

# BISDN Cloud Fabric

We offer licenses for BISDN Cloud Fabric, a set of software components from the Whitebox Switch Operating System up to the integration into the latest OpenStack versions.

While traditional OpenStack virtualizes the network exclusively on the servers, we use networking gear for networking purposes. Nevermind stacking three levels of OpenvSwitch bridges on each compute node, but in order to achieve high throughput and low latency, you need to use the forwarding capabilities of the switching hardware, both NICs and ToR switches.

In addition to the Open Source components baseboxd and BISDN Linux we deploy a shim controller that speaks OpenFlow (OF-DPA 3.05) northbound as well as southbound. Doing so, it presents a single switch abstraction to the upper SDN controller baseboxd, and acts as controller to the lower switches. This controller, CAWR (standing for Capability AWARE Routing), implements standard protocols like LACP and LLDP, provides statistics interface and offers an interface to a graphical user interface.

The CAWR controller creates virtual interfaces from the Multi-Chassis Link Aggregation (MLAG) that the (typically two) ToR switches create. This way, multiple network interfaces are used from the servers, further increasing the available throughput. Networks can either be isolated using VLANs or VXLAN, the latter typically requiring a L3 configuration of the switches. The baseboxd controller is able to locally create VXLAN endpoints on the switches as well, catering for data-center interconnects.

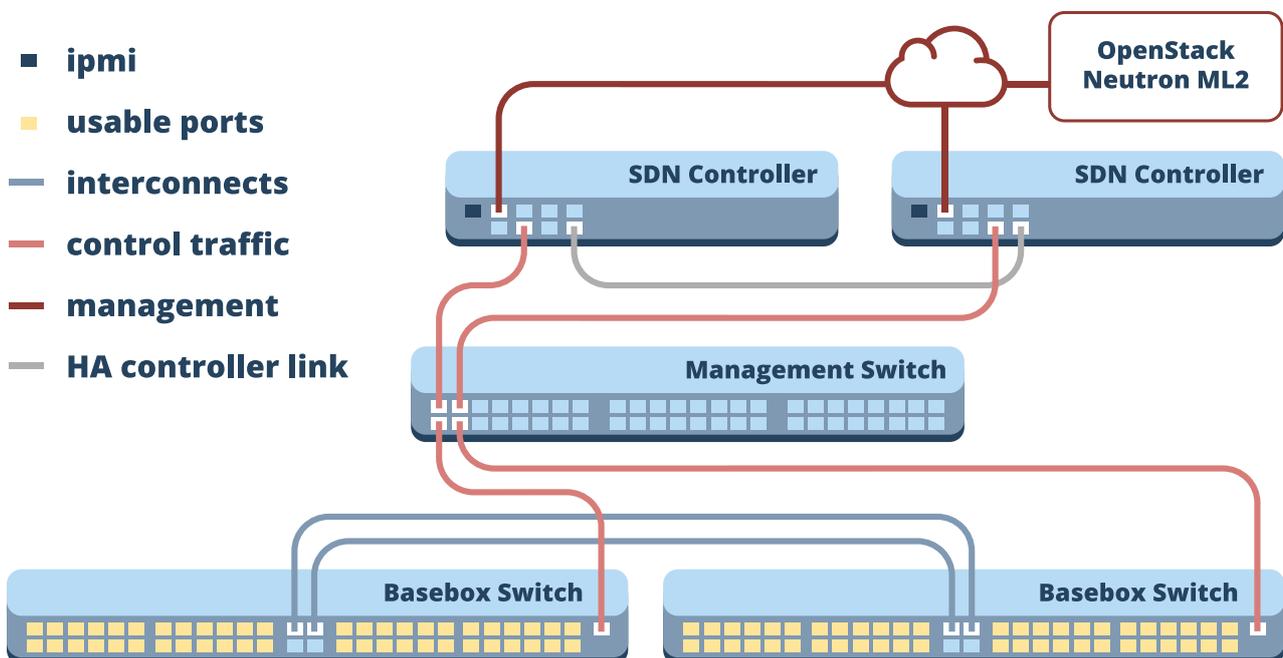


Figure 1: two ToR switches and two controllers in HA configuration

In a high-availability scenario as shown in Figure, controllers use *etcd* as a common configuration database. This ensures a common network state information, and a connector synchronizes this information with the Linux *systemd-networkd* instantaneous network information. An ML2-plugin for OpenStack Pike and Queens integrates and manages network state from OpenStack Neutron.

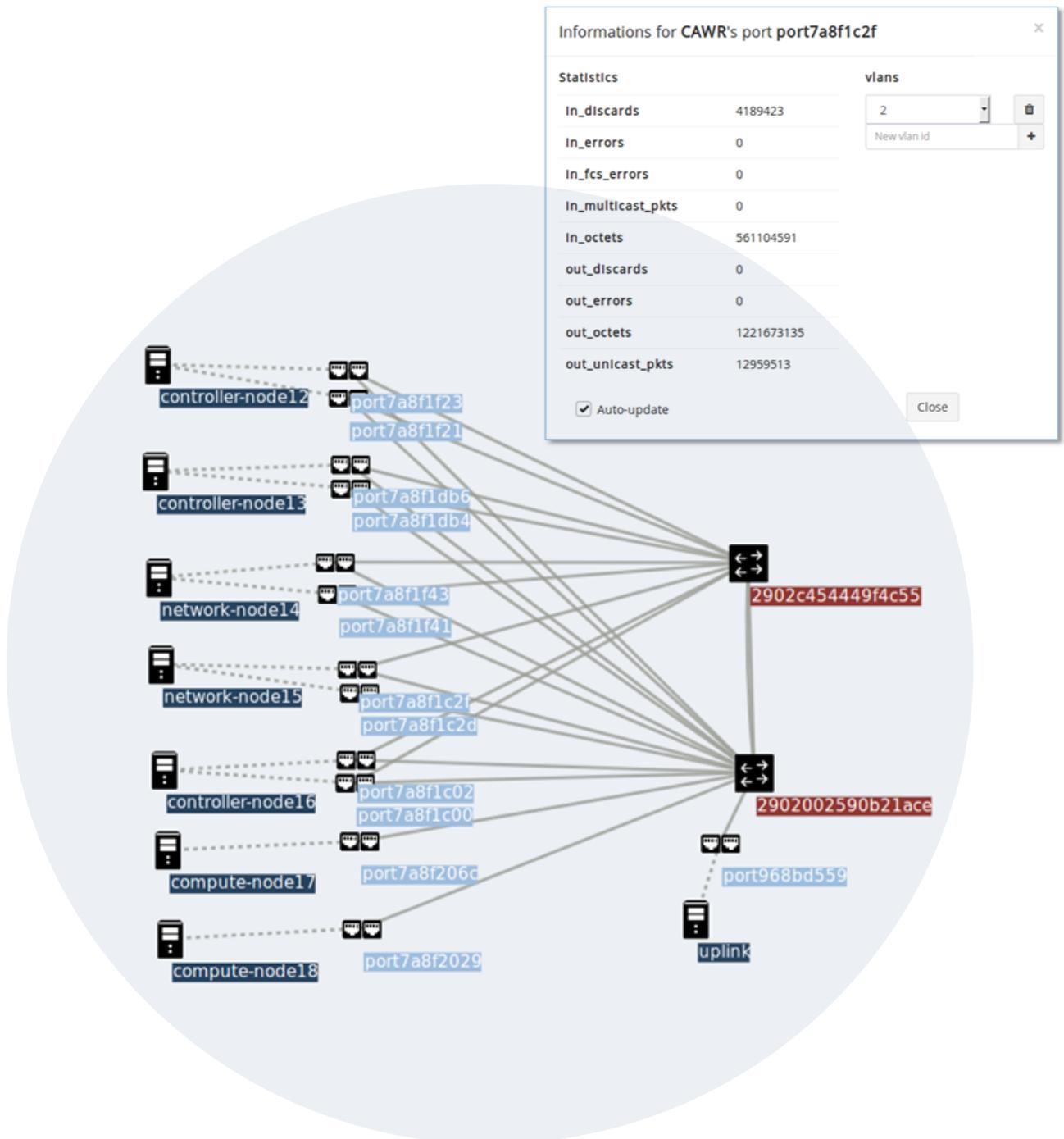


Figure 2: Extract from the graphical user interface showing the topology and interface names of servers as well as interface statistics.