Community Generated OpenStack Roadmap

April 2016

Created by the Product Working Group

Disclaimer

The information presented here is as of March 2016. It is the authors' interpretation of information collected and does not represent commitments for features or timelines by the project teams or PTLs.

As with any open-source project, items proposed by the team can be impacted by the number of active developers, hurdles, external forces, and change in direction... All decisions for the accepted blueprints/specs will ultimately be at the discretion of the project core teams. We can merely show a snapshot of a point-in-time in the projects' evolution and the actual "delivery" of items may shift after that point-in-time. We will try our best to keep this snapshot updated.

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Roadmap creation process
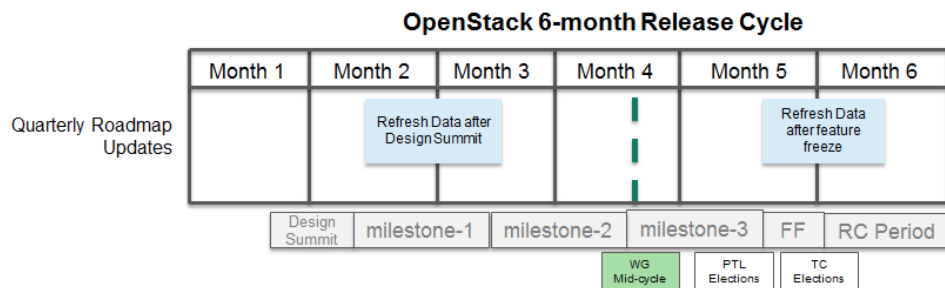
Our approach to generating the roadmap

The community generated roadmap is refreshed twice per release cycle

Inclusion Criteria

- Based on latest OpenStack user survey
- 10% or greater adoption
- Essential projects that do not register adoption data (i.e. Oslo, RefStack)
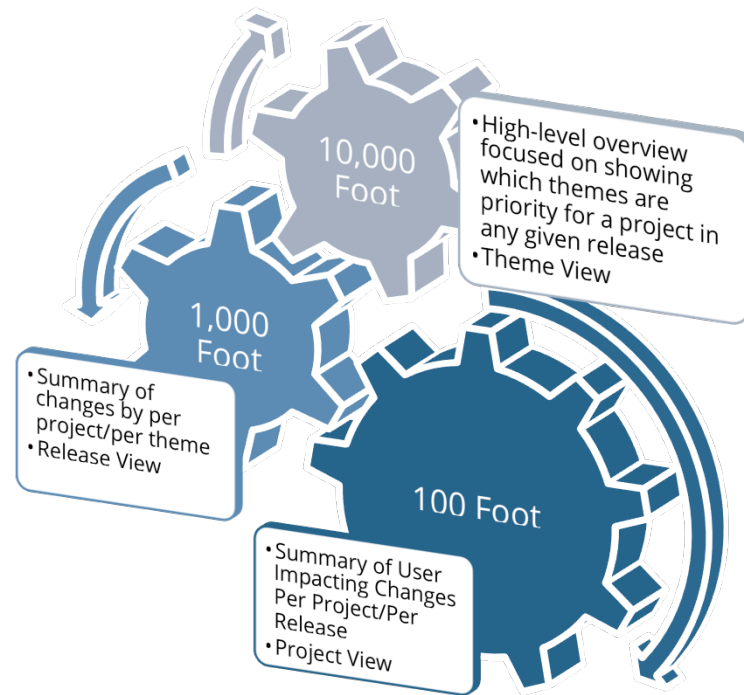- Additional projects as time permit

Information Gathering

- **Establish a baseline** from past roadmaps and gathered source data
- **Gather insights** through interviews with PTLs or designated cores (Current & Forward Looking)
- **Develop Roadmap**
- **Validate draft** with PTLs or designated cores
- **Communicate** (Release package, summit session, publish on openstack.org)

OpenStack 6-month Release Cycle

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Quarterly Roadmap Updates		Refresh Data after Design Summit			Refresh Data after feature freeze	

Design Summit	milestone-1	milestone-2	milestone-3	FF	RC Period

WG Mid-cycle | PTL Elections | TC Elections

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Our approach to presenting the roadmap

Multiple Views of a Multi-Release Roadmap

100,000 foot: Focus only on themes and releases

10,000 Foot

- High-level overview focused on showing which themes are priority for a project in any given release
- Theme View

1,000 Foot

- Summary of changes by per project/per theme
- Release View

100 Foot

- Summary of User Impacting Changes Per Project/Per Release
- Project View

Original Data Sources (Blueprints/Specs/Raw Data From PTL Conversations)

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Project coverage: Newton roadmap update
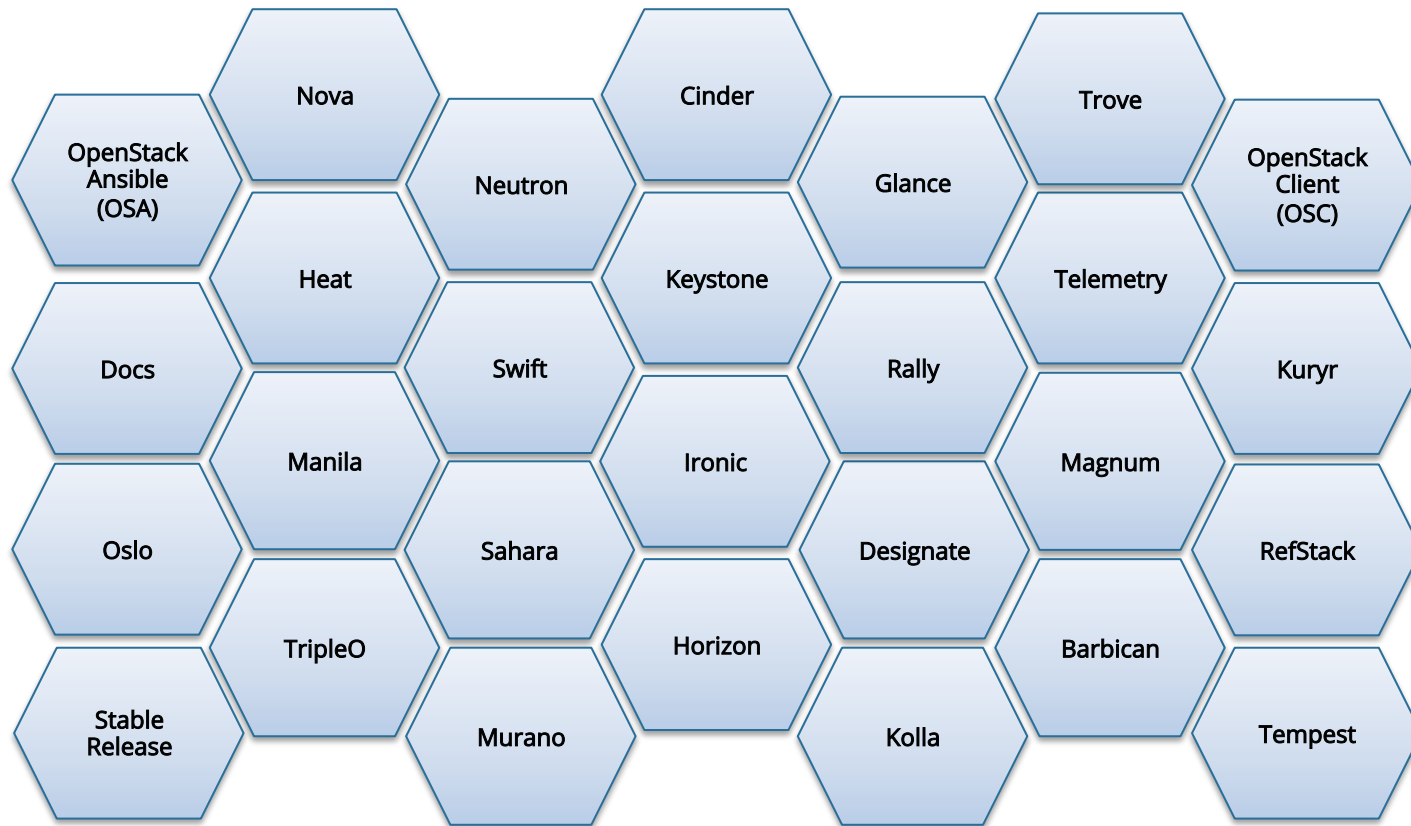
Definition of the themes

Scalability

Items that will impact the scale at which the service can operate

Resiliency

Items that will impact the high availability or ability to recover from failures for the service

Manageability

Items that improve the User Experience (UX), promote operational ease-of-use, or enhance the capabilities of the service
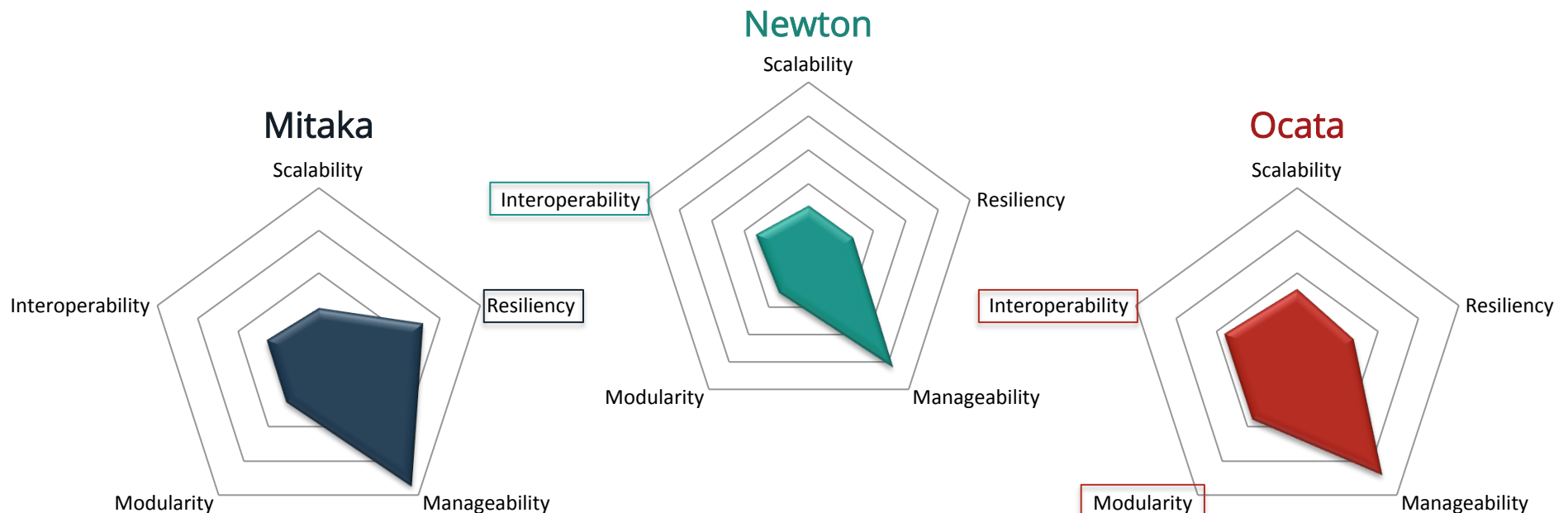
Modularity

Changes that enhance the modularity of the service architecture and usually result in a more manageable code-base and/or remove duplicity of efforts

Interoperability

Items that enable the service to operate across multiple OpenStack clouds [federation], promote a common experience across separate OpenStack-Powered clouds [interop], or add dependency on another OpenStack service [service dependency], and/or backwards compatibility [compatibility]

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100,000 ft. and 10,000 ft. views (themes centric)

100,000 ft. view: release themes

Mitaka
- Scalability
- Interoperability
- Resiliency
- Modularity
- Manageability

Newton
- Scalability
- Interoperability
- Resiliency
- Modularity
- Manageability

Ocata
- Scalability
- Interoperability
- Resiliency
- Modularity
- Manageability

Note: Manageability is a "focus" theme for almost all releases and, therefore, we chose to highlight the remaining themes. We will be breaking the manageability definition into multiple themes in the next release to gain better insight.

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10,000 ft. view of the roadmap

	Scalability (Increases Scale)			Resiliency (Availability or Durability)			Manageability (Operations and UX)			Modularity (Service/Component Modularity)			Interoperability (Interop, Federation, Compatability)		
	Mitaka	Newton	Ocata	Mitaka	Newton	Ocata	Mitaka	Newton	Ocata	Mitaka	Newton	Ocata	Mitaka	Newton	Ocata
Nova		✓	✓	✓	✓	✓		✓	✓			✓	✓	✓	✓
Keystone							✓	✓	✓		✓	✓			
Horizon		✓					✓	✓	✓	✓	✓	✓		✓	✓
Glance	✓		✓	✓			✓	✓					✓	✓	✓
Neutron	✓	✓	...	✓		...	✓	✓	...			...		✓	...
Cinder				✓	✓	✓	✓	✓		✓					
Heat	✓	✓	✓		✓	✓	✓	✓							
Telemetry	✓	✓		✓			✓	✓	✓		✓		✓	✓	✓
Swift	✓		✓	✓			✓	✓							
Trove					✓	✓	✓	✓	✓	✓	✓			✓	
Designate	✓		✓	✓	✓		✓	✓	✓		✓				
Ironic	✓			✓			✓	✓	✓						✓
Sahara		✓		✓	✓		✓	✓	✓					✓	✓
Manila							✓	✓	✓						
Magnum				✓			✓	✓	✓			✓			✓
Rally				✓			✓	✓	✓	✓	✓	✓	✓		
Murano							✓	✓	✓				✓	✓	
Kolla		✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	
TripleO				✓			✓	✓	✓		✓	✓			
Barbican				✓	✓	✓	✓	✓		✓					
OS Ansible		✓	✓	✓			✓	✓	✓			✓			✓
Kuryr			✓				✓	✓	✓			✓		✓	✓
Docs	✓	✓					✓	✓		✓	✓				
OS Client						✓	✓	✓					✓		✓
Oslo			...	✓		...	✓	✓	...	✓	✓	...		✓	...
Stable Rel.		✓	...			...	✓	✓	...			...	✓		...
RefStack		✓	✓	✓			✓	✓	✓				✓		
QA	✓		...	✓	✓	...	✓	✓	...			...	✓		...

Key: ✓ Planned Work   ... No Information Given

10,000 ft. view of the roadmap (with notes)

	Scalability (Increases Scale)			Resiliency (Availability or Durability)			Manageability (Operations and UX)			Modularity (Service/Component Modularity)			Interoperability (Interop, Federation, Compatability)		
	Mitaka	Newton	Ocata	Mitaka	Newton	Ocata	Mitaka	Newton	Ocata	Mitaka	Newton	Ocata	Mitaka	Newton	Ocata
Nova		✓	✓	✓	✓	✓		✓	✓			✓	✓	✓	✓
Keystone							✓	✓	✓		✓	✓			
Horizon		✓					✓	✓	✓	✓	✓	✓		✓	✓
Glance	✓		✓	✓			✓	✓					✓	✓	✓
Neutron	✓	✓	...	✓		...	✓	✓	...			...		✓	...
Cinder				✓	✓	✓	✓	✓		✓					
Heat	✓	✓	✓		✓	✓	✓	✓							
Telemetry	✓	✓		✓			✓	✓	✓		✓		✓	✓	✓
Swift	✓		✓	✓			✓	✓							
Trove					✓	✓	✓	✓	✓	✓	✓			✓	
Designate	✓		✓	✓	✓		✓	✓	✓		✓				
Ironic	✓			✓			✓	✓	✓						✓
Sahara		✓		✓	✓		✓	✓	✓					✓	✓
Manila				✓			✓	✓	✓						
Magnum				✓			✓	✓	✓			✓			✓
Rally				✓			✓	✓	✓	✓	✓	✓	✓		
Murano							✓	✓	✓				✓	✓	
Kolla		✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	
TripleO				✓			✓	✓	✓	✓	✓				
Barbican				✓	✓	✓	✓	✓	✓	✓					
OS Ansible		✓	✓	✓			✓	✓	✓		✓				✓
Kuryr			✓				✓	✓	✓			✓		✓	✓
Docs	✓	✓						✓	✓	✓	✓				
OS Client						✓	✓	✓	✓					✓	✓
Oslo			...	✓		...	✓	✓	...	✓	✓	...		✓	...
Stable Rel.		✓	...				✓	✓	...			...	✓		...
RefStack		✓		✓			✓	✓	✓				✓		
QA	✓		...	✓	✓	...	✓	✓	...			...	✓		...

Key: ✓ Planned Work   ... No Information Given

Work planned across all three releases; potential focus area for project

Most prevalent theme for current release

Note: Manageability is a "focus" theme for almost all projects and releases and, therefore, we chose to highlight the remaining themes.

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1,000 ft. view
(release centric)

1,000 ft. view (1/8)

| | Nova | Horizon |
| | Keystone | Glance |

	Scalability	Resiliency	Manageability	Modularity	Interoperability
Mitaka	Glance (DB purge)	Nova (live migration enhancements, simplified rolling upgrades) Glance (keystone trusts)	Keystone (implied roles, time-based OTP) Horizon (fully customizable/theme-able, add UI for sahara and trove, auth. config support) Glance (improved security, auto upload/download to volumes, large image uploads)	Horizon (plug-in framework enhancements)	Nova (API Documentation) Glance (*spec* for V1 depreciation)
Newton	*Continuation of M+* Nova (*continue* Cells V2 work, *continue* scheduler efforts) Horizon (possible theme)	*Continuation of M+* Nova (stability improvements,)	*Continuation of M+* Nova (neutron routed networks) Keystone (*start* multi-factor auth. Work, common policy for all projects) Horizon (searchlight integration) Glance (harden security for V2 APIs, *spec* hierarchal project support)	*Continuation of M+* Keystone (*start* new service catalog) Horizon (angular-content enhancements)	*Continuation of M+* Nova (document API micro-versions) Horizon (*start* microversioned APIs) Glance (Image import APIs, V1 API depreciation, nova proxy image API compatibility)
Ocata	*Continuation of N+* Nova (possible theme) Keystone (possible theme) Glance (possible theme)	*Continuation of N+* Nova (possible theme)	*Continuation of N+* Nova (possible theme) Keystone (possible theme) Horizon (CLI parity w/ APIs, UX)	*Continuation of N+* Nova (possible theme) Keystone (*continue* service catalog) Horizon (angular-content enhancements)	*Continuation of N+* Nova (possible theme) Horizon (*continue* microversioned APIs) Glance (possible theme)

1,000 ft. view (2/8)

	Scalability	Resiliency	Manageability	Modularity	Interoperability
Mitaka	Neutron (external DNS, BGP dynamic routing,) Heat (convergence phase 1)	Neutron (add AZ support) Cinder (*beta support for rolling upgrades*)	Neutron (L2 API ext., LBaaS L7 rules, tenant delete, RBAC QoS, L2 neutron flavor framework) Cinder (updated replication) Heat (senlin support, OSC support)	Cinder (os-brick for majority of shared storage management)	
Newton	*Continuation of M+* Neutron (DHCP options per subnet,) Heat (convergence engine finalization)	*Continuation of M+* Cinder (*complete* active/active cinder-volume support) Heat (convergence phase 2- healing)	*Continuation of M+* Neutron (FWaaS V2 API, multiple L3 backends, VM w/o IP address) Cinder (better error reporting, cinder w/o nova, API improvements) Heat (condition functions)	*Continuation of M+*	*Continuation of M+* Neutron (identity V3 support)
Ocata	*Continuation of N+* Heat (engine parallelization)	*Continuation of N+* Cinder (possible theme) Heat (possible theme)	*Continuation of N+*	*Continuation of N+*	*Continuation of N+*

1,000 ft. view (3/8)

| Ceilometer | Gnocchi |
| Aodh | |

	Scalability	Resiliency	Manageability	Modularity	Interoperability
Mitaka	Ceilometer (batch messaging)	Ceilometer (rolling upgrade support)	Ceilometer (Gnocchi integration improvements, LBaaS V2 polling) Aodh (composite alarm rules, aodhclient) Gnocchi (lz4 optimized storage, batch measures API, time-split aggregated time-series storage)		Ceilometer (identity V3 support) Aodh (identity V3 support)
Newton	Continuation of M+ Ceilometer (reduced nova polling) Aodh (multiple workers for event alarms) Gnocchi (indexer sharding, dynamic resource creation)	Continuation of M+	Continuation of M+ Ceilometer (track cinder capacity notifications, synchronization API, record periodicity of samples, custom instance discovery polling)	Continuation of M+ Aodh (oslo.db pagination)	Continuation of M+ Ceilometer (tempest plugins) Aodh (in-tree tempest plugins)
Ocata	Continuation of N+	Continuation of N+	Continuation of N+ Ceilometer (DB migration to gnocchi) Aodh (mongo/hbase to SQL backend converter)	Continuation of N+	Continuation of N+ Gnocchi (migrate tempest plugins)

1,000 ft. view (4/8)

	Swift	Designate
	Trove	Ironic

	Scalability	Resiliency	Manageability	Modularity	Interoperability
Mitaka	Swift (POST efficiency improvements) Designate (multiple pools for zones) Ironic (increased parallelism for long running tasks)	Swift (improved RING rebalancing) Ironic (RAID configuration)	Swift (container and account reverse listings, full IPv6 support) Trove (features for Cassandra data stores, grow/shrink Percona data stores) Designate (OSC support, refactor domain to zones) Ironic (manual cleaning)	Trove (module management for data stores)	
Newton	*Continuation of M+*	*Continuation of M+* Trove (self healing for clusters)	*Continuation of M+* Swift (*continue* data at rest encryption) Trove (security enhancements for instances) Designate (DNSec, new horizon panels) Ironic (multi-tenant net support)	*Continuation of M+* Trove (module management for data stores) Designate (service consolidation)	*Continuation of M+* Trove (additional distro support) Ironic (multi-compute-host support for nova, start boot from volume (BfV) for bare metal)
Ocata	*Continuation of N+* Swift (*scalability improvements for large clusters*) Designate (per tenant DNS servers)	*Continuation of N+* Trove (monitoring and healing of instances)	*Continuation of N+* Trove (possible theme) Designate (non-standard DNS record types, GeoIP support) Ironic (possible theme)	*Continuation of N+*	*Continuation of N+* Ironic (nova, multi-tenant, and BfV)

1,000 ft. view (5/8)

	Scalability	Resiliency	Manageability	Modularity	Interoperability
Mitaka		Sahara (cluster verification checks)	Sahara (suspend/resume jobs, CDH 5.5, UX simplification)	Rally (tempest config. generator refactoring)	Rally (unit test coverage, API version coverage)
		Rally (cleanup after crash)	Manila (share replication, additional 1st & 3rd party drivers)		
		Magnum (HA bay configuration)	Magnum (enhanced docs, improved functional test coverage, CoreOS support for k8s bay)		
			Rally (time series reporting, VM workloads framework)		
Newton	*Continuation of M+*	*Continuation of M+*	*Continuation of M+*	*Continuation of M+*	*Continuation of M+*
	Sahara (increase horizontal scalability)	Sahara (cluster health monitor via horizon)	Sahara (trusted cluster create/scale, EDP enhancements)	Rally (nested atomic operations)	Sahara (migrate tests to tempest)
			Manila (expanded share replication, share migration, grouping concept)		
			Magnum (neutron integration w/o additional overlay, cinder volume support, ops documentation)		
			Rally (ramp up load generator, graceful shutdown, export task/verification results)		
Ocata	*Continuation of N+*	*Continuation of N+*	*Continuation of N+*	*Continuation of N+*	*Continuation of N+*
			Sahara (cinder snapshots for provisioned services)	Rally (persistent context, package management for plugins)	Sahara (python 3.x compatibility)
			Manila (new APIs/functions)	Magnum (possible theme)	Magnum (possible theme)
			Rally (multi-scenario load generation, Rally as a Service)		

	Scalability	Resiliency	Manageability	Modularity	Interoperability
Mitaka		Kolla (minimally disruptive upgrades from Liberty, infrastructure services diagnostics, expanded service diagnostics) TripleO (better upgrades)	Murano (test-runner, PL improvements, TOSCA support, deploy agent via cloud-init) Kolla (plugin support: Manila, Mistral,, security enhancements) TripleO (initial IPv6 support, SSL support) Barbican (user meta-data, stability/polish)	Kolla (testing enhancements)	Murano (i18n support)
Newton	Continuation of M+	Continuation of M+ Kolla (less disruptive upgrades, expanded service diagnostics)	Continuation of M+ Murano (policy definitions for hybrid cloud apps, reusable class library, supply params via Horizon) Kolla (plugins: Horizon, Neutron, Nova, Cinder, BiFrost integration) TripleO (composable service roles, workflow API, enhance CLI tooling) Barbican (cryptographic capabilities, documentation)	Continuation of M+ Kolla (testing enhancements) TripleO (ability to use TripleO for provisioning or config. Only, investigate containerized deploy)	Continuation of M+ Murano (integrate auth support via Keystone) Kolla (obtain vulnerability mgmt tag, documentation) Barbican (integration with Designate for DNSSec)
Ocata	Continuation of N+ Kolla (data caching)	Continuation of N+ Kolla (backup/restore OpenStack data)	Continuation of N+ Murano (app-centric dashboard, extend policy definitions) Kolla (plugins: big tent, preview k8s, docker enhancements) TripleO (usability improvements, auto-compute node upgrade)	Continuation of N+ TripleO (a la carte services, CI coverage of upgrades)	Continuation of N+

Legend: Murano, TripleO, Kolla, Barbican

OSA	Docs
Kuryr	OSC

	Scalability	Resiliency	Manageability	Modularity	Interoperability
Mitaka	Documentation (improved information architecture)	OpenStack Ansible (increased test coverage with full, multi-node, gate)	OpenStack Ansible (LBaaS V2, ironic roles) Kuryr (full integration with docker and docker swarm, integration with k8s, official packaging, start integration with magnum) OpenStack Client (neutron API)	OpenStack Ansible (roles in independent repo, deploy from source) Documentation (majority of DocBook to RST conversion completed, procedural change to reduce technical debt)	OpenStack Client (nova-network to neutron command mappings)
Newton	*Continuation of M+* OpenStack Ansible (multi-region support) Documentation (complete information architecture changes)	*Continuation of M+*	*Continuation of M+* OpenStack Ansible (Magnum, Barbican, Designate, Searchlight, Gnocchi, Zaqar roles, MultiOS support) Kuryr (complete integration with Magnum, enhance k8s integration) Documentation (big tent projects) OpenStack Client (continue neutron API, compute/bare-metal micro-version support)	*Continuation of M+* Documentation (complete DocBook to RST conversion, improved organization of docs)	*Continuation of M+* Kuryr (start discussions on OpenStack storage and application backup integration)
Ocata	*Continuation of N+* OpenStack Ansible (possible theme) Kuryr (possible theme)	*Continuation of N+* OpenStack Client (possible theme)	*Continuation of N+* OpenStack Ansible (possible theme) Kuryr (possible theme) Documentation (possible theme)	*Continuation of N+* OpenStack Ansible (possible theme) Kuryr (possible theme)	*Continuation of N+* OpenStack Ansible (possible theme) Kuryr (possible theme) OpenStack Client (possible theme)

1,000 ft. view (8/8)

	Scalability	Resiliency	Manageability	Modularity	Interoperability
Mitaka	QA (multi-node grenade)	Oslo (taskflow) RefStack (improved stability) QA (alpha: gate health tracking, partial upgrade beyond Nova)	Oslo (mutable config options runtime config., futuristic periodics, fasterners improvements) RefStack (improved usability, start vendor registration) Stable Release (investigate longer maintenance windows) QA (start testr arch., service client plugin)	Oslo (privsep, 3 new drivers for messaging, py3 helpers, config generator) Oslo (neutron support rewrite, reintegrate tempest-lib)	RefStack (updated to work with tempest plugin) Stable Release (stable:follows-policy tag) QA (microversion support)
Newton	*Continuation of M+* Stable Release (tooling to enable team to scale)	*Continuation of M+* QA (gate health tracking)	*Continuation of M+* Oslo (oslo config generator improvements) RefStack (complete vendor registration, complete product registration, finalize design for centralized testing by RefStack server) Stable Release (default 24 mo. maintenance) QA (complete testr arch., tempest run CLI, multiple resource config)	*Continuation of M+* Oslo (move projects/libs to futuristic periodics)	*Continuation of M+* Oslo (oslo config generator adoption push, promote lib capabilities)
Ocata	*Continuation of N+* RefStack (possible theme)	*Continuation of N+*	*Continuation of N+* RefStack (POC for aggregated data analysis, additional functionality)	*Continuation of N+*	*Continuation of N+*

100 ft. view
(project centric)

Nova

Project Snapshot

Compute service

# of Contributors (Mitaka):

292

# of Companies (Mitaka)

66

Mitaka (82 specs, 63 blueprints)

- Mitaka Design Series: Nova PTL Interview
- Numerous Live Migration related enhancements
- Simplified rolling upgrades
- Improved API documentation

Newton

- Stability improvements
- Documenting API microversions
- Continued efforts on Scheduler and Cells v2
- Neutron routed networks

Ocata

- Likely to continue to be a mix across all the themes of Modularity, Manageability, Scalability, Resiliancy and Interoperability

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Keystone

Project Snapshot

OpenStack identity management and service catalog

# of Contributors (Mitaka):

138

# of Companies (Mitaka)

37

Mitaka (16 blueprints, 17 specs)

- Implied roles provide a first step in addressing policy and authorization issues that have plagued users. It will allow for more fine grained control for policy and authorization.
- Time Based One Time Password (TOTP) authentication is important because it creates a stepping stone to full multi-factor authentication in keystone. Multi-factor authentication and TOTP are essential to provide a more secure experience.

Newton

- Continuing to work on features that enhance security, policy, and improve user experience. Specifically, looking into adding multi-factor authentication; creating a common policy scenario for all projects; and potentially creating a new version of the service catalog.

Ocata

- Important Themes: scalability, security and user experience. Scalability and security are vital for keystone since they are the lynchpin for the rest of OpenStack. Improving the user experience by moving other services and deployments to v3 of our APIs, improving policy, and creating a new version of the service catalog.

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Horizon

Project Snapshot

OpenStack Dashboard, which provides an extensible web based user interface to OpenStack services

# of Contributors (Mitaka):

245

# of Companies (Mitaka)

56

Mitaka (30 blueprints)

- Plug-in Framework Enhancements (testing, settings support) and Additions (Trove, Sahara)
- Customizable and Fully Theme-able User Interface (Bootstap complaint, on-the-fly theme changes)
- Angular Content Extensions (Angular View, Swift Interface UX, Image View Performance)
- Authentication Configuration Support (Authentication authorities, User attribute mapping)

Newton

- Blueprints
- Micro-versioned API
- Angular Content Enhancements (abstract commonalities, view conversion)
- Searchlight integration
- Increased API Coverage
- UX Enhancements (Scalability, Performance)

Ocata

- Micro-versioned API
- Angular Content Enhancements (performance, data accessibility, proactive monitoring with realtime updates)
- Achieve CLI parity for API coverage and support
- UX Enhancements

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Glance

Project Snapshot

Image service

# of Contributors (Mitaka):

117

# of Companies
(Mitaka)

37

Mitaka (10 specs, 5 blueprints)

- Image Signing and Verification
  (improved security at image upload and image boot)
- Simplified image storage
  (automatic upload/download to cinder volumes)
- Support large image uploads without token expiration
  (Support for Keystone Trusts)
- Spec agreement with Nova – prep for V1 depreciation
  (V2 API compatibility with Nova Proxy Image API)
- Themes: Interop, Manageability, Resiliency, Scalability

Newton (5 specs)

- Much improved image import APIs (Interop)
- V1 depreciation with Nova usage of V2 APIs
- Further security hardening of V2 APIs
- Spec work on hierarchical project support
- Themes: Interop and Manageability

Ocata

- Interoperability theme
- Scalability theme

Neutron

Project Snapshot

To implement services and associated libraries to provide on-demand, scalable, and technology-agnostic network abstraction

# of Contributors (Mitaka*):

200+

of Companies (Mitaka*)

48

(*) Stadium projects excluded

Mitaka (20 specs, 22 blueprints)

- Mitaka Design Series: Neutron PTL Interview
- External DNS Resolution
- Tenant Delete
- L2 API Extensions
- Neutron Flavor Framework
- Add Availability Zone
- BGP Dynamic Routing
- LBaaS L7 Rules
- Network IP Usage API
- RBAC QoS

Newton

- Blueprints (9)
- FWaaS API 2.0
- Multiple L3 Backends
- DHCP Options Per Subnet
- Keystone v3
- VM without IP Address

Ocata

- Blueprints TBD

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Cinder

Project Snapshot
Persistent volumes

of Contributors (Mitaka):

219

of Companies
(Mitaka)
52

Mitaka (18 Specs, 28 implemented BPs)

- Mitaka Design Series: Cinder PTL Interview
- Updated replication support
- Support for versioned objects (beta support for rolling upgrades)
- Cinder/Nova now leverage os-brick for majority of shared storage management

Newton

- Complete work for active/active cinder-volume support
- Better error reporting
- Support for using cinder without Nova (e.g. bare-metal)
- Leverage API micro-versioning to make API improvements while preserving backwards compatibility

Ocata

- Most likely will focus on resiliency enhancements

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Heat

Project Snapshot

OpenStack orchestration

# of Contributors (Mitaka):

184

# of Companies
(Mitaka)

37

Mitaka (28 specs, 9 blueprints)

- Initial Convergence Phase 1
- Support for Senlin Resources
- OpenStack Client Support

Newton

- Convergence Engine Finalization
- Convergence Engine Phase 2 - Healing
- Condition Functions

Ocata

- Scalability - Parallelization from Convergence Engine
- Reliability - Improved Stack Resiliency via Healing

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Telemetry (including Ceilometer, Aodh and Gnocchi)

Project Snapshot

Telemetry (monitoring and alerting) services for OpenStack clouds

# of Contributors (Mitaka):

73

# of Companies (Mitaka)

29

Mitaka (6 blueprints, 10 specs)

- Mitaka Design Series: Telemetry PTL Interview
- **Ceilometer**: Rolling upgrade, batch messaging, Gnocchi integration improvement, Keystone v3 API, LBaaS v2 polling
- **Aodh**: Composite alarm rules, Keystone v3 support, aodhclient
- **Gnocchi**: lz4 optimized storage format, time-split aggregated time series storage, batch measures REST support

Newton

- **Ceilometer**: Track Cinder capacity notifications, Synchronization API, record periodicity of sample data, custom instance discovery polling, polling schema, Tempest plug-ins, Nova polling reduction
- **Aodh**: Event alarm - multiple workers, oslo.db pagination, In-tree Tempest plug-ins
- **Gnocchi**: Indexer sharding, Dynamic resource creation

Ocata

- **Ceilometer:** DB migration to Gnocchi
- **Aodh**: Mongo/Hbase to SQL backend converter
- **Gnocchi**: Migrate Tempest plug-in

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Swift

Project Snapshot

Object storage

# of Contributors (Mitaka):

106

# of Companies (Mitaka)

27

Mitaka (7 Specs)

- Mitaka Design Series: Swift PTL Interview
- Improved RING rebalancing
- Container and Account Reverse Listings
- Full IPv6 Support - memcache and statsd
- POST efficiency Improvements - Update all metadata without read/write of object on disk

Newton

- Data-at-Rest Encryption

Ocata

- Scalability Improvements for larger clusters

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Trove

Project Snapshot

Trove is database as a service in OpenStack. The mission is to provide scalable and reliable cloud database as a service provisioning functionality for relational and non-relational database engines, and to improve its full-featured and extensible open source framework

# of Contributors (Mitaka):

74

of Companies (Mitaka)

20

Mitaka (21 specs, 20 blueprints)

- 21 blueprints, 21 specs
- Filling out the support matrix for Cassandra datastore. (user/database/root/config groups/backup/restore/clustering)
- Percona cluster datastore grow and shrink ability
- Module Management for datastores.

Newton

- Self healing systems around clusters
- Extra security of instances
- Wider support of trove across distros including Redhat.

Ocata

- Better manageability
- Better resiliency
- Help move forward the monitoring and healing of instances in the future

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Designate

Project Snapshot

OpenStack DNS as a Service

# of Contributors (Mitaka):

35

# of Companies
(Mitaka)

15

Mitaka (2 specs, 1 blueprint)

- Mitaka Design Series: Designate PTL Interview
- OpenStack Client support
- Refactoring of domains -> zones
- Multiple pool support for zones

Newton

- Service consolidation
- DNSec
- New panels in Horizon

Ocata

- Per tenant DNS servers
- Non standard DNS record types
- GeoIP support

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CLOUD SOFTWARE

Ironic

Project Snapshot

Bare-Metal Provisioning

# of Contributors (Mitaka):

121

# of Companies
(Mitaka)

30

Mitaka

- Mitaka Design Series: Ironic PTL Interview
- Manual cleaning (assists in server maintenance etc)
- RAID Configuration
- Increased parallelism for long running tasks

Newton

- Multi-Tenant Network support
- Multi-Compute-Host support for Nova
- Starting work on Boot from Volume (BfV) for Bare Metal

Ocata

- Interoperability - Nova in particular, multi-tenant and BfV support
- Manageability - Simplify the complexity of Ironic

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Sahara

Project Snapshot

Provides a simple means to provision a data-intensive application cluster on top of OpenStack.

# of Contributors (Mitaka):

71

# of Companies (Mitaka)

23

Mitaka (17 blueprints)

- Add ability of suspending and resuming Elastic Data Processing (EDP) jobs
- Add plugin support for Cloudera Distribution of Hadoop 5.5 and Cloudera Manager
- Implement cluster verification checks
- Improved secret storage utilizing Castellan
- UX Simplification (Reduce number of Dashboard Panels)
- Remove: Direct Infrastructure Engine support, Vanilla v2.6.0 plugin, MapR plugin (except for v500, 501)

Newton (14 blueprints)

- SPI Method to Validate Image
- V2 API enhancements to existing api and improved developer experience
- Elastic Data Processing (EDP) Enhancements: Logging, Simplified UX, add support for multiple EDP workflow
- Increase horizontal scalability
- Trusted cluster creation and scaling
- Cluster Health monitoring via Horizon
- Migration of tests to Tempest

Ocata

- Python 3.X Compatibility
- Support cinder volume snapshot for provisioned Hadoop services to decrease time for cluster provisioning

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Manila

Project Snapshot

Shared File Service

# of Contributors (Mitaka):

92

# of Companies
(Mitaka)

30

Mitaka (26 blueprints)

- – Share Replication
- – Additional driver support
  - First party driver with simpler setup
    - ZFS
    - LVM
    - LXD
  - 3rd party drivers including CephFS

Newton

- – Expanded Share replication
- – Share migration (complete work started in Liberty)
- – New generic grouping concept to replace consistency groups
  - Add group migration and replication

Ocata

- – Manageability
  - New APIs and functions
  - Functional integrations

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Magnum

Project Snapshot
Containers service

of Contributors (Mitaka):

77

# of Companies (Mitaka)

29

Mitaka (specs, 53 blueprints)

- CoreOS support introduced for K8S bay type
- Highly available bay configuration
- Improved functional test coverage

Newton (specs, 12 blueprints)

- Neutron integration without additional overlay
- Cinder volumes as Magnum data volumes
- Operational (Install/User/Troubleshooting) documentation

Ocata

- Enhanced interoperability with other OpenStack services, e.g. Keystone
- Modular, pluggable, architecture for custom k8s/swarm/mesos bays or entirely new bay types

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CLOUD SOFTWARE

Rally

Project Snapshot

OpenStack verification and benchmarking

# of Contributors (Mitaka):

104

# of Companies (Mitaka)

32

Mitaka (3 specs)

- Unit test coverage increase
- Tempest config generator refactoring
- Cleanup after crash
- VM workloads framework
- API version coverage
- Time Series reporting

Newton (8 specs)

- Export task and verification results
- Ramp up load generator
- Unified task validation
- Graceful shutdown
- Nested Atomic Operations

Ocata

- Multi Scenario load generation
- Persistent context
- Package management for plugins
- Rally as a service

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Murano

Project Snapshot

A browsable, categorized Application catalog to compose reliable application environments with the push of a button

\# of Contributors (Mitaka):

93

\# of Companies (Mitaka)

27

Mitaka (13 specs, 15 blueprints)

- Implemented Murano test-runner: unit-testing framework for application, Multi-Region Support
- Significant improvements to MuranoPL for describing how an application is deployed and scaled
- Support for TOSCA in Murano (IBM Heat Translator and Cloudify plugins)
- Murano agent is now installable through cloud-init (no need to prebuild custom images)
- I18n support (translation)

Newton (1 spec, 0 blueprints)

- Support for Policy definition to govern deployment of applications in hybrid cloud environments, starting with AWS and VMware.
- Improve ease of developing applications through the availability of a reusable class library.
- Tooling to ease packaging of applications in Murano
- Integrate Authentication support for Actions via Keystone
- Enable specifying parameters from Horizon UI

Ocata

- Create an Application-centric dashboard (not cloud resource oriented)
- Extend Policy definitions for applications

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Kolla

Project Snapshot

Provide production-ready containers and deployment tools for operating OpenStack clouds.

# of Contributors (Mitaka):

100

of Companies (Mitaka)

23

Mitaka (8 specs, 58 blueprints)

- Upgrade support from Liberty to Mitaka with minimal downtime
- Infrastructure Service Diagnostics: Heka, Elasticsearch, Kibana integration
- On-demand, automated Services reconfiguration with limited downtime
- Security Enhancements: Drop Root privilege separation for Applications; TLS encrypted credential exchange
- Plug-in support: Manila, Mistral
- Software Testing Enhancements

Newton (22 blueprints)

- Security: Obtain Vulnterability management tag , SE Linux Support
- Plug-in support for: Horizon, Neutron, Nova, Cinder (source or binary)
- Upgrades: Downtime improvements
- BiFrost Integration
- Documentation: Operators Guide, Network Isolation, Bi Frost
- Software Testing enhancements
- Expanded System Diagnostics

Ocata

- Plug-in support: Cover the Big Tent
- Integrate Docker Enhancements
- Kubernetes – Tech Preview
- Data Caching
- Backup and restore of OpenStack data

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CLOUD SOFTWARE

TripleO

Project Snapshot

Installing, upgrading and operating OpenStack clouds using OpenStack's own cloud facilities

# of Contributors (Mitaka):

138

of Companies (Mitaka)

25

Mitaka (6 specs, 41 blueprints)

- Upgrade: Controller & Cinder are upgraded synchronously via Heat. Nova, Swift and Ceph are upgraded one-by-one.
- SSL: SSL termination of all public overcloud and undercloud endpoints.
- IPv6: Initial support for IPv6

Newton

- Composable service roles: allowing operator to configure which services go into each role.
- Split stack: Use TripleO for provisioning only, and other tools for configuration or vice versa.
- Workflow API: Moving workflow and business logic into workflow API
- Usability enhancement: Enhance CLI tooling
- Containerized deployment: Investigating the use of container for deployment.

Ocata

- A la carte: The ability to choose pieces of TripleO that work for you.
- Improve usability, modularity, CI coverage of upgrade, automated compute node upgrade

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Barbican

Project Snapshot

Secret storage and generation system capable of providing key management for services wishing to enable encryption features

# of Contributors (Mitaka):

67

# of Companies (Mitaka)

23

Mitaka (5 specs, 1 blueprints)

- User Meta Data
- Stabilization and polish

Newton

- Cryptographic capabilities
- Integration with Designate for DNSSec
- Documentation

Ocata

- TBD

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CLOUD SOFTWARE

OpenStack Ansible (OSA)

Project Snapshot

Deploying OpenStack from source in a way that makes it scalable while also being simple to operate, upgrade, and grow.

# of Contributors (Mitaka):

82

of Companies (Mitaka)

23

Mitaka (29 specs, 24 blueprints)

- Mitaka Design Series: OSA PTL Interview
- Modularity - Roles into new independent repositories, deploy from source
- Reliability - Increased test coverage, with full multi-node gate test
- Additional Services - LBaaSv2, Ironic

Newton (6 specs, 2 blueprints)

- Multi-region Support
- Additional Services - Magnum, Barbican, Designate, Searchlight, Gnocchi, Zaqar
- MultiOS Support - Ubuntu 16.04LTS

Ocata

- Interoperability with other projects
- Continued increases in modularity, manageability and scalability

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Kuryr

Project Snapshot

Bridge between container framework networking and storage models to OpenStack networking and storage abstractions.

# of Contributors (Mitaka):

30

of Companies
(Mitaka)

15

Mitaka (2 specs, 16 blueprints)

- Mitaka Design Series: Kuryr PTL Interview
- Full integration with Docker and Docker Swarm
- Integration with Kubernetes
- Official packaging including Kuryr containers for lib network driver
- Started integration with Magnum (for nested container networking)

Newton (1 spec)

- Finalize integration with Magnum and provide Kuryr as default driver
- Enhance Kubernetes integration with policy constructs, and n-tier application needs, by leveraging OpenStack networking ecosystem (e.g. LBaaS replacement for Kube-Proxy, DNS integration w/ Neutron/Nova/Designate, etc.)
- Start discussions on integration of OpenStack storage and application backup projects

Ocata

- Modularity (since numerous container orchestration engines and standards need to be integrated)
- Manageability/Scalability (deliver mixed containers & OpenStack environments that are scalable and performant)
- Interoperability (need seamless UX between VM, containers, and bare-metal networking)

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Documentation

Project Snapshot

Provide documentation for core OpenStack projects to promote OpenStack.

# of Contributors (Mitaka):

349

# of Companies (Mitaka)

74

Mitaka

- [Mitaka Design Series: Docs PTL Interview](#)
- Migration from DocBook XML to RST all but completed
- Improved information architecture
- Procedural changes to assist in reducing technical debt

Newton

- Completion of DocBook to RST migration and Information Architecture changes
- Improved organisation of overall documentation suite
- Bringing in new BigTent projects to Docs team

Ocata

- Manageability - focus on working more effectively and efficiently as well as ongoing cross-OpenStack collaboration

OpenStack Client (OSC)

Project Snapshot

Provide a single command-line interface for OpenStack services with a uniform command set and format.

# of Contributors (Mitaka):

87

# of Companies (Mitaka)

31

Mitaka (46 blueprints)

- Mitaka Design Series: OSC PTL Interview
- The major user-visible change is the addition of Network API commands (Neutron). We are making the transition from Nova-net to Neutron as transparent as possible (i.e. the same commands will work in either environment when possible).

Newton

- Continued Network commands, and solidification of micro-version support for Compute and Baremetal.

Ocata

- Consistency and backward compatibility.

Oslo

Project Snapshot

To produce a set of python libraries containing code shared by OpenStack projects.

# of Contributors (Mitaka):

167

# of Companies (Mitaka)

35

Mitaka (6 specs)

- Mitaka Design Series: Oslo PTL Interview
- New Library: oslo.privsep -- replacement for oslo.rootwrap
- Three new drivers for oslo.messaging
- New python 3 helpers
- Oslo-config-generator, Futurist periodics, Taskflow, Fasteners improvements
- Mutable configuration options now runtime reconfigurable

Newton (1 spec)

- Oslo-config-generator adoption push plus more improvements
- More better distributed locks
- Move projects and libraries to futurist periodics
- Evangelize the Library capabilities and how to take advantage of them

Ocata

- More
- Better
- Faster

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RefStack

Project Snapshot

RefStack is a test result collection and reporting service to support the DefCore interoperability testing process.

# of Contributors (Mitaka):

14

of Companies (Mitaka)

9

Mitaka (6 specs, 2 blueprints)

- Improved Stability
- Improved User functionality/Usability
- Updated to work with Tempest Plugin
- Vendor Registration coding started

Newton

- Vendor Registration completed
- Product Registration completed
- Finalize Design for Centralized Testing run by the Refstack server

Ocata

- Scalability
- Added User functionality
- POC for Aggregated Data Analysis

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CLOUD SOFTWARE

Stable Release

Project Snapshot

Maintains stable releases and stable release policies, enforces stable release policies, maintains tools for stable release management

# of Contributors (Mitaka):

9

# of Companies (Mitaka)

5

Mitaka

- Creation of Stable Release Project with PTL and cores
- Improvements in Dependency caps and pip install resolution
- Stable:follows-policy tags to identify projects that meet requirements
- Investigation of how to achieve longer maintenance windows

Newton

- Extend maintenance window to default to 24 months (with option to shorten based on resources and other impacts)
- Grow Stable team size and diversity
- Tooling to enable the team to scale

Ocata

- To be defined during Newton

Quality Assurance

Project Snapshot

Develop, maintain, and initiate tools and plans to ensure the upstream stability and quality of OpenStack, and its release readiness at any point during the release cycle.

# of Contributors (Mitaka):

284

# of Companies (Mitaka)
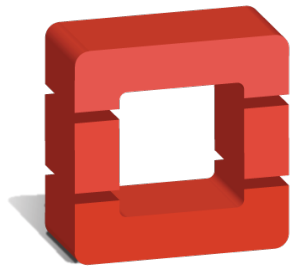
58

Mitaka (14 specs)

- Gate health tracking board (alpha)
- Microversion support
- Testr datastore layering and architecture - start
- Service client plug-in
- Neutron support rewrite
- Reintegrate tempest-lib
- Multi-node Grenade
- Partial upgrade (beyond Nova)

Newton

- Gate health tracking board
- Testr datastore layering and architecture - complete
- Tempest run CLI
- Multiple resource configuration

Ocata

- TBD