RAIFFEISEN’S PSD2 IMPLEMENTATION WITH RED HAT OPENSHIFT
Red Hat Forum Brussels 2019
PSD2
PSD2 ? WHAT ? OPEN MY INFORMATION SYSTEM ?

- PSD2 is made to break bank’s monopoly on their customer data.

- Thus, PSD2 is all about allowing –nearly- unknown third parties to connect to bank’s information system with their customer consent.

- It’s a complete paradigm change for banks for which confidence and security are everything.

- But it helps banks to join API Economy.
PSD2, A MINDSET TO ADAPT

(Just more windows)
Raiffeisen, among other leading banks in Luxembourg, created LuxHub in 2017.

LuxHub is a PSD2 connectivity platform.

It’s goal is to ease interconnectivity between TPP and banks, dealing with as much regulatory aspects of PSD2 as possible.
PSD2 AT RAFFEISEN
What need to be done?

- LuxHub
- SOA Platform
- T24
SOA PLATFORM COMPOSITION

- LuxHub
- 3scale by Red Hat
- Red Hat Fuse
- Spring Boot
- T24
- Red Hat SSO
EVERYTHING SHOULD START WITH A PoC

- First step was to prove Red Hat stack is able to “fit” in Raiffeisen’s Information System
- Microservices deployed as standalone on dedicated VM
- Red Hat SSO deployed as standalone on dedicated VM
- 3scale deployed on premise on a simple OpenShift cluster (one master, two application nodes)
A MORE COMPLETE SETUP

- Time for high availability:
  - At control plane level:
    - From one to three master nodes
    - Keep dedicated node for 3scale management
  - At data plane level, with:
    - External load-balancing
    - Data center redundancy
    - OSCP Internal routing sharding
A MORE SECURE SETUP

- Time for higher security:
  - Nodes are placed in VLANs:
    - One for control plane
    - One for API gateways with an external SSO
    - One for services
    - ...
  - Since default OpenShift network plugin (flat) allows communication between all pods (thus breaking VLAN segregation) → changed to
AND A MORE INTEGRATED SETUP

- Raiffeisen Information System does not run on OSCP alone!
- Thus, OSCP has to be correctly integrated
- For instance, OpenShift’s standard logging stack (EFK) has been deployed to aggregate logs in order to push logs in Raiffeisen’s centralized tool (ELK)
SOME LESSONS LEARNED
LESSON LEARNED #1 – PET VS CATTLE

CENSORED
LESSON LEARNED #2 - RED HAT CONTAINER CATALOG

- Red Hat best kept secret?
- Don’t spend time creating your own images:
  - High cost of maintenance
  - Higher risks
- → Build on top of Red Hat provided one or UBI
**Lesson learned #3 – There is no final choice**

- OpenShift is flexible, it is able to adapt to the context:
  - Move workload from nodes to nodes
  - In case of Raiffeisen, move nodes from a VLAN to another (scale down – scale up)
  - Change network plugin
  - Change storage...

- They are a few case where you would have to reinstall a cluster
Lesson Learned #4 – Automation is the Key

- Raiffeisen hosts more than one cluster (one per environment).
- It comes at a cost when promoting images and deployment from a cluster to another.
- Cluster configuration comparison tool developed against OSCP API
WHAT WENT WELL?

- Very short timeframe for platform setup and development phase.
- Platform is stable
- Production cluster setup within a week.
SOME DRAWBACKS

- Not every Java application can be efficient in containers:
  - Multiples 2Gb+ RAM containers because of non optimal design lead to cluster exhaustion.

- OSCP ease DevOps approach but doesn’t solve all problems.

- OpenShift 3 is a full-featured product that requires skills and adapted mindset.

- Light prior container experience at both Devs and Ops levels at Raiffeisen made K8S learning curve harsh.

- 3scale doesn’t support OpenAPI 3 (yet?)
WHAT’S NEXT?

- Better persistent storage subsystem (still NFS)
- Shared registry (between environment)
- Continous deployment
- Deeper integration with load-balancing (F5)
- Bring new workload?
- OSCP 3.9 deployed, so stuck to 3scale 2.3.
Q & A
THANKS

Loïc Mulder
Technical Director & Partner
loic.mulder@its4u.com | +352 621 527 917