

Release Management with Devpi

Stephan Erb | @ErbStephan | 22. July 2015

Release Management

Release Management

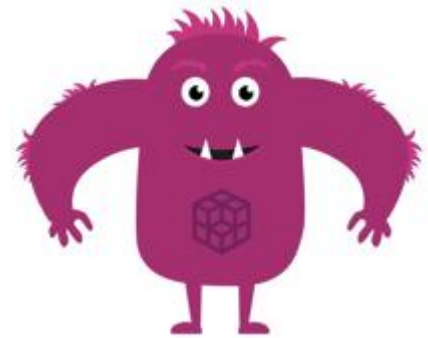


Anti-Example

(yes, that happened...)

Original: `pawesome-1.0.tar.gz`

Bugfix: `pawesome-1.0.tar.gz`



`pawesome-1.0+golden_copy.tar.gz`



Our Approach

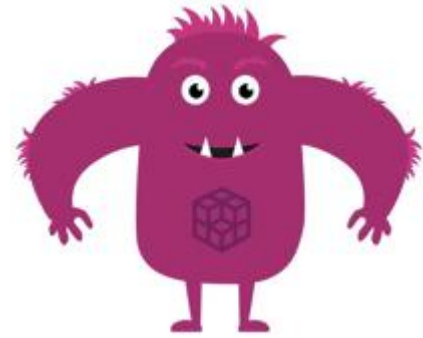
(move towards Immutable Infrastructure)

Immutable Packages

- create once, store forever
- package **versions** derived from **git**
- packaged as **wheels**
- **dependencies pinned** in requirements.txt

Packaging Example

(powered by `setuptools_scm`)



```
$ git clone https://github.com/StephanErb/pawesome.git
```

```
$ git tag
```

```
1.0
```

```
1.1
```

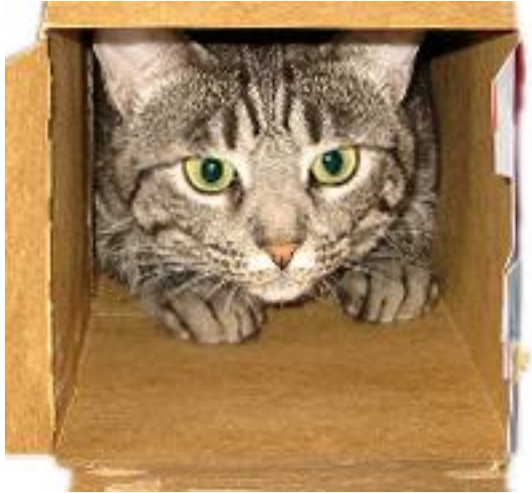
```
$ python setup.py bdist_wheel
```

```
$ ls dist/
```

```
pawesome-1.2.dev2+n962232f-cp27-none-linux_x86_64.whl
```

Devpi Package Server

(from Holger Krekel et al.)

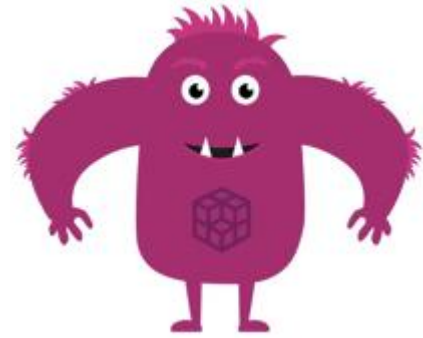


<http://doc.devpi.net>

Elevator Pitch:

*“Host your own python packages and **install** them like any other package from pypi.python.org”*

Devpi by Example



```
$ devpi use https://mydevpi/user/index
$ devpi login user
$ devpi upload pawesome-1.0-cp27-none-linux_x86_64.whl

$ pip install pawesome -i https://mydevpi/user/index
```

TechTeam/generic/: pawesome-1.2.3 metadata and description

[Documentation](#) | [Homepage](#) | [Simple index](#)

Example demonstration of devpi and setuptools_scm

author Stephan Erb
author_emailstephan.erb@blue-yonder.com

File	Tox results	History
pawesome-1.2.3-cp27-none-linux_x86_64.whl Size: 2 KB Type: Python Wheel Python: 2.7		Uploaded to TechTeam/generic by TechTeam Today at 14:19
pawesome-1.2.3.tar.gz Size: 11 KB Type: Source		Uploaded to TechTeam/generic by TechTeam Today at 14:19

Example project for the EuroPython talk [Release Management with Devpi](#)

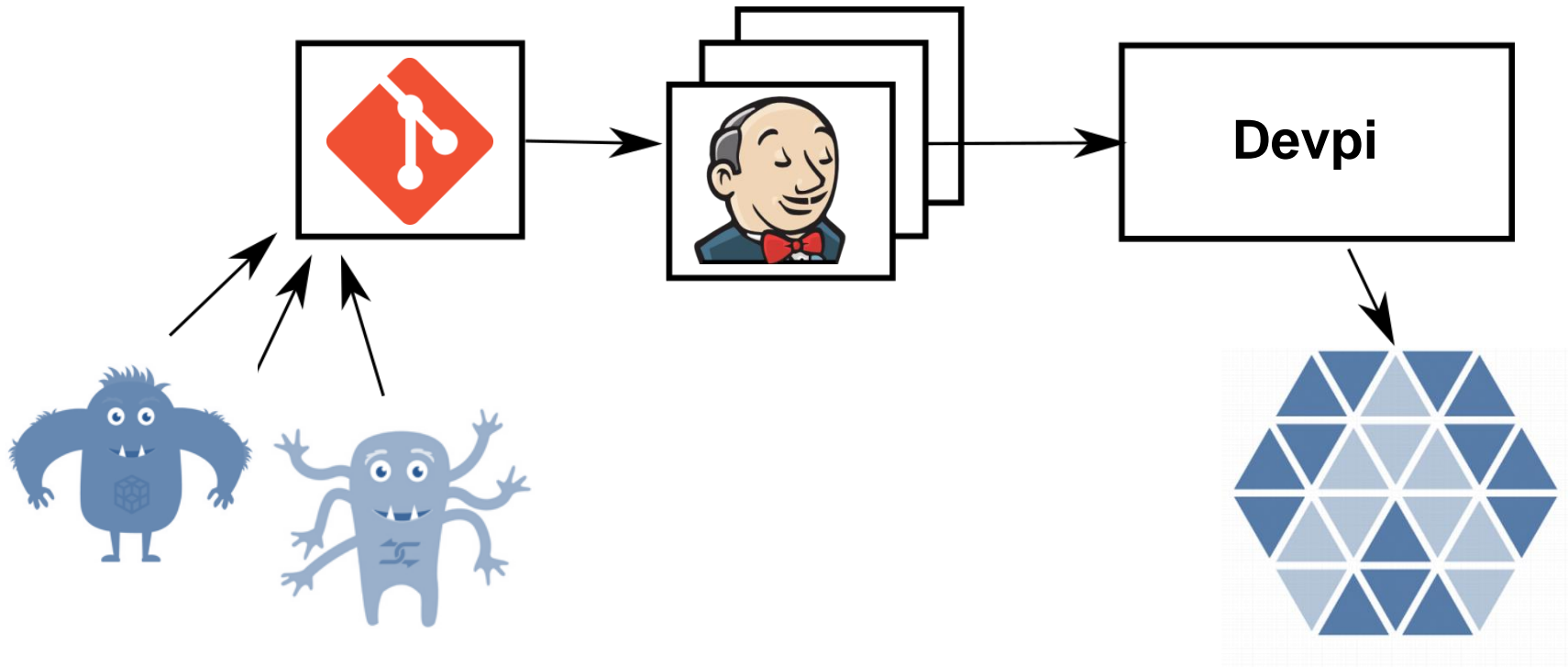
The following command sequence will upload code and documetation to the given Devpi server. Packages are uploaded as wheels and source distributions. Upload settings are defined in setup.cfg.

```
pip install -r requirements.txt

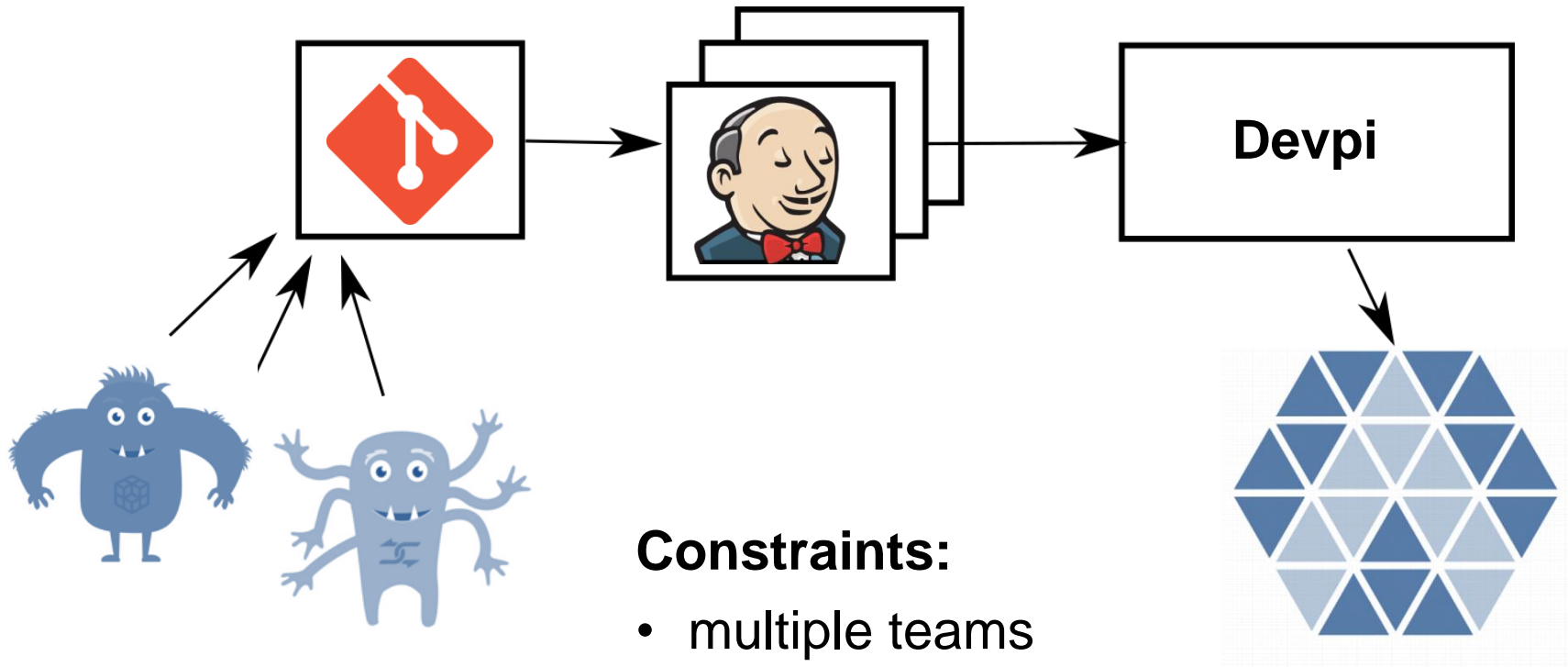
devpi use http://mydevpi/myuser/myindex
devpi login myuser

devpi upload --with-docs # builds before uploading
```

Release Workflow



Release Workflow

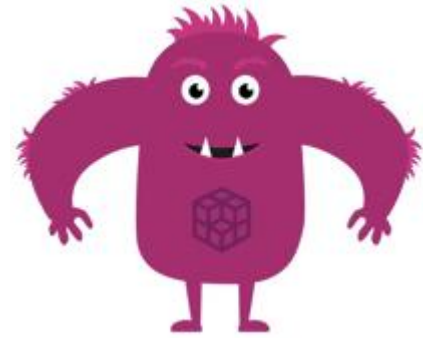


Constraints:

- multiple teams
- binary packages
- internal & external dependencies

Devpi Usage

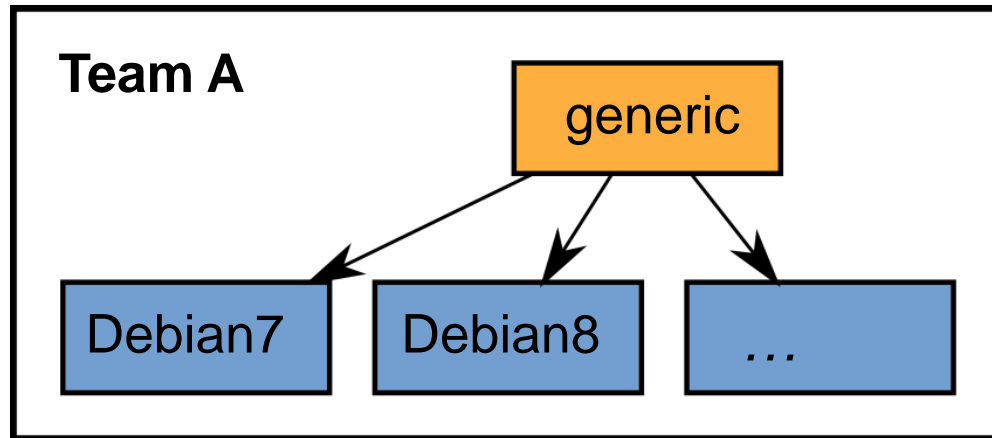
Devpi by Example



```
$ devpi use https://mydevpi/user/index
$ devpi login user
$ devpi upload pawesome-1.0-cp27-none-linux_x86_64.whl

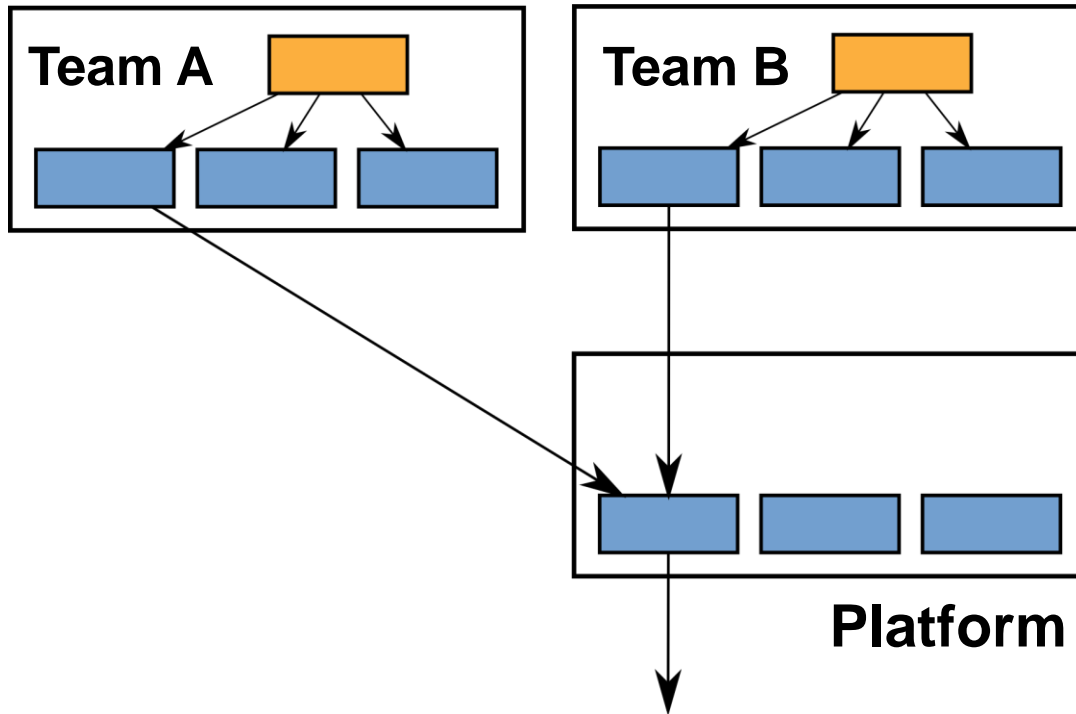
$ pip install pawesome -i https://mydevpi/user/index
```

Basic Index Layout



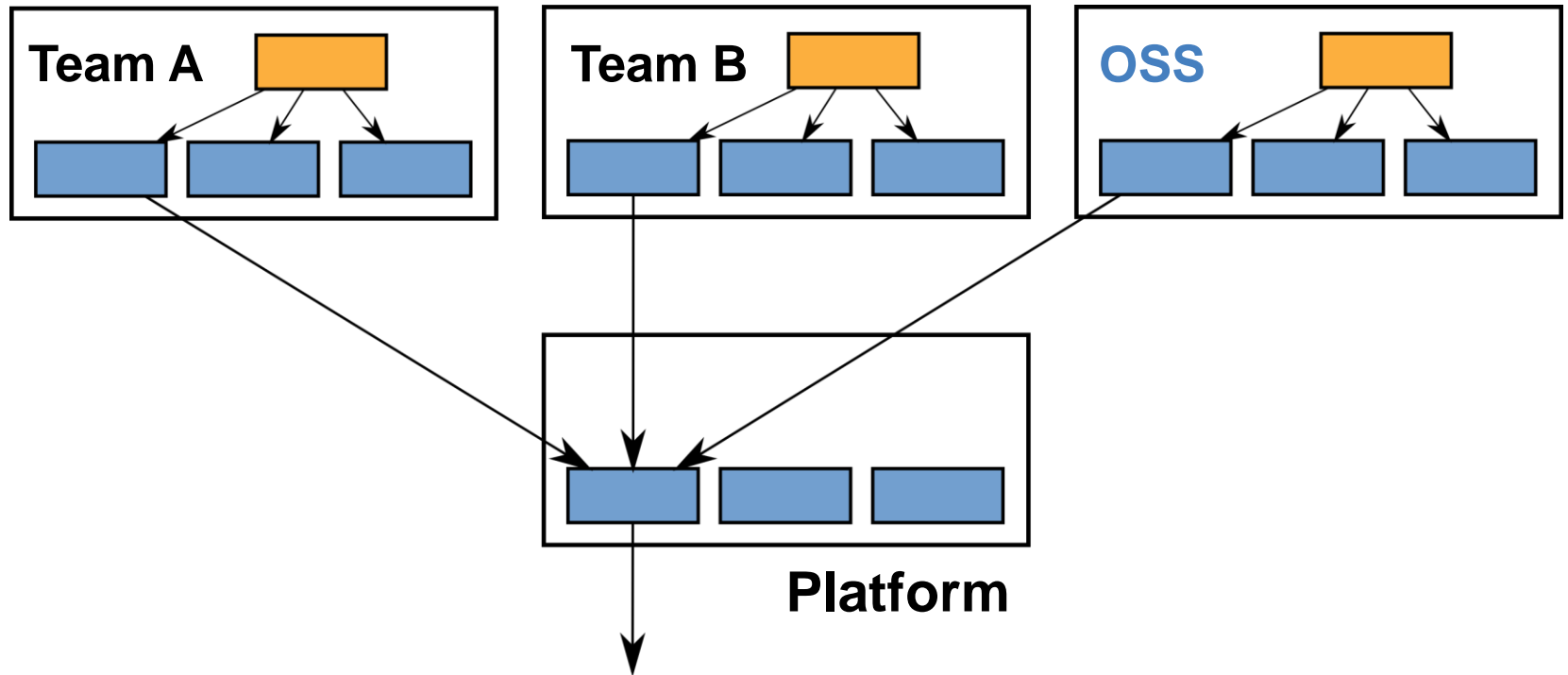
- Teams as **Devpi users**
- Operating systems as (non-volatile) **indices**
(needed until wheel issue #144 and pip issue #2875 are resolved)

Aggregation Indices



```
$ pip install pawesome -i https://mydevpi/platform/Debian7
```

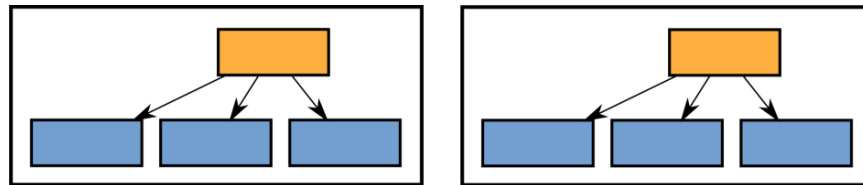

Open Source Packages



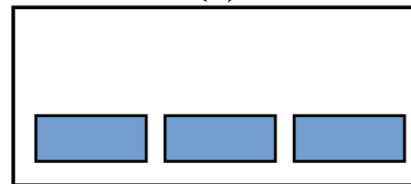
- Company-wide whitelist
- Filled via **devpi-builder** (<https://github.com/blue-yonder/devpi-builder>)

Consumer Indices

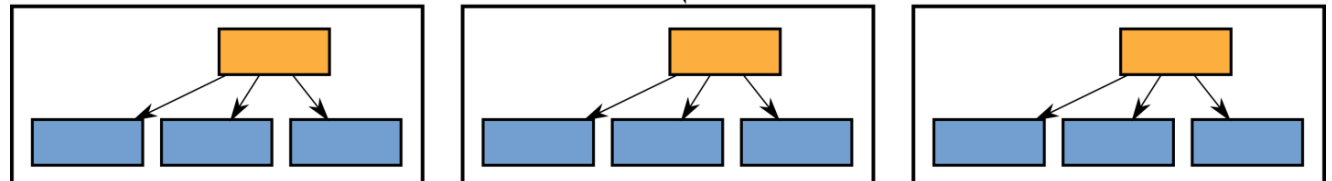
Providers



Aggregation



Consumers



Some Statistics

Used on

- Jenkins, Desktops, Servers

Devpi Usage

- **~10,000 artifacts** uploaded onto **350 indices**
- **~17.5TB** downloaded over **1 year**

Devpi Hosts

- 4 cores, 4gb ram

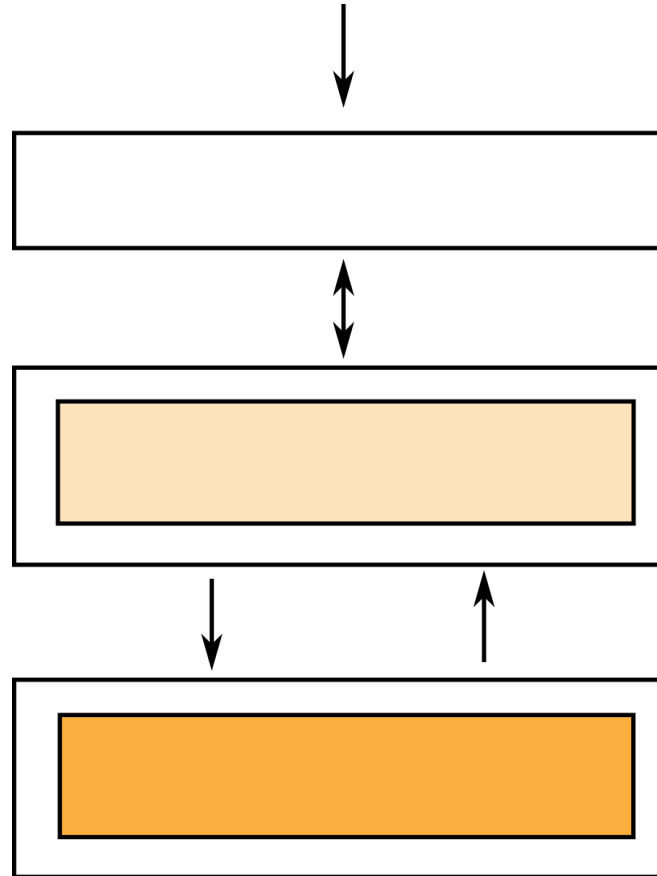
Host Setup

(powered by replication)

Nginx

Replica

Master



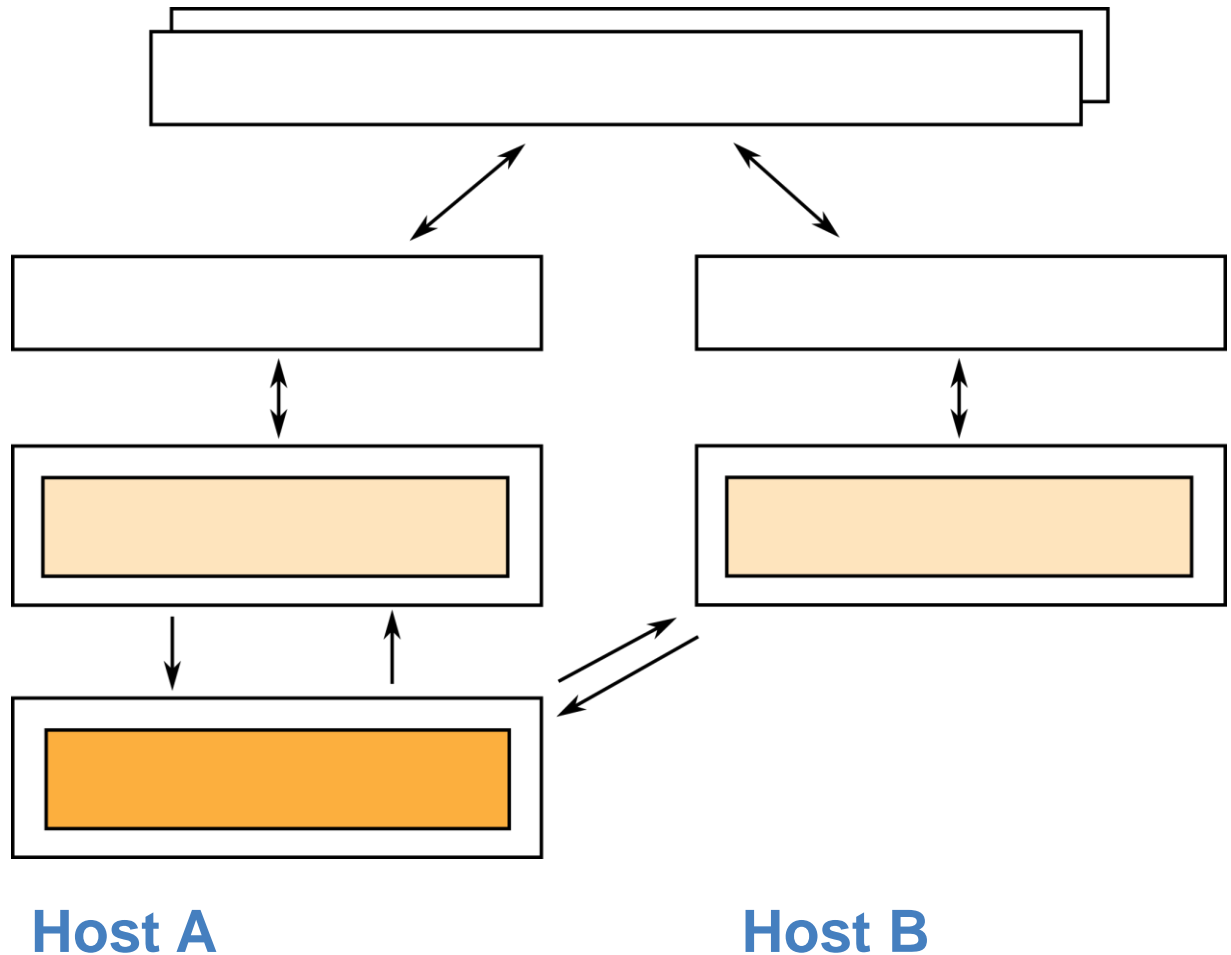
High Availability

(powered by replication)

Reverse Proxy

Replica

Master



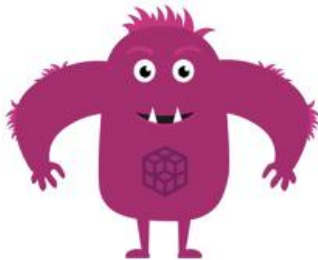
Executive Summary



- **Wheels** with version numbers from **git**



- Upload to **non-volatile** indices
- One **index per operating system**



- Users for **internal teams** and external software
- **Replicas** for high-availability

Some Lessons

(learned the hard way)

Provide a test server!

- you have to cleanup mistakes on the prod server
- consequence of immutable (non-volatile) indices

Use a client wrapper!

- proper command line usage
- enforce policies and prevent common mistakes
- server-client compatibility

Thank You!

If you think of

- literature when you hear **Kafka**
 - mythology when you hear **Cassandra**
 - animals when you hear **Zookeeper**
- ... then have a nice day.

If you think of distributed systems,
then join us!

www.blue-yonder.com

blue yonder

References

Websites

Devpi Upstream

- <https://bitbucket.org/hpk42/devpi>
- <https://github.com/devpi/>

Devpi plumber, builder, and cleaner

- <https://github.com/blue-yonder>

New Feature: “Platform tags in Wheels”

- <https://bitbucket.org/pypa/wheel/issues/144/>
- <https://github.com/pypa/pip/issues/2875>