



# Alcor Open Source Meeting

Seattle Cloud Lab  
Liguang Xie  
May 20, 2020

FUTUREWEI INTERNAL

## 5/20 Community Update – New features after 3/30

- **New Microservices**

- Virtual Mac Manager (PR [#147](#))
- Subnet Manager (PR [#154](#))
- Port Manager (PR [#180](#))
- Private IP Manager (PR [#164](#))
- Node Metadata Manager (PR [#189](#))

## 5/20 Community Update – New APIs after 3/30

- L2 Networking
  - **Subnet APIs**
    - Subnet Manager and API integration (PR [#154](#))
    - Virtual Mac Manager (PR [#163](#))
    - Private IP Manager (PR [#164](#))
  - **Port APIs**
    - Port Manager and API integration (PR [#180](#))
    - Node Metadata Manager (PR [#189](#))
    - Data-plane manager (with OVS support, tracking PR [#182](#))
  - New segmentation APIs (PR [#181](#))
    - Support VNI allocation for VLAN, VxLan, GRE

## 5/20 Community Update – Other Completed Items

- Ignite usage
  - Database usage improvement (PR [#153](#))
  - Enable Ignite for all microservices (PR [#171](#), [#174](#)) – ahead of schedule!
- Code Refactor
  - VPC/Subnet/Mac manager code refactor (PR [#174](#), [#183](#), [#181](#))
- Fundamental and House Cleanup
  - UTs and CI/CD (PR [#158](#), [#173](#), [#179](#), [#186](#))
  - Retire legacy application (PR [#178](#))
  - Add common modules including AlcorLib, AlcorWeb, and AlcorSchema (PR [#178](#))
  - Service pom standardization and unused dependencies removal (PR [#198](#))
  - Swagger API document auto generation (PR [#184](#)) and Swagger UI (PR [#187](#))
- Documentation
  - **Alcor Agent**
    - With OVS (Issues [#97](#), [#98](#))
    - With DHCP (Issue [#96](#))
  - **Lots of documentation Update** (PR [#156](#))
    - More than 10+ design doc has been added/updated
    - Doc ToC: [https://github.com/futurewei-cloud/alcor/blob/master/docs/visionary\\_design/table\\_of\\_content.adoc](https://github.com/futurewei-cloud/alcor/blob/master/docs/visionary_design/table_of_content.adoc)

# Active Community Involvement

- 9 Active under review
- A lot of discussion and debate to ensure solid design and code quality

futurewei-cloud / alcor ✓

Unwatch Unstar 11 Fork

Code Issues 29 Pull requests 9 Actions Projects 1 Wiki Settings Releases 2 More

is:pr is:open sort:updated-desc Labels 22 Milestones 9 New pull request

Clear current search query, filters, and sorts

9 Open	133 Closed	Merged	Open all	Author	Label	Projects	Milestones	Reviews	Assignee	Sort
[Micro services] - MAC manager with updated UTs, exceptions & comments ✓	#206 opened 4 hours ago by kimeunju108 • Review required updated 4 hours ago	1								
[Micro-service] Fix issues in swagger test ✓	#195 opened 6 days ago by kevin-zhonghao • Review required updated 4 hours ago	4								
[Document] Some design thought of migration from Neutron ✗	#205 opened 10 hours ago by Eric-Yuan • Review required updated 10 hours ago									
[Document] Add nova call neutron apis and integration proposal ✓	#204 opened 2 days ago by Gzure • Changes requested updated 13 hours ago Version 0.6.2020.... documentation	1	6							
[Port Manager] Support bulk port creation and update and enable UTs ✓	#197 opened 6 days ago by chenpiaoping • 1 review approval updated 16 hours ago Version 0.5.2020.... Unit Test enhancement	1	39							
[Micro-service] Data-Plane Manager ✓	#182 opened 21 days ago by haboy52581 • Changes requested updated 2 days ago Version 0.4.2020.... Feature Unit Test documentation	1	62							
[Scheme Update] Scheme Support for OVS ✓	#193 opened 6 days ago by er1ctheOne • Review required updated 3 days ago Version 0.5.2020.... Schema	1	20							
[Node Manager] Junit test with MockIgniteServer ✓	#201 opened 4 days ago by kimeunju108 • 1 review approval updated 3 days ago Version 0.5.2020.... Unit Test	1	1							
Restii ✓	#177 opened 23 days ago by skdong • 1 review approval updated 13 days ago Version 0.4.2020.... Build-related enhancement	1	13							

# Active Community Involvement

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The screenshot shows a GitHub Pull Request (PR) #180 titled "[Microservice] Port Manager". The PR is in the "Merged" state, indicated by a purple "Merged" badge and a blue circle around the "Merged" text. The PR was created by chenpiaoping and merged by xieus 6 days ago. The PR description lists the following features:

- Basic operations such as get, create, update and delete of port.
- Rollback is supported when the operation of port failed.
- Add async executor to the lib/executor directory.
- Add microservice rest clients to the web/restclient directory.
- Move the entities of each microservice to the web/entity directory so that it can be used when communicating between microservices.

The PR has 120 conversations, 23 commits, 1 check, and 130 files changed. The right sidebar shows the PR's status, including reviewers (xieus, kevin-zhonghao, kimeunju108, haboy52581), assignees (chenpiaoping), labels (Feature, Unit Test), projects (Alcor), milestone (Version 0.4.2020....), linked issues ([Micro-service] Port Manager), and notifications.

The commit history shows the following actions:

- chenpiaoping changed the title **Port manager** [Micro-service] Port Manager 22 days ago
- xieus requested review from xieus, haboy52581, kimeunju108 and kevin-zhonghao 21 days ago
- xieus assigned chenpiaoping 21 days ago
- xieus added **Feature** **Unit Test** labels 21 days ago
- xieus added this to In progress in Alcor via automation 21 days ago
- xieus added this to the Version 0.4.2020.04.30 milestone 21 days ago
- xieus linked an issue that may be closed by this pull request 21 days ago

The PR is currently closed, as indicated by the "Closed" badge in the bottom right corner.

# Active Community Involvement

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- A lot of discussion and debate to ensure solid design and code quality

The screenshot displays a GitHub discussion thread for the issue "Verify VPC ID" (ID 105). The thread shows a conversation between community members xieus and chenpiaoping, discussing the verification of Subnet ID versus VPC ID. The discussion includes a link to the OpenStack API reference and a list of numbered cases for verification. The right sidebar provides project management details, including reviewers (xieus, kevin-zhonghao, kimeunju108, haboy52581), assignees (chenpiaoping), labels (Feature, Unit Test), projects (Alcor), milestones (Version 0.4.2020...), linked issues ([Micro-service] Port Manager), and notifications.

105 .....//Verify VPC ID

xieus 13 days ago Member  
We should verify Subnet ID, instead of Vpc Id here.

chenpiaoping 13 days ago Author Contributor  
@xieus But port may not have a Subnet ID. In this case, we need to find a suitable subnet for port, and assign an ip address to port from that subnet.

xieus 13 days ago Member  
Correct. We have multiple cases to cover, most of the cases would require to verify subnet ID.

[docs.openstack.org/api-ref/network/v2/?expanded=create-port-detail#ports](https://docs.openstack.org/api-ref/network/v2/?expanded=create-port-detail#ports)

(1) If a user specifies a subnet ID in the optional fixed\_ips field, then we have to verify that subnet ID  
(2) If the user doesn't give any fixed\_ips, we handle it as you suggested.

chenpiaoping 13 days ago Author Contributor  
@xieus For the first case, I think we need to get the range ID by Subnet ID (At this point, the Subnet ID will be verified), and then assign an ip address from the ip range. At present, Subnet manager have not provided an interface to obtain the Range ID by the Subnet ID. I discussed this with kevin, and he said he would think about it.

xieus 13 days ago Member  
I think we could make this verification simple by calling the regular Get /subnets/{subnet\_id} and the response includes the range ids. @kevin-zhonghao

[Load more...](#)

xieus 10 days ago Member  
One discipline is that we follow the same workflows for both case (1) and case (2).

You could either go to SubnetManager to verify subnetId or vpcId, retrieve the range id, and then go to IP manager,  
OR, build a mapping in IP manager from VpcId to rangeId as well as SubnetId to RangeId, and only need go to IP manager.

chenpiaoping 10 days ago Author Contributor  
Yes, for the case of going to SubnetManager to retrieve a range id, Since SubnetManager do not know whether there is an available ip address in the range, we may need to go to SubnetManager many times to obtain a available range.

chenpiaoping 9 days ago Author Contributor  
@xieus Ip manager provides an interface that randomly assigns ip addresses according to vpcId. Is this solution okay? I'm ready to develop.

**Reviewers**  
xieus ✓  
kevin-zhonghao  
kimeunju108  
haboy52581

**Assignees**  
chenpiaoping

**Labels**  
Feature  
Unit Test

**Projects**  
Alcor  
Done ▾

**Milestone**  
Version 0.4.2020....

**Linked issues**  
[Micro-service] Port Manager

**Notifications** Customize  
You're receiving notifications because you're watching this repository.  
Unsubscribe

2 participants  
chenpiaoping xieus

Lock conversation

# Alcor Slack Channel

- #alcor
- #alcor-agent
- #feature-request
- #issues
- #open-source-meeting

The screenshot displays the Slack interface for the #alcor channel. On the left sidebar, the channel list includes #alcor, #alcor-agent, #feature-request, #issues, and #open-source-meeting. The main area shows a thread of messages related to GitHub pull requests and documentation updates. The messages are from users like chenpiaoping, xieus, and Liguang Xie, discussing topics such as migration plans, data-plane managers, and deployment scripts. The interface includes a search bar at the top, a message input field at the bottom, and a list of replies for each message.



# Alcor 6/30 Planning

- Alcor 6/30 Planning
  - New Microservices
    - Infra services including data-plane manager
    - Management services including **security group manager, public IP manager,** and many more....
  - APIs - L3 Networking and Security
    - Floating Ips
    - Security Groups
    - Firewall
  - **Agent Development**
    - OVS: Support programming of router, security group and network ACL
  - Performance testing and compare with Neutron
  - Integration with Nova and Horizon
- **Call for continuous support from the Alcor community!**

Resource Management Service

Infrastructure Service

Message Queue & Delivery

Host Control Agent

# Thank You.

Design docs are available [here](#)

Questions later?

Feel free to send email to [lxie@futurewei.com](mailto:lxie@futurewei.com) or  
raise questions on [Alcor Slack Channel](#)

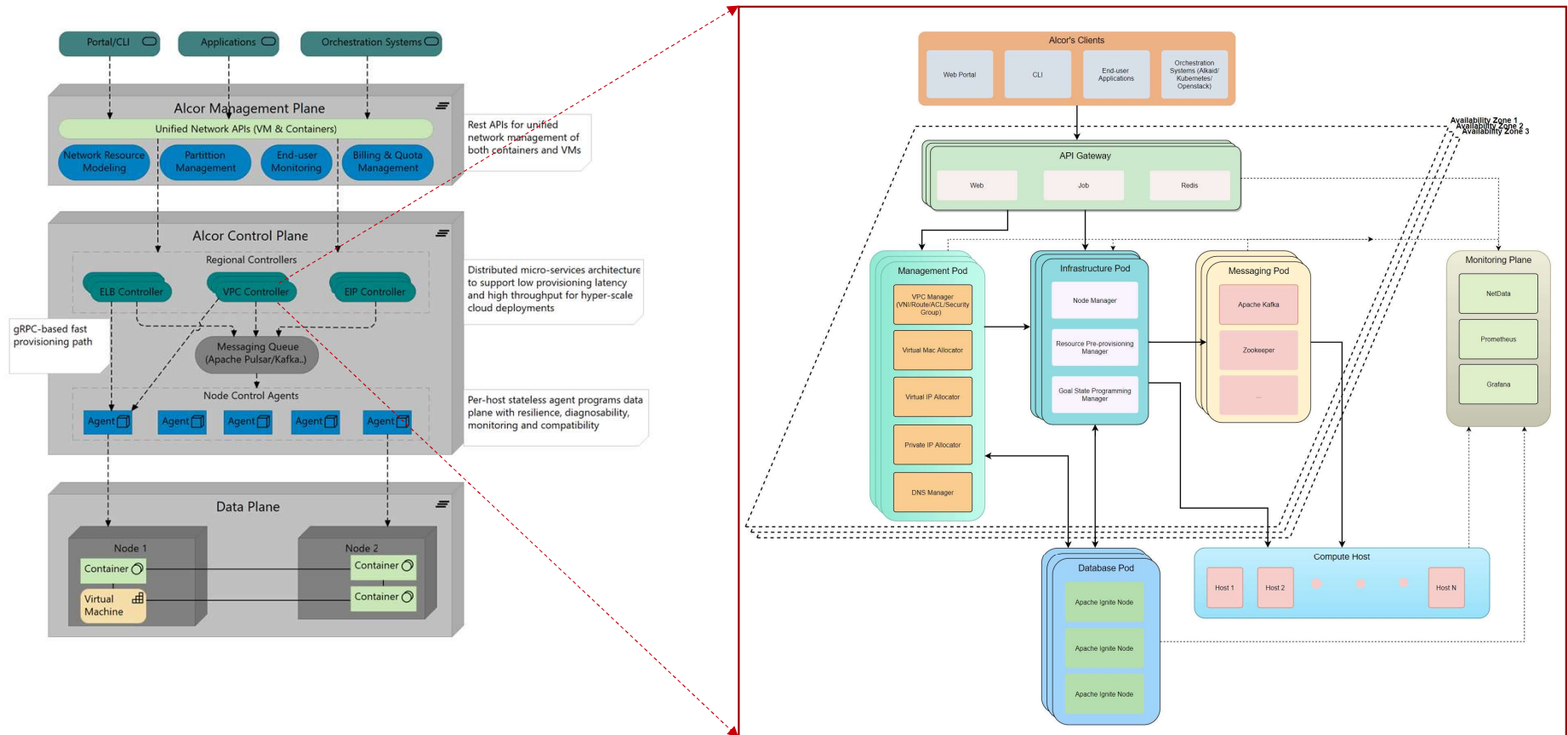
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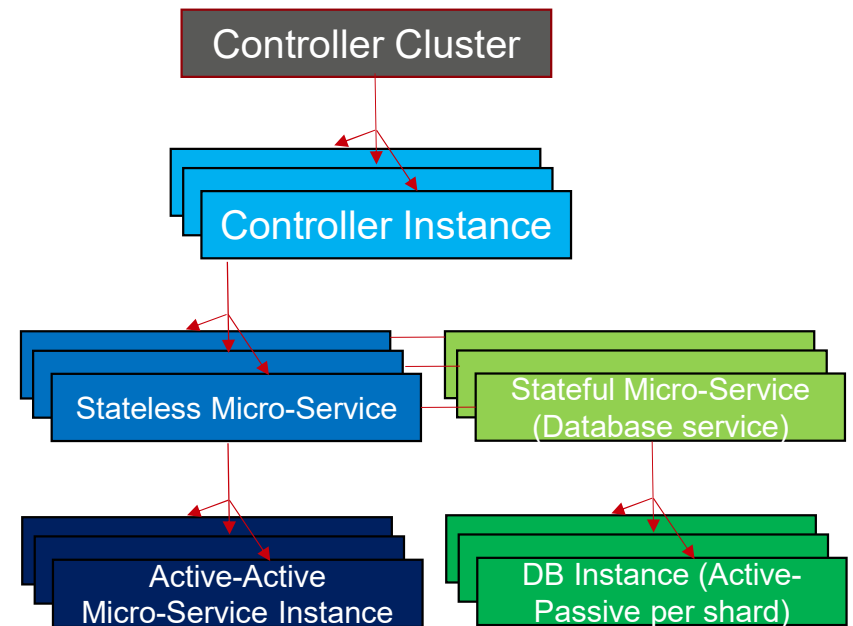
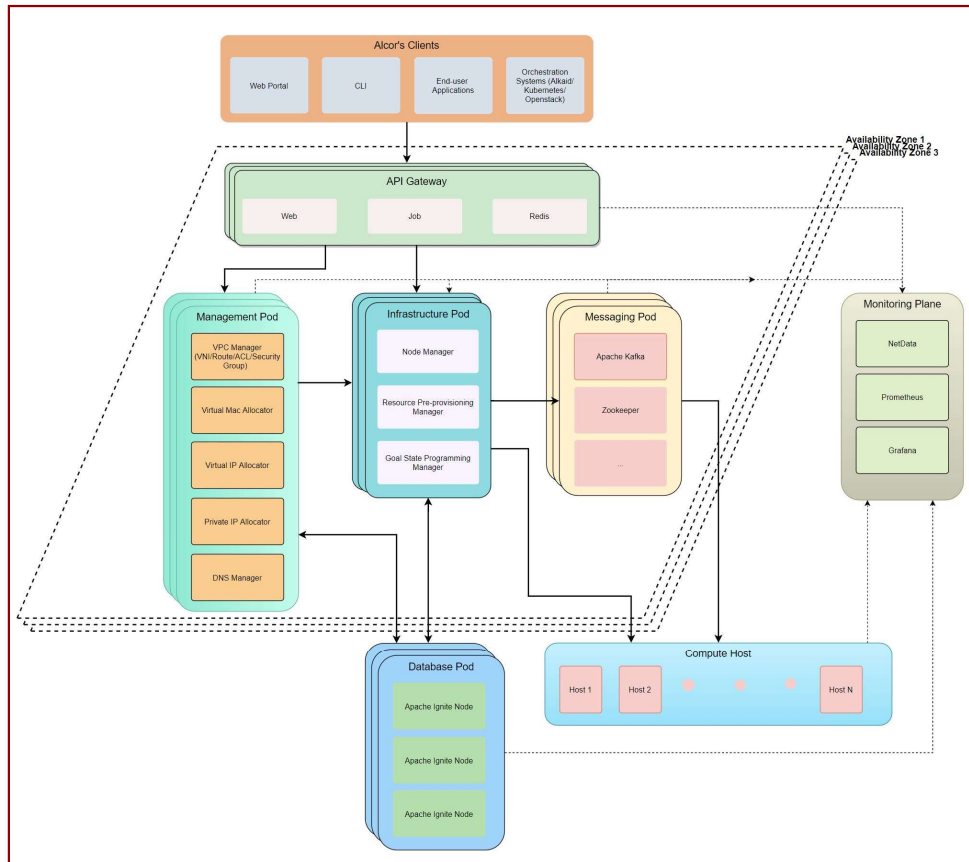


# Backup

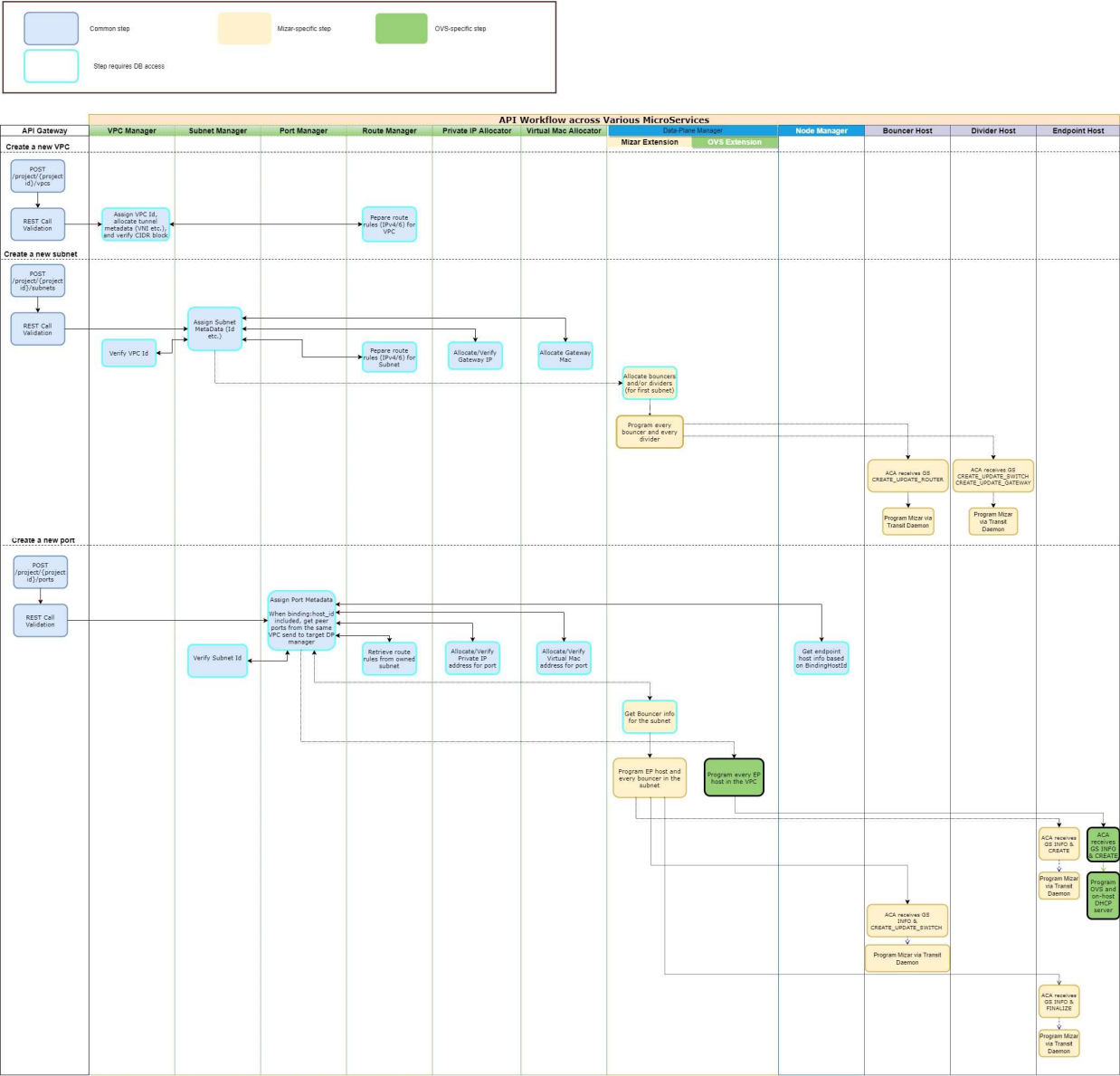
# Inside Alcor



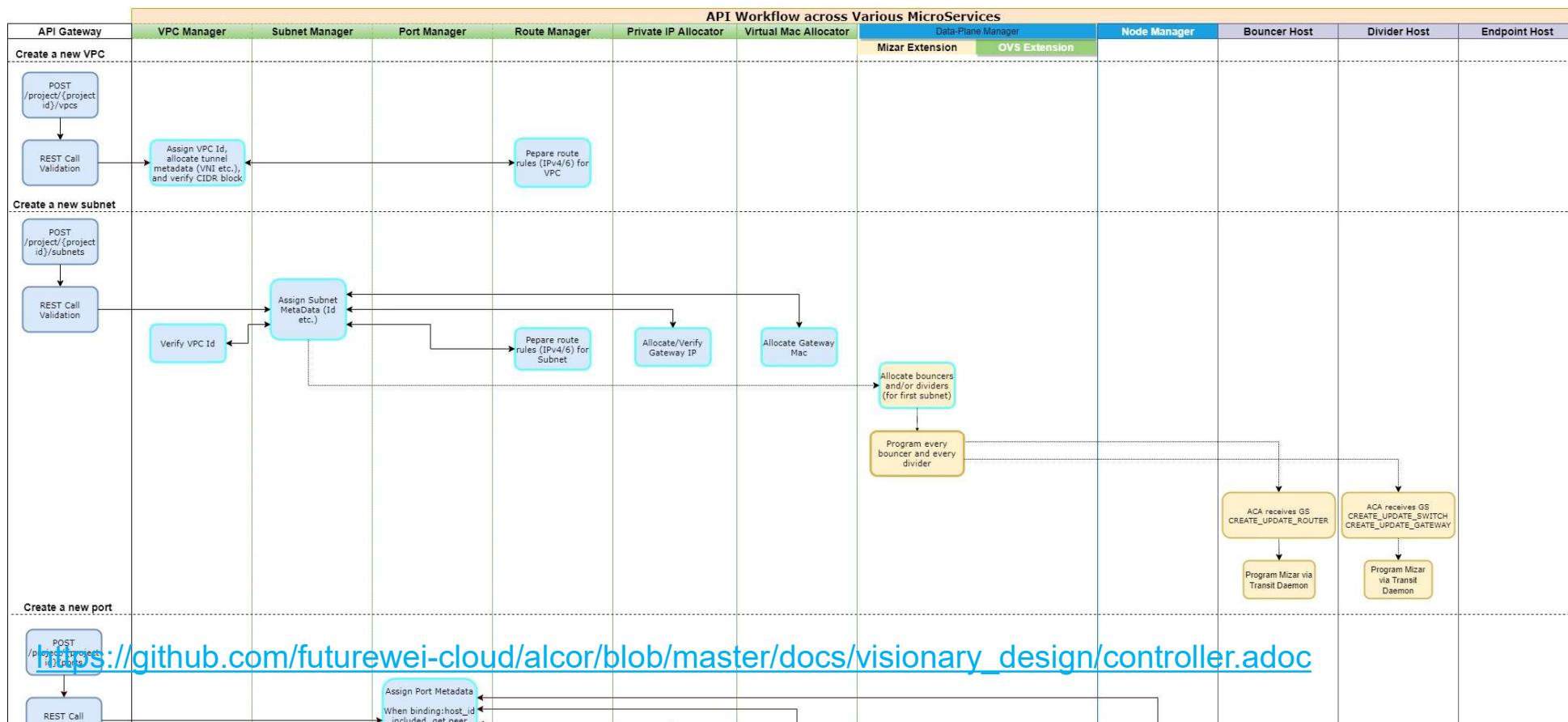
# Alcor System Model



# Alcor API Workflow



# Alcor API Workflow



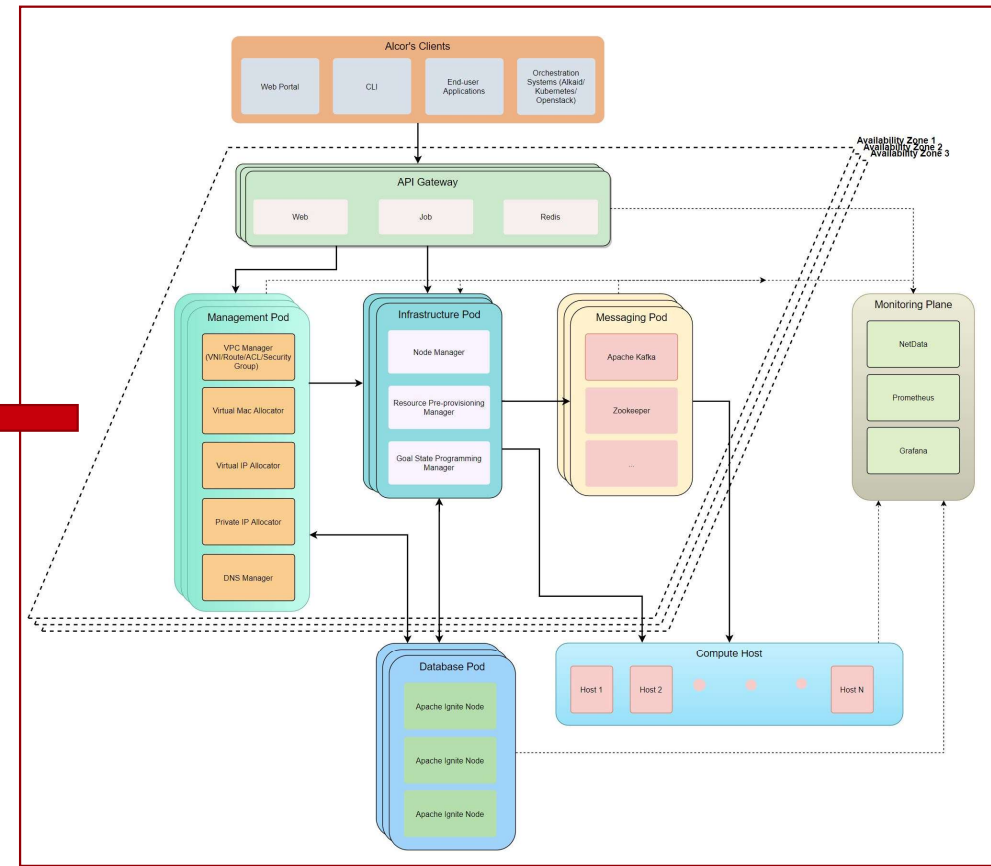
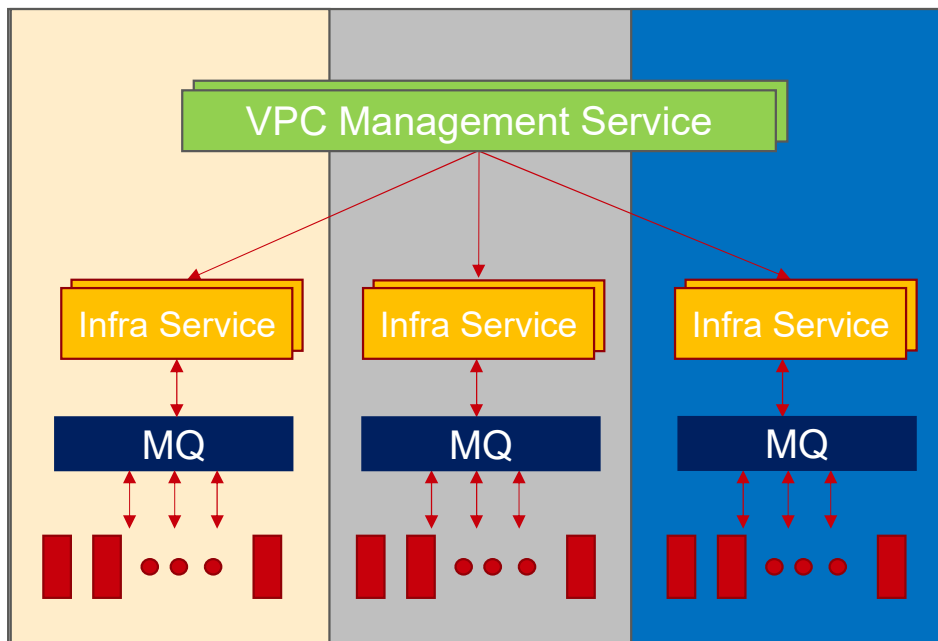
# Alcor Event Ordering Handling

Concurrent Event Types	Example	Approach
Operation on decoupled resources	CURD of resources under two different/unpeered VPCs	Free to update simultaneously
Operation on loosely relevant resources	Add one port, and delete the other in the same subnet	<ul style="list-style-type: none"><li>• No conflict on resource management</li><li>• Network conf programming: Network conf versioning + version-awareness at ACA</li></ul>
Operation on directly coupled resources	Delete a VPC and create a subnet for an empty VPC	<ul style="list-style-type: none"><li>• Timestamp issues at API gateway</li><li>• Check associated resource status</li><li>• DB cleanup for unstaged transactions</li></ul>
Operation on the same resource	Update operation and delete operation on the same port	<ul style="list-style-type: none"><li>• Customer experience: may have different experience if executed in different order</li><li>• Resource management: no conflict (using DB concurrency + timestamp versioning)</li><li>• Network configuration programming: no conflict</li></ul>

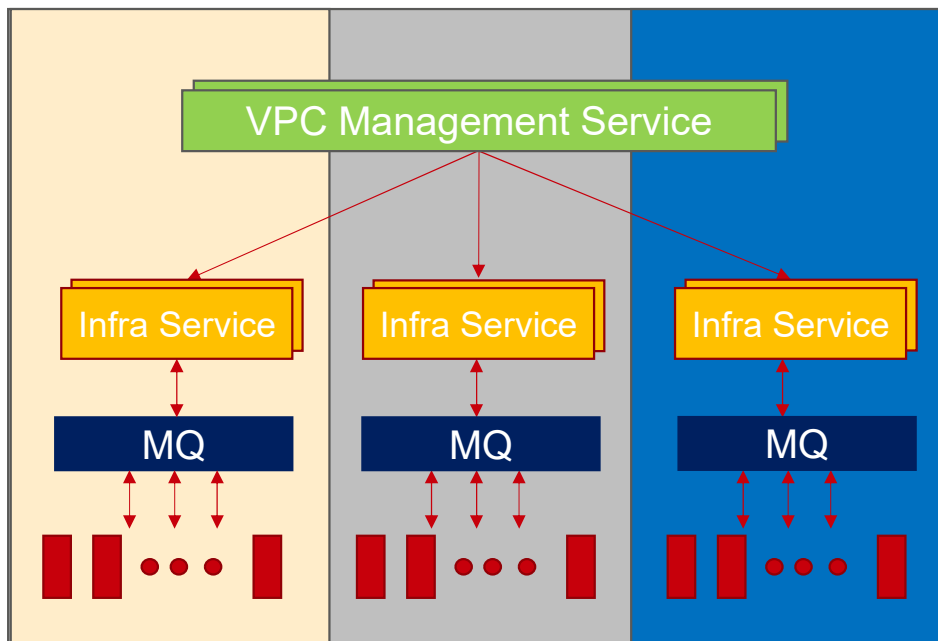
[https://github.com/futurewei-cloud/alcor/blob/master/docs/visionary\\_design/controller.adoc](https://github.com/futurewei-cloud/alcor/blob/master/docs/visionary_design/controller.adoc)



# Infrastructure Services Scale-out



## Infrastructure Services Scale-out (cont'd)



- Infrastructure Services

- Decoupled from Management Services
- Could be reused by multiple types of management services
- Partitioned by physical topology of data center (e.g. AZ, DC, cluster)
- Topics:
  - MQ deployment (per region, per AZ, per DC?)
  - MQ topic grouping
  - MQ partitioning