BIO-PORTAL

Simplified Cloud Portal for First-time Users

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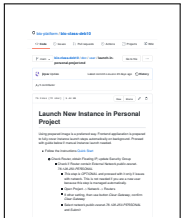
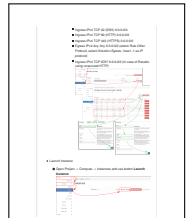
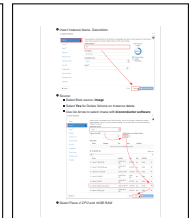
Motivation

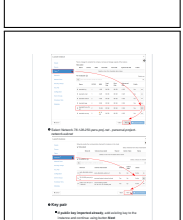
- Many users access the cloud with a single appliance in mind
- Horizon (openstack GUI) is too complex – especially for newbies
- Even worse, openstack lacks the concept of *templating*
- Numerous minor steps (or at least checks) must be taken (and understood) before instantiating a VM
  - Choose the right project
  - Choose the right image
    - For custom or community images this cannot even be done in Horizon
  - Reserve and assign a public IP address
  - Assign (possibly even generate) an SSH key pair
  - Choose (or at least confirm) network
  - Edit metadata
  - Copy and paste or even modify the `cloud-init` script
  - …

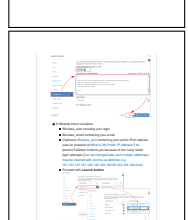
Bioconductor Guide Example

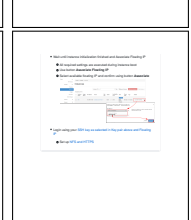












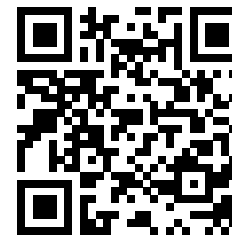
Z. Šustr, Bio-portal, CESNET

The Plan

- Target first-time, low-scale users
- Start by choosing from supported appliances
- **Wizard style** – only ask for input that is trully necessary
  - Extract attributes from environment or ask
  - Pre-fill options or at least limit choice
    - e.g., choose from 2 suitable VM sizes rather than 10
  - Make suggestions, explain what is going on
- Always prefer the new VM over old ones (old = expendable)
  - Assume user is in a rush
  - "Steal" IP addresses, suggest deletion of resources to free quotas, . . .
- Make sure the VM is ready & tell the user what to do next
  - E.g., `ssh` to this IP address . . .

Bio-portal – 1st Generation

- 1st generation in 2019
- Named for the first bioinformatics use case
  - Custom, isolated, desktop-like enviornment for non-tech students
  - Originally implemented in OpenNebula
- Suported appliances hard-wired
  - Only single-machine deployments
  - Leave genericity for later $\Longrightarrow$ more time to think
- Fall back to Horizon for more complicated issues
- `https://bio-portal.metacentrum.cz`



Bio-portal – 1st Generation

cesnet Log out

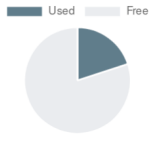
Bioconductor Deb 9 | Bioconductor Deb 10 | Clean Windows | Clean Ubuntu

Overview

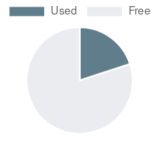
Limit Summary

Mail = sustr4@cesnet.cz, Name = sustr

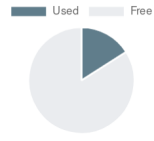
Floating_ips



Instances



Cores



Ram

Machine name: gw CPUS used: 2 RAM used: 4096MB Image:

Bio-portal – 2nd Generation Backend

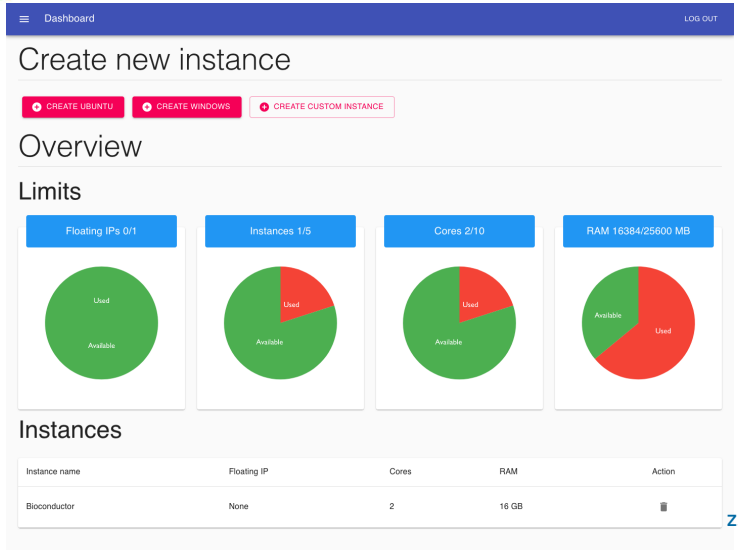
- Comming soon
- New backend based on HashiCorp's Terraform
  - Makes it easier to accept appliances developed by 3rd parties
  - Enables support for multi-machine deployments
  - Additional pilot use case: hadoop
    - Single machine
    - Virtual cluster

Bio-portal – 2nd Generation Frontend

- Comming soon
- New generation of the frontend
  - Applying what we learned about user-friendliness
  - More exceptional situations covered by the wizard
    - Yes, SSH key generation will finally be supported
  - Minimalistic set of features to manage existing VMs
    - Reassign IP addresses (return stolen IPs)
    - Delete machines
  - Appliance organizer – tagging
  - Extra care to avoid mimicking/replacing Horizon

    … but still fall back to Horizon for more complicated issues

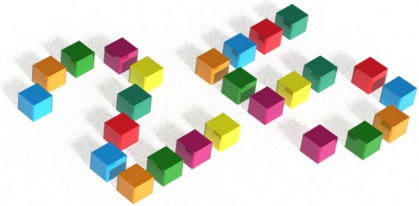
Bio-portal – 2nd Generation



What Comes Next

- Adding new appliances
  - Campaign to add numerous bioinformatics appliances
  - Hadoop clusters
  - Other suggestions appreciated
- Open to use cases
  - Are you preparing an appliance for unskilled users?
  - Do you have a course to teach?
  - Have you been worrying about having to support your team?

$\Longrightarrow$ **The simplified portal might be your answer.**



Questions?

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Thank you for your attention!