

# Tryton WSGI Deployment

## A field report

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**Leuchter**  
IT SOLUTIONS

# Outline

- 1 About me
- 2 Why WSGI?
- 3 Using Tryton with uWSGI
- 4 Problems, Solutions & Tricks
- 5 Discussion

## About me

### About me

### Why WSGI?

### Using Tryton with uWSGI

### Problems, Solutions & Tricks

### Discussion

- Working at Leuchter Open Source Solutions (LOSS), Lucerne, Switzerland
  - Tryton Hosting & Development
  - Customization
  - Support
- Studying computer science (1 semester to go :)
- Main developer of LOSS Open Source Tryton modules<sup>1</sup>
- Occasional contributor of bugfixes for Tryton
- Tryton package maintainer for Arch Linux AUR

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<sup>1</sup><https://bitbucket.org/loss>

# Why WSGI?

- It is a standardized Python interface (PEP 3333) for communication with web server
- It has been invented to improve portability of web applications
- Potent WSGI server often provide additional features that Tryton lacks (and is not meant to provide), such as:
  - Advanced process management
  - Routing
  - Monitoring

## The Patch

- Cédric initially wrote a patch for WSGI support<sup>2</sup> in August 2011, which has been further improved in the meantime
  - Adds factory method for WSGI entry points:  
`trytond.protocols.wsgi.get_jsonrpc_app`
  - Removes `multi_server` configuration option (removed in 3.4 anyway)
- Still in code review, but “it is no longer a prototype”<sup>3</sup>
- Currently not applicable on trunk without errors, but easy to fix (errors can be ignored)
- Used in production at LOSS since spring 2013

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<sup>2</sup><http://codereview.tryton.org/92001/>


<sup>3</sup>according to post on tryton-dev mailing list

# Introducing uWSGI

Our WSGI Server of choice: uWSGI (but there are many others to choose from)

- Full stack (WSGI) application server
  - Scalability
  - Process monitoring
  - Load balancing
- Targeted at hosting providers
- Versatile, high-performance and reliable (though a bit complex)
- Available on Python Package Index (PYPI)<sup>4</sup>

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<sup>4</sup><https://pypi.python.org/pypi/uWSGI> 

## uWSGI Features

Particularly interesting uWSGI features for Tryton hosting:

- Emperor** Run multiple instances of Tryton
  - Cheaper Subsystem** Adaptive worker process spawning
  - Subscription Service** Dynamically register new Tryton instances
  - Stats Server** Get statistics of your Tryton instances
  - Python Tracebacker** Print current traceback of a running worker process
  - Alarm Subsystem** Get notified about unhandled exceptions
  - Harakiri** Kill hanging processes
- ... and there is probably a lot more I haven't yet discovered :)

# Showtime





## uWSGI Configuration

Minimal configuration file for uWSGI (tryton.ini):

```
[uwsgi]
master = True      # start in master mode
http = :8000       # bind to port 8000
workers = 4        # run 4 worker processes
virtualenv = path/to/virtualenv
file = path/to/wsgi.py
env = TRYTOND_CONFIG=path/to/config
```

WSGI startup file (wsgi.py):

```
from trytond.protocols.wsgi import \
    get_jsonrpc_app
application = get_jsonrpc_app()
```

# Running uWSGI

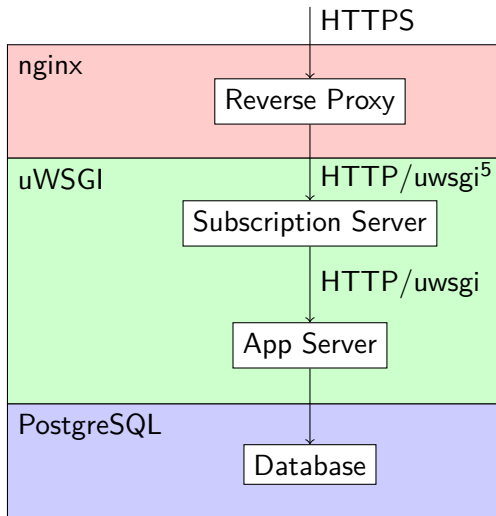
Start uWSGI using the config file from the last slide

```
$ uwsgi --ini tryton.ini
```

and connect using the client and port 8000

- The configured number of workers are started
- Load balancing is done automatically
- There are a lot more config options for advanced scenarios

# Scalable Hosting Architecture



<sup>5</sup>Binary, high performance protocol

# Problems, Solutions & Tricks (1)

**Problem** Tryton Cron does not run

**Solution** Run Cron as external service using a separate script (following TrytonServer.run method)

**Trick** With uWSGI you can start the Cron script as an external service together with the WSGI instance

## Problems, Solutions & Tricks (2)

**Problem** Module installation/update leads to inconsistent worker states

**Solution** An instance reload is required

**Trick** uWSGI can automatically trigger a reload in code, but this requires patching the server

# Discussion

## Starting questions:

- Would you like to see official WSGI support in Tryton?
- Are there technical difficulties that prevent WSGI support?
- How do you see the future of Tryton deployment?