VIP : applications scientifiques, services et interopérabilité

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Virtual Imaging Platform (VIP)

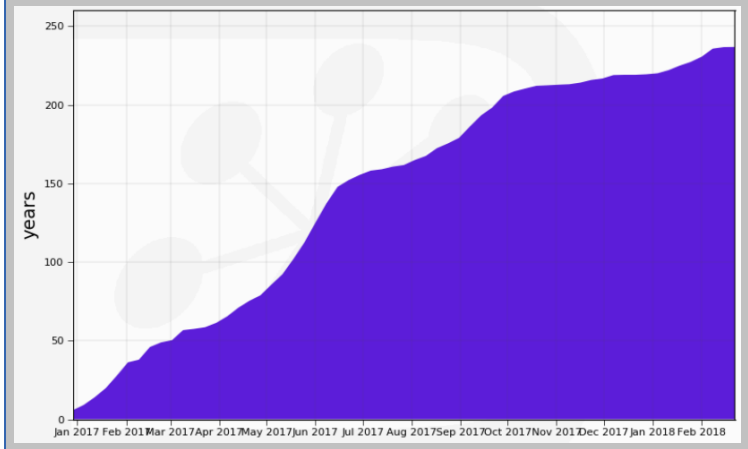
https://vip.creatis.insa-lyon.fr
https://sbgsol.in2p3.fr/vip-portal

Web portal

Application as a service
File transfer to/from grid

Infrastructure

Supported by EGI Infrastructure
Uses biomed VO (~65 sites in Europe and beyond)
230 cumulated CPU years utilized by VIP applications in 1 year

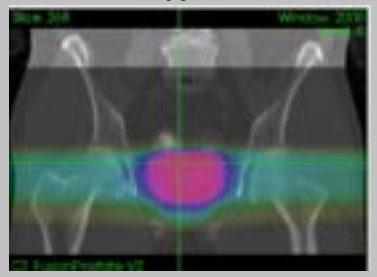


France-Grilles

DIRAC

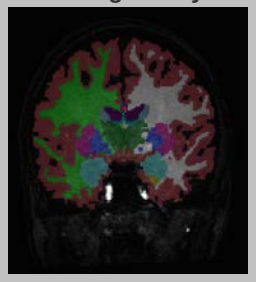
Scientific applications

Cancer therapy simulation



Prostate radiotherapy plan simulated with GATE(L. Grevillot and D. Sarrut)

Neuro-image analysis

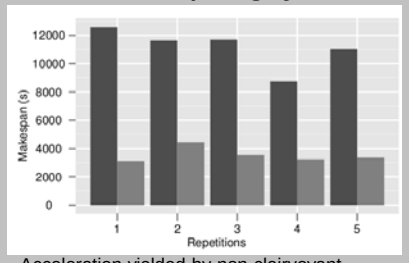


Brain tissue segmentation with Freesurfer

Image simulation

Echocardiography simulated with FIELD-II (O. Bernard *et al*)

Modeling and optimization of distributed computing systems



Acceleration yielded by non-clairvoyant task replication (R. Ferreira da Silva *et al*)

Users

1000+ registered users in January 2018
40 publications since 2011

Boutiques

- Describe, publish, integrate and execute command-line applications **across platforms**
  - facilitate application porting
  - import and exchange of applications
  - open and reproducible science
- Versatile JSON format to describe the command-line, inputs and outputs
- Use of Linux containers to facilitate application installation and sharing
- https://github.com/boutiques

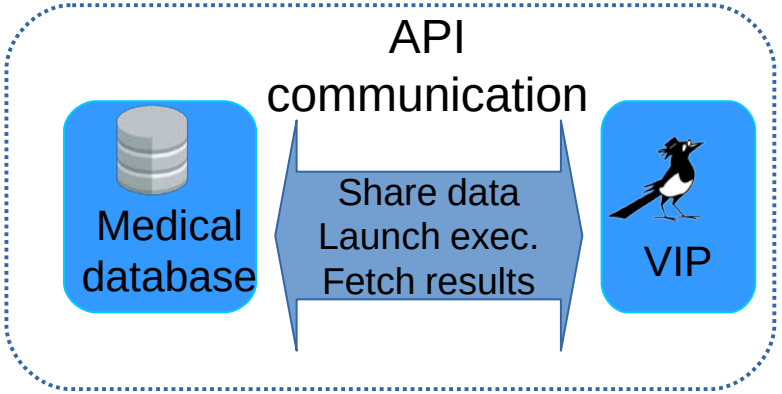
```
{
    "name": "output",
    "tool-version": "1.0",
    "description": "A simple script to test output files",
    "command-line": "output.sh [INPUT_FILE] [OUTPUT_FILE]",
    "schema-version": "0.4",
    "container-image": {
        "type": "docker",
        "image": "boutiques/examples"
    },
    "inputs": [{
        "id": "input_file",
        "name": "Input file",
        "value-key": "[INPUT_FILE]",
        "type": "File",
        "optional": false
    }],
    "output-files": [{
        "id": "output_file",
        "name": "Output file",
        "value-key": "[OUTPUT_FILE]",
        "path-template": "[INPUT_FILE]-processed.log",
        "path-template-stripped-extensions": [".txt",".mnc",".cpp",".m",".j"]
    }]

}
```

Example of a simple Boutiques descriptor

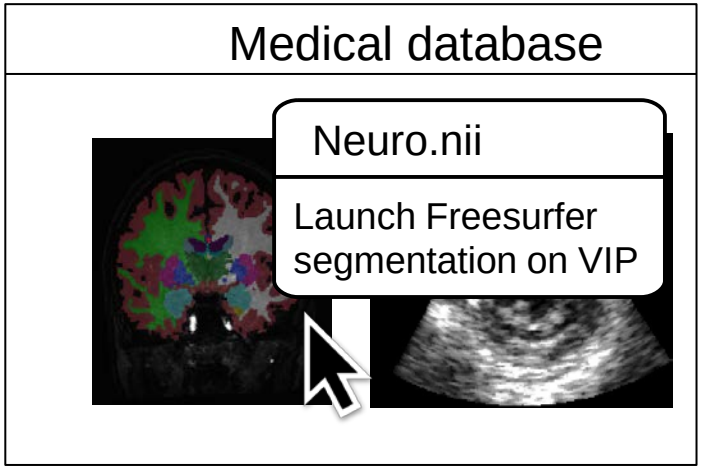
CARMIN

- CARMIN is an API that enables communication between services (e.g., use VIP remotely)



Architecture schema

- Get all VIP functionalities from your favourite medical database
  - Launch and monitor executions
  - Consult the results



Usage example