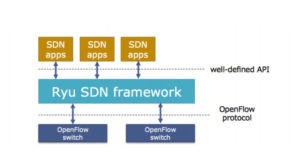
What is Ryu Controller?

[Ryu Controller](http://osrg.github.io/ryu/) is an open, [software-defined networking (SDN)](https://www.sdxcentral.com/sdn/) Controller designed to increase the agility of the network by making it easy to manage and adapt how traffic is handled. In general, the [SDN Controller](https://www.sdxcentral.com/sdn/definitions/sdn-controllers/) is the brains of the SDN environment, communicating information down to the switches and routers with [southbound APIs](https://www.sdxcentral.com/sdn/definitions/southbound-interface-api/), and up to the applications and business logic with [northbound APIs](https://www.sdxcentral.com/sdn/definitions/north-bound-interfaces-api/). The Ryu Controller is supported by [NTT](https://www.sdxcentral.com/listings/ntt-data/) and is deployed in NTT cloud data centers as well.

The Ryu Controller provides software components, with well-defined [application program interfaces (APIs)](https://www.sdxcentral.com/directory/nfv-sdn/comprehensive-list-of-sdn-apis/), that make it easy for developers to create new network management and control applications. This component approach helps organizations customize deployments to meet their specific needs; developers can quickly and easily modify existing components or implement their own to ensure the underlying network can meet the changing demands of their applications.

How a Ryu Controller Fits in SDN Environments

[](https://www.sdxcentral.com/wp-content/uploads/2014/09/ryu-controller-sdn-framework.jpg)

The Ryu Controller source code is hosted on [GitHub](https://github.com/osrg/ryu) and managed and maintained by the open Ryu community. [OpenStack](https://www.sdxcentral.com/cloud/open-source/definitions/what-is-openstack-quantum-neutron/), which runs an open collaboration focused on developing a cloud operating system that can control the compute, storage and networking resources of an organization, supports deployments of Ryu as the network Controller.

For detailed SDN Controller Vendor and Open Source SDN Controller comparisons, checkout the [2017 Future of Network Virtualization and SDN Controllers Report](https://www.sdxcentral.com/reports/2017/network-virtualization-sdn-controller/) also available as [PDF Download](https://www.sdxcentral.com/reports/network-virtualization-sdn-controllers-download-2017/)

Written entirely in Python, all of Ryu’s code is available under the [Apache 2.0 license](http://www.apache.org/licenses/LICENSE-2.0.html) and open for anyone to use. The Ryu Controller supports NETCONF and OF-config network management protocols, as well as [OpenFlow](https://www.sdxcentral.com/sdn/definitions/what-is-openflow/), which is one of the first and most widely deployed [SDN](https://www.sdxcentral.com/sdn/definitions/what-the-definition-of-software-defined-networking-sdn/) communications standards.

The Ryu Controller can use OpenFlow to interact with the forwarding plane (switches and routers) to modify how the network will handle traffic flows. It has been tested and certified to work with a number of OpenFlow switches, including [Open vSwitch](https://www.sdxcentral.com/cloud/open-source/definitions/what-is-open-vswitch/) and offerings from [Centec](https://www.sdxcentral.com/listings/centec-networks/" \o " Centec), [Hewlett Packard](https://www.sdxcentral.com/hpe/networking/), [IBM](https://www.sdxcentral.com/listings/ibm/), and [NEC](https://www.sdxcentral.com/nec/netcracker/).