



開源軟體介紹 - 以MLOps為例

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Download Slides

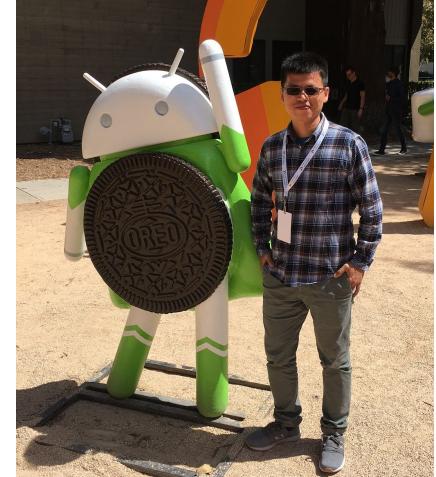
<https://bit.ly/3llc6do>

<https://github.com/FootprintAI/talks/tree/main/slides>



About me

- 2020 - Present at 信誠金融科技
- 2016 - 2020 at IglooInsure (16M+ in series A+ 2020)
 - Provide digital insurance for e-economic world
 - Funded in KUL, Headquartered in Singapore
 - First employee/ Engineering Lead / Regional Head/ Chief Engineer
- 2013 - 2016 at Studio Engineering @ hTC
 - Principal Engineer on Cloud Infrastructure Team
- 2009 - 2012 at IIS @ Academia Sinica
 - Computer vision, pattern recognition, and data mining
- CS@CCU, CS@NCKU alumni



- 信誠金融科技(footprint-ai.com) 提供以AI/ML服務應用為基礎的軟體公司, 精通於
 - 保險科技(insuretech), 機器模型運維(MLOps), 綠色科技(Green Tech), 與具備互聯網規模的數據分析能力(internet-scale data analysis)。
 - Kafeido: machine learning platform for green economy.
 - Sdinsure: software-defined insurance product.
- 具備從想法到一個生態圈的經驗與能力。
 - 首位與創始員工 @ Singapore-based insurtech startup iglooinsure (18M USD/2020 Series A, 46M USD/2022 Series B, 46M USD/2024 pre-series C)
- Business partner with IBM Taiwan (IBM.tw)
- 加入 Nvidia Inception program in 2021.
- Moved into FinTechSpaces, the largest startup accelerator in financial sectors in TW, in 2023.

Green Computing emerges as the NEXT BIG WAVE countering GAI.

github-advanced-security bot

The vulnerability in the code is due to the fact that user-provided input is directly used in HTTP response without any sanitization. This can lead to a cross-site scripting (XSS) attack if the user input contains malicious scripts.

To fix this, we need to sanitize the input before using it in the HTTP response. One way to do this is to use the `escape-html` library, which can escape any special characters.

AI suggested fix

```
14     app.get('/',(req, res) => {  
15     -         res.send('Hello ${req.query.name}!');  
15     +         res.send('Hello ${escape(req.query.name)}!');  
16     });
```

Data Center News ▶

Intel Buying AI Startup To Cut Cloud Costs, Boost CPU Compute Abilities

BY MARK HARANAS ▶
MARCH 31, 2022, 03:13 PM EDT

'Granulate's cutting-edge autonomous optimization software can be applied to production workloads without requiring the customer to make changes to its code, driving optimized hardware and software value for every cloud and data center customer,' Intel's Sandra Rivera says.



Build for the NEXT big thing

- We are hiring summer interns for developing AI system, building AI models to solving unknown tasks.
- Feel free to connect if you're eager to embrace the **fail fast** ethos.



<https://www.bing.com/images/create/c...?id=vYRditgOsNkH6GtTwudwFg%3d%3d&view=detailv2&idpp=genimg&FORM=GCRIDP&mode=overlay>



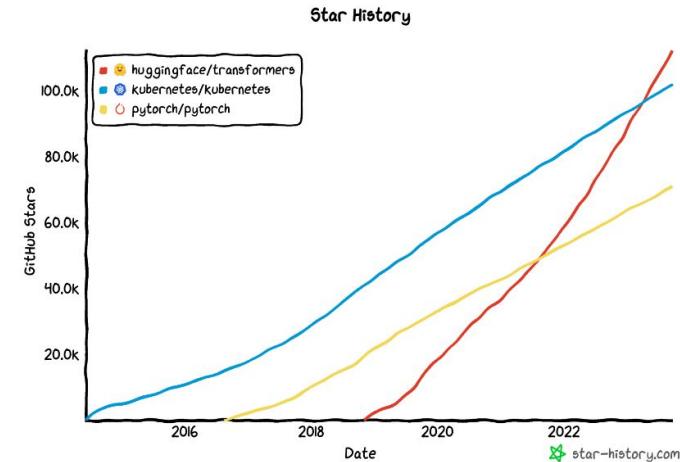
Agenda

- What is Open Source?
- How to contribute to Open Source?
- Kubeflow/Kserve Case Study
- FAQ

Huggingface sets the standard as an open-source startup role model



- An open source data science and machine learning platform, aka github for AI.
- Notable with its open source transformer library, which simplifies the process of working with pre-trained models.
- Huggingface Hub [1]
 - A central hub for community to share and explore machine learning.



year	2021		2023
Fundraising status	40M (B)		235M(D)

https://en.wikipedia.org/wiki/Hugging_Face
<https://github.com/huggingface/transformers>
<https://collabnix.com/what-is-hugging-face-and-why-it-is-damn-popular>



What is Open Source Software?

“Open-source software is a type of computer software ... the copyright holder grants users the rights to **use**, **study**, **change**, and **distribute** the software to anyone and for any purpose.” [1]

[1] https://en.wikipedia.org/wiki/Open-source_software

What is Open Source Software? (1/4)



	Open Source Software	Proprietary Software
Ownership	Everyone	A group of limited people
Usability	Difficult use for unskilled users Ex: Desktop Linux	Feature neat to end-user Ex: Microsoft Windows
Security	Better (?) Ex: <u>PHP source code is injected backdoors by hackers</u>	Less
Stability	Less	Better
Opacity	Transparent	Closed

The misunderstanding on open source software

- Open source software is **Free** in terms of Freedom, not Monetary.
- Open source developer is **NOT** a free labor [1]
 - Sponsorship by companies
 - Add values(a.k.a layers) on the existing project
 - Professional consult
- Open source means **Pool** quality
 - Good quality when the project gained enough eyeballs
 - On average the density of code defect is smaller than proprietary software [2]



[1] <https://softwareengineering.stackexchange.com/questions/100685/making-money-with-open-source-as-a-developer>

[2] <https://blogs.worldbank.org/opendata/quality-open-source-software-how-many-eyes-are-enough>

What is Open Source Software? (3/4)

Where open source communities lives?

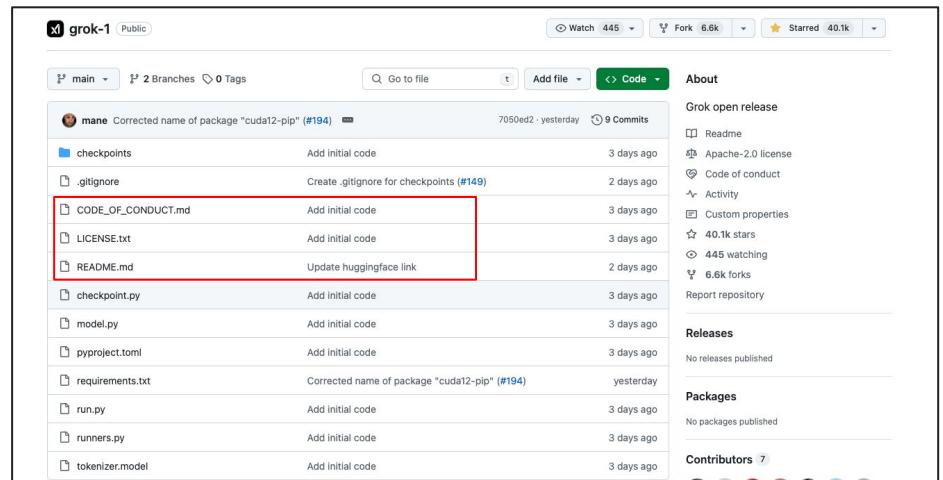


- Github
 - Free for any public repositories
 - Github Sponsor
- SaaS business model
 - Huggingface
- LLM foundational model
 - Grok-1 by xAI.

What is Open Source Software? (4/4)

Key files to understand a github project

- README.md
 - How to build and use the project
- LICENSE
 - Terms and Conditions
- CONTRIBUTING.md
 - Rules on contributing
- ROADMAP.md
 - Project roadmap
- CODE_OF_CONDUCT.md
 - Guidance on rule, responsibilities



What is kubeflow?



Kubernetes + ML
= **Kubeflow**

The Kubeflow project is dedicated to making deployments of machine learning (ML) workflows on Kubernetes simple, portable and scalable.



OpenAI adopted Kubernetes since 2016 for portability, cost saving, and improved efficiency[1,2].

Years	Nodes	Estimated Cost [3]
2018	2,500	= 3 * 2500 * 24 = US\$ 180,000 / day
2021	7,500	= 3 * 7500 * 24 = US\$ 540,000 / day
2023	?	

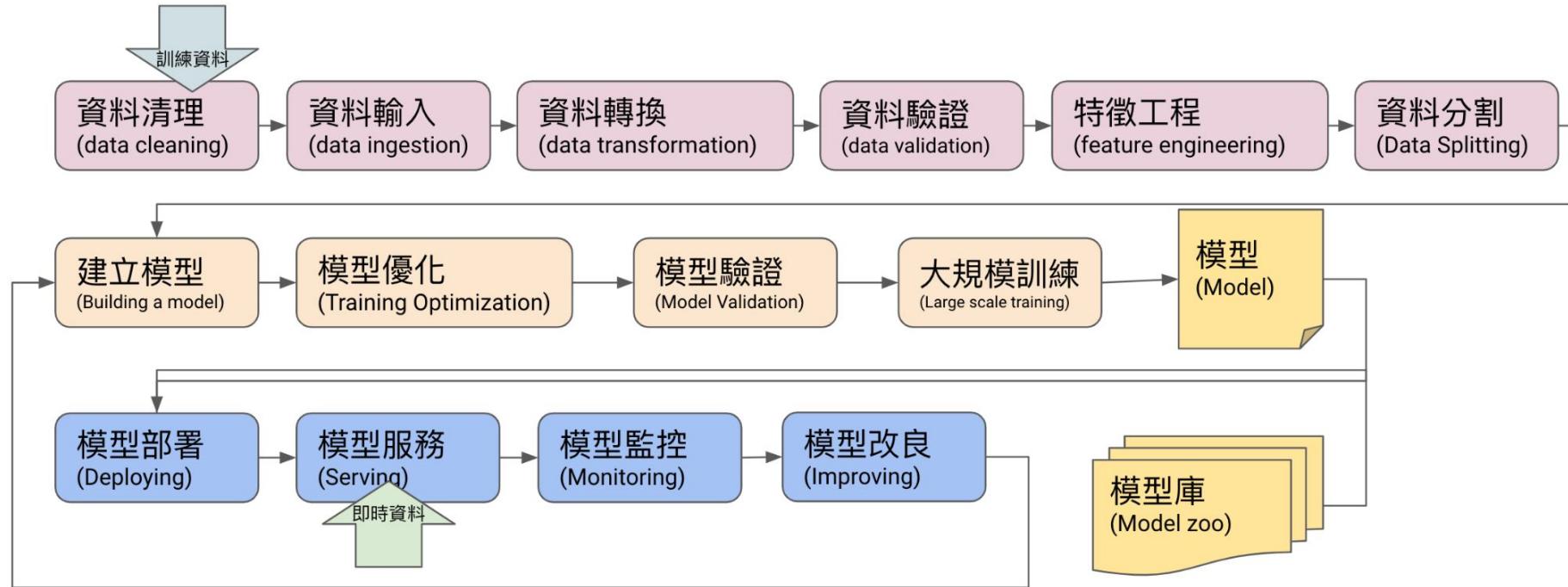
[1] <https://kubernetes.io/case-studies/openai/>

<https://blog.pichuang.com.tw/20230214-openai-scaling-kubernetes-to-7500-nodes.html>

[2] https://blog.pichuang.com.tw/20230214-openai-scaling-kubernetes-to-7500-nodes.html#_1

[3] AWS P3.2xlarge equips 8 vCores, 61 GB Memory, 1 Core of V100-16Gb GPU, charges US\$ 3 per hour.

Real-world Machine Learning Application - End-to-End ML LifeCycle



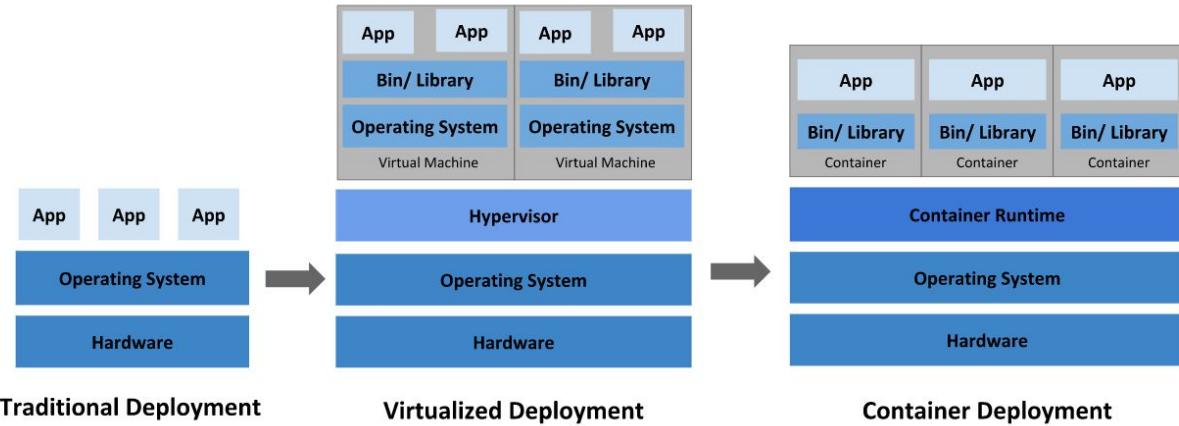
Why machine learning on Kubernetes?

- Portability
 - Dev/Staging/Prod
 - Laptop/Edge/Cloud environment
- Scalability
 - Hyperparameter tuning, production workloads, LLM
- Isolation
 - Workloads from different experiments



What is container?

- Container
 - Container Image = Application code + dependencies
 - Runtime environment (cgroups, namespaces, env vars)



History Of Kubernetes

- Borg: the predecessor to Kubernetes
 - Google revealed the first time of its detail in an academic research paper, describing a “cluster manager that runs hundreds of thousands of jobs, from many thousands of different applications, across a number of clusters each with up to tens of thousands of machines.”[1]
 - A in-house cluster manager system inside Google for running every google services including Gmail, Google Maps, Google Docs...[2]
 - In a scale with ‘over 2 billion containers per week’ [3]

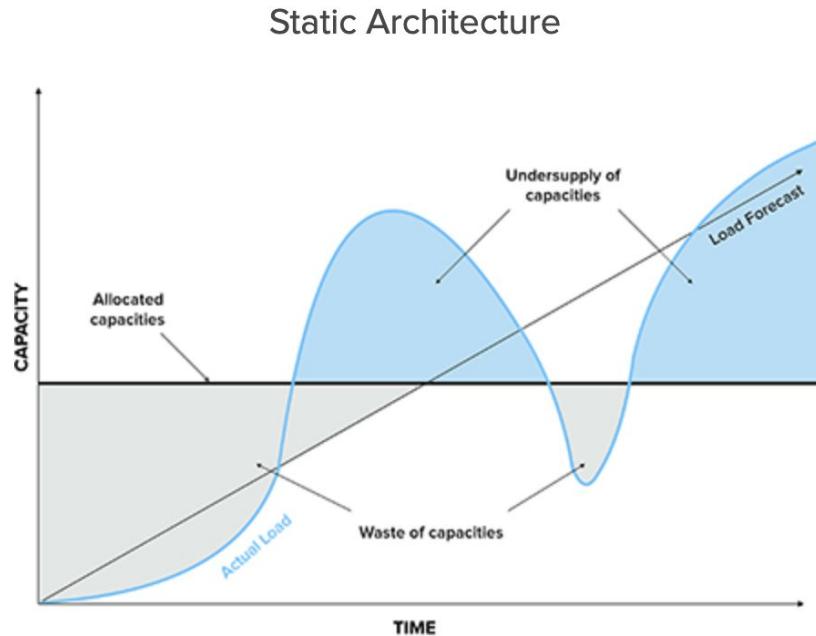
- The very first version of Kubernetes was released in 2015
- The latest version is v1.26, released at 2023.



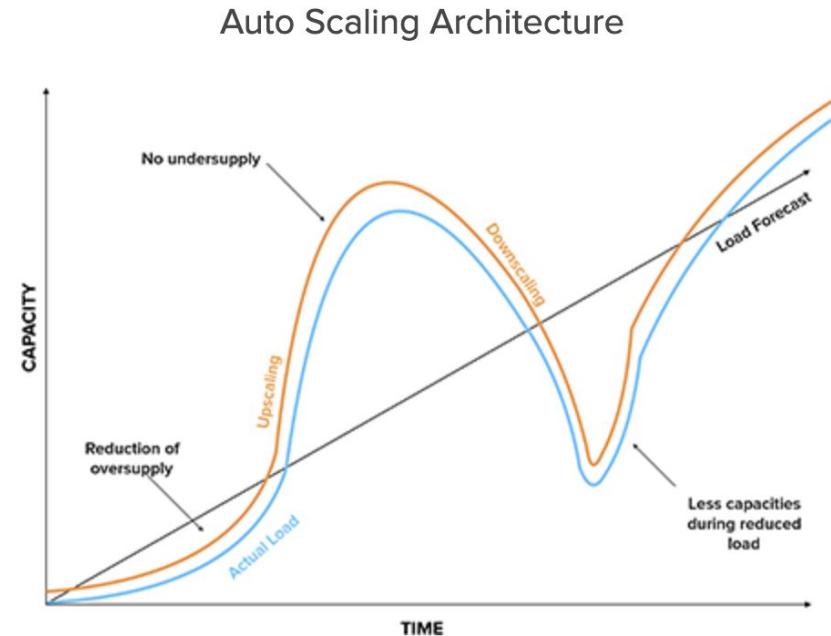
[1] <https://research.google/pubs/pub43438/>

[2] <https://www.wired.com/2016/04/want-build-empire-like-googles-os/>

[3] <https://cloud.redhat.com/blog/building-kubernetes-bringing-google-scale-container-orchestration-to-the-enterprise>



Static architectures are based on estimated load expectancy and are not flexible enough to adapt to unexpected load peaks or lulls.



Auto Scaling is the most cost-efficient solution for a fluctuating load. High performance and thereby user satisfaction are retained at all times.

Oh, you want to use ML on K8s?

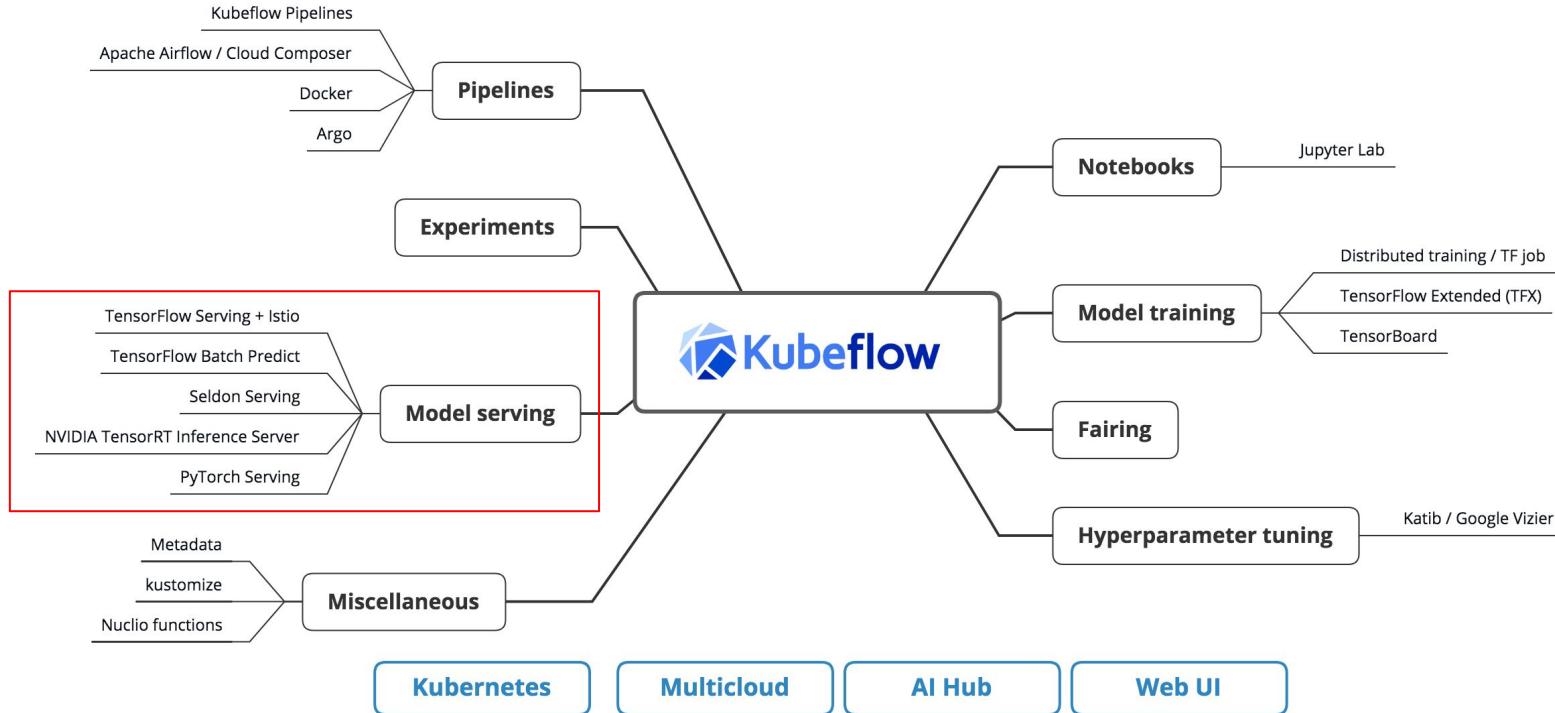
Before that, can you become an expert in:

- Containers
- Packaging
- Kubernetes service endpoints
- Persistent volumes
- Scaling
- Immutable deployments
- GPUs, Drivers & the GPL
- Cloud APIs
- DevOps
- ...

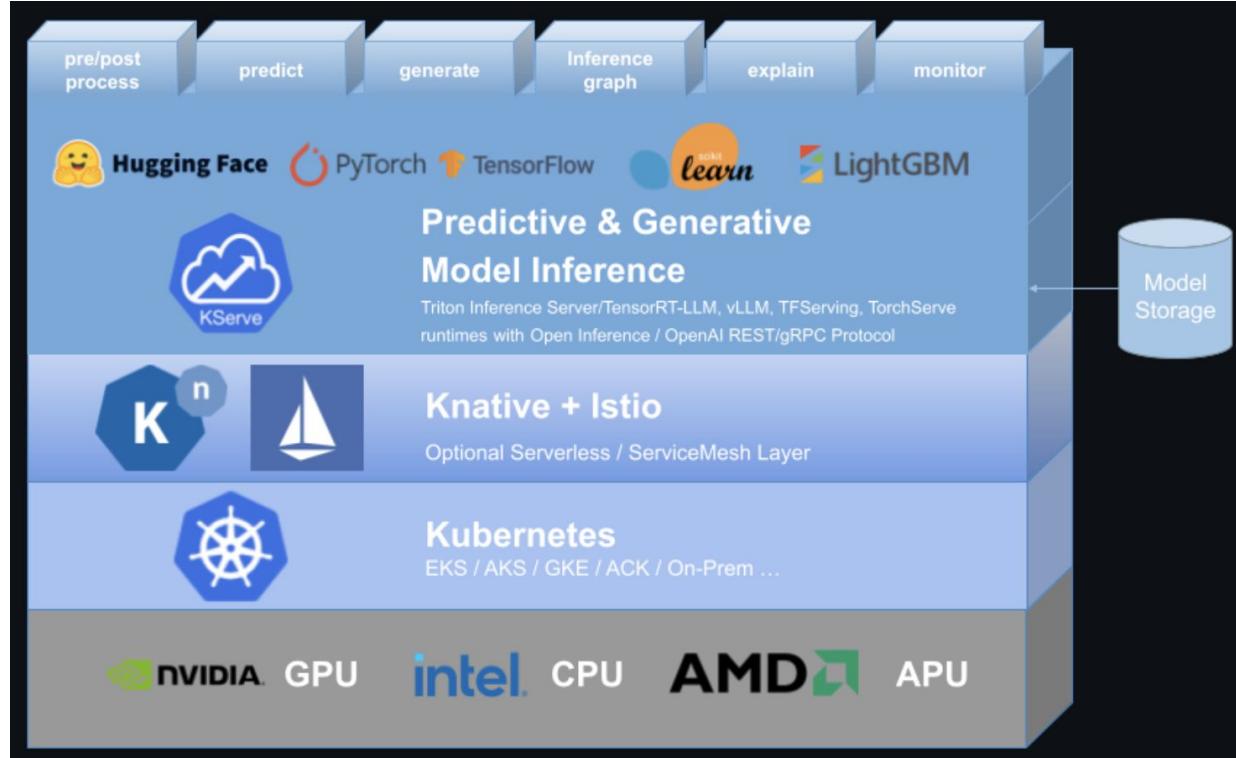


Source: @aronchick

Kubeflow Roadmap



What is Kserve?



Simple Example of Kserve

```
1  apiVersion: "serving.kserve.io/v1alpha3"
2  kind: "Service"
3  metadata:
4    name: "tensorflow-gpu"
5  spec:
6    predictor:
7      tensorflow:
8        storageUri: "gs://kfserving-examples/models/tensorflow/flowers"
9        resources:
10          limits:
11            nvidia.com/gpu: 1
12        nodeSelector:
13          cloud.google.com/gke-accelerator: nvidia-tesla-k80
```

How Kserve Serverless can save your cost?

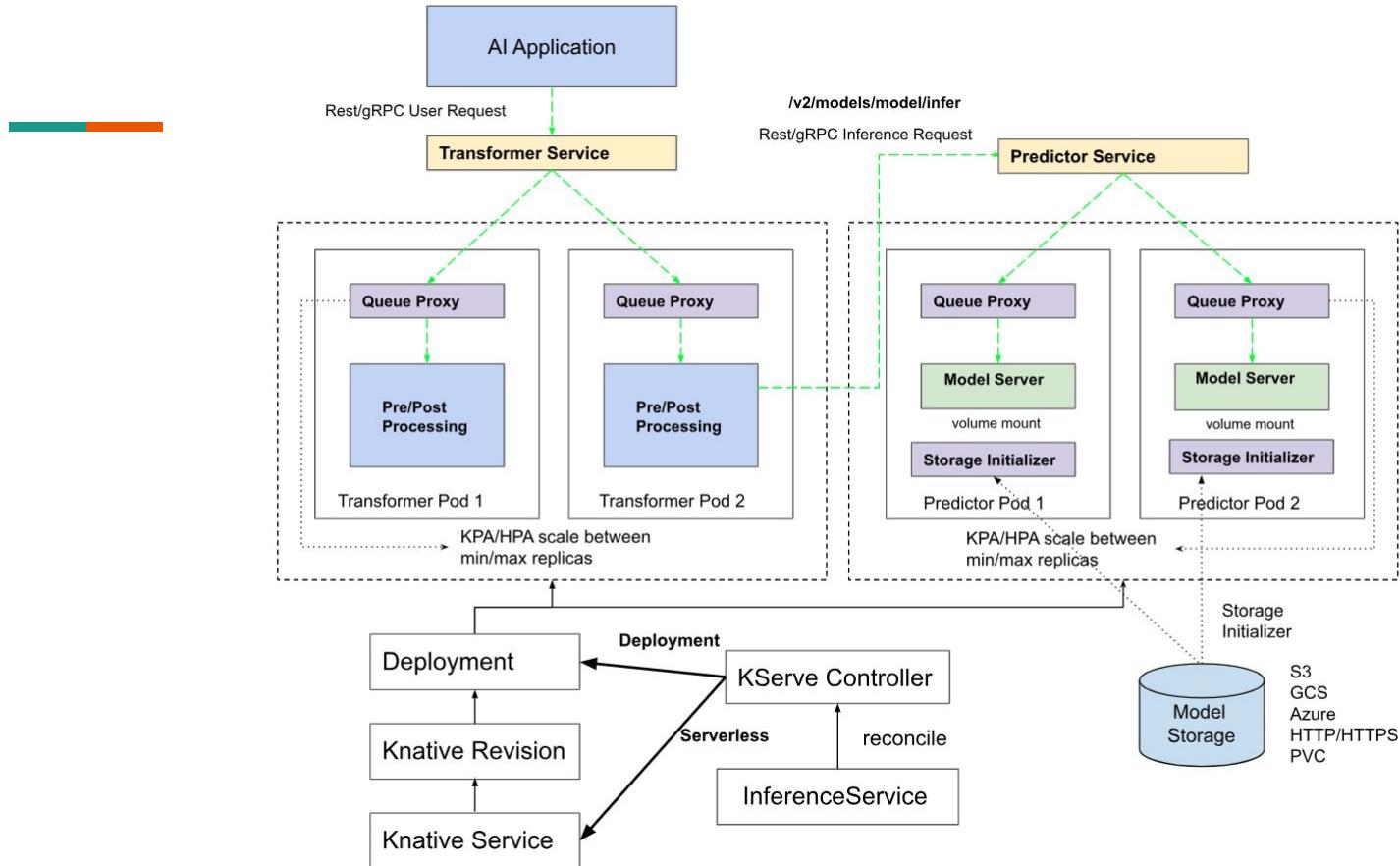


Idle time

Serving time

This experimental is measured under the following parameters:
1. GPU hardware: V100 16G
2. With QPS(request per second) = 1/20 (i.e. 20s per input)
By footprint-ai.com

Kserve Architecture



Ref: <https://kserve.github.io/website/0.11/>



How to contribute Open Source?

How to contribute to Open Source?



<https://opensource.guide/>

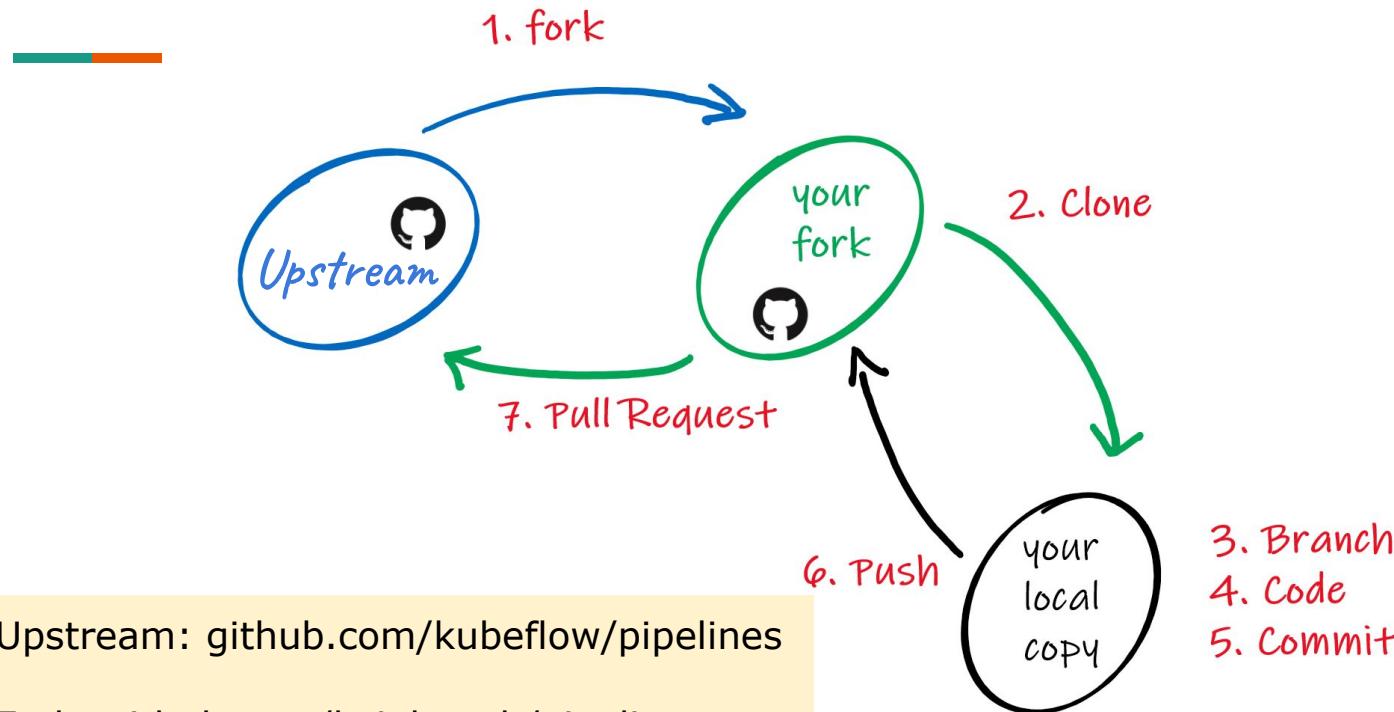
The two most popular way to contribute

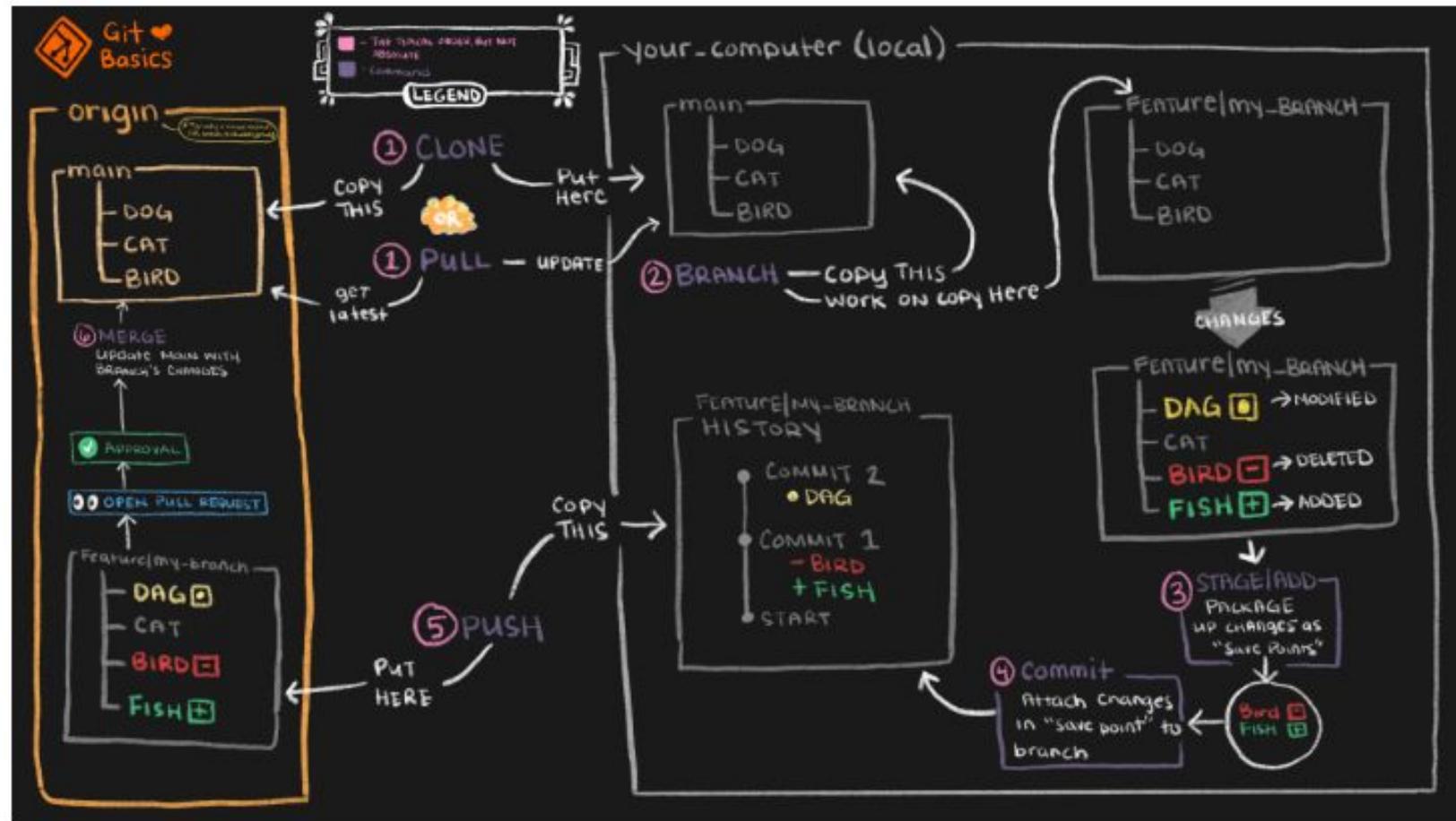
1. Raising an issue where you can feel the project could be improved
 - a. Report a problem/bug (kind/bug)
 - b. Suggest new features (kind/feature)
 - c. Gap in documentation (doc)
2. Contribute to code
 - a. Pull-Request in Github

Issue list @kubeflow/pipeline

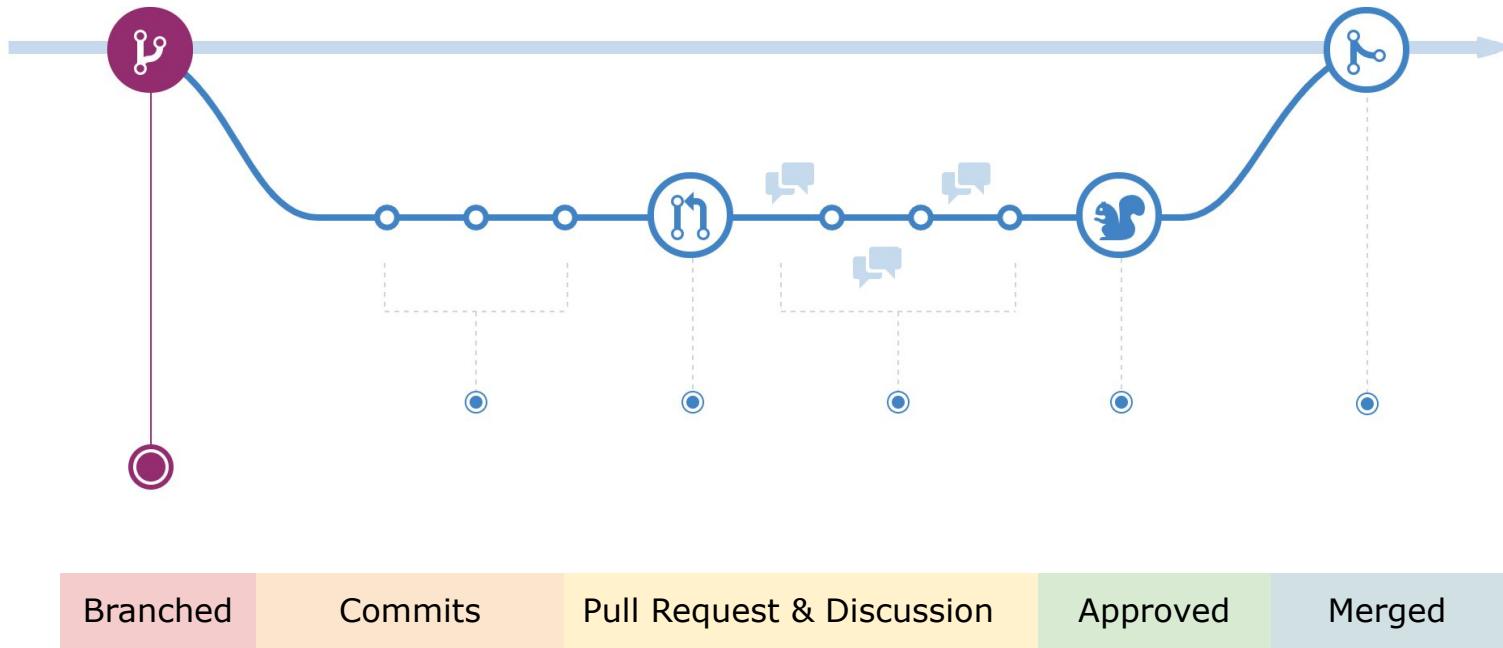
Author ▾		Label ▾	Projects ▾	Milestones ▾	Assignee ▾	Sort ▾
415 Open	✓ 1,720 Closed					
[frontend] The sort, filter of artifact does not work	#5565 opened 20 hours ago by capri-xiyue	area/frontend kind/bug				1
[Doc] Update "Visualize Results in the Pipelines UI" page	#5564 opened yesterday by Bobgy				Bobgy	2
[backend] OutputArtifact path is None	#5560 opened 2 days ago by willbry	area/backend kind/bug				
[feature] Configurable KFP Artifact types while storing to Minio	#5558 opened 2 days ago by rado-parrak	area/sdk kind/feature				2
[Multi User] Kubeflow Pipelines Missing Headers	#5556 opened 3 days ago by RoyerRamirez	area/backend kind/bug				
[feature] Allow jobs to be scheduled on AWS Fargate	#5555 opened 3 days ago by yuhuishi-convect	area/backend kind/feature				2
[sdk] mlpipelines-metrics path is wrong when using kfp.components.load_component_from_text	#5548 opened 4 days ago by santiagoolivar2017	area/sdk kind/bug				
pipeline_conf.set_ttl_seconds_after_finished(seconds=10) NOT WORKING	#5545 opened 4 days ago by prasadkyp7	area/backend kind/bug				
[sdk] input parameter created without default value	#5544 opened 5 days ago by amitza	area/sdk kind/bug				1

Pull-Request flow in Github





Github Flow: branch-based workflow



Pull-Request list @kubeflow/pipeline

81 Open ✓ 3,342 Closed

Author ▾ Label ▾ Projects ▾ Milestones ▾ Reviews ▾ Assignee ▾ Sort ▾

chore: [Research] Add toxicity detection pipeline ● cla: yes needs-ok-to-test size/S #5573 opened 1 hour ago by TheDutchDevil 1 of 1

feat(sdk.v2): reimplement custom job support ● cla: yes size/XL #5572 opened 4 hours ago by ChenSun 1 of 1

Add OWNERS for v2 folder ● cla: yes lgmt size/XS #5571 opened 10 hours ago by Bobgy 0 of 1

Add zijianjyu to frontend/OWNERS ● approved cla: yes size/XS #5570 opened 10 hours ago by Rohan 0 of 1

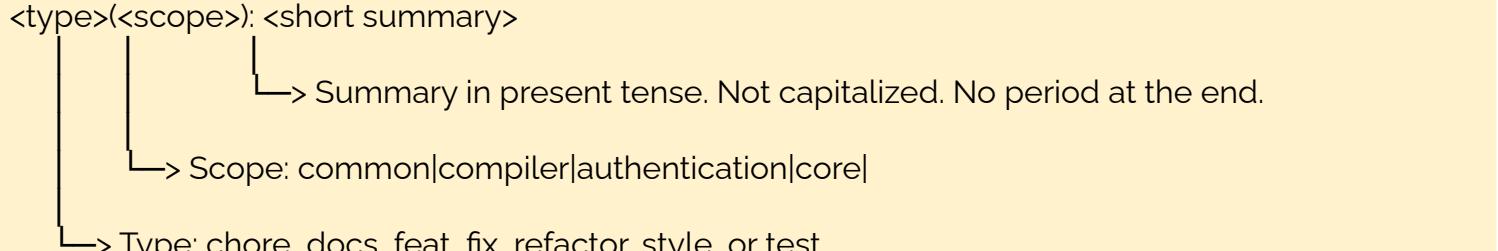
chore(deps): bu #5569 opened 11 ho

chore(google_c size/M #5554 opened 3 day

feat(sdk): Add a #5552 opened 3 day

chore(v2): fix i size/M #5543 opened 5 day

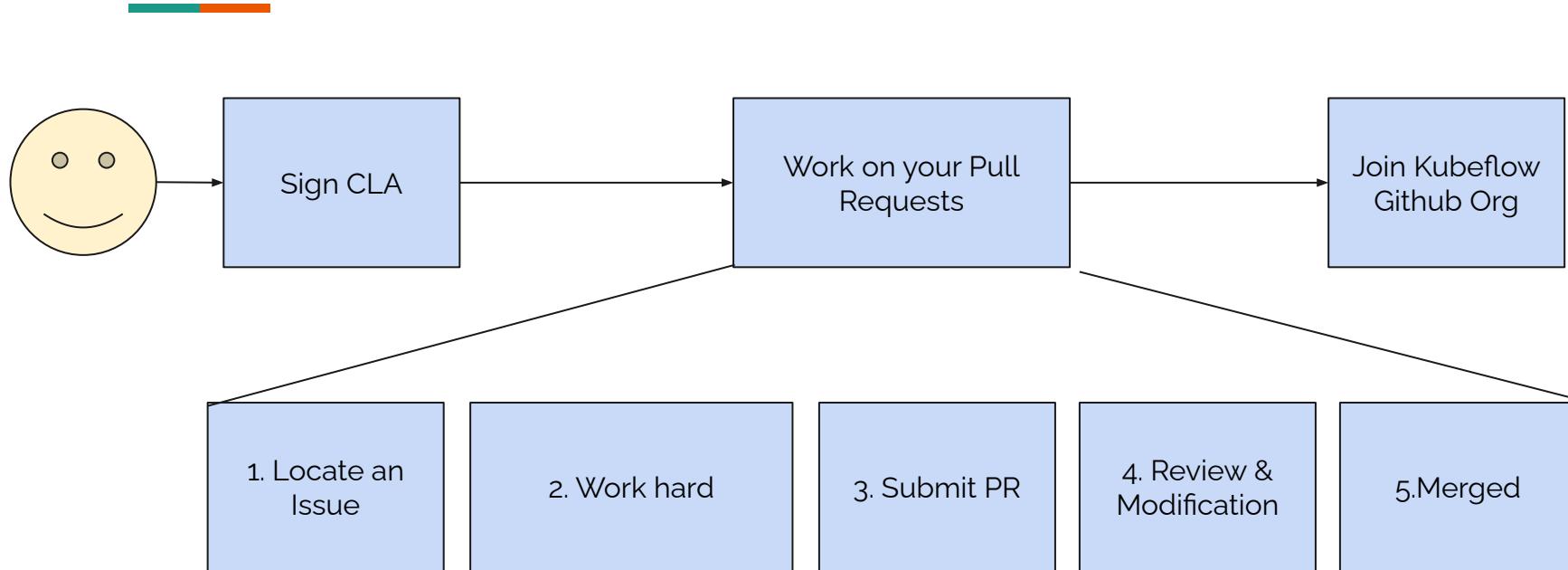
chore(samples): v2 compatible exit handler sample ● cla: yes size/L #5542 opened 5 day



```
<type>(<scope>): <short summary>
  Summary in present tense. Not capitalized. No period at the end.
  Scope: common|compiler|authentication|core|
  Type: chore, docs, feat, fix, refactor, style, or test.
```

Ref: <https://www.conventionalcommits.org/en/v1.0.0/>

How to be a Kubeflow Contributor?



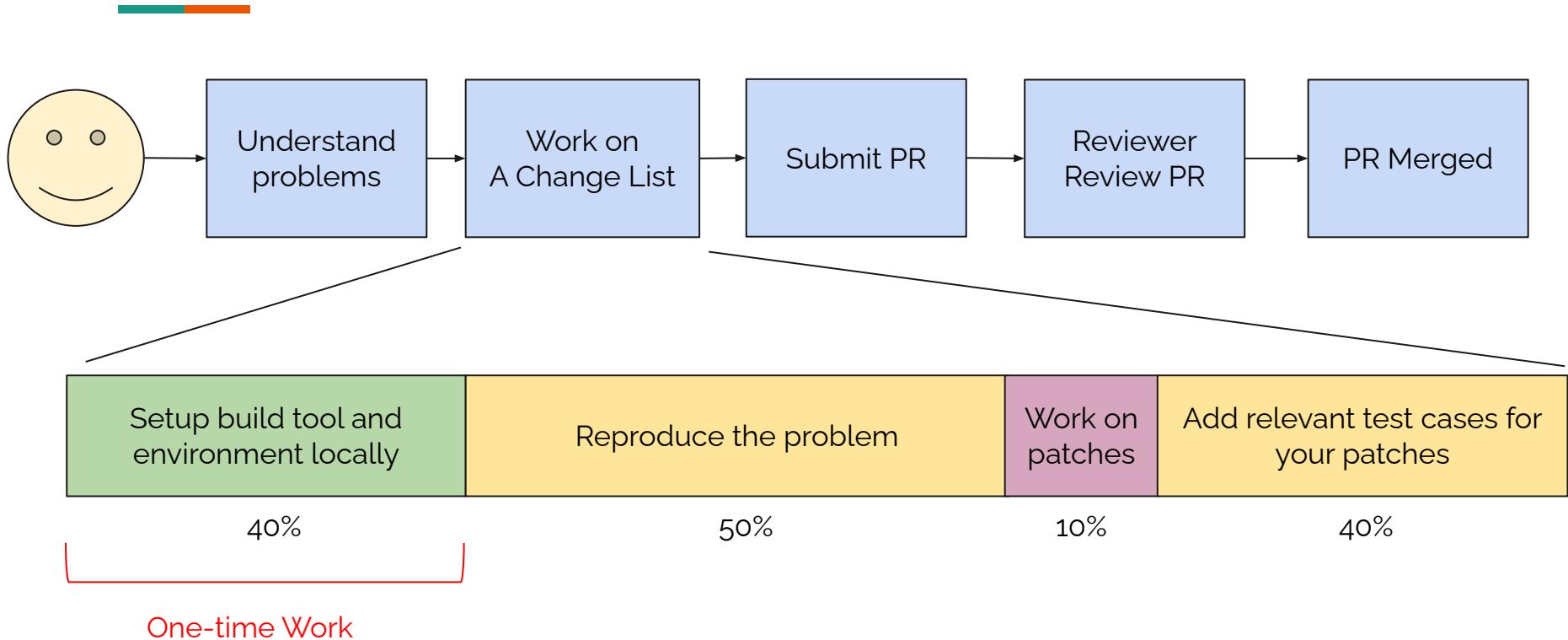
Ref: <https://www.kubeflow.org/docs/about/contributing/>

Find your first issue



1. Existing issues
 - a. Issues labelled with 'good first issue': [kubeflow/pipeline](#)
 - b. Issues labelled with 'help wanted': [kubeflow/pipeline](#)
2. Organic issues
 - a. Create an issue to describe issues you encountered and also provide a solution (a.k.a Pull-request) for it

Why does the first contribution be important?





Kubeflow/kserve Case Study

Kubeflow/pipeline#4699 Case Study (1/2) - Existing issue

Feature suggestion: expose the duration of each pipeline step #4699

Closed gcampax opened this issue on Oct 31, 2020 · 1 comment

gcampax commented on Oct 31, 2020

It would be very useful to know how long each pipeline step took, in addition to the total duration of the pipeline. This is especially useful when trying different hyperparameters that affect performance.

This information is already available on the Argo UI, but (1) one needs to know the UI exists (it is not exposed from the Kubeflow dashboard) and (2) one needs to cross reference the pod name from the kubeflow-pipelines UI and the Argo UI. It would be nice to have the duration in one place.

5

Bobgy added this to Needs triage in KFP Runtime Triage via automation on Nov 5, 2020

Bobgy added good first issue area/frontend kind/feature help wanted labels on Nov 5, 2020

Bobgy commented on Nov 5, 2020

Contribution instructions: <https://github.com/kubeflow/pipelines/tree/master/frontend>

Run details page react component:

```
pipelines/frontend/src/pages/RunDetails.tsx
Line 342 in e3992fa
342 {sidepanelSelectedTab === SidePaneTab.VISUALIZATIONS &&
```

Bobgy moved this from Needs triage to Awaits Contributor in KFP Runtime Triage on Nov 15, 2020

Assignees
No one assigned

Labels
area/frontend good first issue
help wanted kind/feature

Projects
KFP Runtime Triage Closed

Milestone
No milestone

Linked pull requests
Successfully merging a pull request may close this issue.
[feat\(frontend\): Add Task Details tab whe...](#)

Notifications Customize
 Subscribe
You're not receiving notifications from this thread.

2 participants

Kubeflow/pipeline#4699 Case Study (2/2) - Existing issue

feat(frontend): Add Task Details tab when clicking a node: Info includes ID, Name, Time, Status. Fixes #4699 #5023

Merged google-oss-robot merged 10 commits into `kubeflow:master` from `zijianjoy:duration` on Jan 26

Conversation 41 Commits 10 Checks 0 Files changed 5 +137 -12

zijianjoy commented on Jan 22 · edited

Fixes #4699

Description of your changes:
As part of fulfilling feature request #4699, creating a Task Detail tab which allows people to view the task ID, display name, status, start time, end time, runtime duration of a node when they click on it.

Checklist:

The title for your pull request (PR) should follow our title convention. [Learn more about the pull request title convention used in this repository](#).

Do you want this pull request (PR) cherry-picked into the current release branch?

Screenshot:

Success

The screenshot shows a 'Task Detail' tab open, displaying the following information:

Task ID	file-passing-pipelines-v8k56-1117908985
Task name	print-text-3
Status	Succeeded
Started at	1/21/2021, 12:17:11 AM
Finished at	1/21/2021, 12:17:12 AM
Duration	0:00:01

Reviewers

- Bobgy
- capri-xiye
- Ark-kun
- elikatsis

Assignees

- Bobgy

Labels

- approved
- cla: yes
- lgtm
- size/L

Projects

None yet

Milestone

No milestone

Linked issues

Successfully merging this pull request may close these issues.

Feature suggestion: expose the duration...

Notifications

Customize

LGTM?

[backend] health service response should be consumed by application/json not text/plain #7525

 Open

hsinhyeh opened this issue 16 days ago · 2 comments

Edit

New issue



hsinhyeh commented 16 days ago



...

Environment

- How did you deploy Kubeflow Pipelines (KFP)? install via kubeflow manifest with version v1.4
- KFP version: v1.7.0
- KFP SDK version: v1.7.0 (golang version under backend/api/go_http_client)

Steps to reproduce

1. start pipeline backend api server by listening port 8888
2. sent http request with swagger generated code stub with the following code example

```
package main

import (
    "github.com/go-openapi/strfmt"
    "github.com/go-openapi/runtime"
    healthz_client "github.com/kubeflow/pipelines/backend/api/go_http_client/healthz_client"
    healthz_service "github.com/kubeflow/pipelines/backend/api/go_http_client/healthz_client/healthz_service"
)

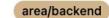
func main() {
    healthServiceClient := healthz_client.New(
        client.New(
            "localhost:8888",
            healthz_client.DefaultbasePath,
            []string{"http"}),
        strfmt.NewFormats(),
    )

    clientAuthInfoWriter := runtime.ClientAuthInfoWriterFunc(func(clientRequest runtime.ClientRequest, reg
        return nil
    ))
}
```

Assignees

No one assigned

Labels

 area/backend  kind/bug

Projects

 KFP Runtime Triage
Awaiting Contributor

Milestone

No milestone

Development

No branches or pull requests

Notifications

Customize

 Unsubscribe

You're receiving notifications because you were mentioned.

2 participants



[Kubeflow/kubeflow#7525](#) Case Study - Organic issue (2/2)

fix(backend): fixes healthz response by adding json content type. Fixes #7525 [Edit](#) [Code](#)

I Open hsinhoyeh wants to merge 1 commit into [kubeflow:master](#) from [hsinhoyeh:master](#)

Conversation 4 Commits 1 Checks 1 Files changed 3 +117 -0

hsinhoyeh commented 14 days ago

Description of your changes:

1. explicit content type with application/json on healthz response.
2. add healthz client api under common/client for integration test
3. add integration test for healthz endpoint

Checklist:

The title for your pull request (PR) should follow our title convention. [Learn more about the pull request title convention used in this repository.](#)

fix(backend): fixes healthz response by adding json content type. Fixes ... 977d08e

google-oss-prov bot added the size/L label 14 days ago

google-oss-prov bot commented 14 days ago

Hi @hsinhoyeh. Thanks for your PR.

I'm waiting for a [kubeflow](#) member to verify that this patch is reasonable to test. If it is, they should reply with `/ok-to-test` on its own line. Until that is done, I will not automatically test new commits in this PR, but the usual testing commands by org members will still work. Regular contributors should [join the org](#) to skip this step.

Once the patch is verified, the new status will be reflected by the `ok-to-test` label.

I understand the commands that are listed [here](#).

Details

Reviewers: zijianjoy, chensun, Linchin

Assignees: No one assigned

Labels: needs-ok-to-test, size/L

Projects: None yet

Milestone: No milestone

Development: Successfully merging this pull request may close these issues.

None yet

Notifications: Customize [Unsubscribe](#)

You're receiving notifications because you were mentioned.

Kubeflow/pipeline#5493 Case Study: kind/question

default resource overhead for each individual profile #5493

Open hsinhoyeh opened this issue 15 days ago · 6 comments

 hsinhoyeh commented 15 days ago

Question:
Not sure whether this question has been discussed before, but I am curious about the resource overhead for each individual profile.
In the current configuration (in v1.2, v1.3), when creating one single profile, there are two running pods are created by default:

`ml-pipeline-ui-artifact-c8fbc8f9-k88bz
ml-pipeline-visualizationserver-6b78c9646-s7q4c`

each one takes additional istio sidecar container (cost 100m cpu/128Mi memory).
so in total cpu requested $100m * 2 + 128m * 2 = 0.5$ CPU unit, memory requested $128 * 2 + 128 * 2 = 512Mi$.
(even the profile has been created but no further actions were conducted.)

so let say today we have to create 100 profiles (one for each individual participant) but only 20% of them are heavy users (80-20 rule), and our system wasted $100 * 80\% * 0.5$ CPU unit (and $512Mi + 100 * 80\%$ memory).

This seems to be more like a resource leaking, not the design concept. any thoughts? or documents? thanks

transferred from [kubeflow/kubeflow#5832](#)

 zijianjoy commented 8 days ago

Hello @hsinhoyeh , you can disable the pipeline pods by setting the following label from your profile's namespace labels: `pipelines.kubeflow.org/enabled: false` .
You can do this for all the profiles that don't require Kubeflow Pipelines. For future roadmap, we plan to remove visualization server too.
Does this solve your issue?

Edit New issue

Assignees
No one assigned

Labels
needs more info

Projects
KFP Runtime Triage
Needs More Info

Milestone
No milestone

Linked pull requests
Successfully merging a pull request may close this issue.
None yet

Notifications Customize
Unsubscribe
You're receiving notifications because you were mentioned.

3 participants


Kubeflow/katib#1484 Case Study: kind/discussion

[Open](#) Katib Roadmap 2021 #1484
andreyvelich opened this issue on Mar 19 · 7 comments · May be fixed by #1524

We should discuss our Katib Roadmap for 2021.

Some points from my side:

Katib enhancements

- Finish AWS CI/CD migration for the release process.
- New Katib UI implementation: <https://github.com/kubeflow/katib/projects/1>.
- Support [multiple versions](#) in Katib CRDs.
- Support various parameter distribution: #1207.
- Finish validation for the algorithms: #1126.

Advanced AutoML features

- Refactor Hyperband: #1389.
- Support [ASHA](#), I believe it is very popular.
- Separate CRD for NAS and HP ?
- Support Population Based Training: #1382.
- Support AutomC: #460.
- Support Feature Engineering: #475.

Please give your feedback and what do you want to see in Katib 2021.
cc @gaocegege @johnugeorge @PatrickXYS @terrytangyuan @kimwnasptd @yanniszark @jbottum @c-bata @RFMVASCONCELOS @knkski @anneum @thomas-mueller

Let's finalise our Roadmap on the upcoming WG meetings (24th of March and 7th of April).

5 6

andreyvelich added the [kind/discussion](#) label on Mar 19

PatrickXYS commented on Mar 19

No one assigned

Labels [kind/discussion](#)

Projects None yet

Milestone No milestone

Linked pull requests Successfully merging a pull request may close this issue.

Add Katib 2021 ROADMAP

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4 participants



Add an example of Lime text explainer from AIX360 toolkit #2355

Merged kserve-oss-bot merged 9 commits into kserve:master from Ciberwiz:master on Oct 16, 2022

Conversation 26 Commits 9 Checks 43 Files changed 7 +236 -6

C1berwiz commented on Jul 26, 2022 • edited by yuzisun

What this PR does / why we need it:
This PR added an example of LIME text explainer of AIX360 toolkit
Since there are 3 modes of LIME explainer (image, text and tabular), but currently there is only a sample of image (MNIST)
We suppose that adding a text example would help others better understanding LIME explainer

Type of changes
Please delete options that are not relevant.

New feature (non-breaking change which adds functionality)

Feature/Issue validation/testing:
Please describe the tests that you ran to verify your changes and relevant result summary. Provide instructions so it can be reproduced.
Please also list any relevant details for your test configuration.

Test A

- like the mnist sample of aix and mentioned in README.md , this sample should execute just like mnist sample
- The first step is to [determine the ingress IP and ports](#) and set INGRESS_HOST and INGRESS_PORT

```
MODEL_NAME=aix-explainer
SERVICE_HOSTNAME=$(kubectl get inferencesservice ${MODEL_NAME} -o jsonpath='{.status.url}' | cut -d "/" -f 3)
python query_explain.py http://${INGRESS_HOST}:${INGRESS_PORT}/v1/models/${MODEL_NAME}:explain ${SERVICE_HOSTNAME}
```

Reviewers
yuzisun theofpa yuzilu drewbutlerbb4 Tomcli

Still in progress? Learn about draft PRs

Assignees
yuzisun

Labels
approved lgtm

Projects
None yet

Milestone
No milestone



Other Case Study

[nats-io/nats.go#22](#) Case Study

 **Closed** goroutine leaking when calls BindRecvChan #22
hsinhyeh opened this issue on Jul 26, 2014 · 1 comment

in the underlying implementation, nats defines a callback (i.e. cb) and then call the Subscribe from a conn
<https://github.com/apcera/nats/blob/master/netchan.go#L81>

```
_ , err := c.Conn.subscribe(subject, queue, cb)
```

in the conn.subscribe, nats spawns a go routine to send the message:
<https://github.com/apcera/nats/blob/master/nats.go#L1198>

```
go nc.deliverMsgs(sub.mch)
```

and that go routine will be terminated "only if sub.mch is closed", which is called via conn.Unsubscribe().
<https://github.com/apcera/nats/blob/master/nats.go#L1244>

```
func (nc *Conn) unsubscribe(sub *Subscription, max int) error {
```

The bug actually happened, when we look BindRecvChan again: even the caller has closed the channel, the go routine who serves deliverMsg will never be destroyed. We actually have an additional zombie go routine when we call BindRecvChan every time.

 hsinhyeh referenced this issue in hsinhyeh/nats on Jul 26, 2014

 workaround the goroutine leak problem in apcera/nats/netchan.go   0d117eb

 derekcollison added the **bug** label on Jul 26, 2014

 derekcollison self-assigned this on Jul 26, 2014

 derekcollison commented on Jul 26, 2014   

```
The proposed solution could affect ordering of messages due to the read. But great bug report. Will fix. Thanks.
```

Projects
None yet

Milestone
No milestone

Linked pull requests
Successfully merging a pull request may close this issue.

None yet

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2 participants 

[googleapis/google-cloud-go#170](#) Case Study (1/2)

Closed [bigtable] bttest needs UpdateColumnFamily support #170
hsinohoyeh opened this issue on Sep 15, 2015 · 3 comments

```
diff --git a/google.golang.org/cloud/bigtable/bttest/inmem.go b/google.golang.org/cloud/bigtable/bttest/inmem.go
index 5c4bc09..f4dbe03 100644
--- a/google.golang.org/cloud/bigtable/bttest/inmem.go
+++ b/google.golang.org/cloud/bigtable/bttest/inmem.go
+func (s *server) UpdateColumnFamily(ctx context.Context, req *bttdpb.ColumnFamily) (*bttdpb.ColumnFamily, error)
+{
+    return nil, errors.New("no op")
+}
```

we need it because we call SetGCPolicy to configure the maximum versions stored in a cell

```
adminClient.SetGCPolicy( ctx, tableName, columnFamily, bgt.MaxVersionsPolicy(1) )
```

and in the underlying implementation, it will first call GetTable and then update its column family.

```
func (ac *AdminClient) SetGCPolicy(ctx context.Context, table, family string, policy GCPolicy) error {
    prefix := ac.clusterPrefix()
    tbl, err := ac.tClient.GetTable(ctx, &bttspb.GetTableRequest{
        Name: prefix + "/tables/" + table,
    })
    if err != nil {
        return err
    }
    fam, ok := tbl.ColumnFamilies[family]
    if !ok {
        return fmt.Errorf("unknown column family %q", family)
    }
    fam.GcRule = policy.proto()
    _, err = ac.tClient.UpdateColumnFamily(ctx, fam)
    return err
}
```

<https://github.com/GoogleCloudPlatform/gcloud-golang/blob/master/bigtable/admin.go#L161>

hsinohoyeh commented on Sep 16, 2015

[Contributor](#) [Author](#) ...

hi,
I think I have fixed this (#170) and #166. you can see more in below.
you can purify my CL and push to the repo or I can create a RP if you think the CL is ok

api:bigtable

Projects
None yet

Milestone
No milestone

Linked pull requests
Successfully merging a pull request may close this issue.

None yet

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4 participants

[googleapis/google-cloud-go#170](#) Case Study (2/2)

Gerrit CHANGES DOCUMENTATION BROWSE Sign in

Merged 3471 bigtable/bttest: support GetTable/UpdateColumnFamily

Change Info SHOW ALL
Submitted Sep 23, 2015
Owner Hsin-Ho Yeh
Uploader David Symonds
Committer Gerrit Code Review
Reviewers David Symonds
Repo | Branch [gocloud](#) | [master](#)
Topic

bigtable/bttest: support GetTable/UpdateColumnFamily
Fixes #166.
Fixes #170.
Change-Id: [1c2b3698583923042253d591b137c7192605ecf0](#)

Comments 25 resolved

Submit requirements
 Code-Review +2 David Symonds

Files	Comments	Findings	DOWNLOAD	INCLUDED IN	EXPAND ALL
Base → Patchset 4 bcca3e9					
File			Comments	Size	Delta
Commit message					
bigtable/bttest/inmem.go				+79 -9	
				+79 -9	

Change Log

Hsin-Ho Yeh	Uploaded patch set 1.	Patchset 1 Sept 19, 2015 16:32
David Symonds	16 comments Thanks for doing this. Please check the CLA details first. If you're working for a company then you might need to get them to approve your contribution.	Patchset 1 Sept 22, 2015 13:10
Hsin-Ho Yeh	Uploaded patch set 2.	Patchset 2 Sept 22, 2015 23:05
Hsin-Ho Yeh	16 comments the updated patch address the comments.	Patchset 2 Sept 22, 2015 23:19
David Symonds	10 comments Nearly there.	Patchset 2 Sept 23, 2015 07:12

[torvalds/linux#661](#) Case Study - Not all CLs are valuable

[Open](#) Fixed typo: extra space. #661
jacob-macleod wants to merge 1 commit into `torvalds:master` from `jacob-macleod:master`

jacob-macleod commented on Mar 8, 2019

There was a double space.

10 2 13 1 6

-o Fixed typo: extra space. [...](#) Verified ee9ca9c

KernelPRBot commented on Mar 8, 2019

Hi @jacob-and-nathan!

Thanks for your contribution to the Linux kernel!

Linux kernel development happens on mailing lists, rather than on GitHub – this GitHub repository is a read-only mirror that isn't used for accepting contributions. So that your change can become part of Linux, please email it to us as a patch.

Sending patches isn't quite as simple as sending a pull request, but fortunately it is a well documented process.

Here's what to do:

- Format your contribution according to kernel requirements
- Decide who to send your contribution to
- Set up your system to send your contribution as an email
- Send your contribution and wait for feedback

How do I format my contribution?

The Linux kernel community is notoriously picky about how contributions are formatted and sent. Fortunately, they have documented their expectations.

Firstly, all contributions need to be formatted as patches. A patch is a plain text document showing the change you want to make to the code, and documenting why it is a good idea.

You can create patches with `git format-patch`.

Secondly, patches need 'commit messages' which is the human-friendly documentation explaining what the change is

Reviewers
 ssbarnea ✓
 StackNeverFlow ✓

Assignees
No one assigned

Labels
None yet

Projects
None yet

Milestone
No milestone

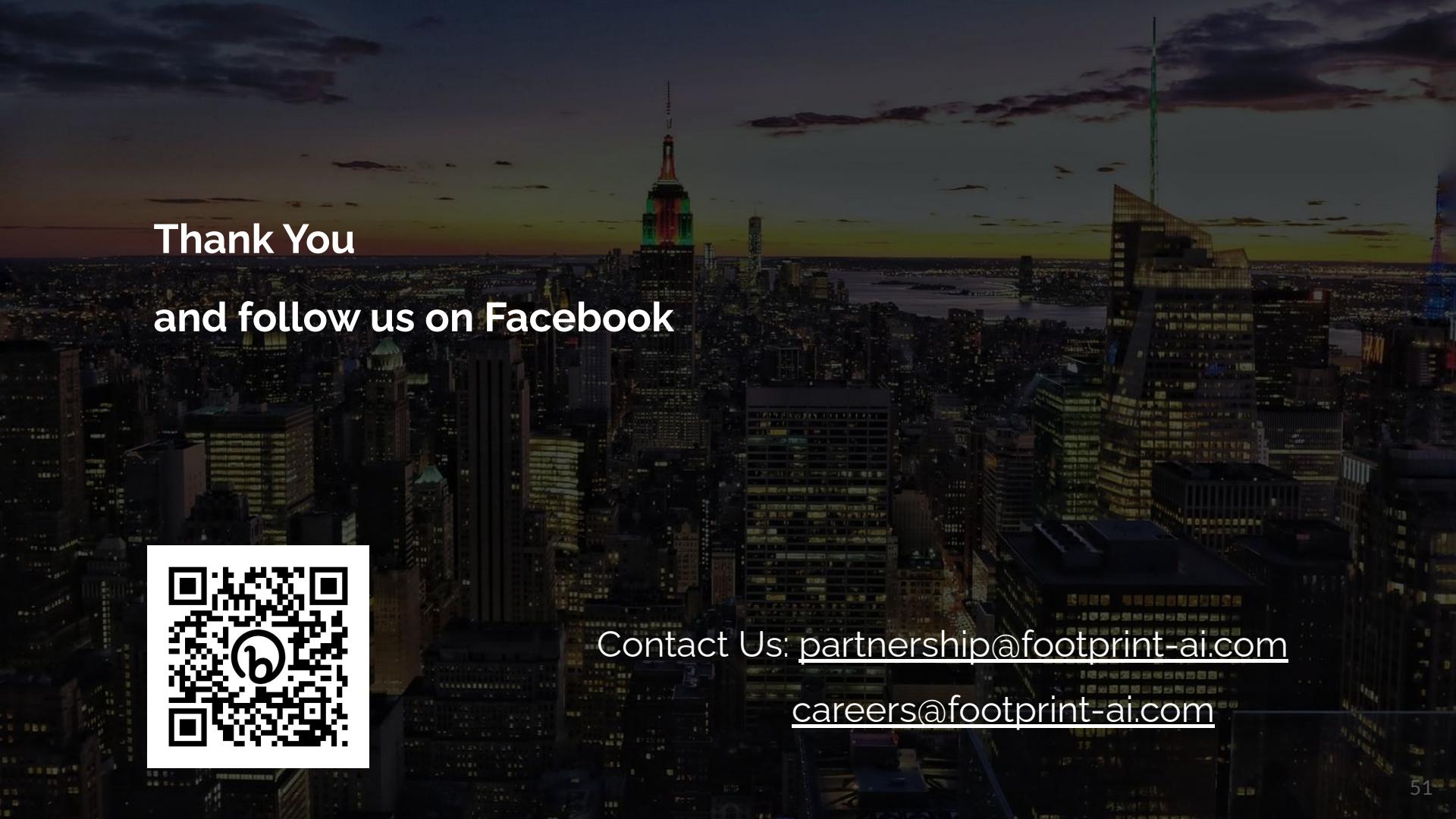
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5 participants 



Conclusion

- Open source is a public artifacts that help you grow a reputation and a career.
- The work to contribute to Open Source could take days or weeks, but the rewards could keep years.
- Let's **consistently** make **small** changes.

The background of the slide is a photograph of a city skyline at night, likely New York City, featuring the Empire State Building and One World Trade Center. The sky is dark with some clouds.

Thank You

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