/app/job/pkgs/context.py", line 252, in run
131     outputs = self.job_func(jc_entry)
132   File "/app/job/tf_distributed_train/tfjob_launcher.py", line 130, in job_func
133     node_selector, privileged)
134   File "/app/job/tf_distributed_train/tfjob_launcher.py", line 175, in launch_tfjob
135     .format(job_name, namespace, num_workers, driver_args))
136 RuntimeError: TFJob 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' failed, num_workers=4, driver_args=['--job', '{"script": "putoo-deepfm-cross-full.py"}']
137 k8s resource 'kubeflow.org/v1/tfjobs' 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' in namespace 'pipeline' has reached the expected condition: 'Failed'
138 TFJob 'tfjob-c7adb46a-c347-11eb-9e39-7e2d4b28578e' finished in condition 'Failed', cost 1983.3321430711076s
```

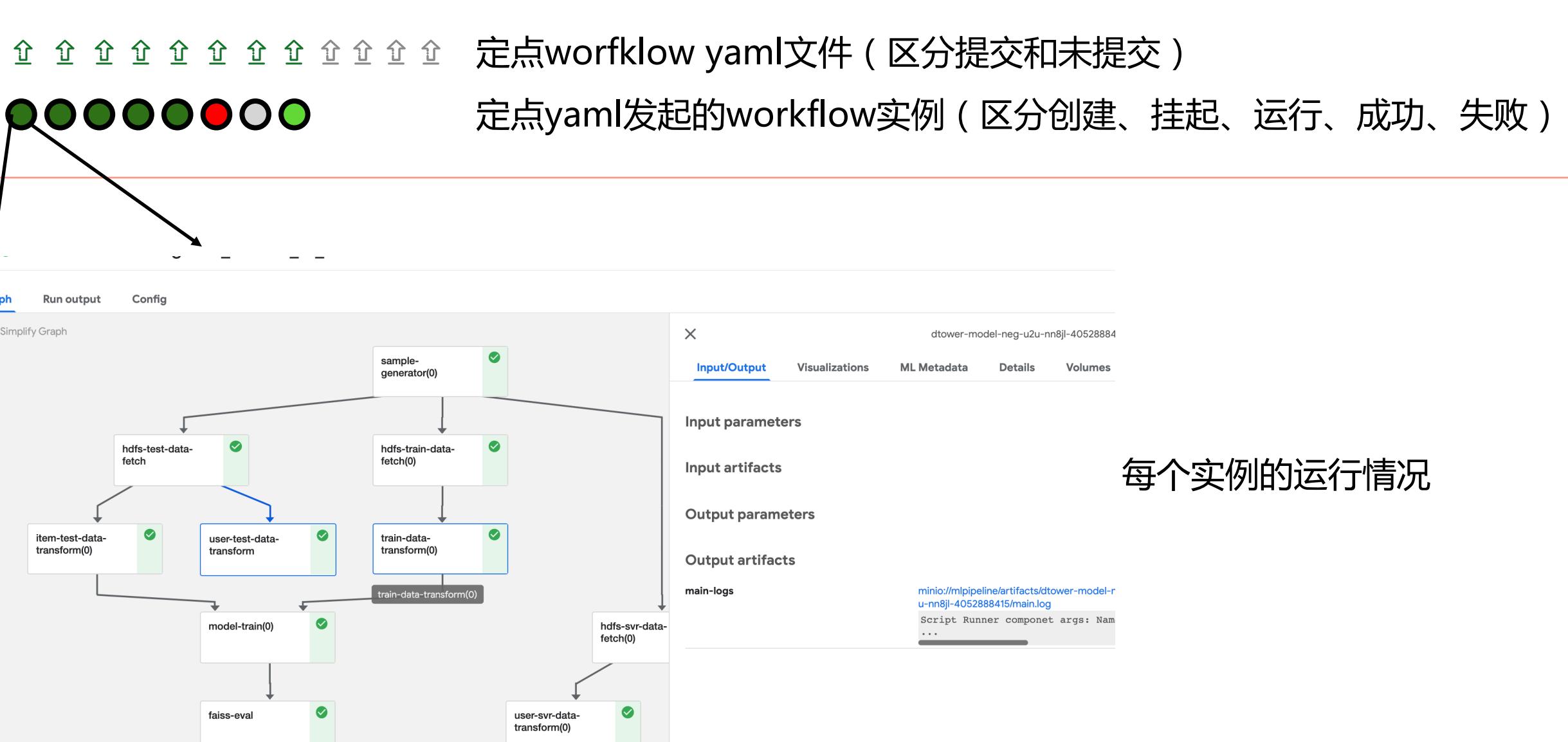
① Runtime execution graph. Only steps that are currently running or have already completed are shown.

# 定时调度:

任务流 ( 支持模板变量 )

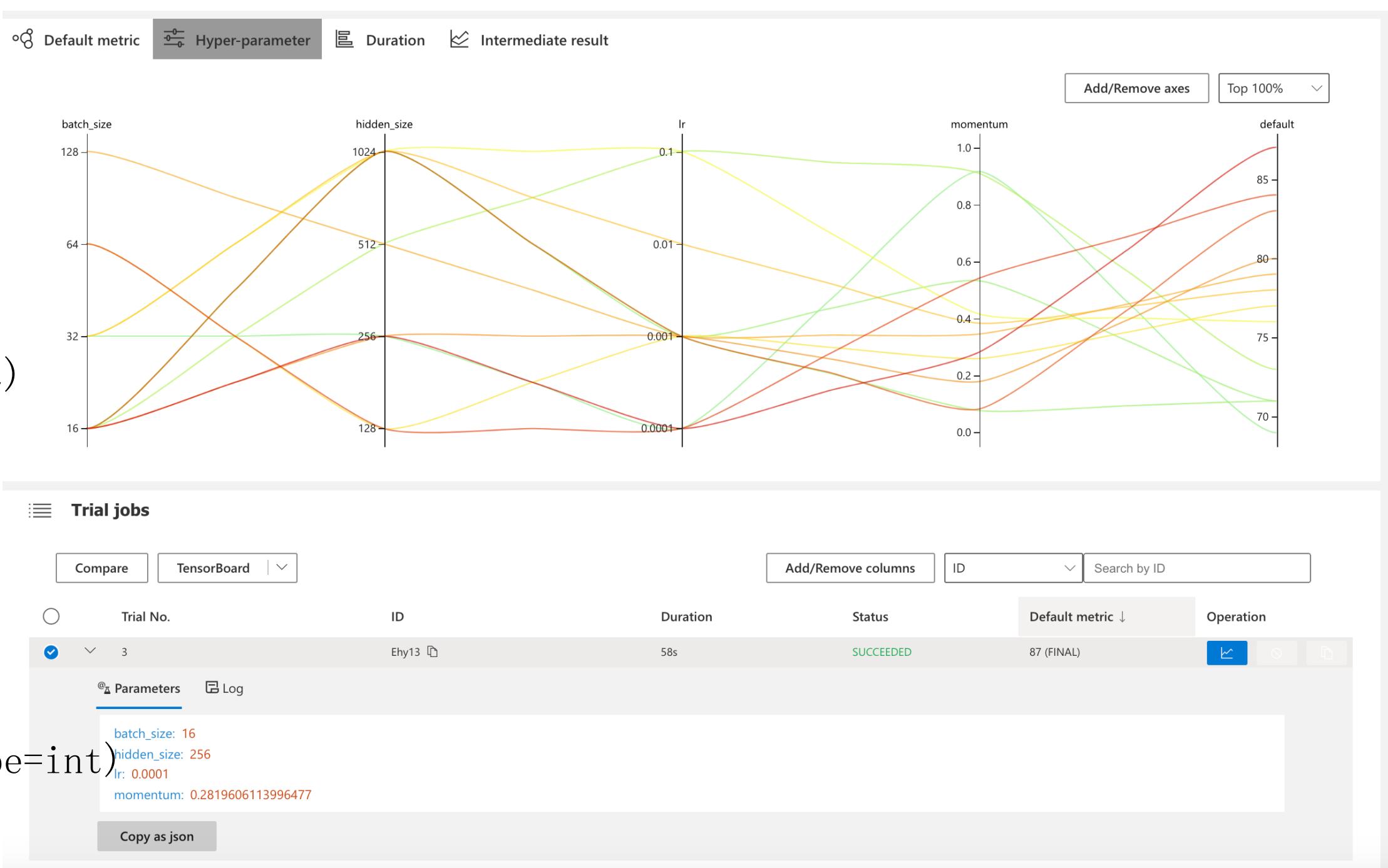


自动配置 start time

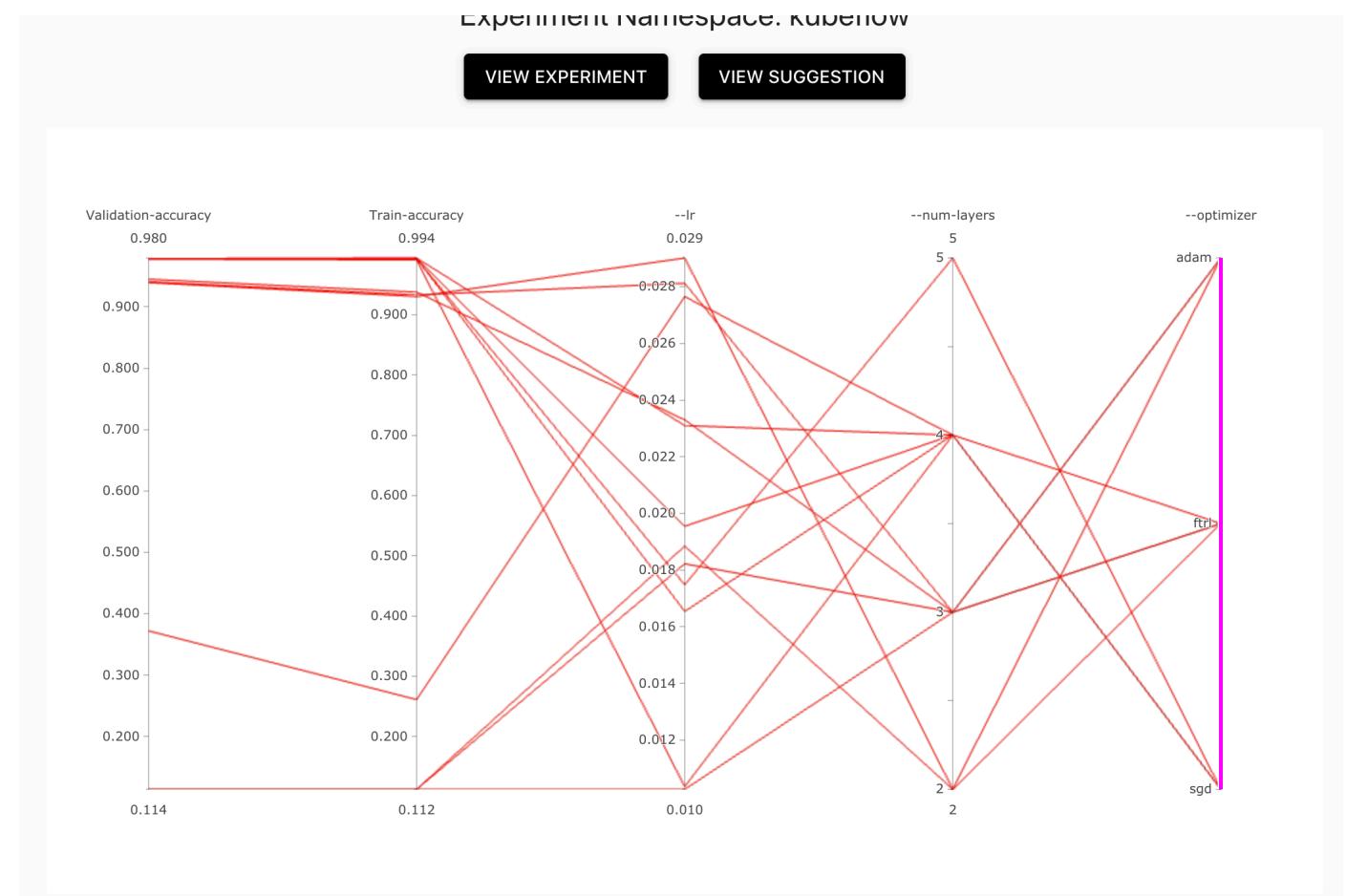


# nni超参搜索：

```
# 上报当前迭代目标值  
nni.report_intermediate_result(test_acc)  
# 上报最终目标值  
nni.report_final_result(test_acc)
```



# katib超参搜索：



trialName	Status	Validation-accuracy	Train-accuracy	--lr	--num-layers	--optimizer
random-example-56dbrmbp	Succeeded	0.977906	0.993987	0.023099488857362967	4	sgd
random-example-7gmg5s95	Succeeded	0.113854	0.112407	0.010264002856845119	3	ftrl
random-example-9fjzl26w	Succeeded	0.978503	0.993304	0.016543321995878775	4	sgd
random-example-9ncm4jwn	Succeeded	0.939391	0.930171	0.0290150100720463	2	adam
random-example-bglkf2bt	Succeeded	0.944964	0.937483	0.023303065321142805	3	adam
random-example-bprcfm42	Succeeded	0.979598	0.992637	0.017481171379924054	5	sgd
random-example-fbb5wrz2	Succeeded	0.372014	0.261261	0.027652887849691624	4	ftrl
random-example-hv8sl7wq	Succeeded	0.977607	0.990922	0.010359860424234042	4	sgd
random-example-kz5ppltq	Succeeded	0.940884	0.932753	0.02812216876518963	3	adam

I1102 09:17:11.521833	21 main.go:81] 2020-11-02T09:17:11Z INFO Epoch[8] Batch [500-600]	Speed: 3244.58 samples/sec	accuracy=0.924883
I1102 09:17:19.456807	21 main.go:81] 2020-11-02T09:17:19Z INFO Epoch[8] Batch [600-700]	Speed: 14714.32 samples/sec	accuracy=0.928906
I1102 09:17:19.813532	21 main.go:81] 2020-11-02T09:17:19Z INFO Epoch[8] Batch [700-800]	Speed: 17949.61 samples/sec	accuracy=0.931719
I1102 09:17:20.221257	21 main.go:81] 2020-11-02T09:17:20Z INFO Epoch[8] Batch [800-900]	Speed: 15702.54 samples/sec	accuracy=0.925312
I1102 09:17:20.471541	21 main.go:81] 2020-11-02T09:17:20Z INFO Epoch[8] Train-accuracy=0.927522		
I1102 09:17:20.471699	21 main.go:81] 2020-11-02T09:17:20Z INFO Epoch[8] Time cost=5.311		
I1102 09:17:20.758831	21 main.go:81] 2020-11-02T09:17:20Z INFO Epoch[8] Validation-accuracy=0.942675	第n次迭代结果	
I1102 09:17:21.828887	21 main.go:81] 2020-11-02T09:17:21Z INFO Epoch[9] Batch [0-100]	Speed: 7946.85 samples/sec	accuracy=0.931312
I1102 09:17:22.769293	21 main.go:81] 2020-11-02T09:17:22Z INFO Epoch[9] Batch [100-200]	Speed: 6806.63 samples/sec	accuracy=0.931406
I1102 09:17:22.970162	21 main.go:81] 2020-11-02T09:17:22Z INFO Epoch[9] Batch [200-300]	Speed: 31776.87 samples/sec	accuracy=0.932813
I1102 09:17:23.173542	21 main.go:81] 2020-11-02T09:17:23Z INFO Epoch[9] Batch [300-400]	Speed: 31470.53 samples/sec	accuracy=0.937031
I1102 09:17:23.382001	21 main.go:81] 2020-11-02T09:17:23Z INFO Epoch[9] Batch [400-500]	Speed: 30729.65 samples/sec	accuracy=0.929063
I1102 09:17:23.584741	21 main.go:81] 2020-11-02T09:17:23Z INFO Epoch[9] Batch [500-600]	Speed: 31613.97 samples/sec	accuracy=0.930000
I1102 09:17:23.912860	21 main.go:81] 2020-11-02T09:17:23Z INFO Epoch[9] Batch [600-700]	Speed: 19508.87 samples/sec	accuracy=0.928281
I1102 09:17:24.800615	21 main.go:81] 2020-11-02T09:17:24Z INFO Epoch[9] Batch [700-800]	Speed: 7218.06 samples/sec	accuracy=0.936094
I1102 09:17:25.029237	21 main.go:81] 2020-11-02T09:17:25Z INFO Epoch[9] Batch [800-900]	Speed: 27906.21 samples/sec	accuracy=0.930469
I1102 09:17:25.106485	21 main.go:81] 2020-11-02T09:17:25Z INFO Epoch[9] Train-accuracy=0.931586		
I1102 09:17:25.112552	21 main.go:81] 2020-11-02T09:17:25Z INFO Epoch[9] Time cost=4.105		
I1102 09:17:25.338830	21 main.go:81] 2020-11-02T09:17:25Z INFO Epoch[9] Validation-accuracy=0.938495	第n+1次迭代结果	
I1102 09:17:25.341120	21 main.go:81] 2020-11-02T09:17:25Z INFO Epoch[9] Time cost=4.105		

# Tfserving模型服务

模型列表

Filter List

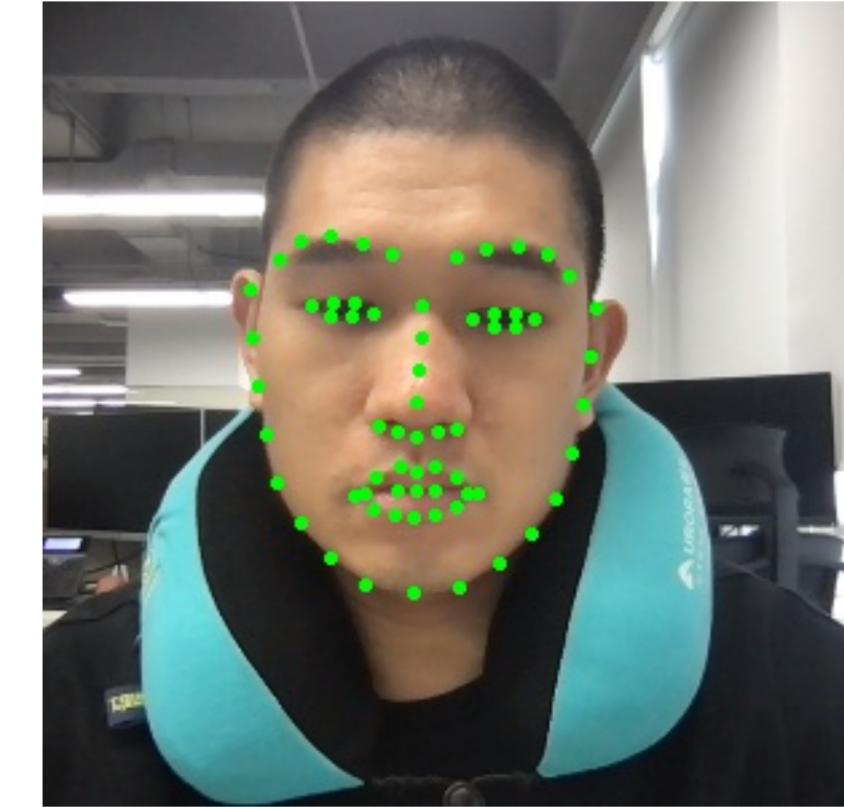
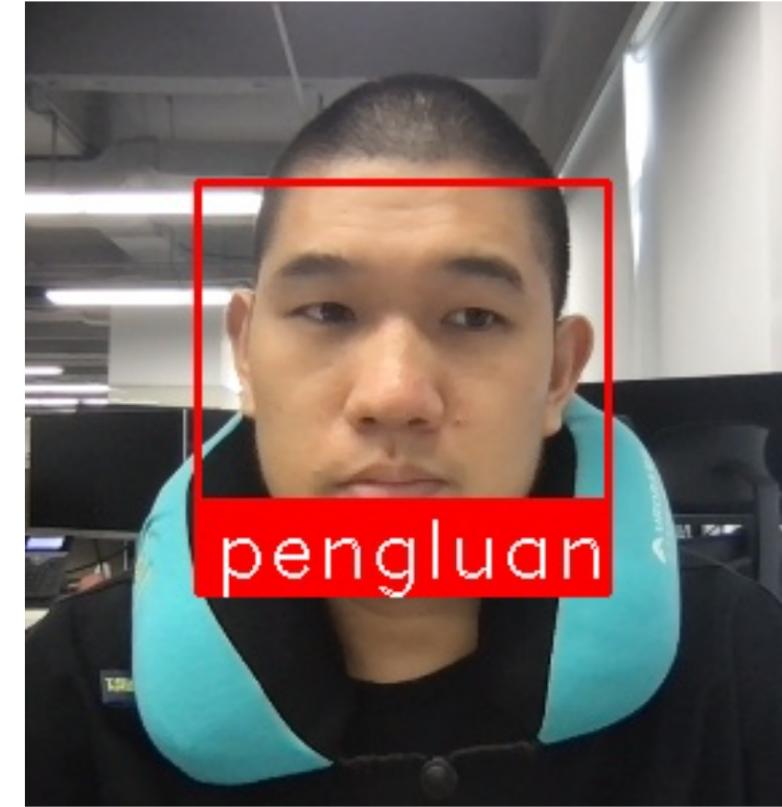


Refresh

帮助文档

□	名称	项目组	任务流	创建者	状态	修改时间	测试部署	检测测试服务	生产部署
□	esmm	Q音推荐算法测试组(None)	ESMM算法模板测试	lionpeng	offline	4 hours ago	部署测试环境	检测测试服务	部署生产
□	deepfm_cross_cut	putoo(扑通社区)	未知	fabriszhou	offline	7 hours ago	部署测试环境	检测测试服务	部署生产
□	deepfm_cross_cut	putoo(扑通社区)	未知	fabriszhou	online	7 hours ago	部署测试环境	检测测试服务	部署生产
□	deepfm_cross_20210426	Q音推荐(None)	putoo_deepfm_cross	fabriszhou	offline	7 hours ago	部署测试环境	检测测试服务	部署生产
□	deepfm_weight_cut	putoo(扑通社区)	未知	fabriszhou	offline	8 hours ago	部署测试环境	检测测试服务	部署生产
□	deepfm_weight_cut	putoo(扑通社区)	未知	fabriszhou	online	8 hours ago	部署测试环境	检测测试服务	部署生产
□	deepfm_ola_20210601	Q音推荐(None)	putoo_deepfm_full	fabriszhou	offline	9 hours ago	部署测试环境	检测测试服务	部署生产
□	video_tab_deepfm_20210601	video(mcc短视频)	未知	mccreeyu	test	9 hours ago	部署测试环境	检测测试服务	部署生产
□	deepfm	Q音推荐(None)	视频tab排序任务流	mccreeyu	offline	9 hours ago	部署测试环境	检测测试服务	部署生产

# 内部工具服务:

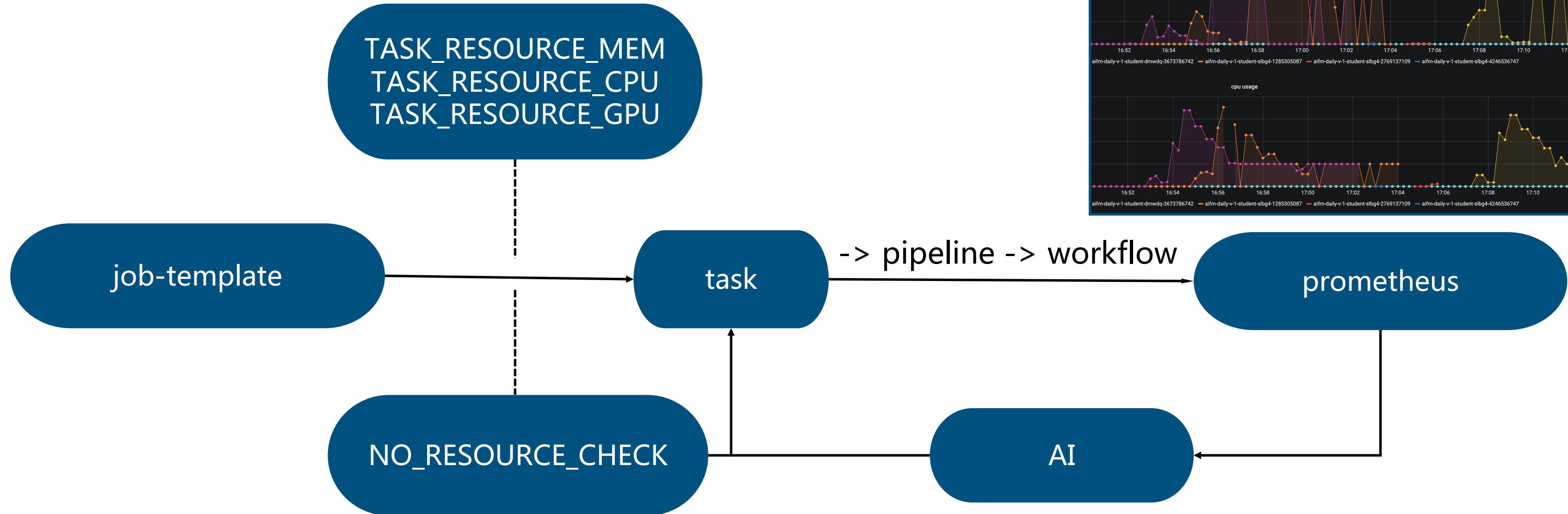


支持泛化域名、https

[开启摄像头](#) [五官](#) [人脸关键点](#) [人脸表情](#) [换脸](#) [身份识别](#)

名称	域名	部署	清理	创建者
<a href="#"></a> 智能客服	<a href="http://chatbot.service.kfserving.woa.com">http://chatbot.service.kfserving.woa.com</a>	<a href="#">部署</a>	<a href="#">清理</a>	pengluan
<a href="#"></a> 流水线可视化	<a href="http://pipeline.kubeflow.kfserving.woa.com">http://pipeline.kubeflow.kfserving.woa.com</a>	<a href="#">部署</a>	<a href="#">清理</a>	alwynzhou
<a href="#"></a> 人脸识别多种玩法	<a href="https://face-master.service.kfserving.woa.com">https://face-master.service.kfserving.woa.com</a>	<a href="#">部署</a>	<a href="#">清理</a>	pengluan
<a href="#"></a> 人体识别-gpu	<a href="https://openpose-gpu.service.kfserving.woa.com">https://openpose-gpu.service.kfserving.woa.com</a>	<a href="#">部署</a>	<a href="#">清理</a>	pengluan
<a href="#"></a> 人体识别-cpu	<a href="http://openpose-cpu.service.kfserving.woa.com">http://openpose-cpu.service.kfserving.woa.com</a>	<a href="#">部署</a>	<a href="#">清理</a>	pengluan

# 资源配置动态规划:



# 资源智能修改：

## pipeline-task 资源

监控

```
{  
  "task": [  
    {  
      "cpu": 2.19,  
      "memory": 2.68,  
      "pod_name": "putoo-deepfm-cross-full-j2mh6-1346266124",  
      "update_time": "2021-05-25 10:52:38"  
    },  
    {  
      "cpu": 1.27,  
      "memory": 1.33,  
      "pod_name": "putoo-deepfm-cross-full-v89q9-240572082",  
      "update_time": "2021-05-26 11:07:54"  
    },  
    {  
      "cpu": 1.16,  
      "memory": 1.33,  
      "pod_name": "putoo-deepfm-cross-full-v89q9-240572082",  
      "update_time": "2021-05-26 11:08:03"  
    },  
  ]  
}
```

## 分布式任务资源

DI小助手(DI小助手) 5-31 下午 11:01

```
pipeline: putoo_deepfm_full  
user:fabriszhou  
task: 模型训练和验证, tfjob 资源使用率:  
使用 cpu: [19.75, 19.92, 19.84, 19.59, 19.26,  
19.59, 19.74, 19.88, 19.58, 19.73]  
使用 mem: [21.83, 21.4, 22.32, 20.17, 20.17,  
20.17, 22.09, 21.25, 24.01, 24.01]  
限制 cpu: 20  
限制 mem: 25G  
  
自行增加 tfjob 资源配置或 worker 数目
```

# 调度通知:

DI小助手(DI小助手)

852428

DI数据架构小助手

pipeline: crontab-standalone-train(调度测试)

namespace: pipeline

status: Running

start\_time: 2021-05-30 03:01:02

finish\_time:

[pod详情](#)

星期日 上午 4:01

workflow: crontab-standalone-train-bgm2x

pipeline: crontab-standalone-train(调度测试)

namespace: pipeline

status: Succeeded

start\_time: 2021-05-30 03:01:02

finish\_time: 2021-05-30 04:01:11

[pod详情](#)

调度测试，各 task 耗时，酌情优化：

tlinux 命令测试:1.0(h)

tlinux 命令测试 2:1.0(h)

## 机器学习平台管理员推送中心

DI小助手(DI小助手) 6-1 上午 10:20

用户 fabriszhou 在线模型:

deepfm\_low\_cut:2021-05-31

deepfm\_weight\_cut:2021-05-27

deepfm\_cross\_cut:2021-05-27

deepfm\_base\_cut:2021-05-27

deepfm\_full:2021-05-07

deepfm\_cross:2021-05-07

deepfm\_base\_20210429:2021-05-07

deepfm\_cross\_20210429:2021-05-07

deepfm\_base\_20210426:2021-04-28

deepfm\_cross\_20210426:2021-04-26

deepfm\_cross\_20210420:2021-04-20

deepfm\_base\_20210420:2021-04-20

请及时清理不再使用的模型服务

上午 10:28

DI小助手(DI小助手)

视频 tab 排序任务流，各 task 耗时，酌情优化：

【视频】拉取样本:0.0(h)

【视频】模型训练:0.26(h)

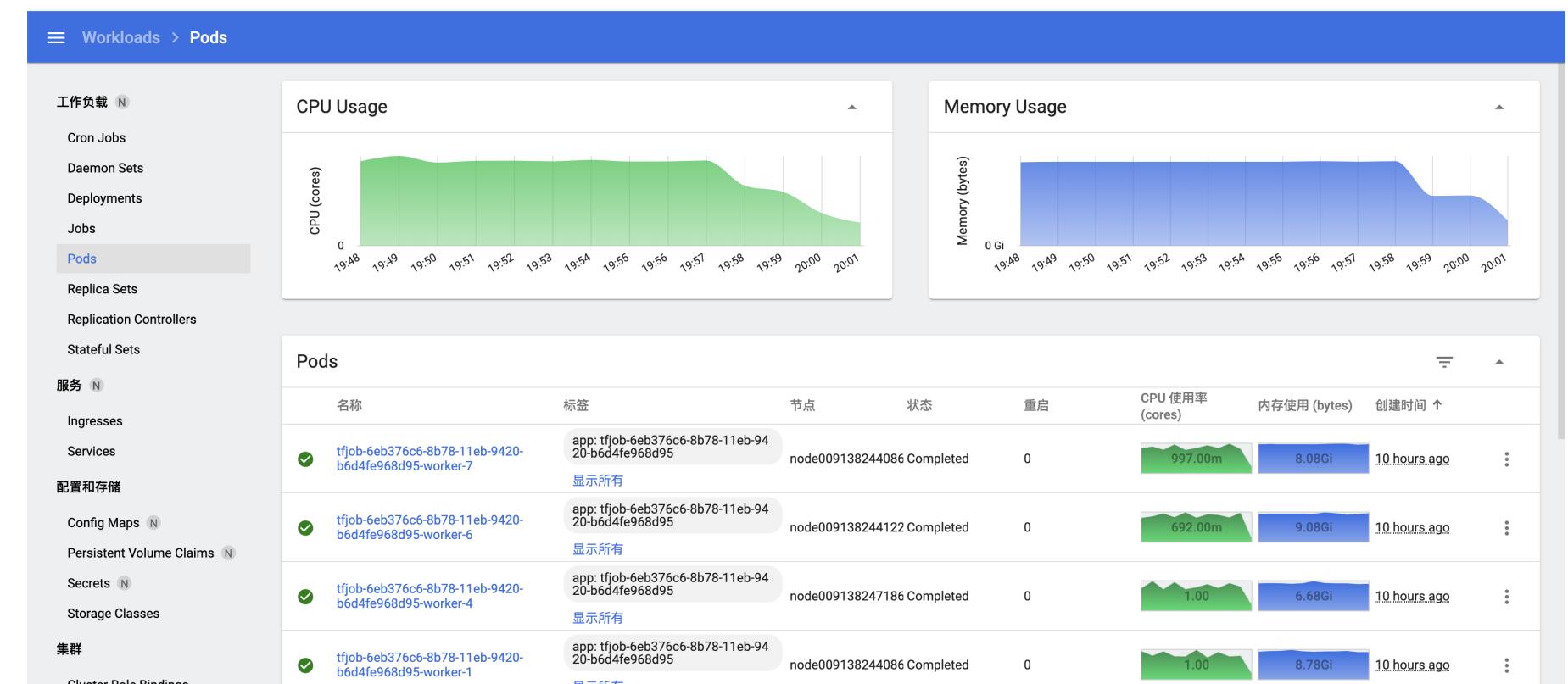
# 监控中心：



机器负载差异



任务流容器负载



pod实时负载

# 文档中心:

所有的 我关注的 我创建的

- ✓ TME机器学习平台
  - 产品进度会议记录
- ✓ 平台使用
  - > 在线notebook开发
  - > 镜像制作
  - > job模板开发
  - > 模型训练
  - > 超参搜索
  - > 模型服务化
  - 成果目录
  - 私有集群
- > 平台开发
- > 备份

## Notebook使用说明

pengluan 创建于2020-12-09 , pengluan 更新于2021-05-25 浏览量 (222)

## 平台支持Jupyter Notebook和云原生ide

统一机器学习平台支持用户创建自己的Notebook来使用平台上的资源, 并且用户可通过, Notebook上传下载文件和代码, 提供...

### 添加notebook

用户可以根据自己的情况添加多个Notebook, 可以根据自己的环境需求配置notebook镜像, 镜像拉取策略, 选择的机器, 以及首先前往平台Notebook页面链接:

[http://kubeflow.music.woa.com/notebook\\_modelview/list/](http://kubeflow.music.woa.com/notebook_modelview/list/)

点击下列按钮进行 Notebook添加:



The screenshot shows the Kubeflow UI for managing notebooks. At the top, there's a navigation bar with icons for security, online development, training, hyperparameter search, service, project group, and links. Below it is a search bar labeled "notebook 列表". At the bottom left are two buttons: "Refresh" and "help". The main area displays a table with columns for "Name" and "Description". A watermark for "pengluan" is visible across the entire screenshot.

- ▼ tf分布式训练
  - ☐ distribute\_tf2.3\_model\_train  
tensorflow2.3分布式模型训练，内部支持plain和runner两种方式
  - ☐ standalone\_tf2.3\_runner\_model\_train  
tensorflow2.3单机runner封装模型训练
  - ☐ standalone\_tf2.3\_plain\_model\_train  
ensorflow2.3单机用户自定义训练
  - ☐ tf2.3\_model\_evaluation  
tensorflow2.3模型指标对比评估
  - ☐ tf\_model\_offline\_predict  
tensorflow模型离线预测结果写文件

lionpeng

镜像

csighub.tencentyun.com/tme-kubeflow/tf\_distributed\_train:20201010

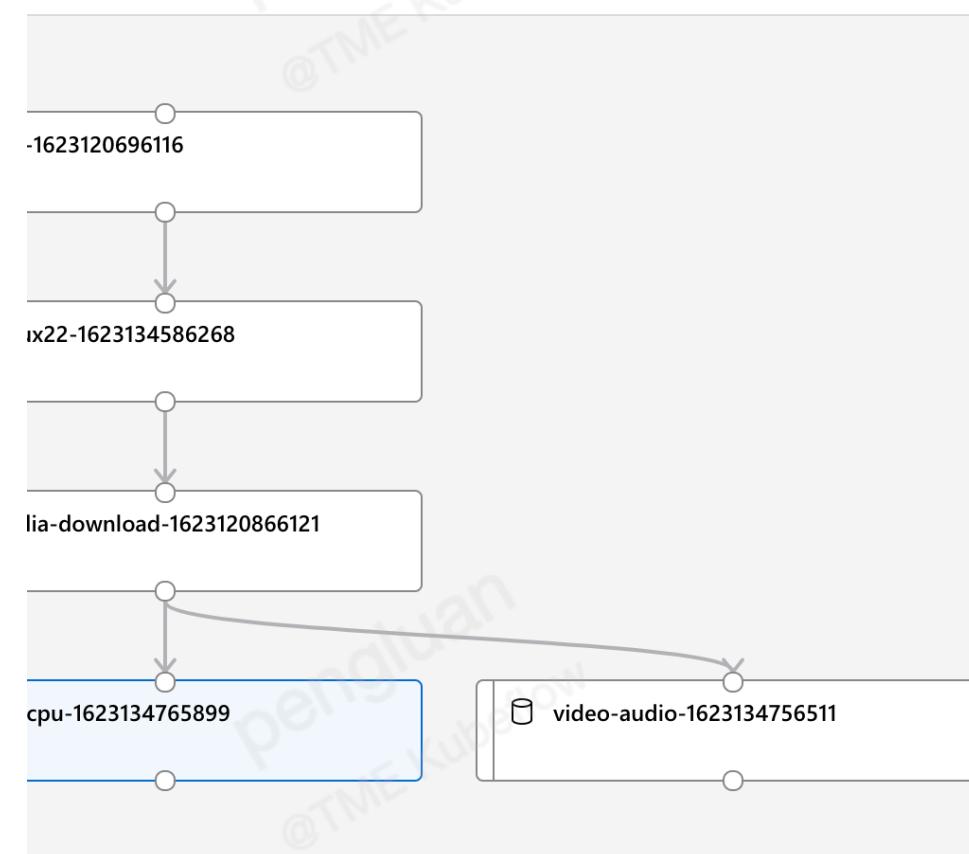
## 上次修改时间

2021-06-22T10:57:11+00:00

版本

## Release

配置文档



# API接入平台

## web url和api url

add操作:

- web: (POST) : `http://x.x.x.x/$view/add`
- api: (POST) : [http://x.x.x.x/\\$view/api/](http://x.x.x.x/$view/api/)

edit操作:

- web: (POST) : `http://x.x.x.x/$view/edit/<id>`
- api: (PUT) : [http://x.x.x.x/\\$view/api/<id>](http://x.x.x.x/$view/api/<id>)

show操作:

- web: (GET) : `http://x.x.x.x/$view/show/<id>`
- api: (GET) : [http://x.x.x.x/\\$view/api/<id>](http://x.x.x.x/$view/api/<id>)

delete操作:

- web: (GET) : `http://x.x.x.x/$view/delete/<id>`
- api: (DELETE) : [http://x.x.x.x/\\$view/api/<id>](http://x.x.x.x/$view/api/<id>)

list操作:

- web: (GET) : `http://x.x.x.x/$view/list/`
- api: (GET) : [http://x.x.x.x/\\$view/api/](http://x.x.x.x/$view/api/)

可以参考模板化前端界面url来获取具体模块\$view

说明	\$view	表名
项目管理	project_modelview	project
项目成员管理	project_user_modelview	project_user
仓库管理	repository_modelview	repository
镜像管理	images_modelview	images
job模板管理	job_template_modelview	job_template
pipeline管咯	pipeline_modelview	pipeline
task管理	task_modelview	task
定时调度实例管理	runhistory_modelview	runhistory
workflow管理	workflow_modelview	workflow
tfjob管理	tfjob_modelview	tfjob
xgbjob管理	xgbjob_modelview	xgbjob
pytorchjob管理	pytorchjob_modelview	pytorchjob
超参搜索配置管理	hyperparameter_tuning_modelview	hp
超参搜索实例管理	experiments_modelview	experiments
训练模型管理	training_model_modelview	model
模型部署管理	training_model_deploy_modelview	deploy
模型服务管理	service_modelview	service
kfserving管理	kfservice_modelview	kfservice
notebook管理	notebook_modelview	notebook