



MIRANTIS

OpenStack Architecture Recap

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Example Request Flow

Provision a VM

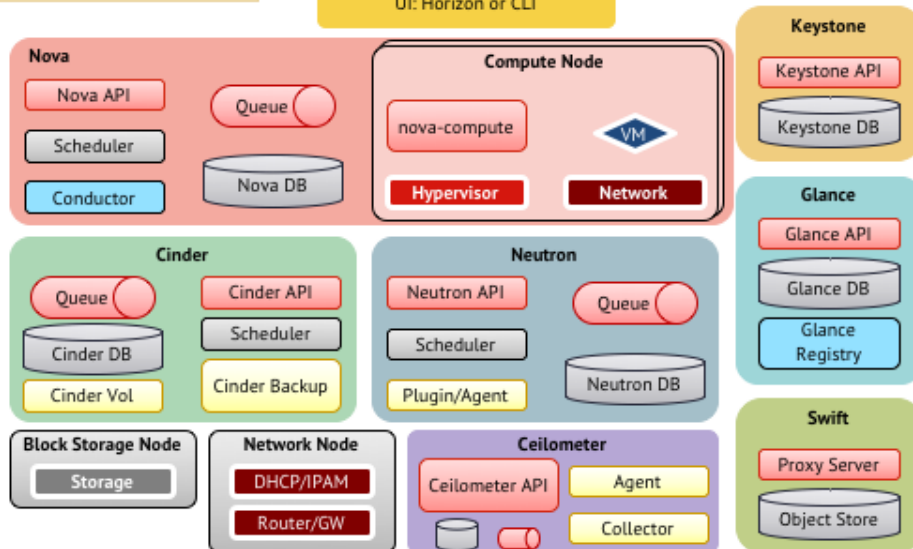
Initial State

Assumes Project is created, provisioning quota is available, user has an access to Horizon/CLI



Cloud Operator, DevOps, etc.

UI: Horizon or CLI



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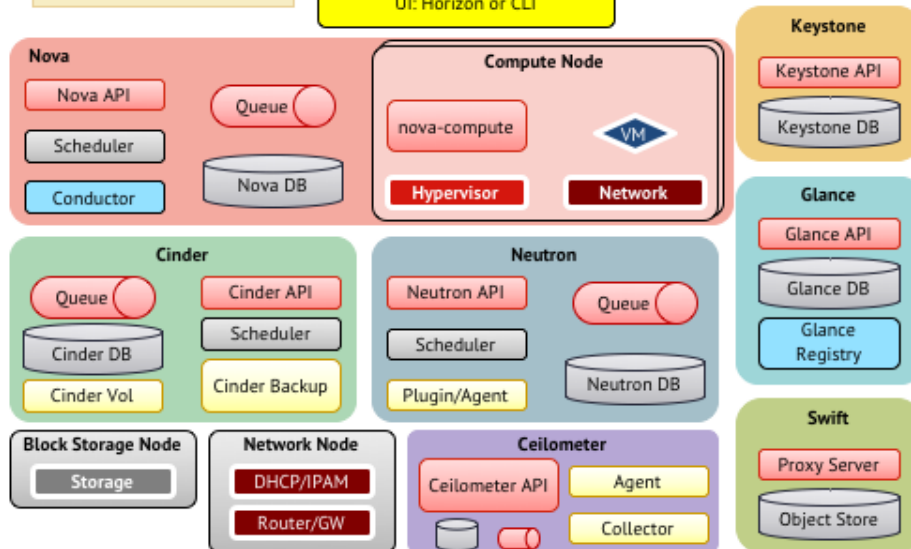
Step 1: Request VM Provisioning via UI/CLI

User logs in to UI
Specifies VM params: name, flavor,
keys, etc. and hits "Launch" button



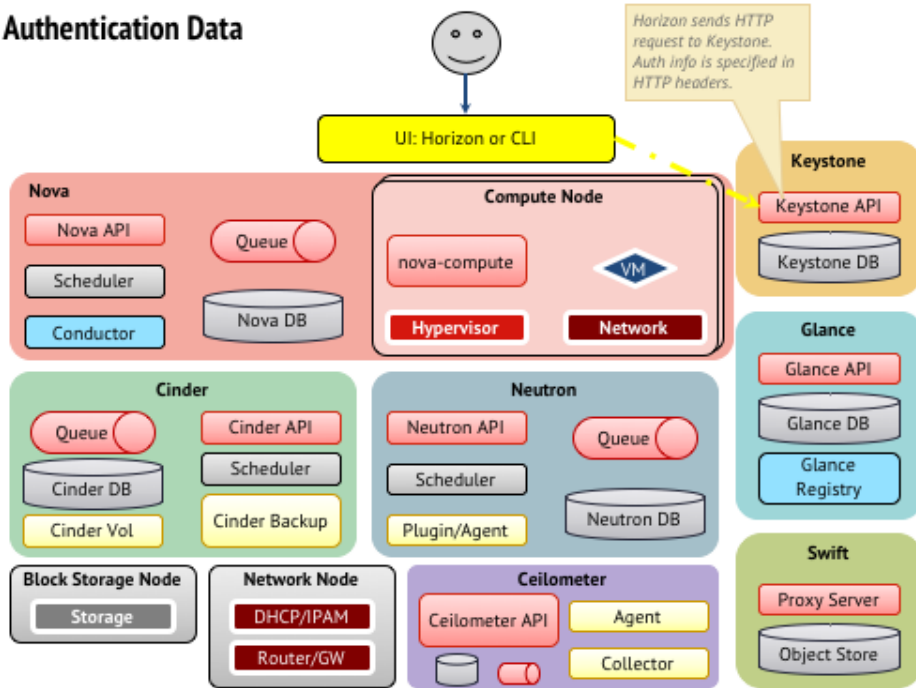
Cloud Operator, DevOps, etc.

UI: Horizon or CLI



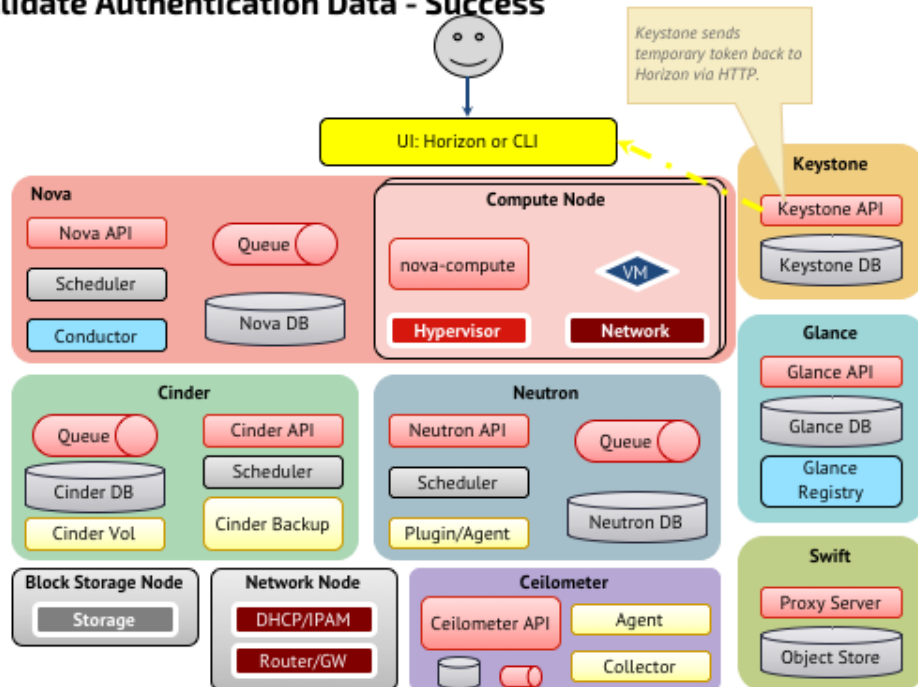
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Step 2: Validate Authentication Data



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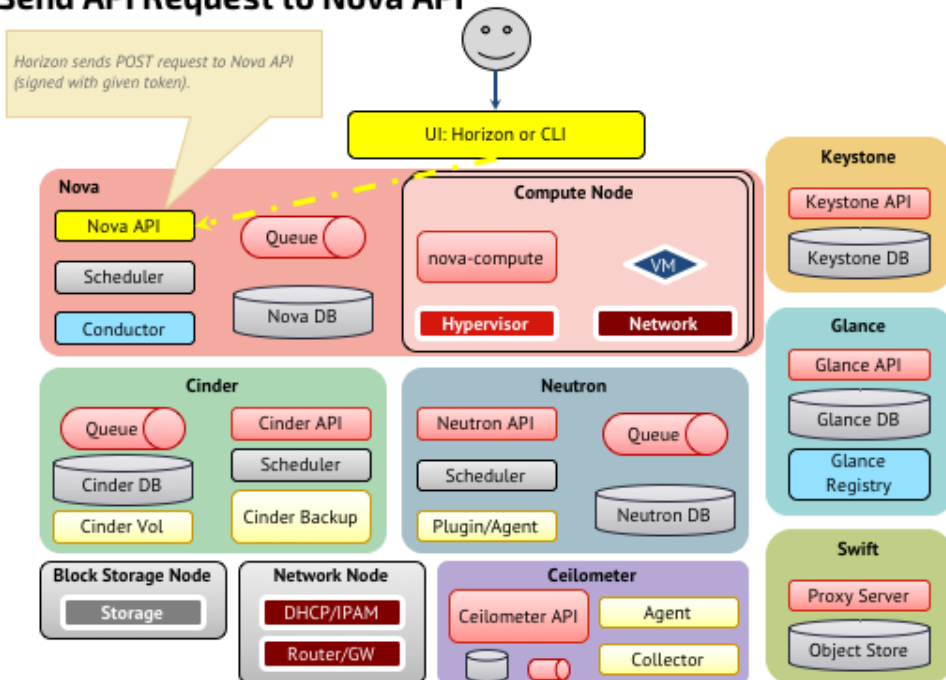
Step 2: Validate Authentication Data - Success



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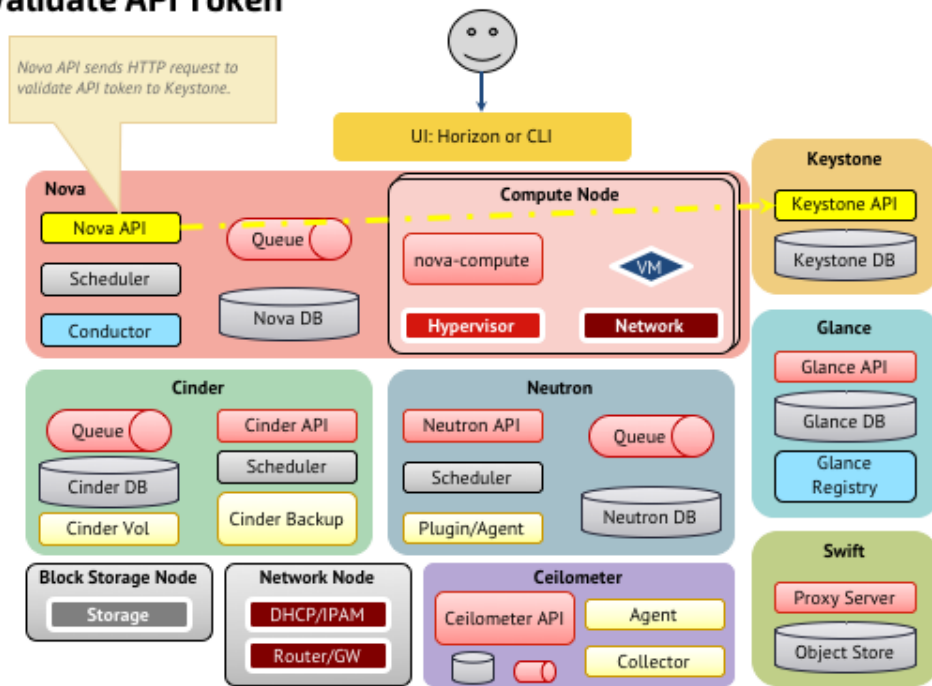
Token is used to make all other requests in the flow

Step 3: Send API Request to Nova API



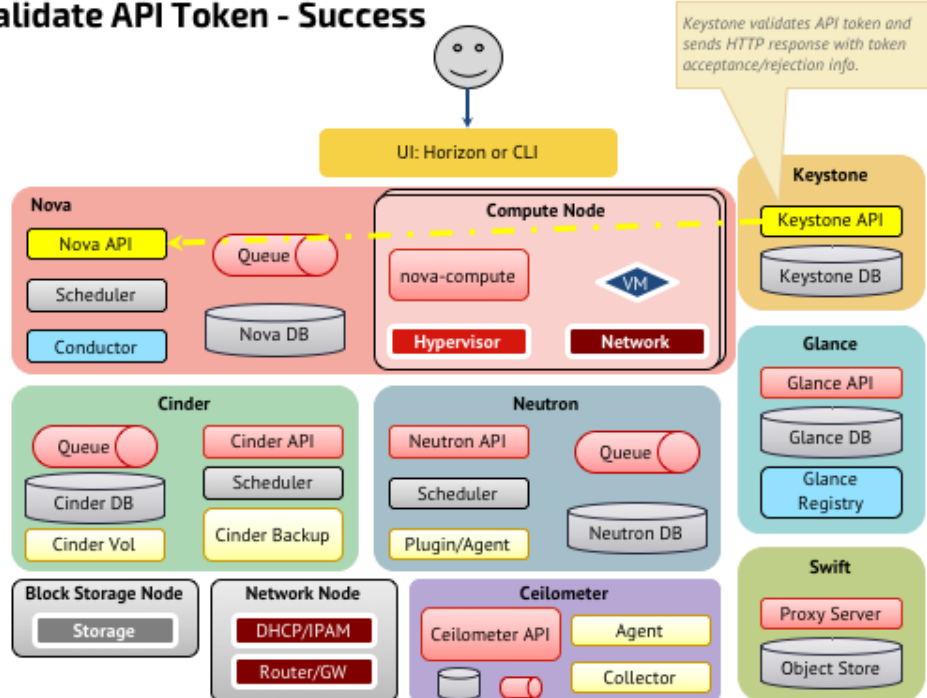
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Step 4: Validate API Token



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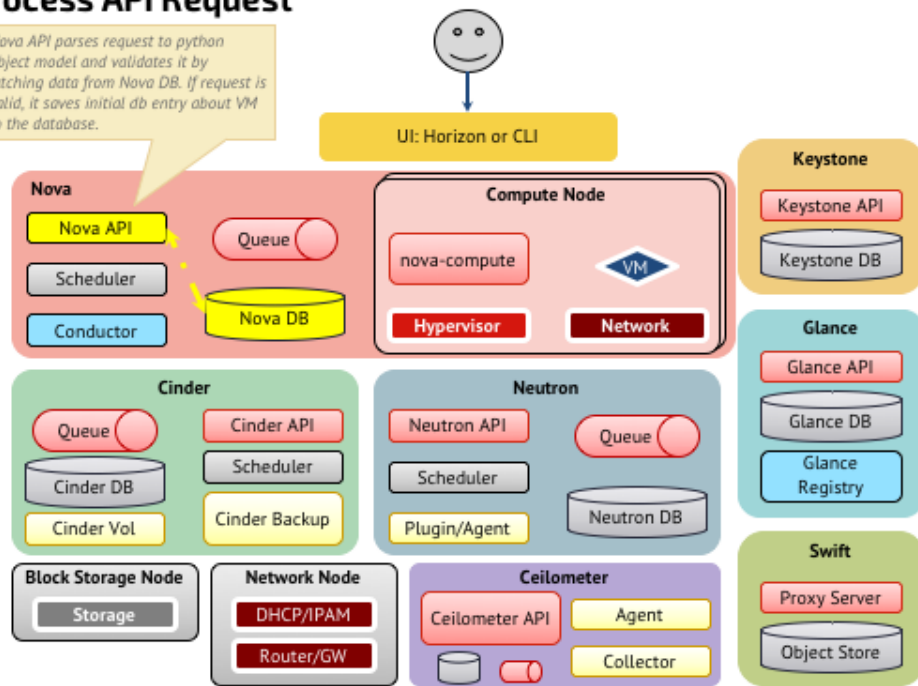
Step 4: Validate API Token - Success



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Step 5: Process API Request

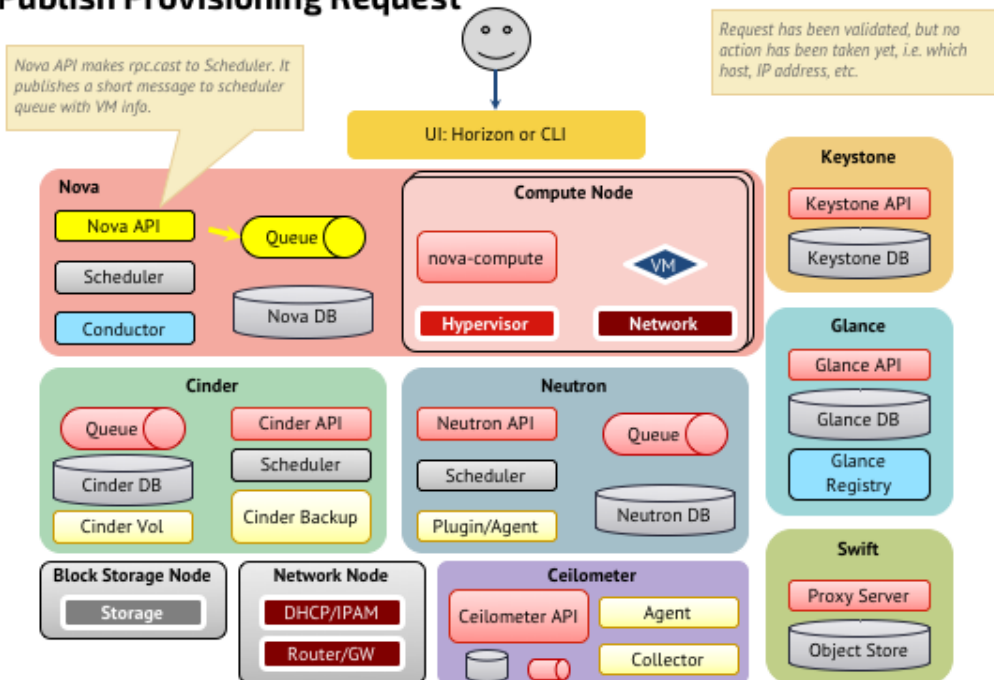
Nova API parses request to python object model and validates it by fetching data from Nova DB. If request is valid, it saves initial db entry about VM to the database.



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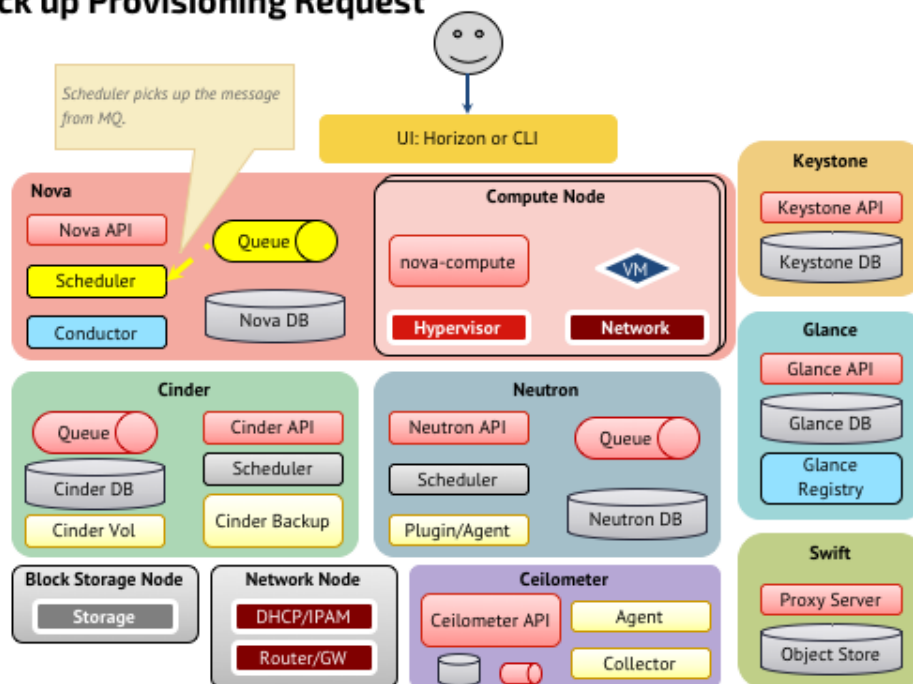
Here we draw the example of the table with initial values vs empty values

Step 6: Publish Provisioning Request



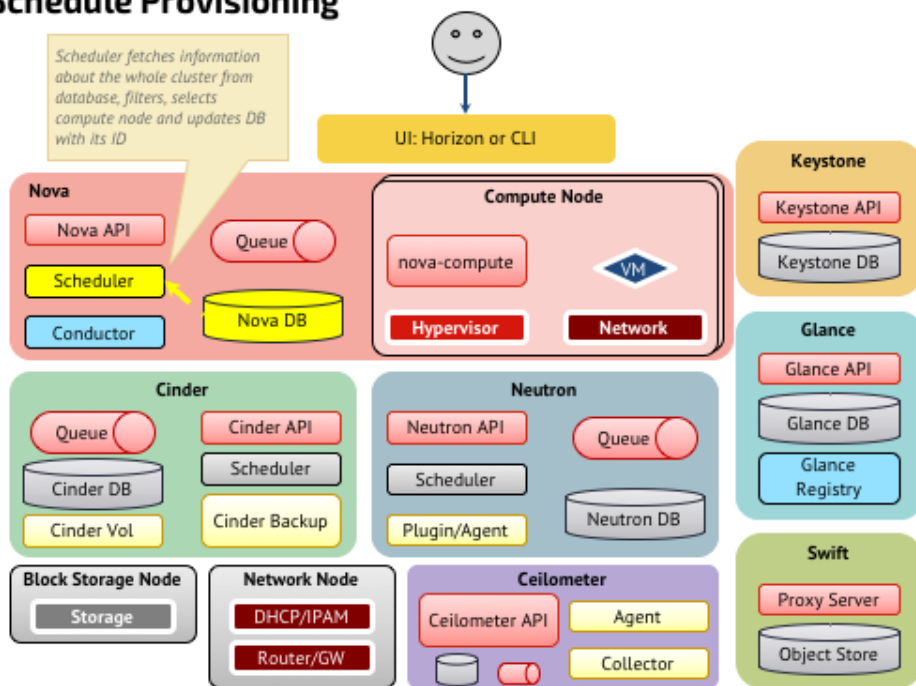
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Step 7: Pick up Provisioning Request



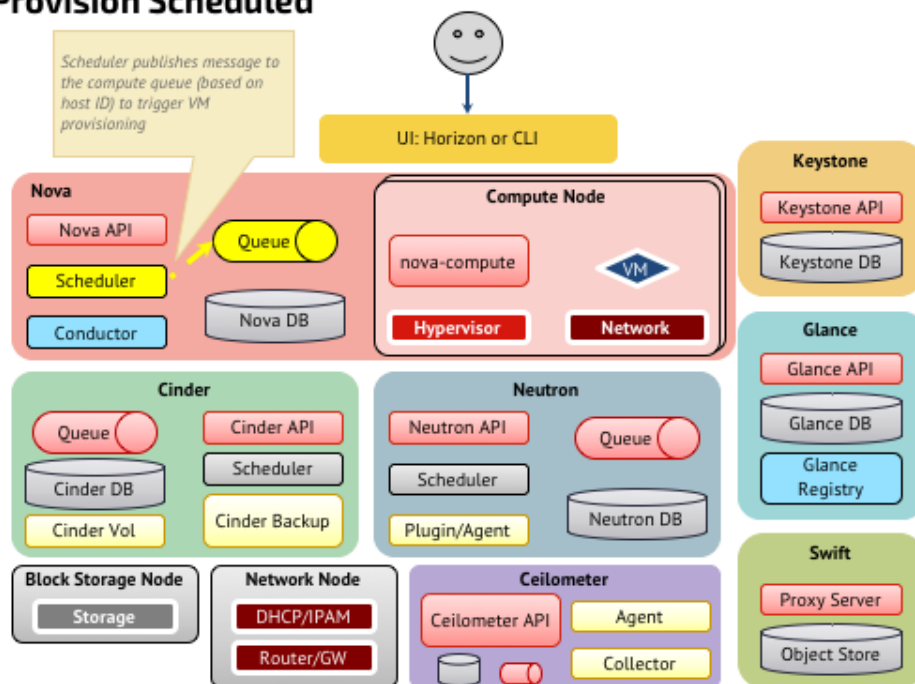
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Step 8a: Schedule Provisioning



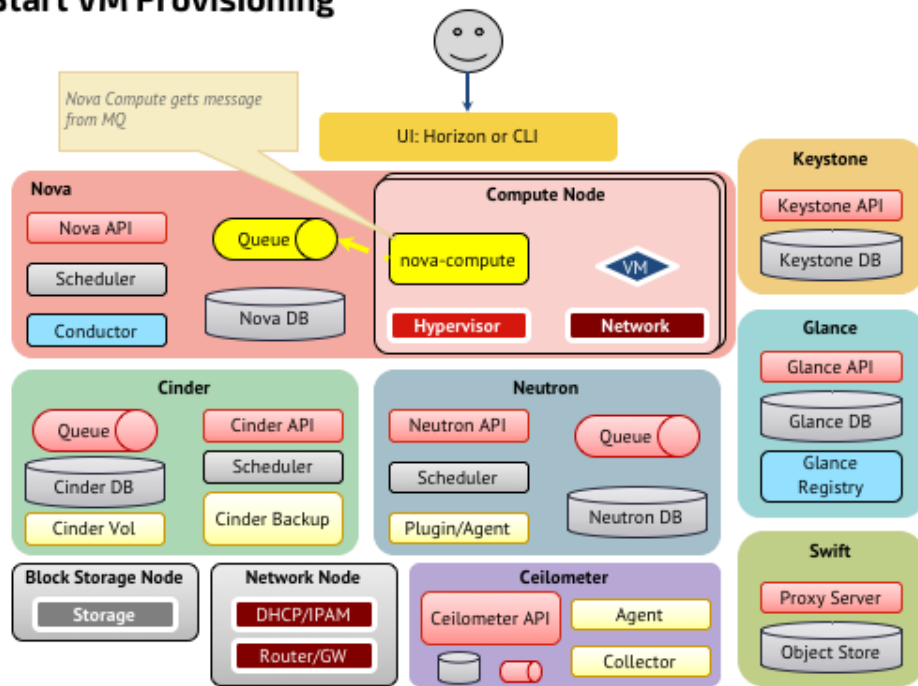
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Step 8b: Provision Scheduled

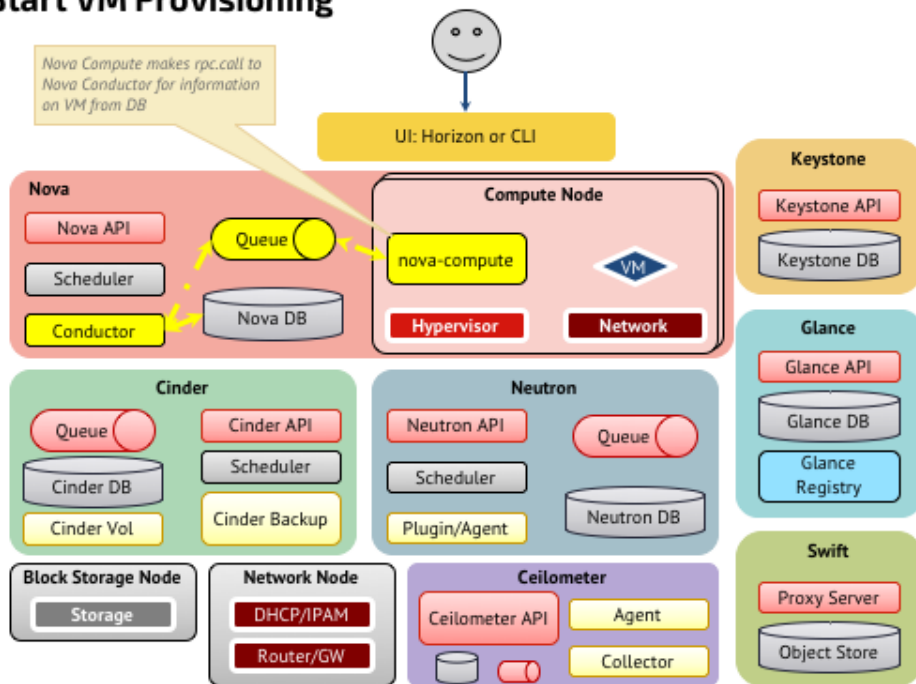


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Step 9a: Start VM Provisioning

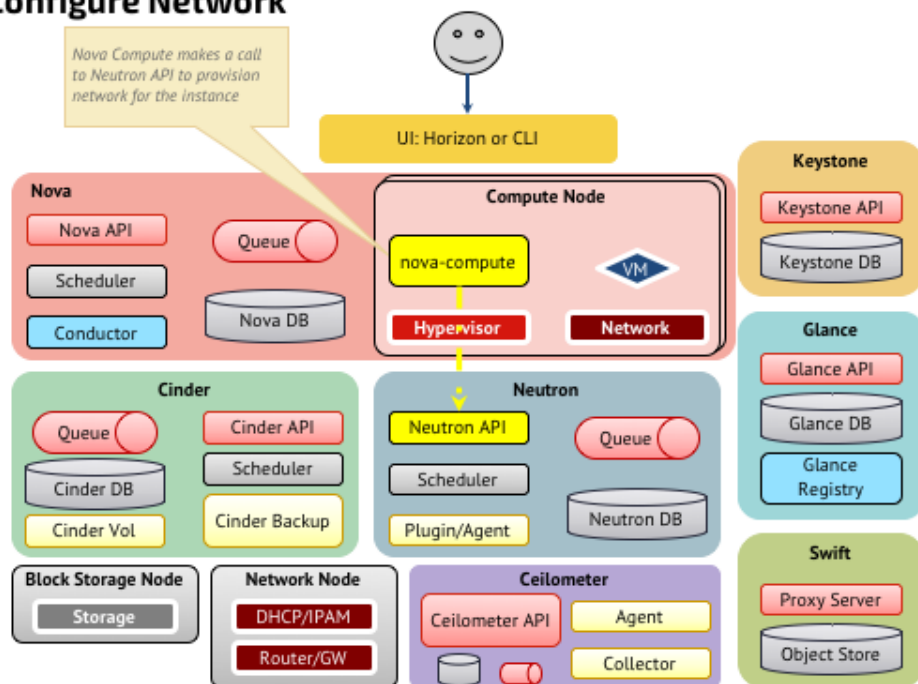


Step 9b: Start VM Provisioning



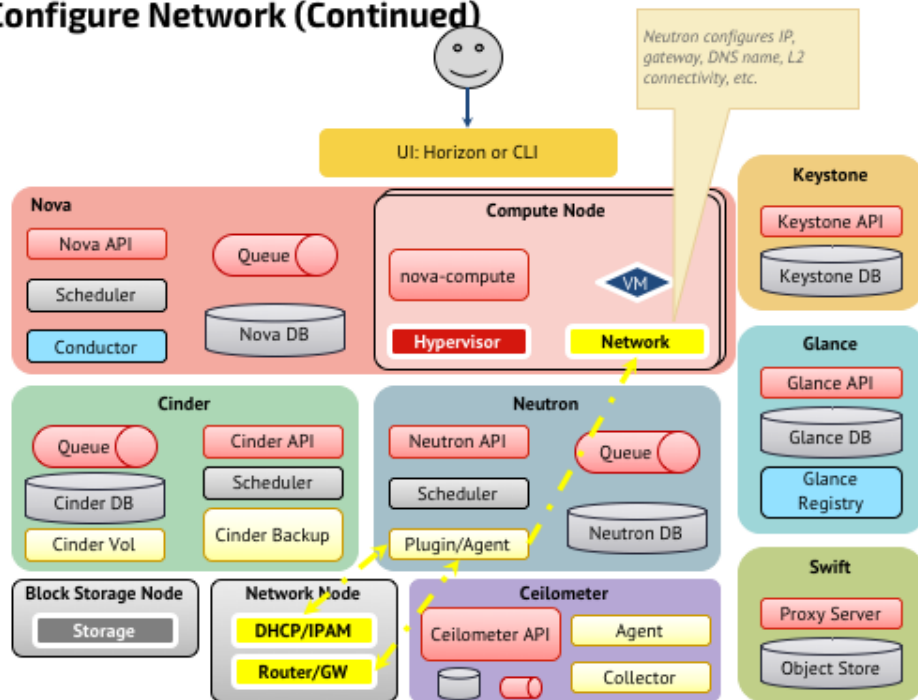
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Step 10: Configure Network



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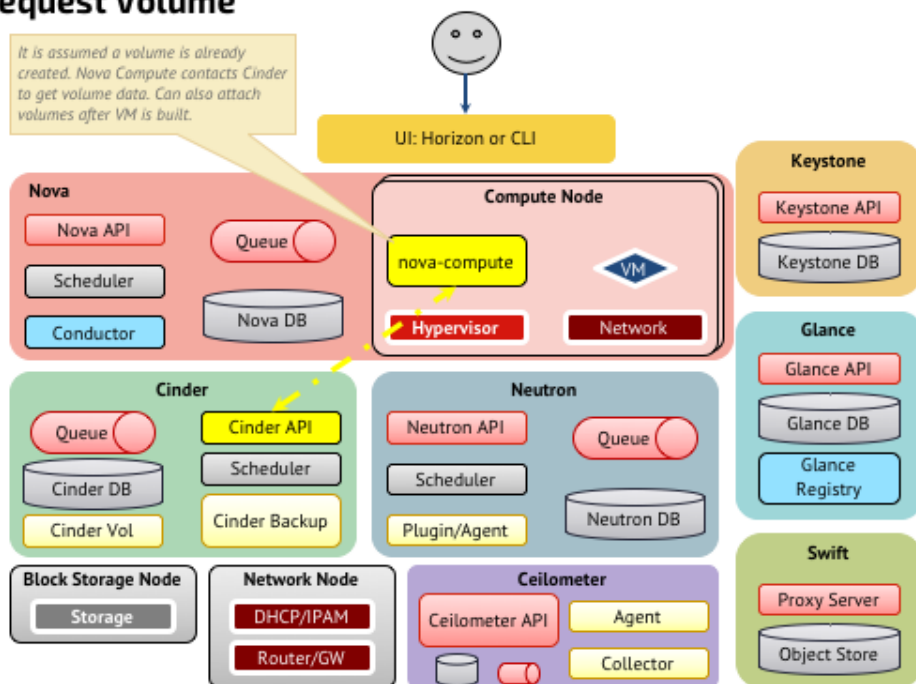
Step 10: Configure Network (Continued)



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Step 11: Request Volume

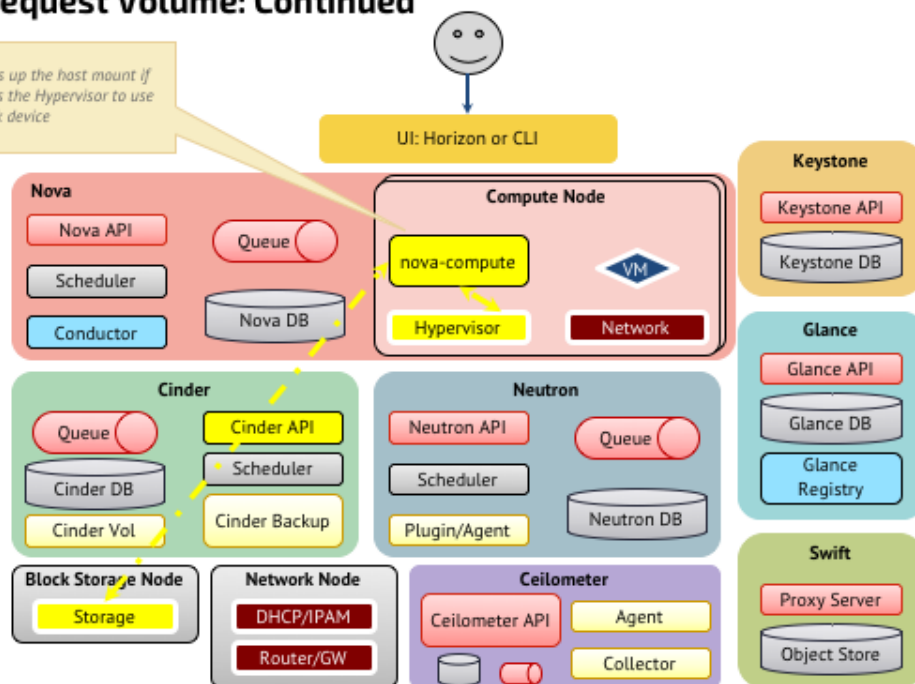
It is assumed a volume is already created. Nova Compute contacts Cinder to get volume data. Can also attach volumes after VM is built.



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Step 11: Request Volume: Continued

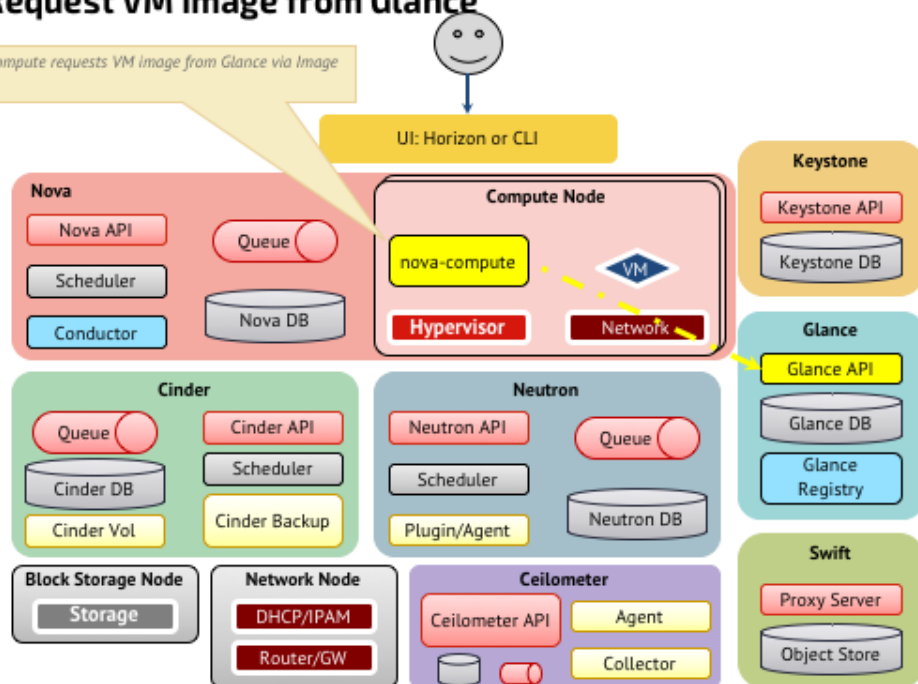
Nova Compute sets up the host mount if needed & instructs the Hypervisor to use vol. as a new block device



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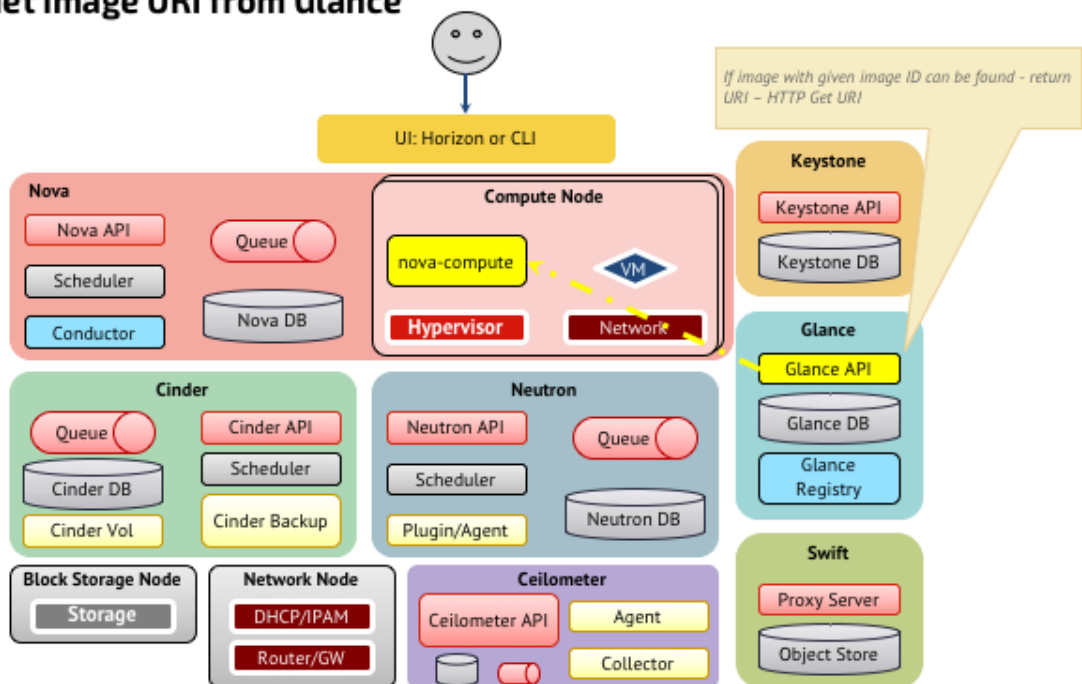
Step 12: Request VM Image from Glance

Nova Compute requests VM image from Glance via Image ID

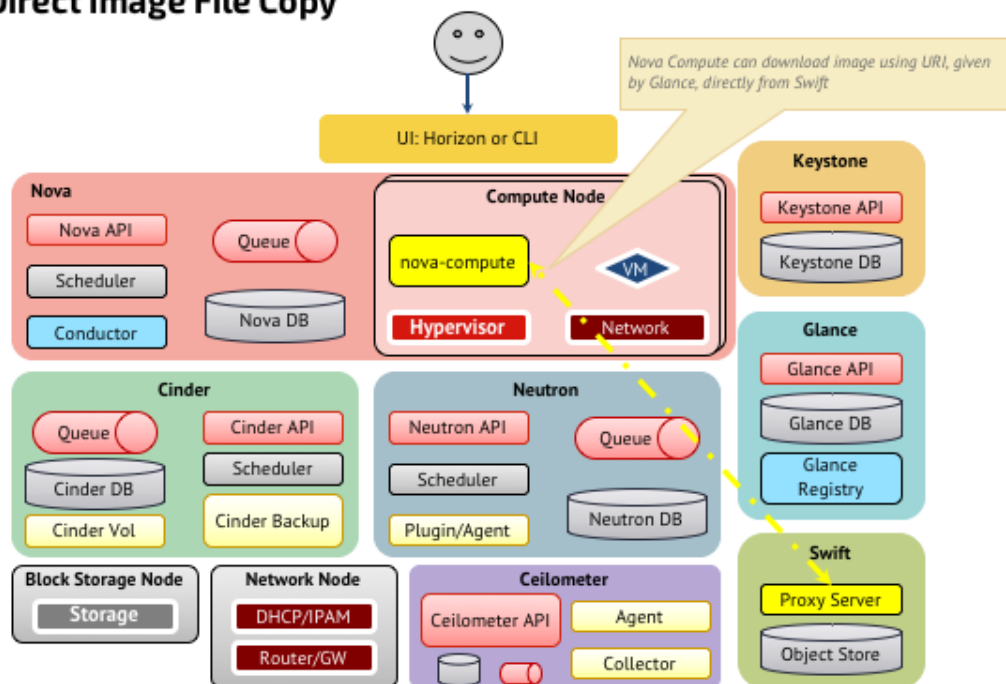


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Step 13: Get Image URI from Glance

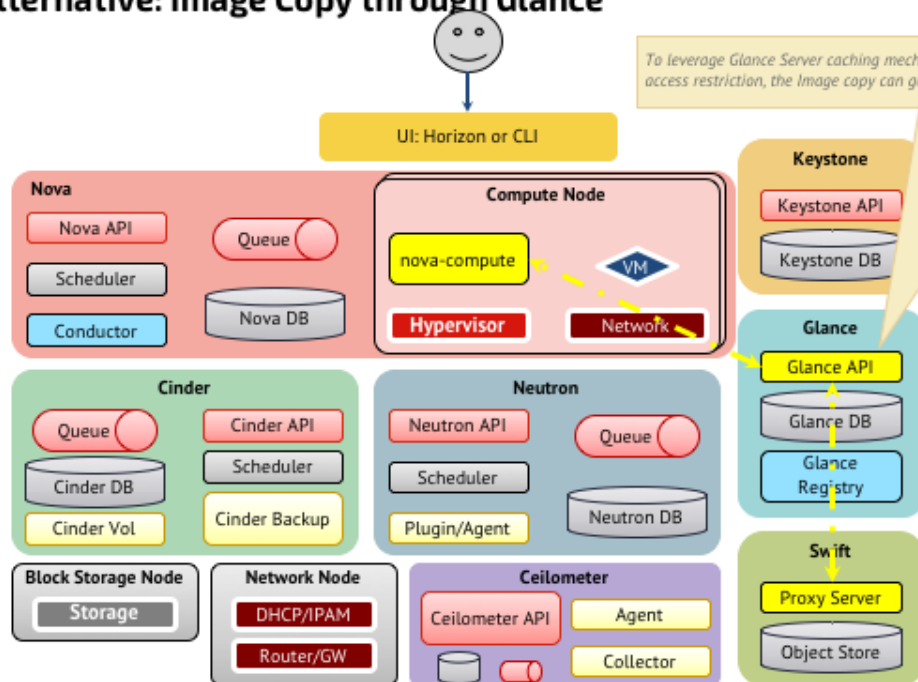


Step 14: Direct Image File Copy



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Step 14 alternative: Image Copy through Glance



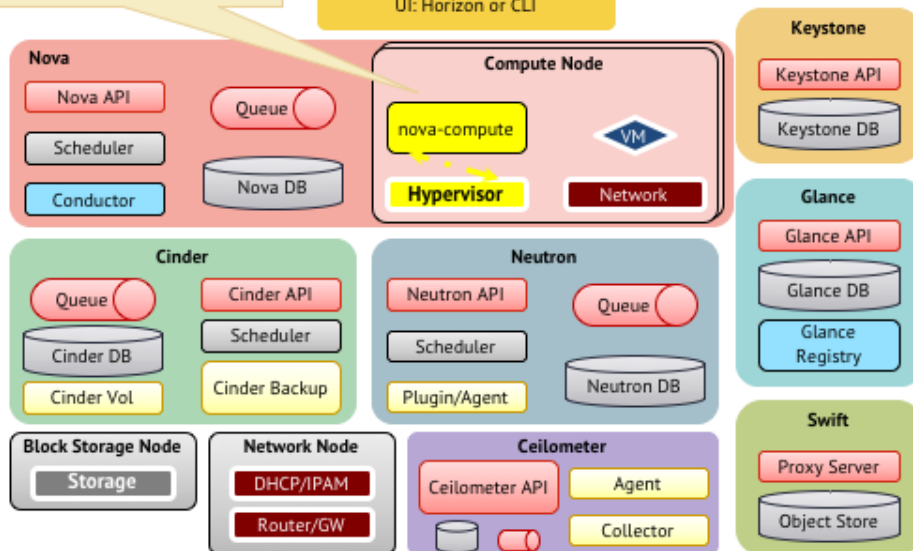
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Step 15: Start VM Rendering via Hypervisor

Nova Compute creates a command to Hypervisor and delegates VM rendering to Hypervisor.

UI: Horizon or CLI

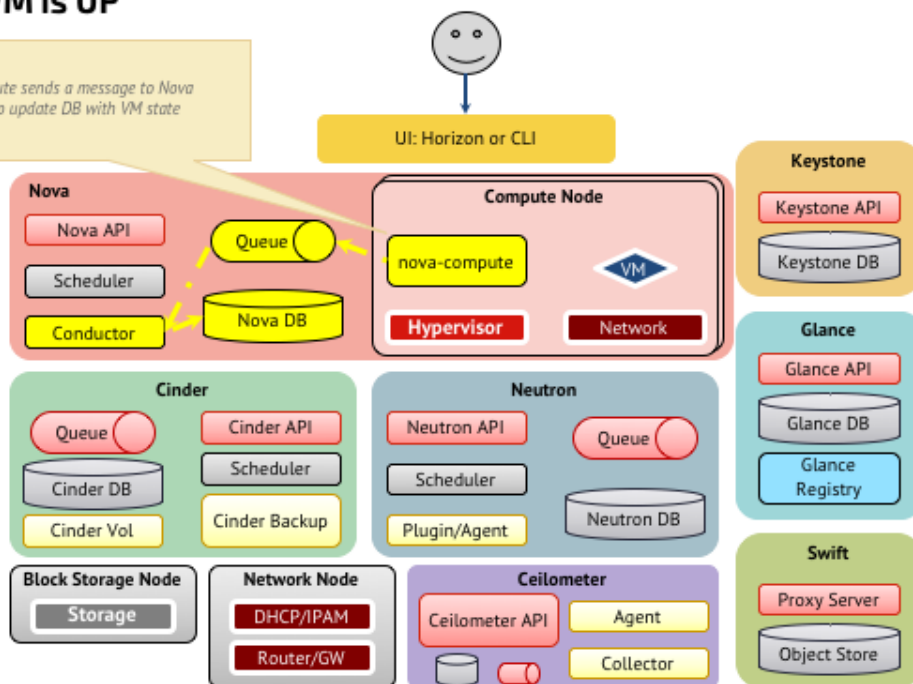
In case of KVM / libvirt this is a single XML VM config file



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Step 16: VM is UP

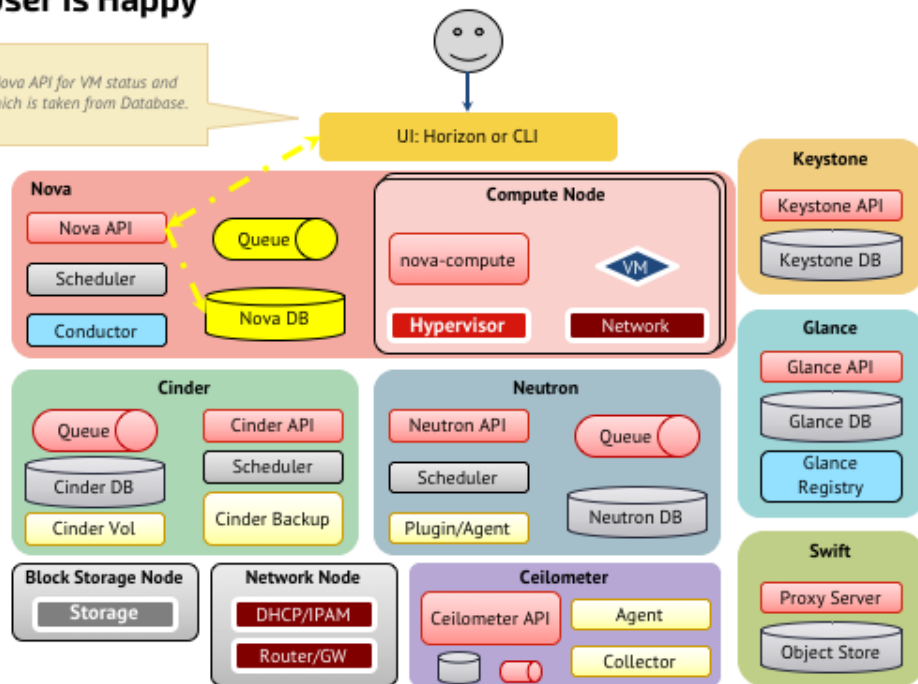
Nova Compute sends a message to Nova Conductor to update DB with VM state



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Step 17: User is Happy

Horizon polls Nova API for VM status and power state, which is taken from Database.



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