



Bringing new experience with Openstack and Fuel

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www.mirantis.com

- What is OpenStack, Cloud Computing and what benefits do we receive while using it;
- What the Fuel is and how does it make OpenStack deployment easier;
- Plugins and Pluggable architecture of OpenStack;
- The benefits of Mirantis OpenStack subscription.

What is Openstack?



- As Wikipedia describes:
“OpenStack is a free and open-source cloud-computing software platform.”
- In general, OpenStack is a set of software tools for building and managing cloud computing platforms for public and private clouds.

What the “Cloud Computing” is?

“CLOUD” PROVIDES:

On-demand Self-service

- Provisioning of computing capabilities (compute, network, storage) without human interaction

Broad Network Access

- Services are available over the network and accessed through standard mechanisms

Rapid Elasticity

- Capabilities can be elastically provisioned and released to scale rapidly

Resource Pooling

- Computing resources are pooled to serve multiple consumers using a multi-tenant model
- Customer generally has no knowledge over the exact location of resources

Measured Service

- Resource usage can be monitored, controlled, and reported

According to NIST (National Institute of Standards and Technology)

Regarding to the concept of “Everything as a Service”, cloud computing offers “services” according to the different models:

- Software as a Service (SAAS);
- Platform as a Service (PAAS);
- Infrastructure as a Service (IAAS)

Openstack service model might be defined as:

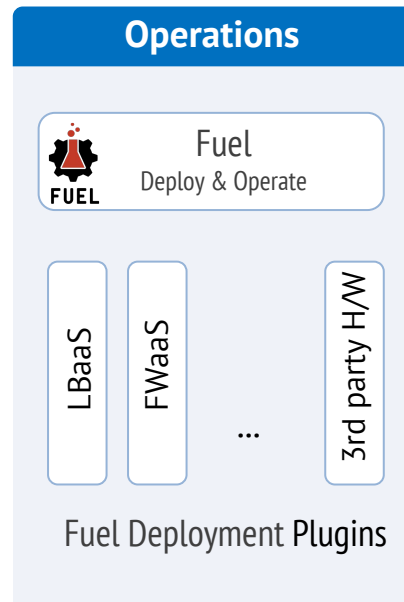
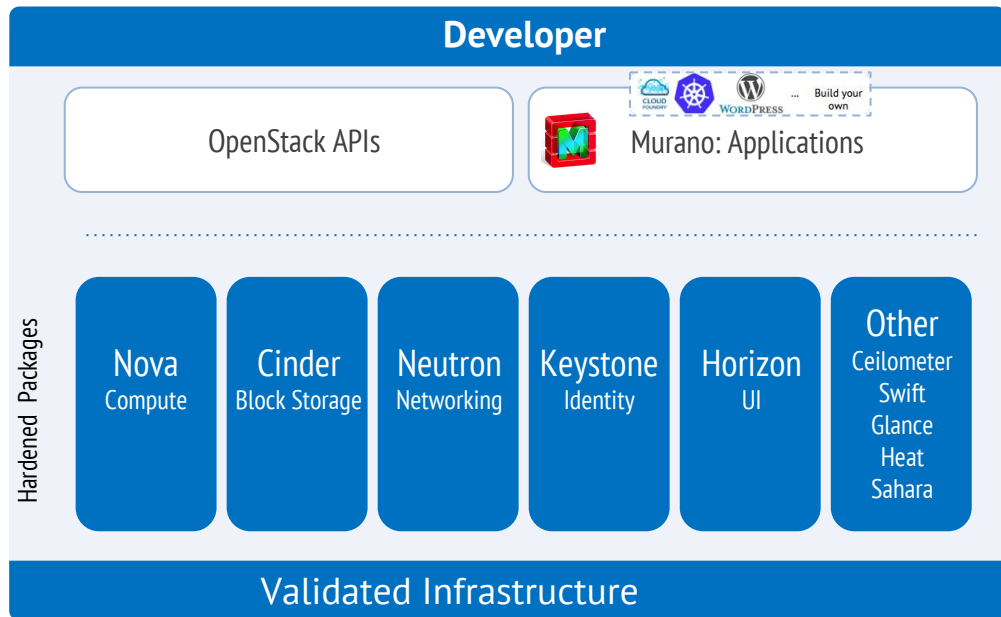
- IAAS;
- PAAS (with extra components, e.g. Murano)

Deployment models of Clouds

- Public cloud
- Private cloud
- Hybrid cloud

- Originally launched in 2010 by NASA and Rackspace Hosting and included two core components:
 - Nebula (computing platform developed by NASA)
 - Cloud Files (storage platform by Rackspace)
- Release cycle is time-based, new versions are released every six months.

Mirantis OpenStack: Web-Scale Distribution



Easy to deploy workloads

Murano & App integration

Easy to operate

#1 Purpose-built OpenStack installer

Infra choices

Best-in-class infrastructure & solution partners

Reliable at scale

Hardened, support, HA

Mirantis OpenStack

My first cloud



Manual

- Time consuming
- Strong skills are needed
- Errors

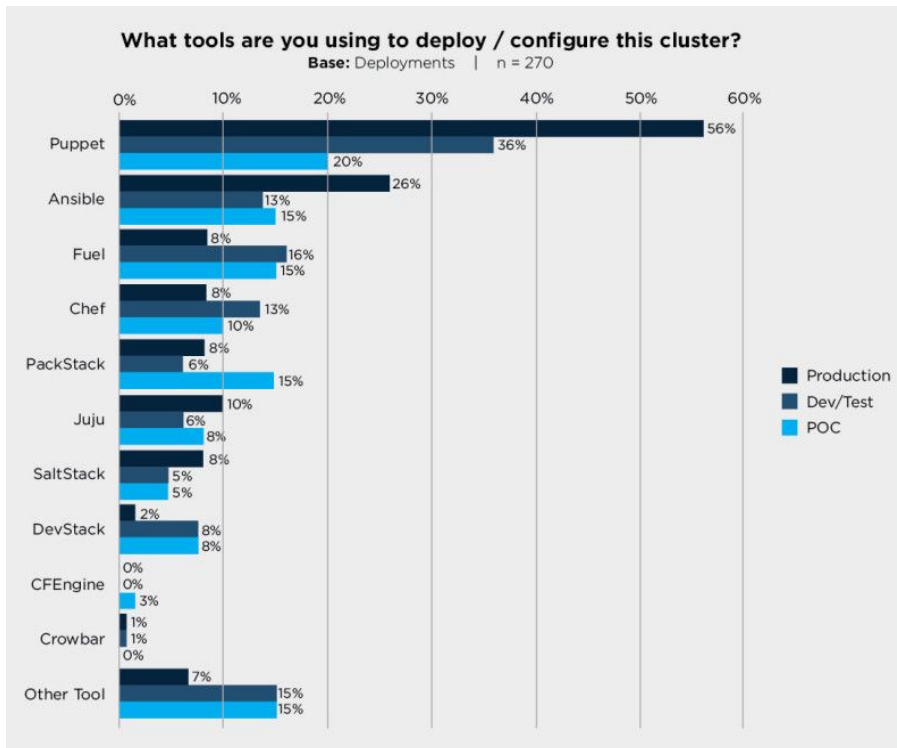


Fuel

- Really fast
- Fully automated
- Well tested (no errors)



Who uses Fuel?



Based on user survey <http://superuser.openstack.org/>
May 15, 2015

Fuel UI - configure

Dashboard Nodes Networks Settings Logs Health Check

Cancel Apply Changes

Sort By Status ↓

Assign Roles

- Controller**
The Controller initiates orchestration activities and provides an external API. Other components like Glance (image storage), Keystone (Identity management), Horizon (OpenStack dashboard) and Nova-Scheduler are installed on the controller as well.
- Compute**
A Compute node creates, manages, and terminates virtual machine instances.
- Storage - Cinder**
Cinder provides scheduling of block storage resources, typically delivered over iSCSI and other compatible backend storage systems. Block storage can be used for database storage, expandable file systems, or to provide a server with access to raw block level devices.
- Storage - Ceph OSD** ⚠️
Ceph storage can be configured to provide storage for block volumes (Cinder), Images (Glance) and ephemeral instance storage (Nova). It can also provide object storage through the S3 and Swift API (See settings to enable each).
- Telemetry - MongoDB** ⚠️
A feature-complete and recommended database for storage of metering data from OpenStack Telemetry (Ceilometer).
- Operating System**
Install base Operating System without additional packages and configuration.

Discovered (2) Select All

<input type="checkbox"/>	Qemu <u>Untitled (53:4c)</u>	DISCOVERED	CPU: 0 (1) HDD: 150.0 GB RAM: 2.9 GB	⚙️
<input type="checkbox"/>	Qemu <u>Untitled (d4:1c)</u>	DISCOVERED	CPU: 0 (1) HDD: 150.0 GB RAM: 2.9 GB	⚙️

Fuel UI - configure



Network Settings

Neutron with VLAN segmentation

Public

IP Range	Start 10.109.1.2	End 10.109.1.126
CIDR	10.109.1.0/24	
Use VLAN tagging	<input type="checkbox"/>	
Gateway	10.109.1.1	
Floating IP ranges	Start 10.109.1.130	End 10.109.1.254

Storage

CIDR	192.168.1.0/24
Use VLAN tagging	<input checked="" type="checkbox"/> 102

Management

Fuel UI - configure



OpenStack Settings

Access

Access

Additional Components

Username

Username for Administrator

Common

Password



Password for Administrator

Kernel parameters

Tenant

Tenant (project) name for Administrator

Neutron Advanced Configuration

Email

Email address for Administrator

Repositories

Syslog

Public network assignment

Storage

Host OS DNS Servers

Host OS NTP Servers

Public TLS

Load Defaults

Cancel Changes

Save Settings

Fuel UI - monitor



Logs

Logs Node Source Min. level Show

Other servers Untitled (d2:24) puppet DEBUG

Date	Level	Message
2015-09-23 15:31:05	DEBUG	Executing '/etc/puppet/etckeeper-commit-post'
2015-09-23 15:31:05	NOTICE	Finished catalog run in 0.60 seconds
2015-09-23 15:31:05	DEBUG	Stored state in 0.29 seconds
2015-09-23 15:31:05	DEBUG	Storing state
2015-09-23 15:31:05	DEBUG	Finishing transaction 36184600
2015-09-23 15:31:05	INFO	(Stage[main]) Evaluated in 0.00 seconds
2015-09-23 15:31:05	INFO	(Stage[main]) Starting to evaluate the resource
2015-09-23 15:31:05	INFO	(Class[Main]) Evaluated in 0.00 seconds
2015-09-23 15:31:05	INFO	(Class[Main]) Starting to evaluate the resource
2015-09-23 15:31:05	INFO	(/Schedule[puppet]) Evaluated in 0.00 seconds
2015-09-23 15:31:05	INFO	(/Schedule[puppet]) Starting to evaluate the resource
2015-09-23 15:31:05	INFO	(/Schedule[weekly]) Evaluated in 0.00 seconds
2015-09-23 15:31:05	INFO	(/Schedule[weekly]) Starting to evaluate the resource
2015-09-23 15:31:05	INFO	(/Filebucket[puppet]) Evaluated in 0.00 seconds
2015-09-23 15:31:05	INFO	(/Filebucket[puppet]) Starting to evaluate the resource
2015-09-23 15:31:05	INFO	(/Schedule[never]) Evaluated in 0.00 seconds
2015-09-23 15:31:05	INFO	(/Schedule[never]) Starting to evaluate the resource



OpenStack Health Check

Select All

Provide credentials

Run Tests

<input checked="" type="checkbox"/>	Sanity tests. Duration 30 sec - 2 min	Expected Duration	Actual Duration	Status
<input checked="" type="checkbox"/>	Request flavor list	20 s.	0.1	✓
<input checked="" type="checkbox"/>	Request image list using Nova	20 s.	0.1	✓
<input checked="" type="checkbox"/>	Request instance list	20 s.	0.0	✓
<input checked="" type="checkbox"/>	Request absolute limits list	20 s.	0.0	✓
<input checked="" type="checkbox"/>	Request snapshot list	20 s.	0.1	✓
<input checked="" type="checkbox"/>	Request volume list	20 s.	0.1	✓
<input checked="" type="checkbox"/>	Request image list using Glance v1	10 s.	0.0	✓
<input checked="" type="checkbox"/>	Request image list using Glance v2	10 s.	0.0	✓
<input checked="" type="checkbox"/>	Request stack list	20 s.	0.0	✓
<input checked="" type="checkbox"/>	Request active services list	20 s.	0.1	✓

Deployment flow



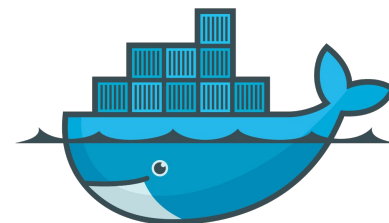
- Master node deployment;
- Bringing up slave nodes using PXE;
- Assign roles to slave nodes;
- Network and Storage configuration;
- Master uploads OS image to slave nodes;
- Master triggers puppet deployment;
- Profit!

GALERA  CLUSTER

 RabbitMQ™


MySQL®


HA
PROXY

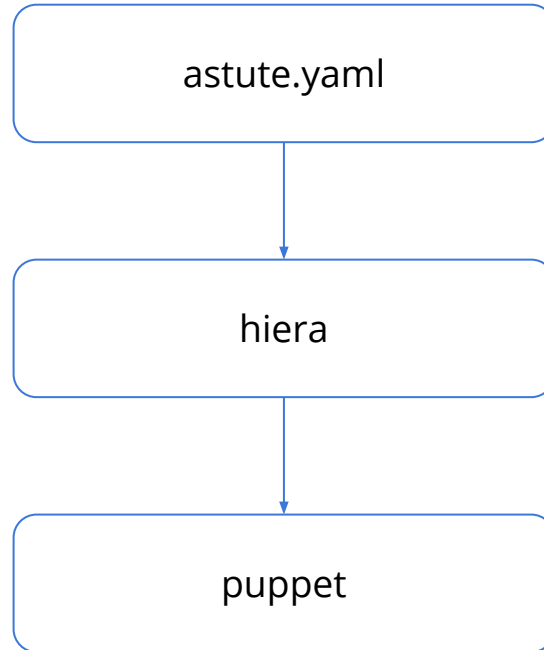


docker


Puppet


Pacemaker

Custom Fuel configuration

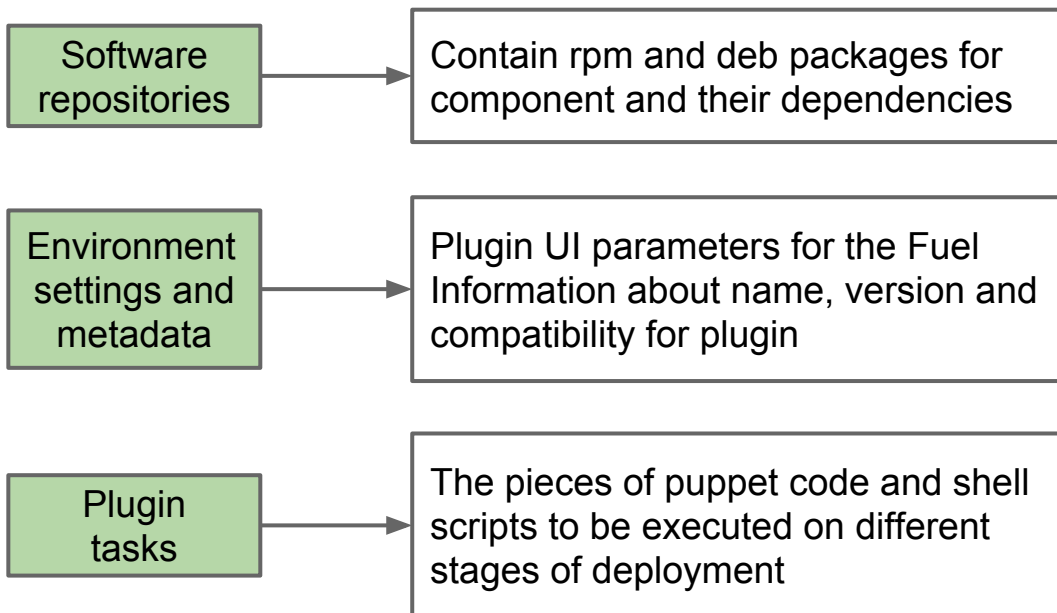


Fuel Plugins Types

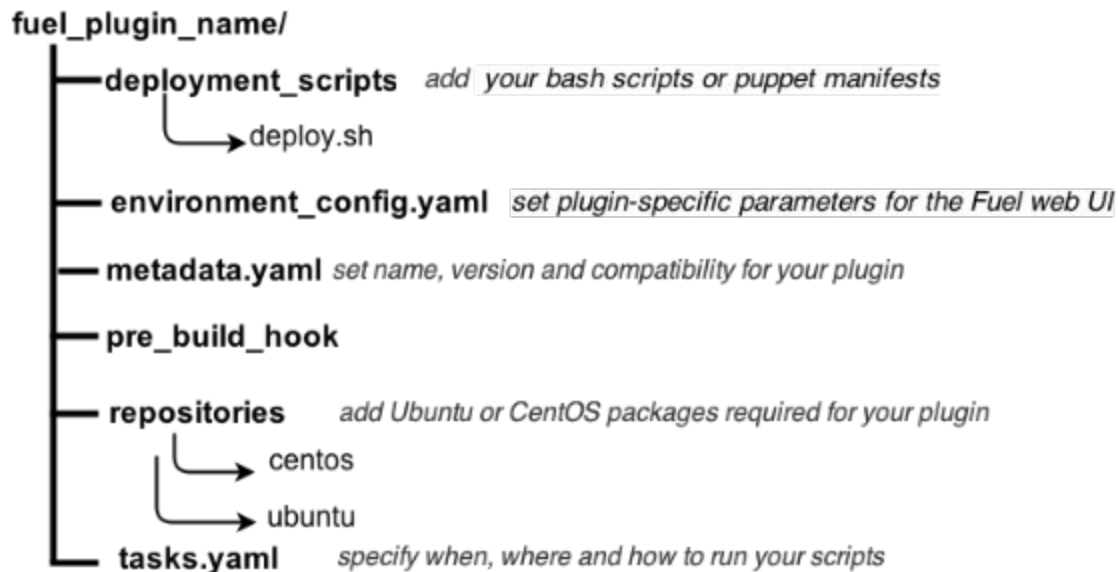


- Networking
- Operations/monitoring
- Storage
- Drivers
- Detached openstack components

Plugin contents



Fuel plugin structure



Fuel plugin settings



OpenStack Settings

Access

Fuel Contrail plugin

Additional Components

Contrail distribution

Common

OpenContrail

Kernel parameters

Juniper Contrail

Neutron Advanced Configuration

AS Number

AS number for BGP communication

Repositories

Gateway for Private network

The IP address of gateway for contrail private network to reach BGP peers. Empty if not needed.

Syslog

GW IP

Comma separated IP addresses of BGP peers.

Public network assignment

Storage

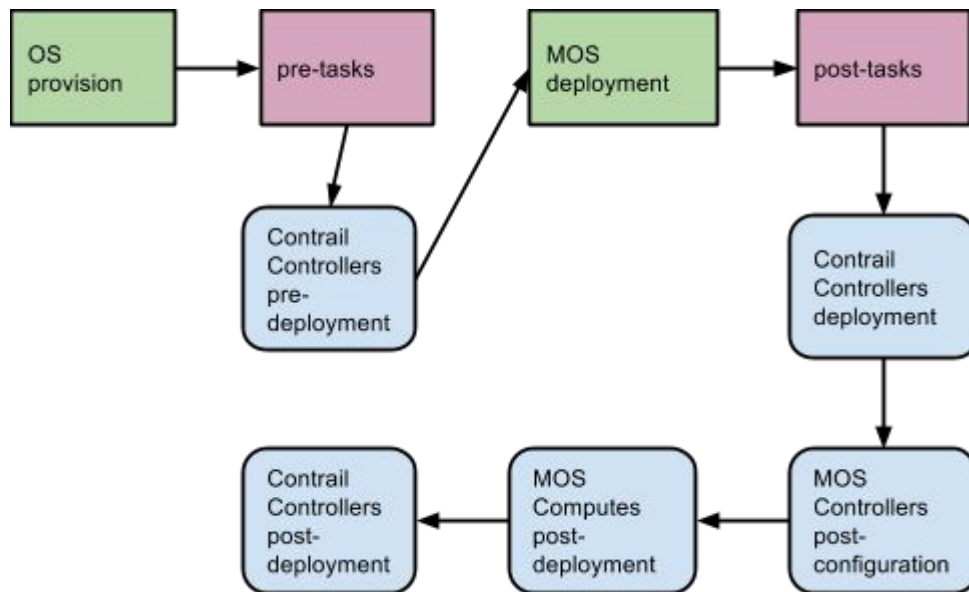
Fuel Contrail plugin

Host OS DNS Servers

Host OS NTP Servers

Public TLS

Contrail deployment diagram



Documentation and useful resources



- [Fuel Plugins SDK](#) - set of best development practices.
- [How to install Fuel Plugins](#), [Fuel Plugins CLI](#) - end-user documentation.
- [Fuel Plugins](#) project in Launchpad for tracking bugs.

Validated vs Non-validated Fuel Plugins for 6.1



- [Fuel Plugins Catalog](#) - Validated and officially supported plugins
- [DriverLog](#) - all existing plugins no matter they're validated or not

The Value of Mirantis OpenStack Subscription



#1 Pure-Play Distribution

- Delivered through community leadership
- Fuel deployment & management tool
- Murano for workload deployment
- Hardening & reference arch.

Updates & Upgrades

- Proactive bug or security fixes via maintenance patch notifications
- Customer or Mirantis initiated fixes
- Upgrades

World-Class Support

- Multiple tiers: 8x5, 24x7, Proactive
- Community engagement & advocacy
- Provided by OpenStack experts

Subscription Includes Updates

- Notifications with severity, recommendation, instructions
- Patches made available to customers immediately
- Updates on a regular basis, including backports & community-fixes
- Package repositories
 - Binary and source code
 - Apply using Linux utilities: yum, apt



RPC clients cannot find a reply queue after the last RabbitMQ server restarts in the

Launchpad

#1463802

When RabbitMQ restarts and the queues disappear, oslo.messaging may get stuck during the reconnection process. As a result, some of the CI unusable when the failover procedure finishes.

Affected packages	<ul style="list-style-type: none">• Centos@6.1: python-oslo-messaging=1.4.1-fuel6.1.mira31• Ubuntu@6.1: python-oslo.messaging=1.4.1-1~u14.04+mos11
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Fixed packages	<ul style="list-style-type: none">• Centos@6.1: python-oslo-messaging=1.4.1-fuel6.1.mira33• Ubuntu@6.1: python-oslo.messaging=1.4.1-1~u14.04+mos13
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Patching scenario

CentOS:

- Run command `yum clean expire-cache` on OpenStack compute nodes, OpenStack controller nodes, OpenStack Cinder nodes
- Run command `yum -y update python-oslo-messaging` on OpenStack compute nodes, OpenStack controller nodes, OpenStack Cinder nodes
- Run command `pcs resource disable p_heat-engine` on OpenStack controller nodes
- Run command `pcs resource disable p_neutron-l3-agent` on OpenStack controller nodes
- Run command `pcs resource disable p_neutron-metadata-agent` on OpenStack controller nodes
- Run command `pcs resource disable p_neutron-dhcp-agent` on OpenStack controller nodes
- Run command `pcs resource disable p_neutron-plugin-openvswitch-agent` on OpenStack controller nodes
- Run command `pcs resource enable p_neutron-plugin-openvswitch-agent` on OpenStack controller nodes
- Run command `pcs resource enable p_neutron-dhcp-agent` on OpenStack controller nodes
- Run command `pcs resource enable p_neutron-metadata-agent` on OpenStack controller nodes
- Run command `pcs resource enable p_neutron-l3-agent` on OpenStack controller nodes
- Run command `pcs resource enable p_heat-engine` on OpenStack controller nodes
- Restart all non-HA OpenStack services on compute and controller nodes.

Ubuntu:

- Run command `apt-get update` on OpenStack compute nodes, OpenStack controller nodes, OpenStack Cinder nodes
- Run command `apt-get install --only-upgrade -y python-oslo.messaging` on OpenStack compute nodes, OpenStack controller nodes

High Customer Satisfaction

- Responsiveness
- Technical expertise

Increase Uptime & Solution Value

- Maximize availability & performance
- Minimize disruption via rapid problem resolution
- Reduce risk with proactive Technical Bulletins

Community Engagement & Advocacy

- Represent your requirements in the community



CSAT
9.2/10

Customer Satisfaction Score

Q&A

Thank you