Openstack in the enterprise and how you get your money from it
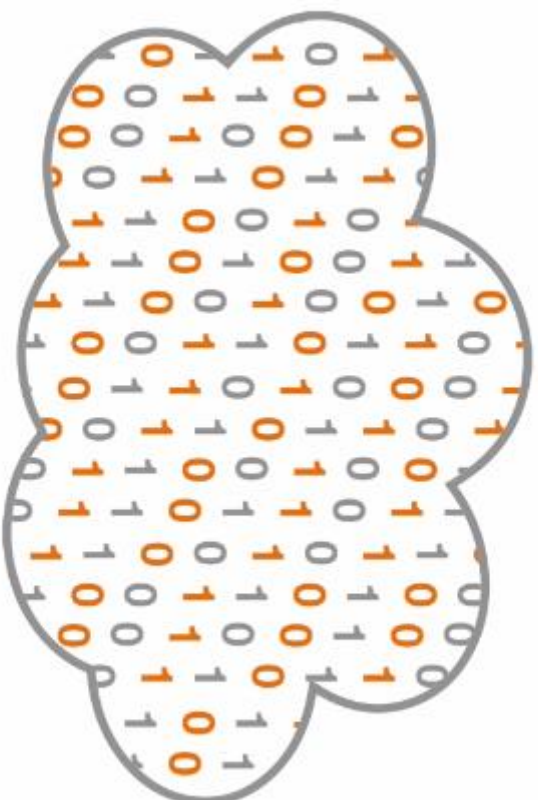
- Voicu Cristiana, Software Developer

- Călin Cristian, IT Solutions Architect

orange™

What is cloud computing?

What is Openstack?

- Open source cloud software
- +160 organizations contributing worldwide (Mitaka release)
- On track for 100% adoption by Fortune 100 companies in 3 years[1]

[1] http://www.computerweekly.com/news/450294172/OpenStack-set-for-100-adoption-by-Fortune-100-firms-within-three-years

Why adopt cloud computing in your enterprise?

- In the business of building datacenters?
- Major considerations:
  - Hardware is getting old
  - The window of opportunity is brief
  - Networking is complicated

What does Gartner call Bi-Modal IT?

- The old thing living side by side with the new
- Enables innovation and capitalizes on previous failures
- You need to empower your developers to fail fast and move on

orange™

What's in the box?
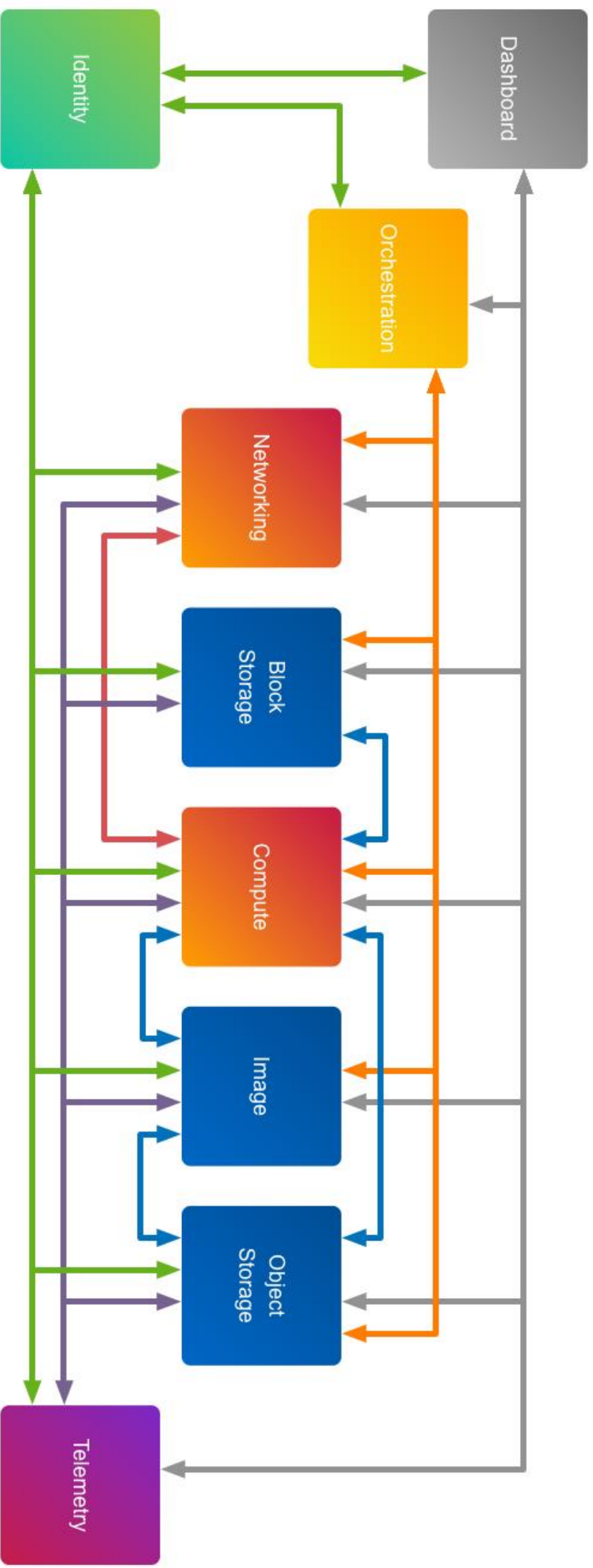
Getting there … (the Orange path to enlightenment)

- **Started with a PoC on the Havana release (about 2013)**
- **Experimented with simple in-development applications**
- **Learned that HA is nice to have**
- **Started contributing to upstream (L2 population, Bagpipe VPN)**

Getting there ... (the Orange path to enlightenment)

- **V1 Rocket Pilot on Icehouse release (2014)**
- **Added components for tenants to start thinking on**
- **One entity got in "production" while hosted on our "pre-alpha" environment**
- **Early feedback is critical**

orange™

Still on the road to enlightenment

- V2 Pilot still on Icehouse (but with some patches)

  - HA for the APIs
  - Still no HA for neutron exit points
  - Heat and Ceilometer for automation, telemetry and telemetry driven automation

- Production on Juno (with heavy patching)

  - Full HA for APIs and Neutron exit points
  - Production ready distributed deployment
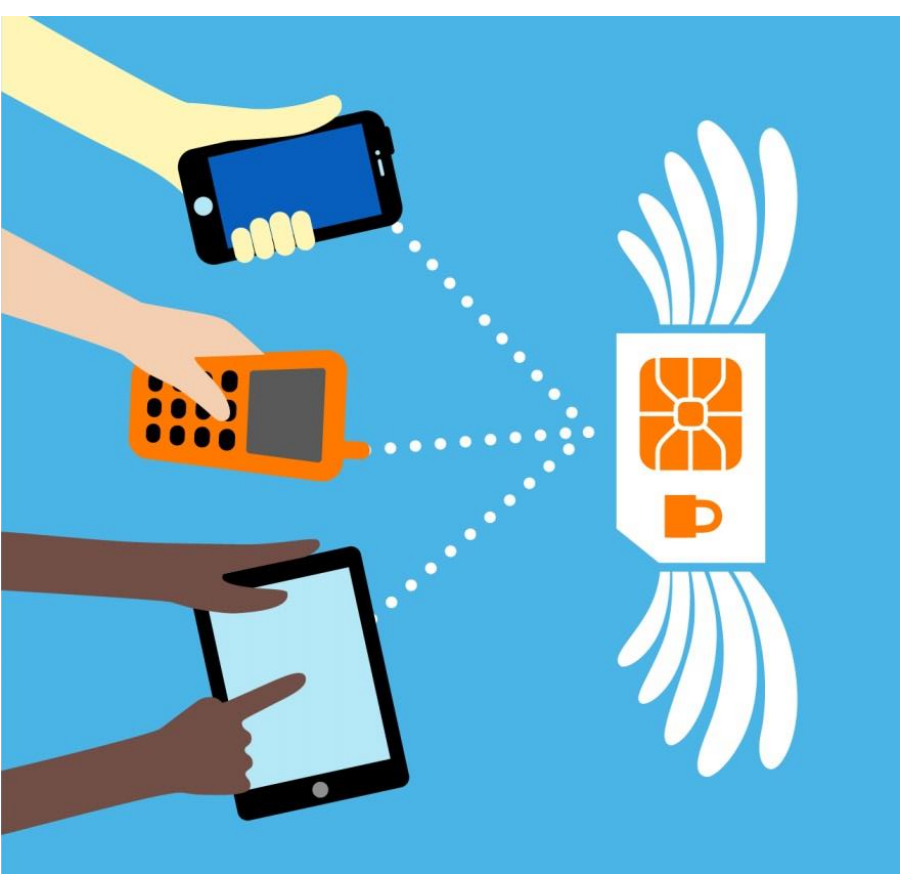 - Custom automation

orange™

Things that matter

- **Communication**
- **Must always be able to get some resources**
- **Separated tenants are happy tenants**

Other things that matter

- Over-engineering is a sure way to fail
- Have a deprecation policy from the start
- Keep things small and minimize your blast radius

Going further than any datacenter has gone before

- Keep calm and join the community:
  - irc.freenode.net #openstack-<service-name>
  - ask.openstack.org
  - @lists.openstack.org
- Evolve your architecture in small steps)
- You need to roll your own to carry carrying local patches

orange™

Rolling your own

Eventually you will come to this conclusion.

- **Dedicate engineers to understand the core components and automation tools you use.**

Some hints:

- **Openstack-puppet**
- **Chef-openstack**
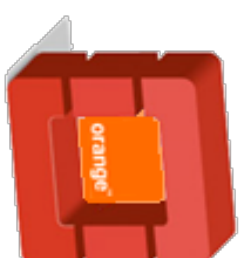- **Ppenstack-ansible**
- **Fuel**
- **Packstack**
- **TrippleO**
- **Kolla**

What's next?

- **What is Openwatt?**
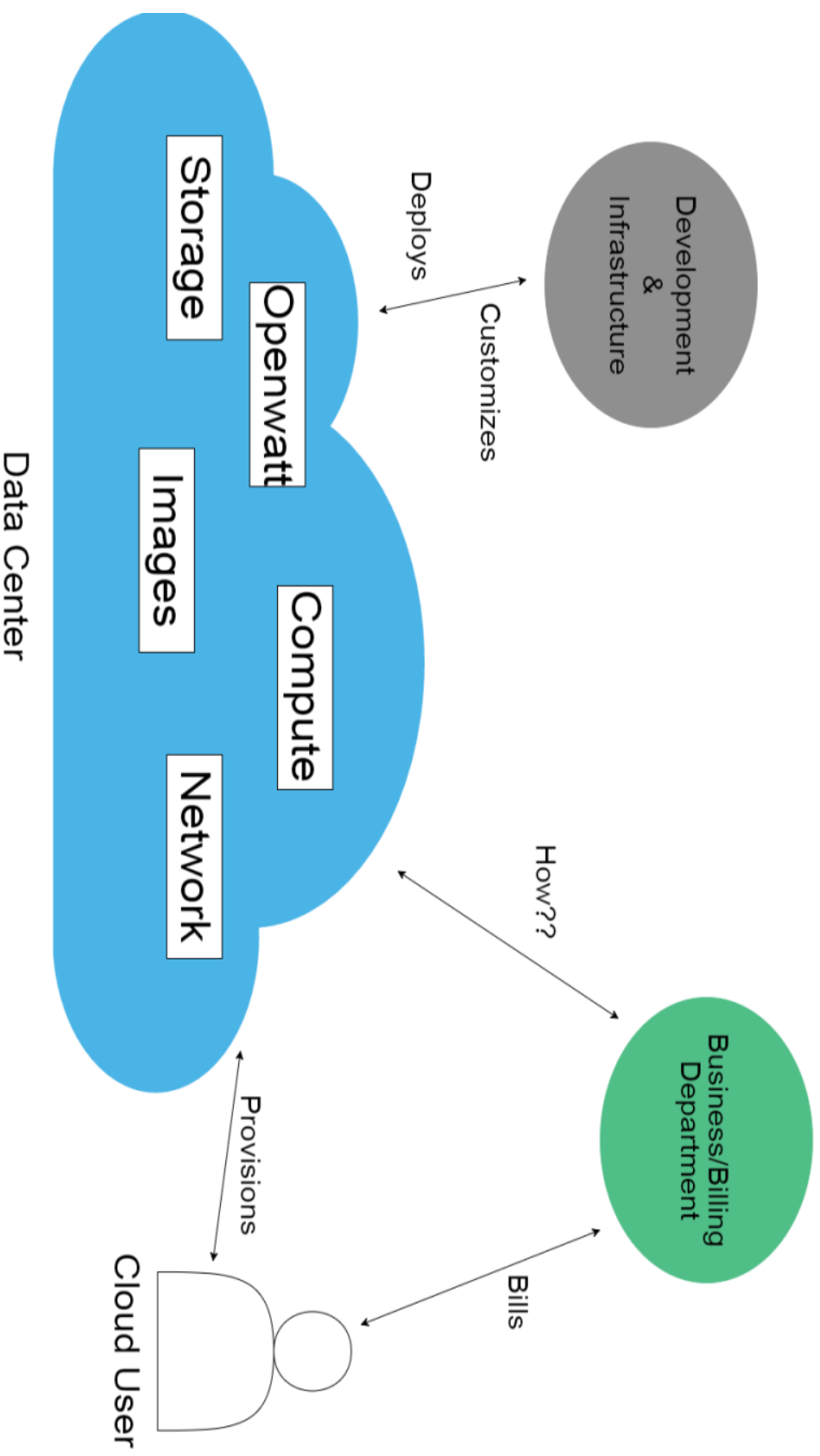- **Telemetry: Ceilometer**
- **Openwatt Billing System**

orange™

Openwatt

- **IaaS offering**
- **An implementation and adaptation of Openstack to the Orange requirements**

Openwatt

openstack™
CLOUD SOFTWARE

Billing Global View

orange™

Data Center

Storage

Openwatt

Images

Compute

Network

Deploys

Customizes

Development
&
Infrastructure

How??

Provisions

Cloud User

Bills

Business/Billing
Department

Billing Report Format

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	From	Till	Customer Account	Tenant	Instance Id	Instance type	Total run hours	Storage Volume Id	Type of storage	Total run hours(Gb.h)	Floating IPs(IP.h)	Image Name	Total run hours(Gb.h)

Ceilometer

- Goal: to provide an infrastructure to collect any information needed regarding OpenStack projects

- Provides:
  - customer billing
  - resource tracking
  - alarming capabilities

  across all Openstack core components

orange™

Openstack Ceilometer

Compute Agent

Central Agent

Colector

Store

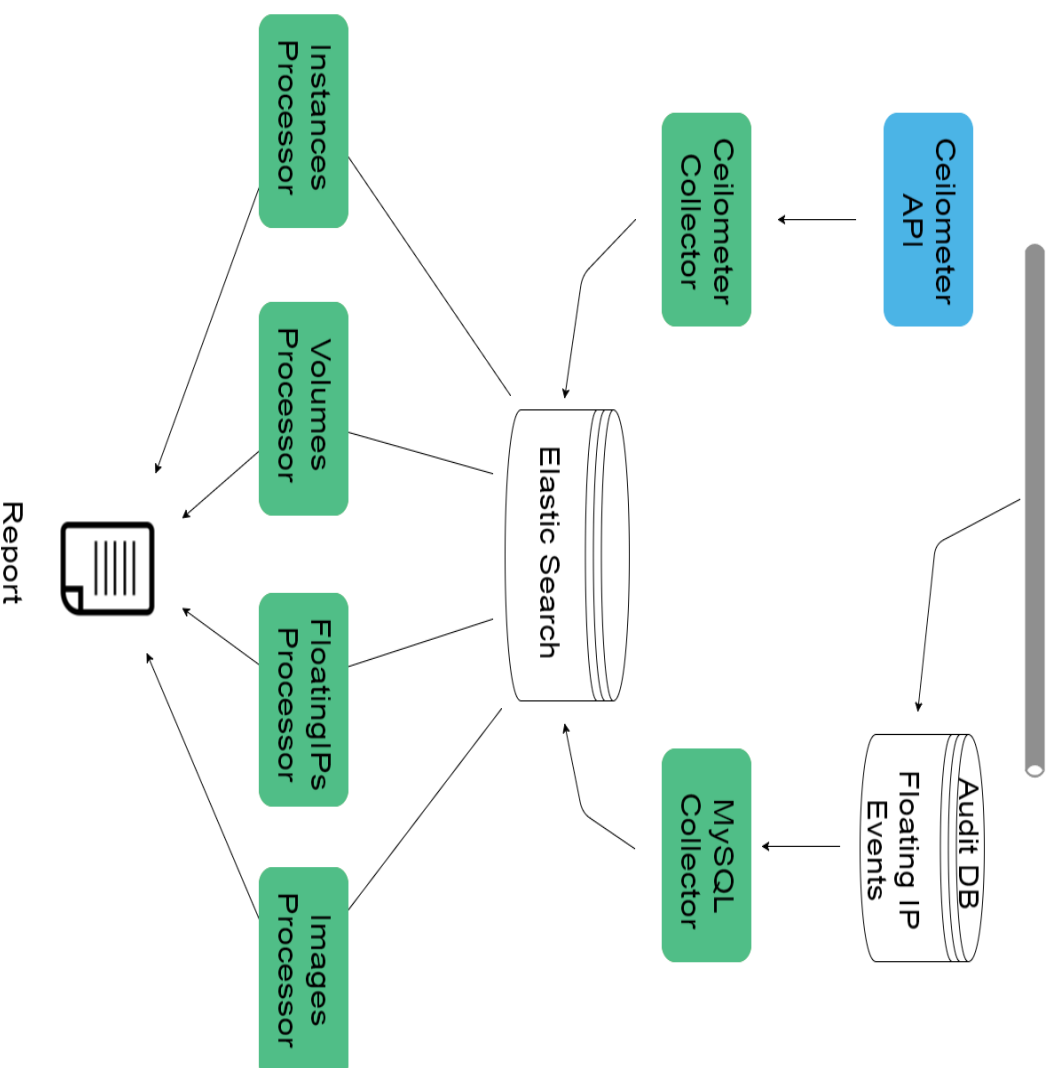Events

Meters

Alarms

API

orange™
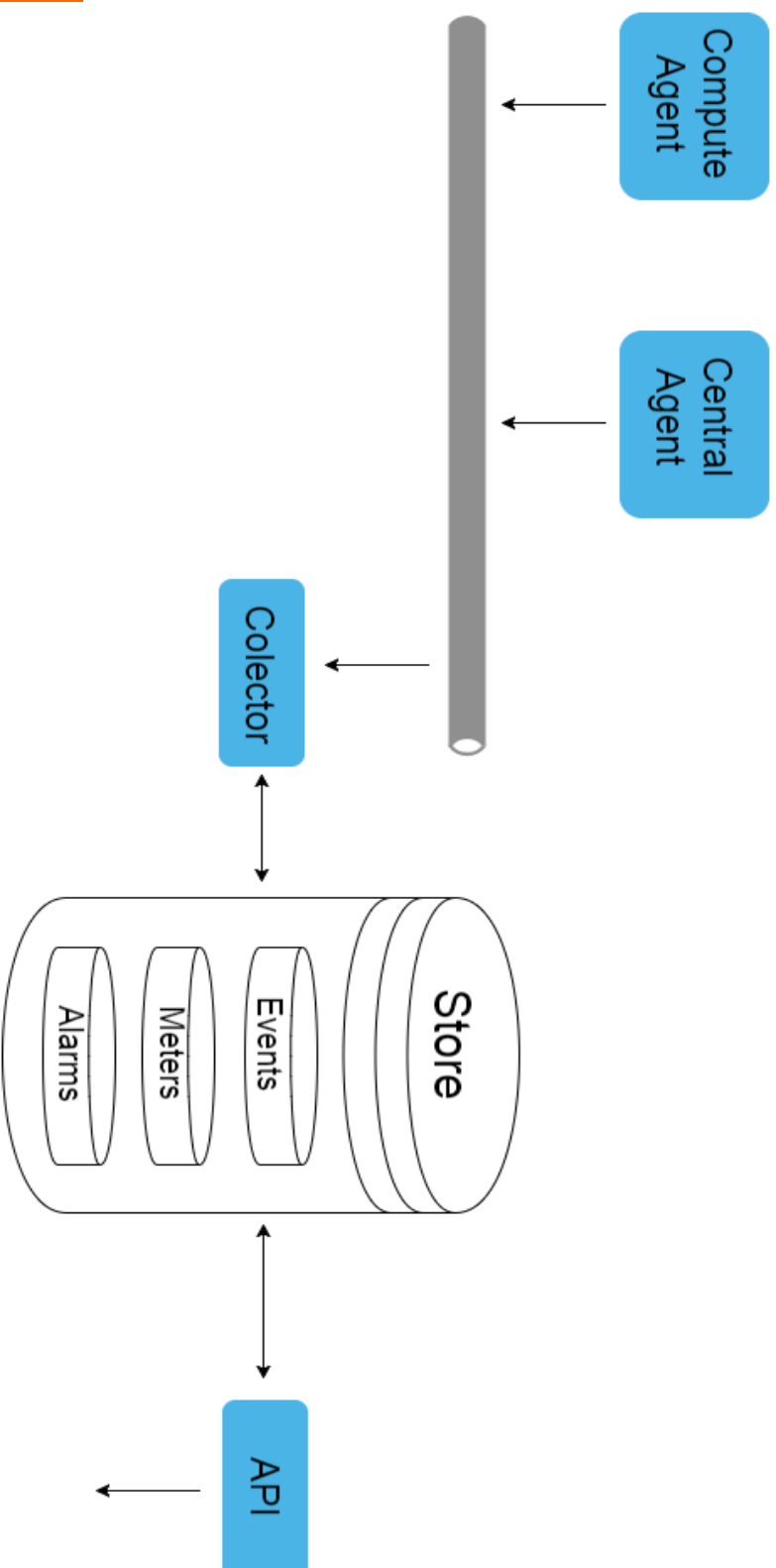
Ceilometer Issues

- Ceilometer's native database capabilities are not intended for post processing and auditing purposes where responsiveness is a requirement

- Too much space used (more than 20 GB per day):

  - we keep relevant data in another store
 - we purge the raw samples

- No floating IPs statistics

Billing Service

Ceilometer API

Ceilometer Collector

Instances Processor

Volumes Processor

FloatingIPs Processor

Images Processor

Elastic Search

Report

MySQL Collector
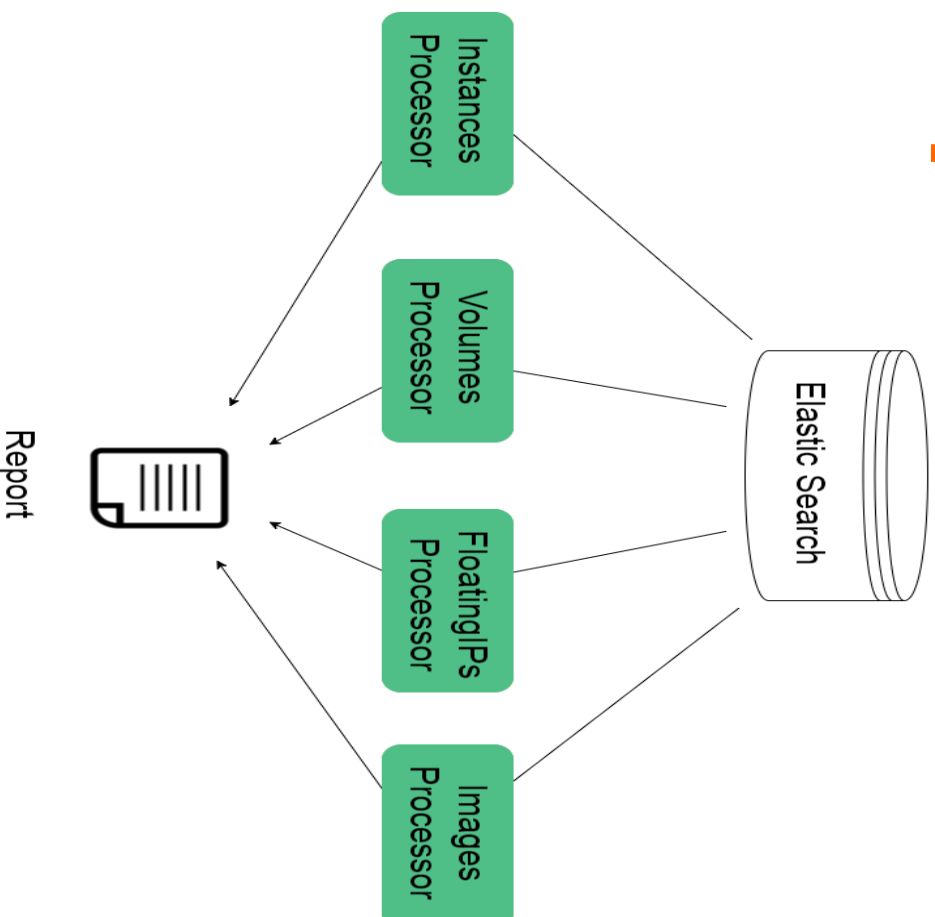
Floating IP Events

Audit DB

Billing Collectors

- **Ceilometer Collector: instances, volumes, images**

- **MySQL Collector: floating IPs (no Floating IP meter in ceilometer)**
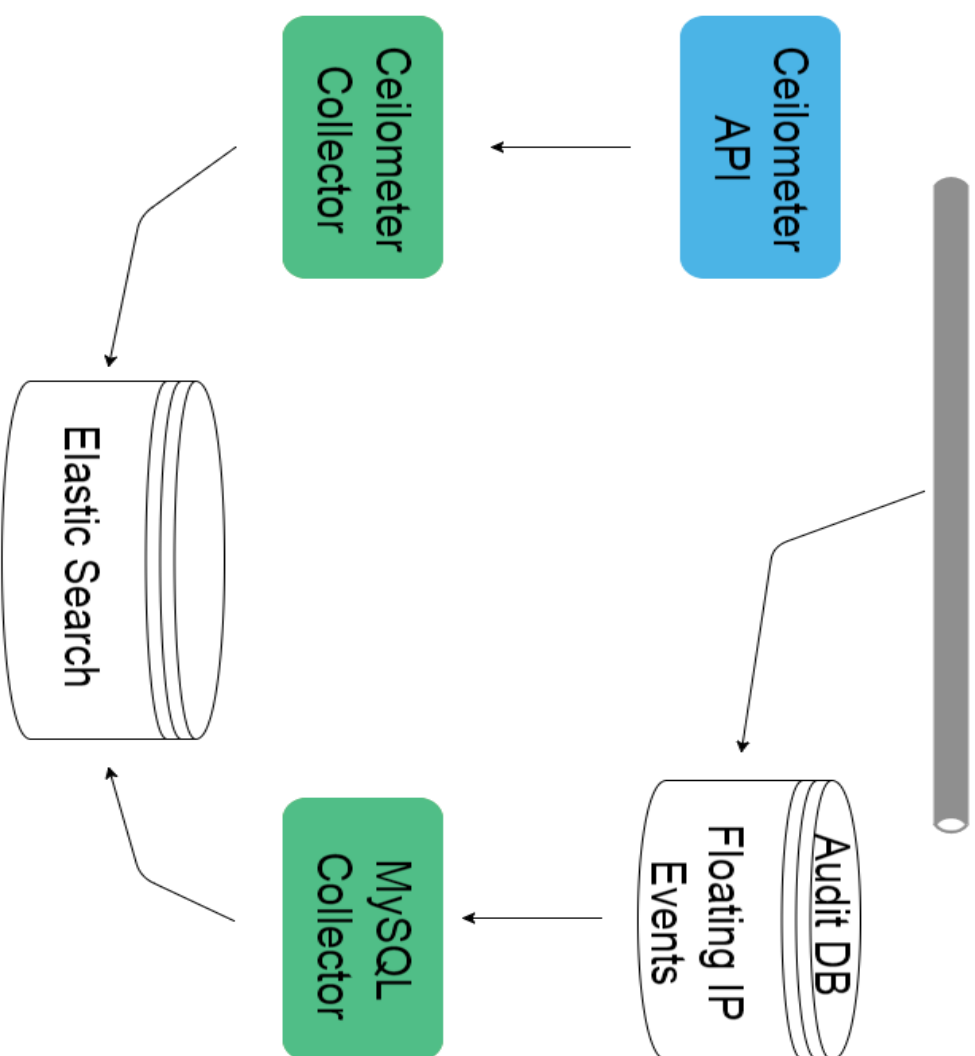
Getting the billing report

- **Different kind of samples means different processors:**
  - **for Volumes, the samples do not have a deleted_at field;**
  - **for Images, deleted_at field comes None from Ceilometer, even when the resource was deleted**

Thanks.
We're listening

orange™