Bare Metal service overview

« (index.html) » (install.html) (https://bugs.launchpad.net/ironic/+filebug?field.title=Bare%20Metal%20service%20overview%20in%20Installation%20Guide%20for%20Bare%20Metal%20Service&field.comment=%0A%0A----------%0ARelease:%200.1%20on%202016-11-09%2020:35%0ASHA:%20e3bedc4eadbafbf11c1e26a216e9d40a1839a838%0ASource:%20http://git.openstack.org/cgit/openstack/ironic/tree/install-guide/source/get_started.rst%0AURL: http://docs.openstack.org/project-install-guide/baremetal/draft/get_started.html&field.tags=install-guide)

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The Bare Metal service is a collection of components that provides support to manage and provision physical machines.

Also known as the `ironic` project, the Bare Metal service may, depending upon configuration, interact with several other OpenStack services. This includes:

- the OpenStack Telemetry module (`ceilometer`) for consuming the IPMI metrics
- the OpenStack Identity service (`keystone`) for request authentication and to locate other OpenStack services
- the OpenStack Image service (`glance`) from which to retrieve images and image meta-data
- the OpenStack Networking service (`neutron`) for DHCP and network configuration
- the OpenStack Compute service (`nova`) works with the Bare Metal service and acts as a user-facing API for instance management, while the Bare Metal service provides the admin/operator API for hardware management. The OpenStack Compute service also provides scheduling facilities (matching flavors <-> images <-> hardware), tenant quotas, IP assignment, and other services which the Bare Metal service does not, in and of itself, provide.
- the OpenStack Object Storage (`swift`) provides temporary storage for the configdrive, user images, deployment logs and inspection data.

The Bare Metal service includes the following components:

ironic-api
A RESTful API that processes application requests by sending them to the ironic-conductor over remote procedure call (RPC) (https://en.wikipedia.org/wiki/Remote_procedure_call).

ironic-conductor
Adds/edits/deletes nodes; powers on/off nodes with ipmi or ssh; provisions/deploys/cleans bare metal nodes.

ironic-python-agent
A python service which is run in a temporary ramdisk to provide ironic-conductor and ironic-inspector services with remote access, in-band hardware control, and hardware introspection.

Additionally, the Bare Metal service has certain external dependencies, which are very similar to other OpenStack services:

- A database to store hardware information and state. You can set the database back-end type and location. A simple approach is to use the same database back end as the Compute service. Another approach is to use a separate database back-end to further isolate bare metal resources (and associated metadata) from users.
- An oslo.messaging compatible queue, such as RabbitMQ. It may use the same implementation as that of the Compute service, but that is not a requirement.

Optionally, one may wish to utilize the following associated projects for additional functionality:

python-ironicclient (http://docs.openstack.org/developer/python-ironicclient/)
A command-line interface (CLI) and python bindings for interacting with the Bare Metal service.

ironic-inspector (http://docs.openstack.org/developer/ironic-inspector/)
An associated service which performs in-band hardware introspection by PXE booting unregistered hardware into the ironic-python-agent ramdisk.

diskimage-builder (http://docs.openstack.org/developer/diskimage-builder/)
A related project to help facilitate the creation of ramdisks and machine images, such as those running the ironic-python-agent.

bifrost (http://docs.openstack.org/developer/bifrost/)
A set of Ansible playbooks that automates the task of deploying a base image onto a set of known hardware using ironic in a standalone mode.

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