

How Red Hat brings OpenStack into the enterprise



OpenStack provides many benefits for organizations that want to use cloud technologies to compete in fast-moving markets.

Organizations choose OpenStack to:¹

- Increase operational efficiency.
- Accelerate their ability to innovate.
- Avoid vendor lockin.
- Standardize on the same open platform and application programming interfaces (APIs) that power a global of public and private clouds.
- Save money.

OpenStack adoption is growing and maturing

OpenStack® is the leading open source cloud infrastructure platform. A large, active community contributes to OpenStack’s array of interrelated projects. OpenStack offers tools for pooling compute, storage, and networking resources across your datacenter and delivering self-service access to users. These technologies have matured in recent years, and 67% of organizations using OpenStack are now doing so in production environments.¹

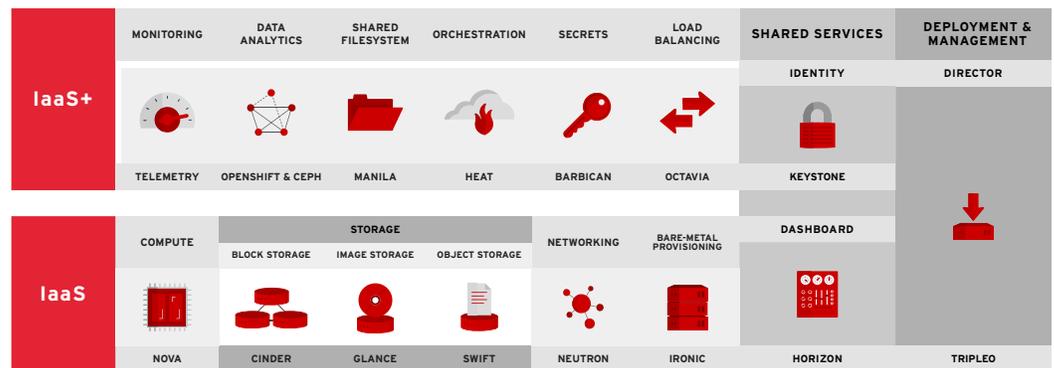


Figure 1. OpenStack features a modular architecture based on a variety of interoperable services for compute, networking, storage, management, orchestration, and more.

As a foundation for scalable, flexible cloud environments, OpenStack is often combined with other open source technologies like cloud management, automation, and container tools.

- **Cloud management platforms (CMPs).** OpenStack includes basic management capabilities, but a [comprehensive CMP](#) can provide advanced functionality to unify virtualized and private cloud infrastructure under a single interface.
- **Automation platforms.** Manual OpenStack environment configuration can be time-consuming and error-prone. [Automation platforms](#) can streamline setup, as well as ongoing maintenance operations, to reduce the time, effort, and risk associated with configuration management.
- **Container frameworks.** [Containers](#) can simplify application deployment and portability. OpenStack includes application programming interfaces (APIs) for native container operations. In fact, 70% of organizations using OpenStack are interested in containers.¹



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¹ OpenStack Foundation, “2018 OpenStack User Survey Report,” 2018. openstack.org/user-survey/2018-user-survey-report.

The business value of Red Hat OpenStack Platform

Deploying Red Hat's commercially hardened OpenStack product provides significant business value:²

- 33% faster fulfillment of service requests
- 13% more productive application development
- 59% faster rollout of new applications
- 53% reduction in infrastructure costs
- 99% reduction in unplanned downtime

To take advantage of this innovation, organizations can choose to deploy OpenStack directly by implementing, testing, patching, and supporting community releases themselves. However, choosing a commercially available OpenStack offering can simplify deployment and provide additional benefits. As a result, many organizations select an experienced vendor like Red Hat to reduce risk, streamline installation, and access support.

Red Hat combines community leadership, open source expertise, and production-grade tools and support to bring OpenStack to the enterprise. **Red Hat OpenStack Platform** is commercially hardened and co-engineered with **Red Hat® Enterprise Linux®**, the world's leading enterprise Linux operating system.³ It also incorporates community-powered innovation with enterprise scale and confidence – empowering businesses to deliver new, differentiated applications and services on a flexible, scalable, and proven OpenStack public or private cloud.

Red Hat's open development approach

As an **open organization**, Red Hat values transparency, inclusivity, adaptability, collaboration, and community. Our development model begins in the open source community, with thousands of contributors, and results in finished products that are tested, integrated, and supported. Proven over many years through products like Red Hat Enterprise Linux and Red Hat Middleware, this approach maximizes innovation while providing production-grade stability, support, and features for businesses.

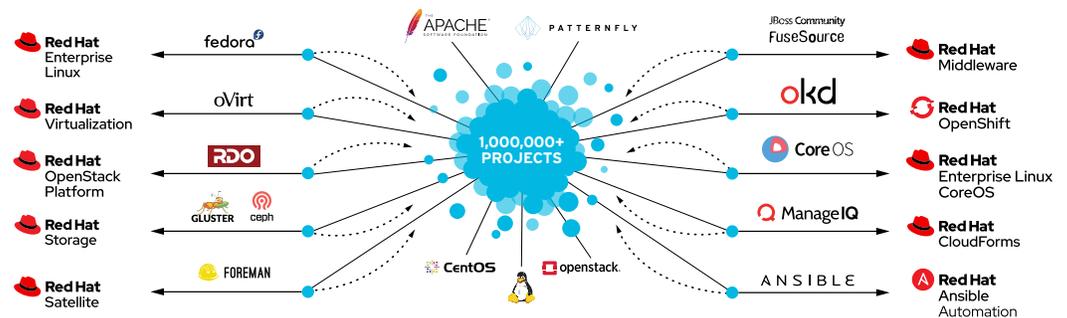


Figure 2. Red Hat has extensive experience bringing open source projects to the enterprise.

Upstream community collaboration

The process starts in the OpenStack community with upstream code contributions and functional advocacy for our customers. The community includes more than 102,000 individual members and 687 contributing companies from 199 countries.⁴ This collaboration generates faster development and innovation.

² IDC White Paper, sponsored by Red Hat, "Red Hat is Helping Organizations Optimize Private Cloud Service Delivery," May 2019. Document #US45045819. [redhat.com/en/resources/idc-business-value-red-hat-openstack-analyst-paper](https://www.redhat.com/en/resources/idc-business-value-red-hat-openstack-analyst-paper).

³ IDC Market Perspective, "Worldwide Operating Systems Market, 2017: Deployment Trends," May 2018. #US43775318. [idc.com/getdoc.jsp?containerId=US43775318](https://www.idc.com/getdoc.jsp?containerId=US43775318).

⁴ Information from [openstack.org](https://www.openstack.org) as of August 6, 2019.

Red Hat is the top corporate contributor to the upstream OpenStack community. In fact, we have delivered 25.1% of commits for the Stein release and 15.8% of commits across all OpenStack releases.⁵ By engaging upstream, we can advocate for our customers and partners to influence the technology choices that matter most to them. This approach also allows us to gain and maintain OpenStack expertise and deliver fast, knowledgeable product support and services. Finally, we contribute all of our code developments to the upstream project first, then build that upstream code into the core of our products, ensuring that each one is truly open source.

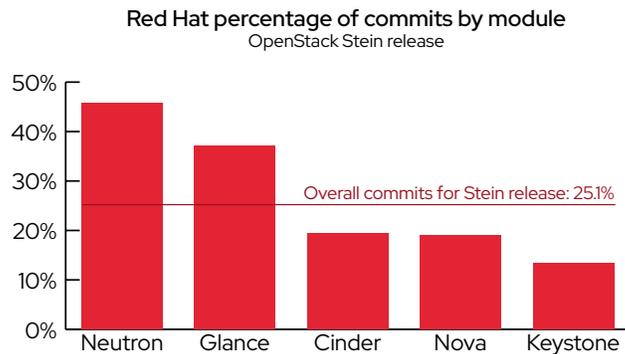


Figure 3. Red Hat's contribution to OpenStack Stein release core projects as a percentage of total commits, retrieved on June 26, 2019 from stackalytics.com.

Production testing and enterprise hardening

An extensive patching, bug-fixing, testing, and certification process ensures broad compatibility and performance with upstream community releases. We intensively test and harden the community code within our products, so you can be confident your Red Hat-based infrastructure is reliable and stable.

We also sponsor [RDO](#), a community project focused on developing enterprise features and functionality for OpenStack running on Red Hat Enterprise Linux, Fedora, CentOS, and other derived Linux distributions. Though RDO is facilitated by Red Hat, the RDO OpenStack distribution is supported by the RDO community.

Red Hat sees the value in community-driven projects and created RDO to focus OpenStack development around enterprise deployments on Red Hat Enterprise Linux. Unlike the OpenStack community releases, RDO ensures that its OpenStack releases install and run on Red Hat platforms. With Red Hat Enterprise Linux, or its derivatives, at the base of RDO releases, we can provide a more focused development approach to further the development of features and functionality for Red Hat Enterprise Linux customers.

⁵ [Stackalytics.com](https://stackalytics.com), retrieved on June 26, 2019.

Bridging the gap between legacy applications and cloud infrastructure

Many legacy applications are not designed to run in cloud environments. Red Hat helps you bridge the gap with [Red Hat Cloud Infrastructure](#), an offering that combines Red Hat OpenStack Platform, Red Hat Virtualization, Red Hat CloudForms, and Red Hat Satellite. You can build a unified environment that delivers traditional virtualization for legacy workloads and cloud-based resources for modern applications.

		
Upstream OpenStack source code	Upstream OpenStack source code packaged as RPMs	Enterprise-hardened OpenStack source code, optimized and integrated with Red Hat Enterprise Linux
Community Linux	Linux distributions, including Red Hat Enterprise Linux, Fedora, and CentOS	Red Hat Enterprise Linux
<ul style="list-style-type: none"> • No certifications • Community support • Six-month life cycle 	<ul style="list-style-type: none"> • No certifications • Community support • Six-month life cycle 	<ul style="list-style-type: none"> • Red Hat certified partner ecosystem • Red Hat Support • One-year or longer life cycle

Figure 4. Red Hat follows a proven process for bringing OpenStack to the enterprise.

Certified ecosystems

Red Hat's [partner ecosystem](#) is a key differentiator. Our customers can customize their datacenters with certified third-party hardware, software, and technologies, knowing that they'll work reliably with Red Hat products. Our partner ecosystem is one of the largest available, giving you the flexibility and choice you need. Our Red Hat OpenStack Platform ecosystem includes:

- Thousands of [certified hardware systems](#) from leading vendors.
- More than 900 certified solutions from more than 140 companies.
- Hundreds of partner-led proofs of concepts using Red Hat OpenStack Platform.

Integrated technologies

The real potential of OpenStack comes from the ability to connect infrastructure resources, applications, and other technologies into a single environment. Red Hat's integrated portfolio of enterprise-grade products allows you to build a flexible hybrid datacenter environment that you can easily adapt as needs change. You can customize your Red Hat OpenStack Platform environment with:

- [Red Hat Virtualization](#), an open, software-defined platform for virtualizing Linux and Microsoft Windows workloads.
- [Red Hat OpenShift](#), an enterprise-ready Kubernetes container platform with automated operations.
- [Red Hat Ceph Storage](#), an open, massively scalable storage solution for modern and cloud-based workloads.
- [Red Hat CloudForms](#), a management platform for virtual and private cloud infrastructure.
- [Red Hat Satellite](#), an infrastructure management tool for Red Hat environments.
- [Red Hat Ansible Automation](#), simple, agentless IT automation technology.
- [Red Hat Middleware](#), integration technologies for connecting applications, data, systems, and APIs.

Award-winning support

Red Hat has been recognized 8 years in a row as one of “The Year’s Top Ten Best Web Support Sites” by The Association of Support Professionals.⁶

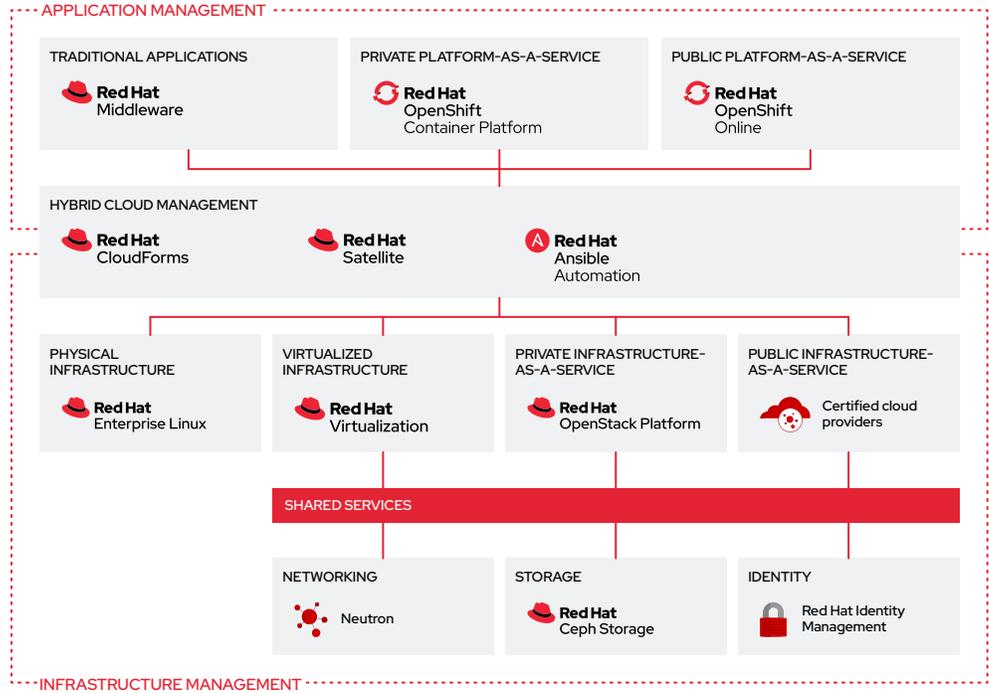


Figure 5. Red Hat OpenStack Platform integrates with other Red Hat products to deliver complete, modular, hybrid datacenter environments.

Reference architectures and solution documentation make it easier to construct and operate a cloud environment that supports your business. Because Red Hat products are open source and modular, you can deploy only the ones you need today and adapt over time.

Award-winning support and production life cycles

Red Hat is in the unique position to maintain development and support for both OpenStack technology component and that underlying Linux operating system on which OpenStack depends. Every Red Hat subscription includes award-winning global support as well as access to technical experts and resources to help you successfully build, deploy, and manage your enterprise solutions.

We also provide stable branch releases of Red Hat OpenStack Platform and Red Hat Enterprise Linux that are supported for an enterprise production life cycle beyond the six-month release cycle of the OpenStack community. Customers can choose to standardize for up to five years on certain releases or update every six months to one year. The fast-forward upgrade feature in Red Hat OpenStack Platform director simplifies the process of in-place upgrading between long-life releases.

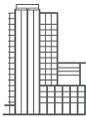
⁶ See redhat.com/en/services/support for details.

Learn more

Bringing open source technologies to the enterprise is a process that involves community contributions, production hardening, integration and certification with other products and partners, and superior support. As an open source leader, Red Hat combines all of these into Red Hat OpenStack Platform, giving you an ideal cloud foundation to support your business.

Learn more about Red Hat OpenStack Platform at redhat.com/openstack.

About Red Hat



Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.



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