OPEN MAINFRAME PROJECT

Feilong: the open source API for z/VM automation

VM Workshop - Columbus

June 23, 2023

What is Feilong?

- The Mandarin “Fēilóng or 飞龙” translates to "flying dragon“[1]
- Winged legendary creature that flies among clouds in Chinese mythology[2]

[1] https://translate.google.com/#view=home&op=translate&sl=zh-CN&tl=en&text=飞龙
[2] https://en.wikipedia.org/wiki/Feilong

Mission of the project

- Contribute and further develop the RESTful API server that simplfies interaction with the IBM z/VM hypervisor.

Community Benefits

- Presents a de-facto RESTful API standard for z/VM interaction.
- Have a strong codebase to use, contribute and further develop thanks to the IBM contribution to the project.
- The RESTful API server makes using z/VM easier especially for developers without deep knowledge of z/VM.
- Enable development of self-service Infrastructure-as-a-Service automation of VMs, networking and storage used by z/VM.

Project Information

- Home - https://www.openmainframeproject.org/projects/feilong
- Github - https://github.com/openmainframeproject/feilong
- Documentation - https://cloudlib4zvm.readthedocs.io/en/latest/index.html
- z/VM environment available for project contributions
- Monthly hour-long meeting on the second Wednesday of the month
  - Supporting global community
  - Odd months in US morning (9:00am EDT) and even months in US evening (9:00pm EDT)
- Meeting notes
  - Posted to Feilong project mailing list
- Staying connected
  - Mailing list

Project Highlights

- 60 GitHub forks with 42 contributors and 30 stars
  - 104 commits merged in 2022
  - Used within an IBM product as well as deployed within organizations
- January 2023 monthly meeting demonstrated setup and use of Feilong
- Average of 5 people attend monthly meeting
- Planned events in 2023
  - VM Workshop in June
  - IBM TechXchange in September
  - Open Source in Finance Forum in November

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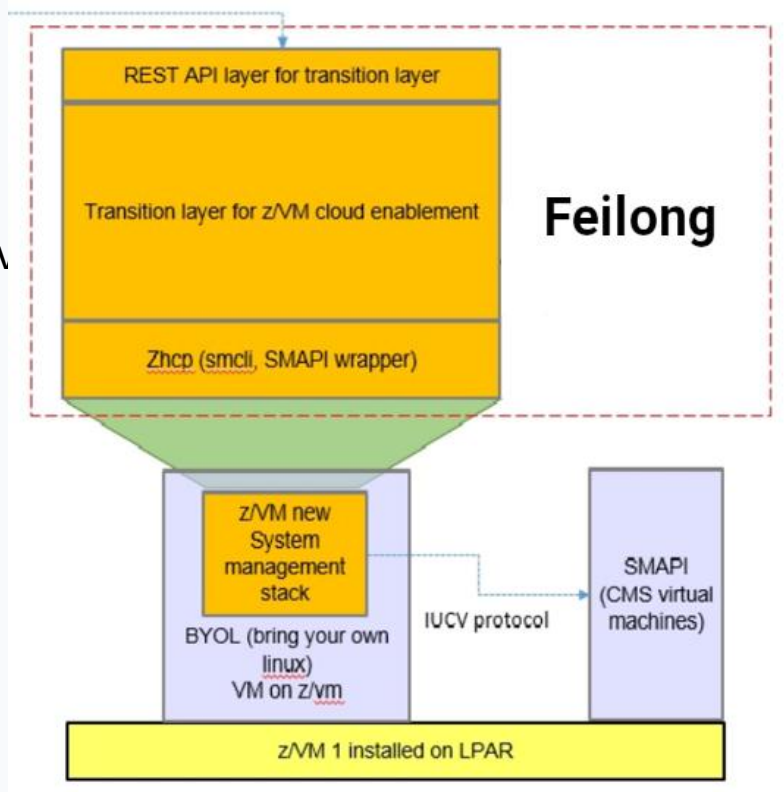
Overall architecture

- REST API Layer
  - Python based
  - REST API
  - Consumed by OpenStack, VMware vRA/v
- Transition Layer
  - Python based
  - Multiple thread
  - Called by REST layer
- Smcli (Zhcp layer)
  - Written in C
  - Call SMAPI



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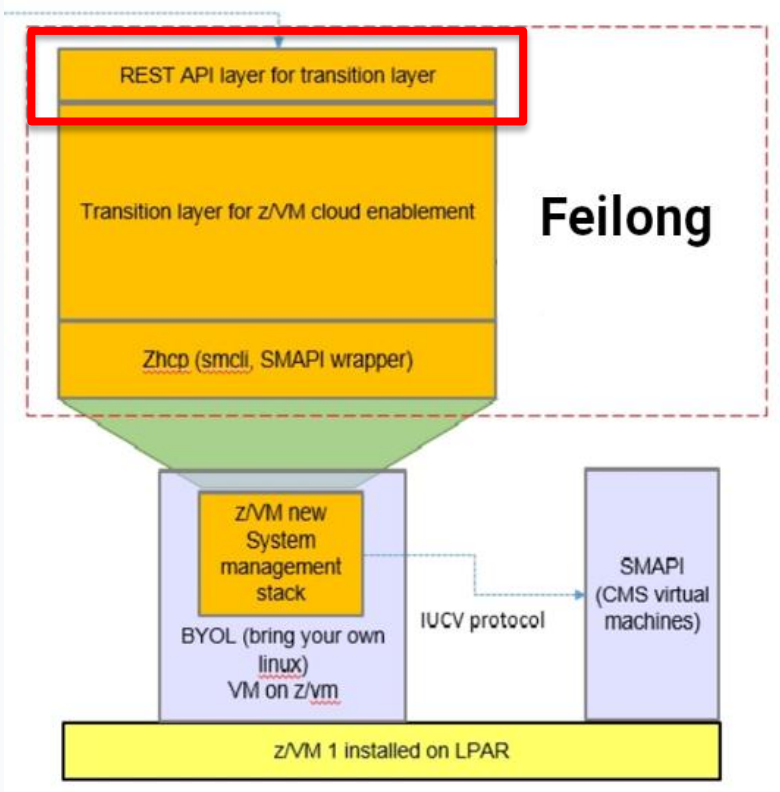
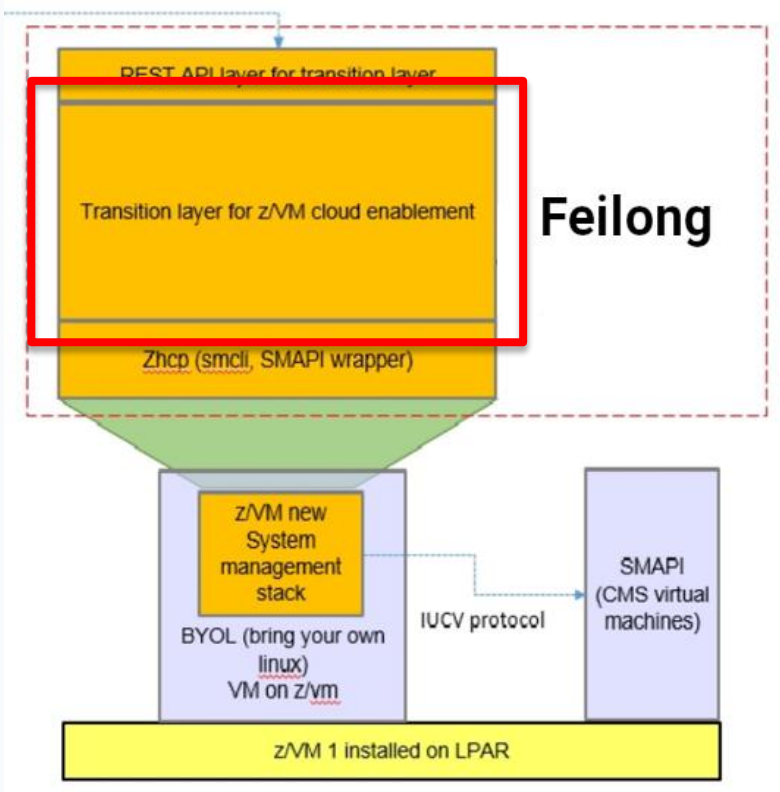
REST API layer

- Accept request from http client
- REST API
  - Example: create a guest
    - POST /servers/abc
- Managed by httpd or nginx services
- Easy to extend
- API backward compatible



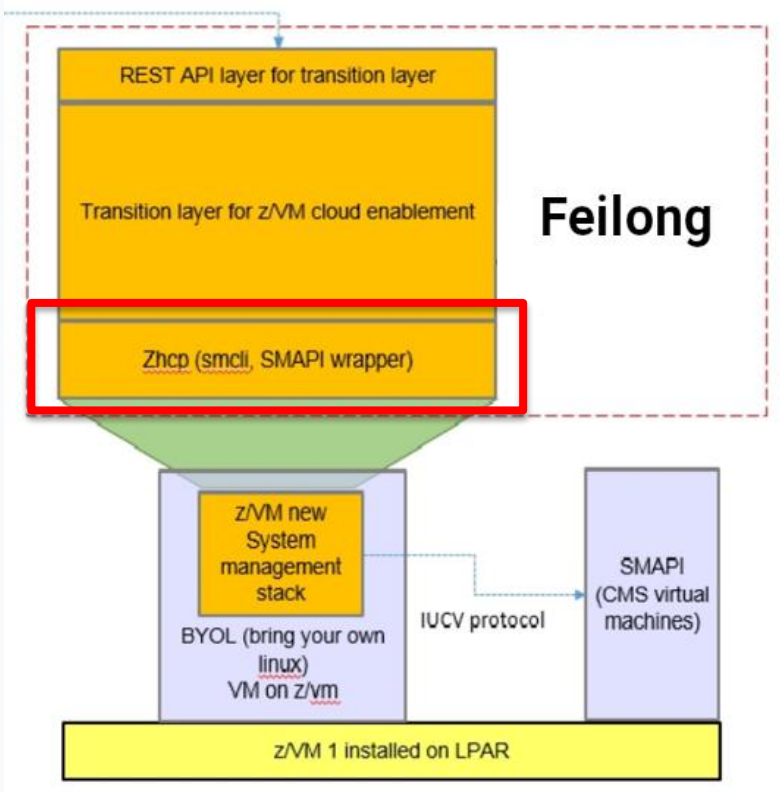
Transition layer

- Accept request from REST API layer
- Handle logic processing
  - Image
  - Vswitch
  - Host (z/VM)
  - Virtual machines
- Call SMAPI through zhcp layer



Zhcp layer

- Accept request from transition layer
- C based wrapper of SMAPI
- Handle requests like
  - Time out
  - Async ID
  - Error from SMAPI



DEMO

Using the RESTful API to interact with z/VM (6:08)

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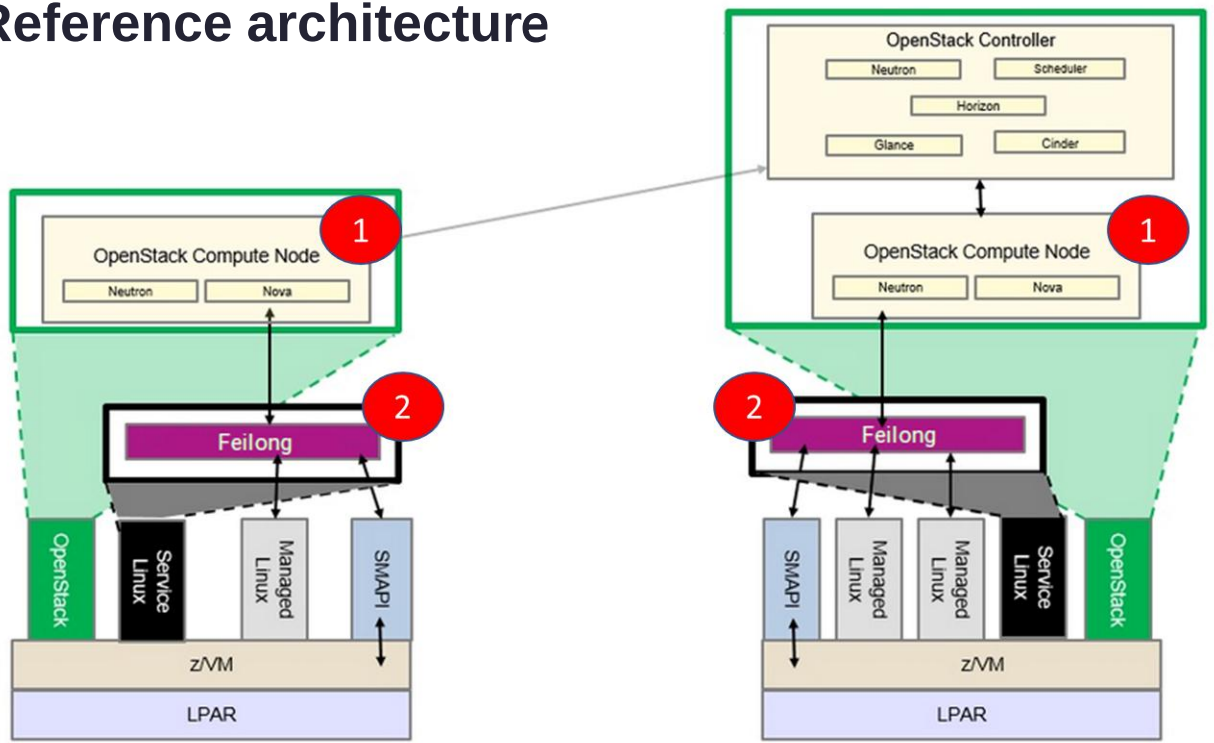
Reference architecture



1. Openstack (includes z/VM plugin)
2. Feilong

DEMO

IBM Cloud Infrastructure Center using Feilong to interact with z/VM (3:55)

What's next for the project

- Graduate from Incubation to Active status
- Project contributions
  - Update documentation
  - New feature testing
- Sponsor an OMP summer mentorship project related to Feilong
- Increase the Feilong membership and regularly scheduled project meeting attendance

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Thank you!