

Cloud Native AI on Openshift

DevConfUS 2021

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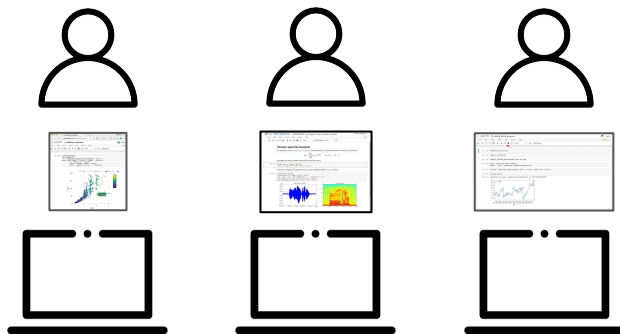
- Open Data Hub
- Operate First
- Project Thoth
- Project Meteor

Open Data Hub

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One Person Show

Working on a personal infrastructure brings complications



Look what I made!

Sharing results of the work might be harder if all the work has been done on your personal machine.

Can I get more ...

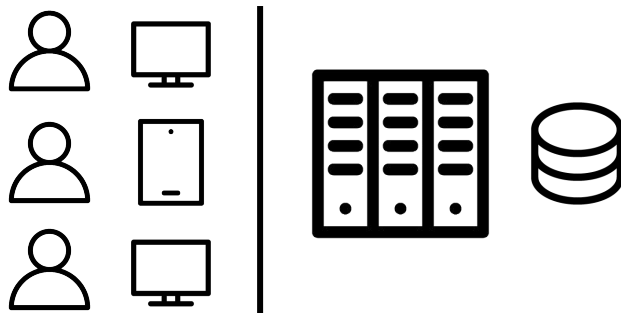
Personal laptops and desktops tend to suffer from the lack of resources when it comes to big data and AI

Works on my machine

Productizing the work can become complicated due to the differences between dev and prod environments

Shared Infrastructure

Providing shared infrastructure often helps



Collaboration for the win

Collaboration gets a boost when sharing is made easy.

Fluent resource reallocation

Shared infrastructure can serve many teams and projects and resources can be allocated based on real needs.

Product level tools for everyone!

Whether development, testing or production, the tools should not differ too much.

AI-as-a-Service platform on OpenShift

The best of what we talked about packaged as a blueprint



Open Data Hub

Open Source

ODH is an open source community project leveraging popular AI/ML tools and enabling them on OpenShift

Meta-Operator

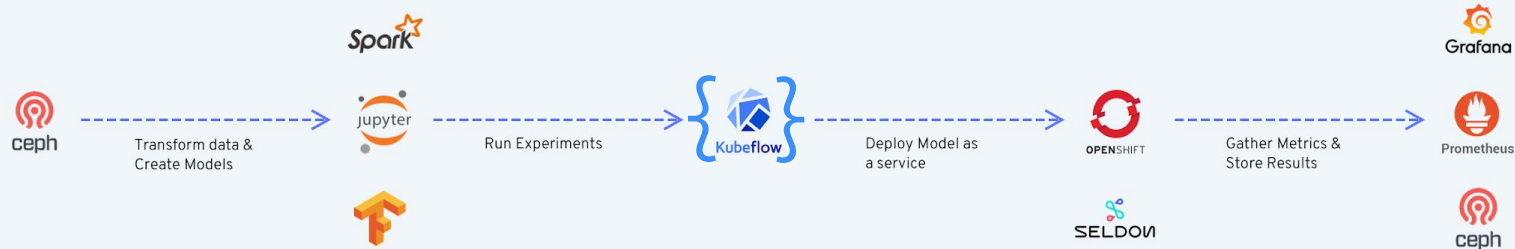
Manages the components through the operators

Production-Ready

Runs at Red Hat as a production service used by hundreds of users

The Flow

From exploration, through experimentation to deployment and evaluation



Leverage

ODH provides default configurations which work fine for PoCs and exploring the platform.

Modify

There is plenty to be customized based on specific use cases and requirements

Bring your own

There is too many use cases and technologies - integrate those that are important for you, or contribute them.

Learn more



opendatahub.io

Community

Join our [community meetings](#) and our [repositories](#).

Videos

Watch our previous [presentations and demos](#).

Docs

Learn more about Open Data Hub from our [documentation](#).

Operate First

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Before Open Source, Code Was Value



Early on, code was proprietary and where the value was held

Open source leveled the scale



If everyone has access to the code, what matters is what you do with it

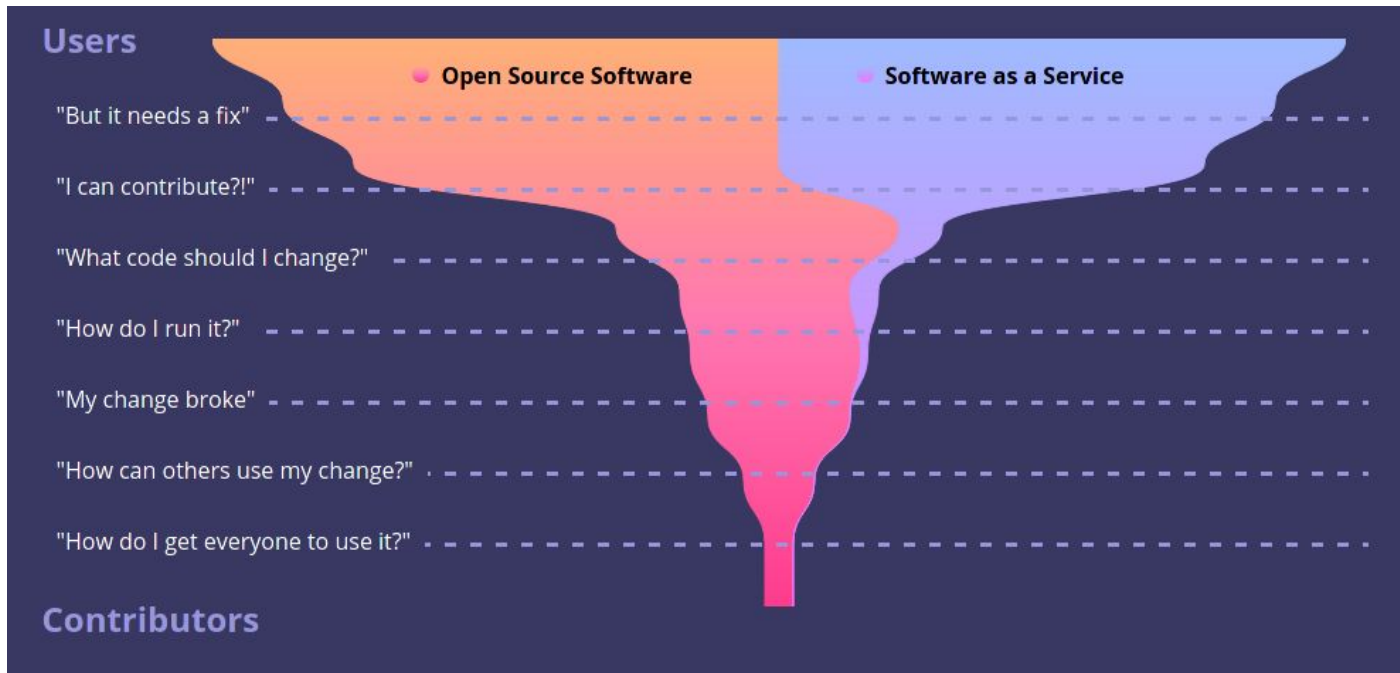
Cloud computing introduced the consumption model



Operation of code has become more valuable

Operate First is a **concept** to incorporate operational experience into software development, by **extending** development **to include operating**, testing, and proving code in a production environment

What is Operate First?



If the value in IT is in ops, and ops are proprietary, then open source has a problem.

Operation of code needs to be
a **focus of open source**.



<https://operate-first.cloud>

<https://github.com/operate-first>

Project Thoth

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Project Thoth

- Help developers in the selection of dependencies for their applications depending on their requirements
- Deliver optimized images for your applications
- Use bots to automate mundane work to offload humans work

what Thoth stores in the knowledge graph

Application Stack related:

- Buildtime and runtime environment
- Dependencies
- Performances

Software Package:

- Application Binary Interfaces (ABI)
- Security (CVE, analyzers)

Source Code Meta Information:

- Project features (TTR, TTCL, etc,..) from different software development platform (Github, GitLab, Pagure, etc...)

Thoth Recommendation types

- Latest
- Stable
- Security
- Performance
- Testing

Thoth Integrations

Thoth Integrations

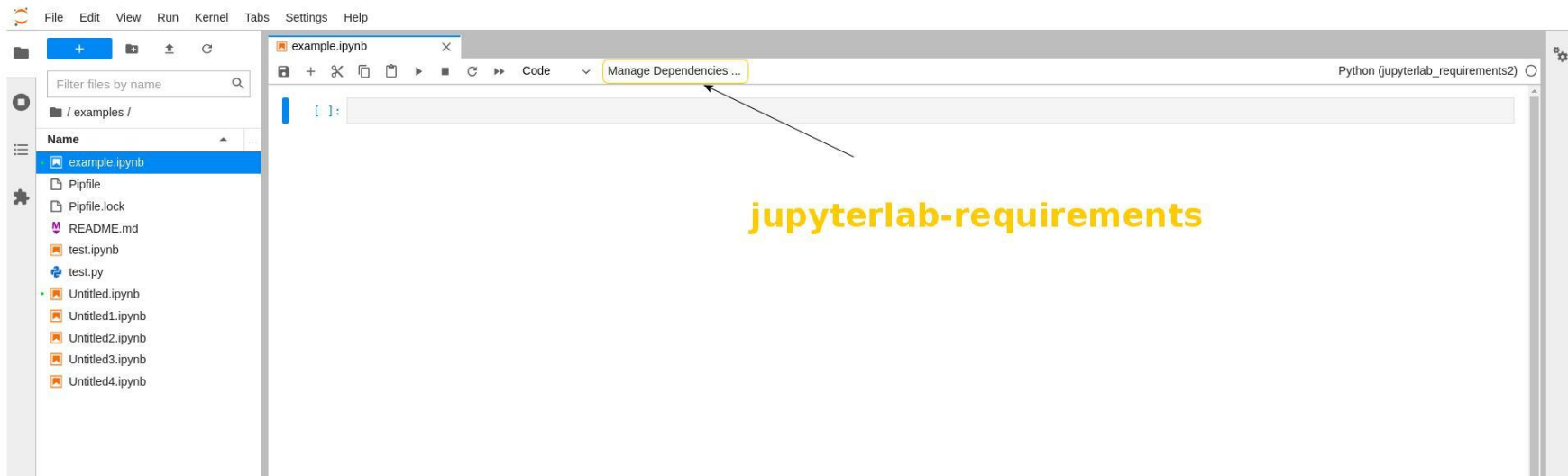
- Command line tool thamos (developer laptop)

~ `pip install thamos`

~ `thamos advise`

Thoth Integrations

- Jupyter Tools (jupyterlab-requirements)



Thoth Integrations

- Cyborg Kebechet (pull request/issues creator)

Automatic update of dependencies by kebechet. #526

 Merged **sesheta** merged 1 commit into `master` from `kebechet-automatic-update` 3 days ago

 Conversation 2  Commits 1  Checks 1  Files changed 1



khebhut bot commented 3 days ago

Contributor  ...

Kebechet has updated the dependencies to the latest version 🚀
The direct dependencies updated in the pull request are -

Package Name	Old Version	Updated Version	Is Dev
thoth-storages	0.29.2	0.29.3	False

Kebechet Version: 1.1.4

Thoth Integrations

- Source-to-Image (container builder)

The screenshot shows the GitHub repository page for `thoth-station/s2i-thoth`. The repository is in the `master` branch, has 2 branches, and 54 tags. The repository description is "Thoth's addition to OpenShift's s2i Python builds to benefit from Thoth's recommendations in your application". The repository is licensed under the GPL-3.0 License. The repository has 189 commits and 54 releases. The repository is categorized under tags: openshift, s2i, thoth, software-stack, ai, python, python3, and hacktoberfest. The repository has a README and a CHANGELOG.md file. The repository is a part of the Thoth project, which is a container builder for OpenShift.

thoth-station / s2i-thoth

<> Code 1 Issues Pull requests Actions Security Insights Settings

master 2 branches 54 tags Go to file Add file Code

fridex Provide hints on how to suppress s2i behavior (#102) 6e5bac0 5 days ago 189 commits

.github	added a 'tekton trigger tag_release pipeline issue'	6 months ago
f31-py37	Version 0.22.0 (#99)	7 days ago
f32-py38	Version 0.22.0 (#99)	7 days ago
ubi8-py36	Version 0.22.0 (#99)	7 days ago
ubi8-py38	Version 0.22.0 (#99)	7 days ago
.gitignore	added Fedora32 Python38 s2i-thoth	7 months ago
.thoth.yaml	Add section for Thoth runtime environment to .thoth.yaml	10 months ago
CHANGELOG.md	new release due to #27	13 months ago
LICENSE	Initial commit	16 months ago

About

Thoth's addition to OpenShift's s2i Python builds to benefit from Thoth's recommendations in your application

openshift s2i thoth software-stack ai python python3 hacktoberfest

Readme

GPL-3.0 License

Releases 54

v0.14.0: sparkles: base ima... Latest on Jul 13

+ 53 releases

Thoth Integrations

- Optimizing/reproducible builds pipelines

The screenshot displays the Tekton web interface for a pipeline run named 'tag-release-rbcbk', which was completed 10 hours ago. The interface includes a sidebar with navigation options like Tekton resources, PipelineRuns, and Namespaces. The main content area shows a list of tasks on the left and a detailed view of the 'overlays-pipeline-run' task on the right. The task list includes 'tag-check', 'configuration', 'tag-release-rbcbk-overlays-pipeline-run...', 'tag-release-rbcbk-custom-pipeline-run...', 'tag-release-rbcbk-tag-publish-pypi-run...', 'tag-release-rbcbk-tag-sibling-run-bqv6...', 'tag-release-rbcbk-tag-release-run-w82...', and 'overlays-pipeline-run'. The 'overlays-pipeline-run' task is highlighted and its details are shown on the right, including a 'Parameters' tab with a table of key-value pairs.

Task List:

- tag-check
- configuration
- tag-release-rbcbk-overlays-pipeline-run...
- tag-release-rbcbk-custom-pipeline-run...
- tag-release-rbcbk-tag-publish-pypi-run...
- tag-release-rbcbk-tag-sibling-run-bqv6...
- tag-release-rbcbk-tag-release-run-w82...
- overlays-pipeline-run
- overlays-pipelinerun-setup Completed
- overlays-pipeline-setup Completed
- start-pipeline Completed

Task Details: overlays-pipeline-run Succeeded

Parameters:

Name	Value
git_ref	v0.5.0
git_ref_type	tag
repo_name	elyra-aidevsecops-tutorial
repo_url	https://github.com/thoth-station/elyra-aidevsecops-tutorial
default_branch	master
uid	rbcbk

Thoth Integrations

- Command line tool thamos (developer laptop)
- Jupyter Tools (data scientist browser)
- Cyborg Kebechet (pull request/issues creator)
- Source-to-Image (container builder)
- Optimizing Pipelines



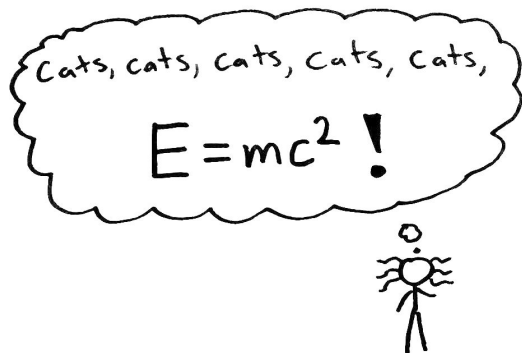
Project Thoth

- **Website:**
 - <https://thoth-station.ninja/>
- **Twitter**
 - <https://twitter.com/thothstation>
- **GitHub**
 - <https://github.com/thoth-station>
- **Thoth Station YouTube**
 - https://www.youtube.com/channel/UCIUIDuq_hQ6vlzmqM59B2Lw/videos

Project Meteor

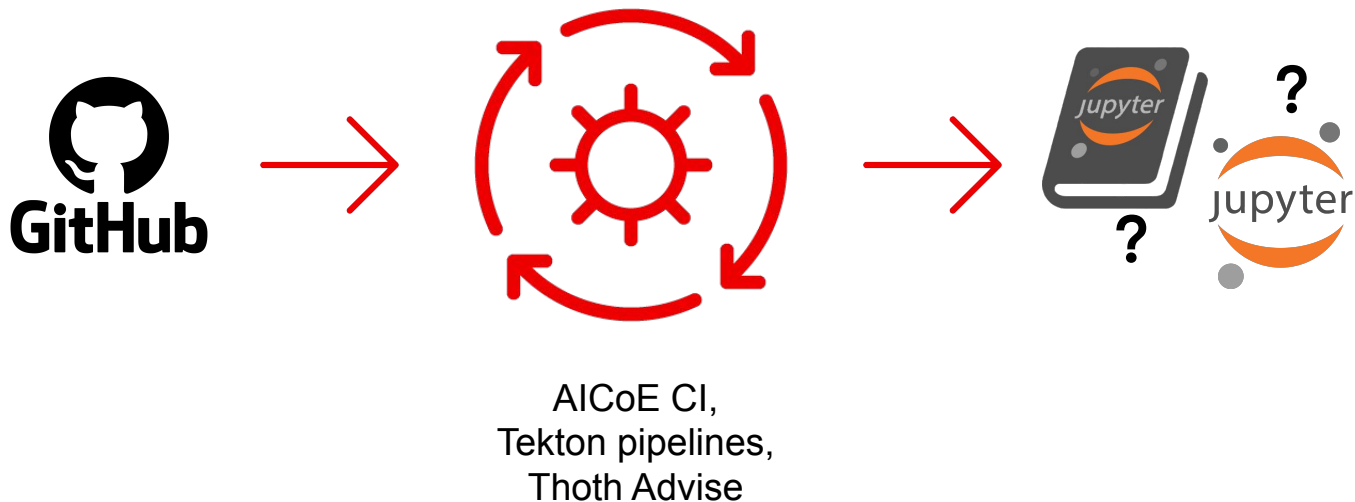
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Proof of automated Data Science repositories



- Proof that Project Thoth can be useful to ODH users
- Integrates with AICoE CI
- Integrates with OpenShift Pipelines
- Integrates with Open Data Hub

Proof of automated Data Science repositories



<https://github.com/AlCoE/meteor>

Thank you

Red Hat is the world's leading provider of
enterprise open source software solutions.
Award-winning support, training, and consulting
services make
Red Hat a trusted adviser to the Fortune 500.



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