



Hewlett Packard
Enterprise



API != REST - PROCMAIL TO THE RESCUE



**By HPE DEV Team
and HPE CIC Team**

Introducing Bruno Cornec

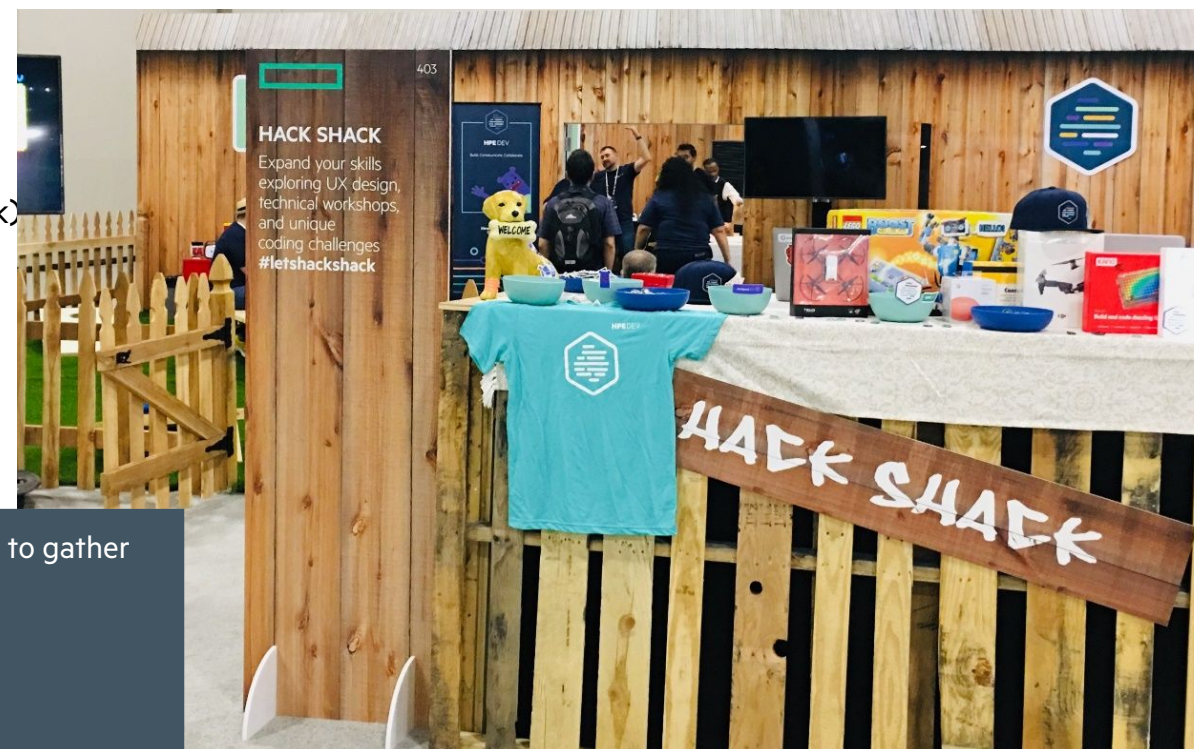


- Software engineering and Unices since 1988:
 - Mostly Configuration Management Systems, Build systems, quality tools, on multiple Unix systems
 - Discovered Open Source & Linux (OSL) & made first contributions in 1993
 - Full time on OSL since 1995, first as HPE reseller then @HPE
- Currently:
 - OSL Technology **Strategist** in HPE WW Customer Innovation Center, Grenoble, France
 - WW Linux Community Lead for the HPE **Open Source Profession**
 - Conferences at WW level at LinuxCon, Linux.conf.au (2007, 2013, 2014), Fosdem, RMLL, ...
 - MondoRescue, Project-Builder.org, python-redfish, UUWL and PUSK **Project Lead**
 - LinuxCOE, mrepo, tellico, rinse, fossology, collectl, Ironic **contributor**
 - FOSSBazaar/SPDX and OSL **Governance** enthusiast
 - Mandriva, Mageia, Fedora **packager**
- And also:
 - Amateur singer (Alto / Tenor), recorder player since 1976 and Choir **director** since 1987, CD collector (7000+), Concerts, Photography



Introducing Frédéric Passeron

- 20 years @HPE in presales organizations
- Strong focus on solutions (HPSIM, Matrix, HP CloudSystem, Helion Openstack)
- Currently:
 - **HPE** Dev Experience team Solution Architect
 - **Hack Shack** Workshop on Demand (WoD) Program Manager
 - **Vlub** project management
 - **Volumio** contributor
- And also:
 - High end HI-FI systems fan (see video !)
 - Musical Streamer builder



The Hack Shack@KubeCon

A place for developers to gather

Inviting atmosphere

Informative and fun

Physical now virtual

Workshops

Hands-on training

On-demand

Use of Jupyter notebooks

Challenge

Augments workshop material

Prizes offered for creativity

Replays

Community

Popular Hack Shack Attack game

It was announced at KubeCon Austin in December 2017

Main goal: “Accelerate Innovation through **Sharing** , **Communicating** and **Collaborating** among members of the developer community”



INFRASTRUCTURE IN PLACE

Infrastructure hosting API
Endpoints



3 appliances setup
(ssh+REST API)



7 appliances
interaction
(REST API)

- HPE OneView Appliances
- Nimble Virtual Arrays
- HA HPE Container Platform MLOPS
- Aruba OVAs
- Redfish/OpenBMC VMs

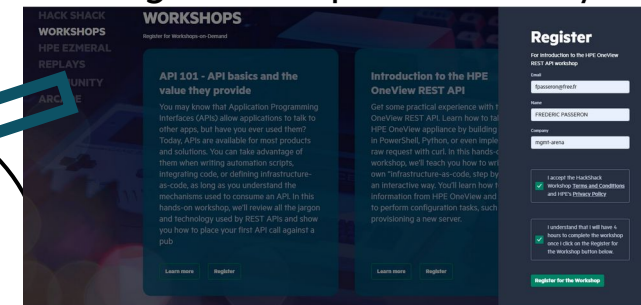
2 student &
notebook setup
(smtp API)

Jupyterhub Server
(postfix + procmail)

A single DL360 Gen10 Server

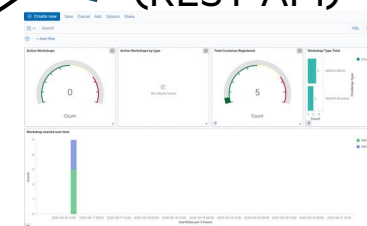


Registration portal - Netlify



<https://notebooks.hpdev.io>

2 and 4 back-end
update
(REST API)

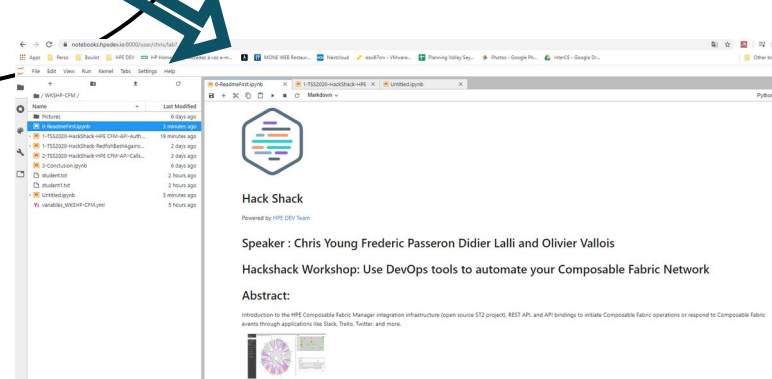


5 user info
(smtp)

6 training
(http)



1 WoD
(http)



A MAIL API, REALLY ?

- Not all systems are https reachable (security)
- Mail provides some advantages over https
 - free queuing system
 - Passes complex network setup
- Procmail helps manage API mail requests
 - Easy input filtering
 - Easy parameters management
 - Script called from procmail to perform actions
- Tests are easy to perform

```
jupyter@jupyterhub3:~/jupyter-procmail/scripts$ more ~/.procmailrc
MAILDIR=$HOME/.mail      # You'd better make sure it exists
DEFAULT=$MAILDIR/mbox
LOGFILE=$MAILDIR/from

:0b
#* ^From.*hpedev.hackshack@hpe.com.*
# \ / defines what will be matched in $MATCH
* ^Subject: *CREATE \/[1-9]+.*
| /home/jupyter/jupyter-procmail/scripts/procmail-action.sh CREATE $MATCH

:0b
#* ^From.*hpedev.hackshack@hpe.com.*
# \ / defines what will be matched in $MATCH
* ^Subject: *CLEANUP \/[1-9]+.*
| /home/jupyter/jupyter-procmail/scripts/procmail-action.sh CLEANUP $MATCH

:0b
#* ^From.*hpedev.hackshack@hpe.com.*
# \ / defines what will be matched in $MATCH
* ^Subject: *RESET \/[1-9]+.*
| /home/jupyter/jupyter-procmail/scripts/procmail-action.sh RESET $MATCH
```

```
jupyter@jupyterhub3:~/jupyter-procmail/scripts$ ./test-action.sh
Syntax: test-action.sh <CREATE|CLEANUP|RESET> WKSHOP [MIN[,MAX]
ACTION is mandatory
jupyter@jupyterhub3:~/jupyter-procmail/scripts$
```



ANSIBLE + NOTEBOOKS

- Ansible is used for
 - Platform installation
 - Platform conformity and convergence
 - Student setup including notebooks instantiation
- Usage of variables to support multi-site
 - Sandbox, staging, production, dev, ...
- Usage of Jinja2 features to individualize notebooks

```
{
  "cell_type": "code",
  "execution_count": null,
  "metadata": {},
  "outputs": [],
  "source": [
{% for key,value in SPTNAME.items() %}
{% if key|string == STDID|string %}
    "server_profile_template = \"{{ value }}\\\"\\n",
{% endif %}
{% endfor %}
    "tpl = oneview_client.server_profile_templates.get_by_
    "profile = tpl.get_new_profile()"
  ]
},
{
  "cell_type": "markdown",
  "metadata": {},
  "source": [
    "At this point, the profile is just an object in our lo
profile and a server hardware URI which represents the server w
  ]
},
{
  "cell_type": "code",
  "execution_count": null,
  "metadata": {},
  "outputs": [],
  "source": [
    "profile['serverHardwareUri'] = server.data['uri']\\n",
    "profile['name'] = 'Profile Student {{ STDID }}'"
  ]
},
},
```



IT'S SHOW TIME FOLKS !



THERE'S MORE AND WHAT'S NEXT ?

- Everything under private git
- 10 Workshops in production
- Built on Ubuntu 20.04 + Jupyter kernels
 - python, bash, powershell, go, rust, java, ansible
- Future steps:
 - 3 more workshops per month
 - Improved CI/CD (automated tests per commit)
 - CentOS port
 - Docker spawner for Jupyter
 - Open Sourcing

```
jupyter@jupyterhub3:~/student0$ ls -al
total 72
drwxr-x--- 17 jupyter jupyter 4096 Oct 26 11:19 .
drwxr-xr-x 23 jupyter jupyter 4096 Oct 27 07:59 ..
-rw-rw-r-- 1 jupyter jupyter 3437 Jun 29 08:06 ansible_copy_folder.orig
drwxr-xr-x 3 jupyter jupyter 4096 Oct 23 14:15 CHLG-HPECP-API
drwxr-xr-x 3 jupyter jupyter 4096 Oct 15 13:33 DevTalks
drwxrwxr-x 3 jupyter jupyter 4096 Oct 23 14:15 WKSHP-API101
drwxrwxr-x 3 jupyter jupyter 4096 Oct 23 14:15 WKSHP-Aruba-API
drwxrwxr-x 4 jupyter jupyter 4096 Oct 23 14:15 WKSHP-GIT101
drwxrwxr-x 3 jupyter jupyter 4096 Oct 23 14:15 WKSHP-Grommet
drwxrwxr-x 3 jupyter jupyter 4096 Oct 23 15:34 WKSHP-HPECP-API
drwxrwxr-x 2 jupyter jupyter 4096 Oct 23 14:15 WKSHP-HPECP-API-CleanUp
drwxrwxr-x 4 jupyter jupyter 4096 Oct 23 14:15 WKSHP-HPECP-Automate-Apps
drwxrwxr-x 5 jupyter jupyter 4096 Oct 23 14:15 WKSHP-HPECP-MLOPS
drwxrwxr-x 3 jupyter jupyter 4096 Oct 26 14:47 WKSHP-OneView
drwxrwxr-x 3 jupyter jupyter 4096 Oct 23 14:15 WKSHP-Python101
drwxrwxr-x 3 jupyter jupyter 4096 Oct 23 14:15 WKSHP-RedfishOverview
drwxr-xr-x 3 jupyter jupyter 4096 Oct 23 14:15 WKSHP-RUST101
drwxrwxr-x 3 jupyter jupyter 4096 Oct 23 14:15 WKSHP-Template
jupyter@jupyterhub3:~/student0$
```

```
jupyter@jupyterhub3:~/student0/WKSHP-API101$ ls -al
total 40
drwxrwxr-x 3 jupyter jupyter 4096 Oct 23 14:15 .
drwxr-x--- 17 jupyter jupyter 4096 Oct 26 11:19 ..
-rw-rw-r-- 1 jupyter jupyter 3042 Oct 13 17:43 0-ReadMeFirst.ipynb
-rw-rw-r-- 1 jupyter jupyter 17448 Oct 13 17:43 1-WKSHP-REST_API_Basics.ipynb
-rw-rw-r-- 1 jupyter jupyter 1881 Oct 13 17:43 2-WKSHP-Conclusion.ipynb
drwxrwxr-x 2 jupyter jupyter 4096 Oct 23 14:15 Pictures
jupyter@jupyterhub3:~/student0/WKSHP-API101$
```



BUILD | COMMUNICATE | COLLABORATE



hpedev.io



hpedev.slack.com



Monthly Newsletter



mailto:hpedev@hpe.com



@HPE_DevCom



Yammer Group (Internal)



Yammer Group (Partner)



Workshops-on-Demand



THANK YOU

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