



Application extensibility and customization - Indico's case

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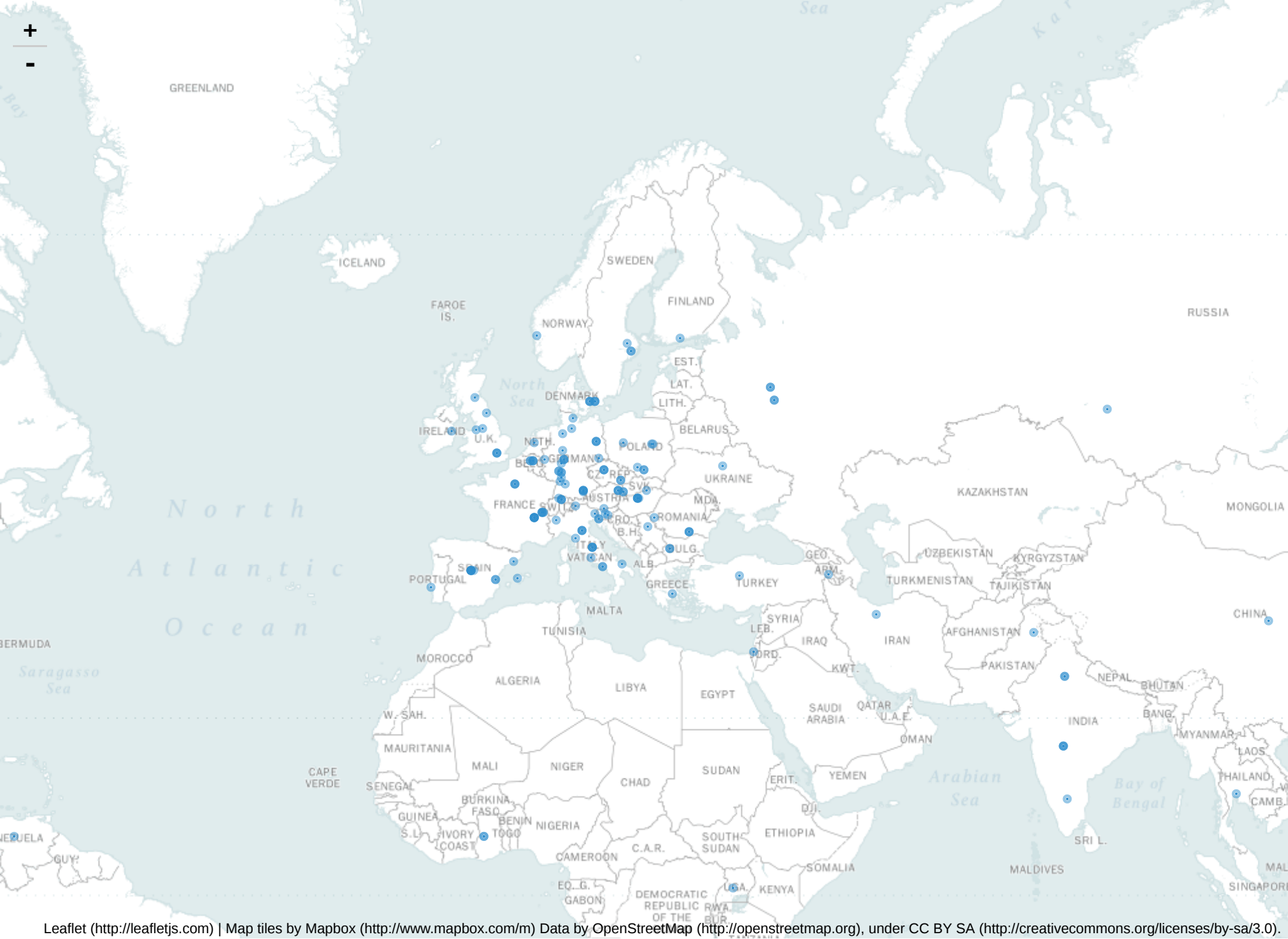
CHEP 2018 - Sofia

9 July 2018



About Indico

getindico.io





2014 - 2017

Massive Rewrite

ZODB → PostgreSQL

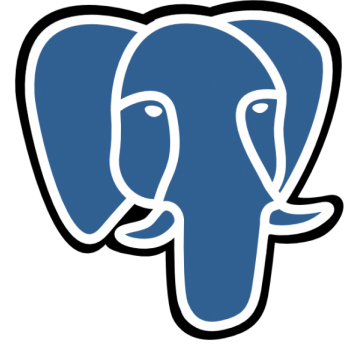


2017

Indico 2.0 🎉

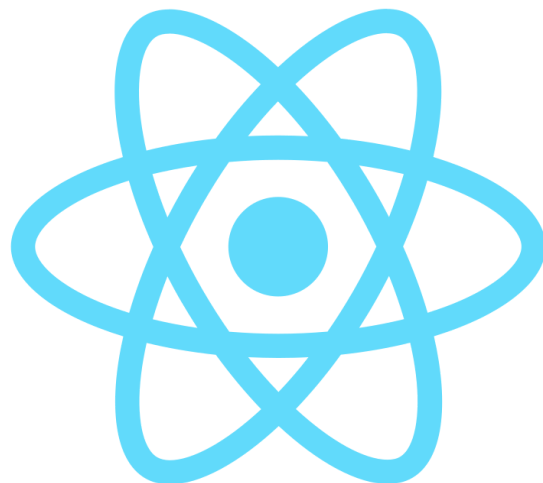


Flask



PostgreSQL

SQLAlchemy



webpack

The Problem

Additional Functionality

e.g.

Authentication systems

E-payment systems

Videoconferencing tools

Deleting personal data 

Overriding Behaviour

e.g.

Hiding things

Changing logos, colours...

Customization

e.g.

Custom styles

Custom meeting themes

Textual changes

Agenda - Prochains événements et manifestations

Create event

Parent category



A la recherche d'un événement et ou d'une manifestation à venir ?

Vous trouverez ici toutes les informations relatives aux événements et manifestations organisées et qui vous permettra d'inscrire dans votre agenda celles qui vous intéressent.

Nous nous réjouissons d'ores et déjà de vous y rencontrer !

Pour d'autres renseignements, contactez : info@gymel.ch

La **gym** à Gimel c'est... www.gymel.ch

Managers

- Comité - FSG Gimel
- Gestionnaires de catégorie

There are 11 events in the future. [Show](#)

September 2018



06 Sep [Souper saucisson](#)

Site HTML



Main categories

Welcome to Indico. The Indico tool allows you to manage complex conferences, workshops and meetings. To start browsing, please select a category below.

TARLA	23 events	
TAC	35 events	
IAT	3 events	

 [News](#) [more...](#)

[Previous news](#)
Posted 31 Jul 2014

Site HTML + CSS



Linear Collider Collaboration

Europe/Zurich English Login

Home Create event

Main categories

Create event

Welcome to Indico. The Indico tool allows you to manage complex conferences, workshops and meetings. To start browsing, please select a category below.

Linear Collider Collaboration	112 events	➡
Compact Linear Collider	empty	➡
International Linear Collider	2,145 events	➡
Physics and Detectors	2,938 events	➡
Conference and Workshops	111 events	➡
Institutions	1,125 events	➡
Test Area	97 events	➡

News

[more...](#)

LC Agenda replaces ILC Agenda

Posted 19 Nov 2013

Themes



WLCG Archival Storage Group




📅 Thursday 5 Jul 2018, 16:00 → 18:00 Europe/Zurich

📍 31-S-027 (CERN)

Description WLCG Archival Storage Group

- Experiment plans
 - Atlas carousel R&D
 - Other experiments
- Finalising "best practise" documentation
 - Final text
 - https://twiki.cern.ch/twiki/bin/view/HEPTape/Survey_Conclusions
- Actions for FTS
 - Easy (configuration) and, maybe, harder (requiring dev)
- Actions for other retrieval orchestration systems
- Update on metric reporting



 atlas-data-carousel-...

 FTSUpdate.pdf

Solutions

Options

1. `if cern: ...` - not scalable
2. **Patches** - rebase needed

A dark, heavily armored military truck with a large turret on top, parked in an urban setting. The truck is the central focus, with a building and other vehicles visible in the background. The word "Customization" is overlaid in white text on the truck's side.

Customization

Config

```
CUSTOMIZATION_DIR = '/opt/indico/custom/cern'
```

Contents

`./scss` - SCSS Stylesheets

`./js` - JS Code

`./templates` - Jinja templates

`./static` - Static files

Templates

Overridden according to their pathname

Can inherit from core templates

```
CUSTOMIZATION_DEBUG = True # verbose output
```

./templates/footer.html

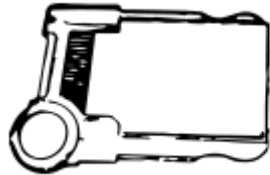
```
{% extends '~footer.html' %}

{% block footer_logo %}
    {%- set filename = ('cern_small_light.png' if dark
                       else 'cern_small.png') -%}
    <a href="https://home.cern/" class="footer-logo">
        
    </a>
{% endblock %}
```



Extensibility

Authentication



FlaskMultipass

<https://flask-multipass.readthedocs.io>

Provides authentication and identity
Generic and Extensible (`entry_points`)

Plugins

For all the other cases



Flask PluginEngine

<https://flask-pluginengine.readthedocs.io>

```
app = PluginFlask(__name__)
app.config['PLUGINENGINE_NAMESPACE'] = 'indico.plugins'
app.config['PLUGINENGINE_PLUGINS'] = ['epayment', 'clippy']

plugin_engine = PluginEngine(app=app)
plugin_engine.load_plugins(app)

active_plugins = (plugin_engine.get_active_plugins(app=app)
                  .values())

for plugin in active_plugins:
    with plugin.plugin_context():
        app.register_blueprint(plugin.get_blueprint())
```

Signals & Hooks

Implemented using **Blinker**
Allow for **extension points**

```
{% from 'events/management/_create_event_button.html'
import create_event_link %}

{{ template_hook('global-announcement') }}

<div class="page-header clearfix">
    <!-- ... -->
</div>
```

```
@template_hook('global-announcement')
def _inject_announcement_header(**kwargs):
    if not announcement_settings.get('enabled'):
        return
    message = announcement_settings.get('message')
    if message:
        return render_template('announcement/display.html',
                               message=message)
```

Jinja Templates

clippy:config.html

```
{% extends  %}
```

base_layout.html

```
{current_plugin ... }
```

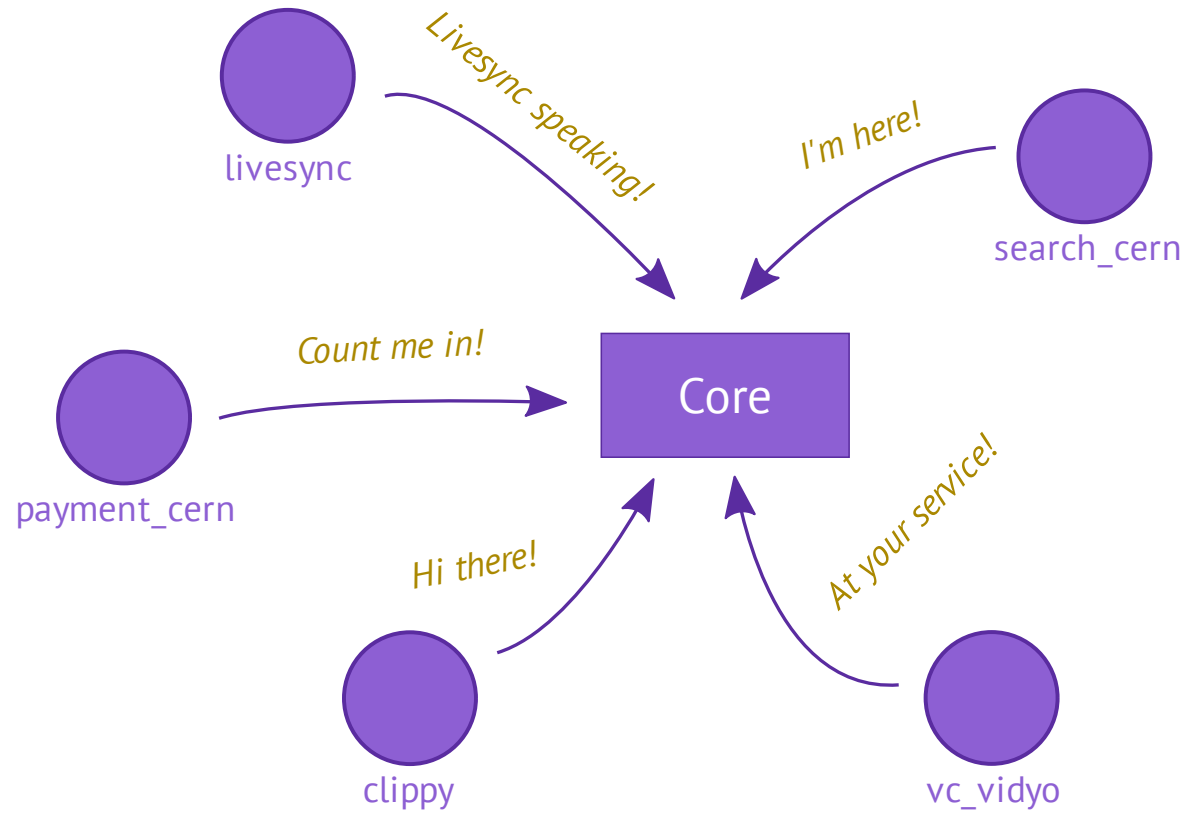


Discovery

Done through setup.py entry_points

```
entry_points={
    'indico.plugins': {
        'clippy = indico_clippy_plugin:ClippyPlug
    }
}
```

Discovery



Plugin

Python code

Templates

Settings

JS/CSS bundles

Static assets

DB tables

...

Examples

livesync

livesync_invenio

payment_paypal

storage_xrootd

livesync_cern

payment_cern

search_cern

themes_cern

Conclusion

Flexibility as a core principle

Separation of concerns 👍

Isolation of development 👍

Users are empowered 👍

Complexity 👎

Some examples

indico-checkin-webhook

SIXPay Plugin

indico_custom_footer

Questions?