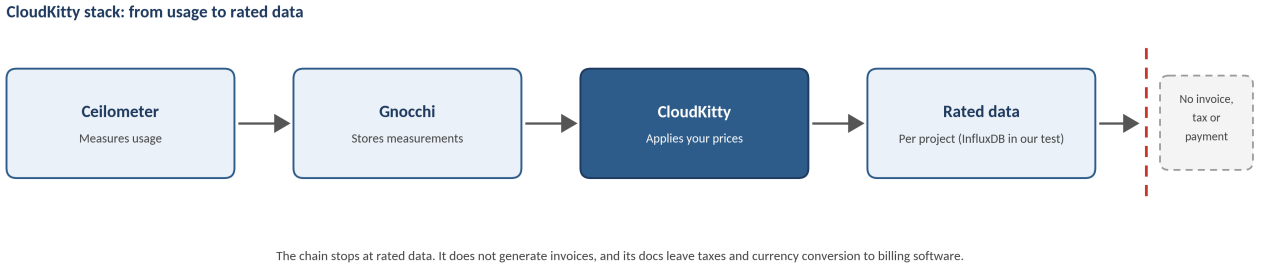
Chargeback on OpenStack: What CloudKitty Gives You, and What It Doesn’t



The chain stops at rated data. It does not generate invoices, and its docs leave taxes and currency conversion to billing software.

What we tested

Environment	DevStack, release 2026.2, running in a virtual machine.
Services	Core compute, networking, image, and block storage, plus Ceilometer, Gnocchi, and CloudKitty.
The cloud	Empty, with no instances. Two things could be measured: the CirrOS image DevStack uploads during setup, and a 1 GB volume we created.
Settings	Collector and fetcher: Gnocchi. Storage: InfluxDB. Rating period: one hour.
Metrics	Seven are defined in metrics.yml. Two had data: image.size and volume.size.

The steps

1. **Enable the hashmap module.** It starts disabled, so a mapping has no effect until you turn it on.
   ```
   openstack rating module enable hashmap
   ```
2. **Read metrics.yml.** The file is at /etc/cloudkitty/metrics.yml. You create a service only for a metric that appears in it.
3. **Create a service for image.size.** A service marks the metric as billable. It carries no price yet.
   ```
   openstack rating hashmap service create image.size
   ```
4. **Add a flat mapping of 0.01 on that service.** This is the price: 0.01 for every MiB, every hour.
5. **Wait for the next full hour.** CloudKitty prices usage one hour at a time.
6. **Read the result.** Use the Rating page in Horizon, or list the rated entries with the command below.
   ```
   openstack rating dataframes get
   ```

The numbers

Size in Gnocchi	21,692,416 bytes
Factor in metrics.yml	1/1048576, which converts bytes to MiB
Quantity CloudKitty rates	20.6875 MiB
Price we set	0.01 per MiB, every hour
Cost of each priced hour	0.206875, which is 20.6875 × 0.01
Dashboard after pricing	0.83 for the month, with a forecast of 1.28

Four gotchas

- **The hour that contains the mapping's start stays unpriced.** The image.size mapping started at 08:04:04, so the 08:00 hour has a price of 0.0 and 09:00 is the first priced hour. The volume.size mapping started at 13:57:43, and its 13:00 hour also has a price of 0.0.
- **Hashmap starts disabled.** openstack rating module list showed it as False on a new install.
- **A metric with no service has a cost of zero.** The dashboard listed image.size at 0.00 until we created a service for it.
- **Timestamps are in UTC.** Every Begin and End value in the output ends in +00:00.

What CloudKitty doesn't do

- It cannot limit resources in other OpenStack services, for example by blocking instance creation above a price. Its docs say it does rating and only rating.
- It does not add taxes or convert currencies. Its docs leave both to billing software.
- It does not generate invoices. We found no invoicing feature.

Four terms to know

Service	Links a pricing rule to a type of collected data. You create one for each metric you want to rate. Docs
Mapping	The price object. It is what triggers the calculation. Docs
Group	Collects the calculations of mappings, so separate sets of rules do not affect each other. Docs
Field	A metadata attribute of a resource, such as an instance's flavor. Docs

What comes next

If customers pay you, you need invoices, tax, and payment on top of rated data. A follow-up post compares CloudKitty with OSIE.

Sources: CloudKitty documentation and the OpenStack wiki page on CloudKitty.