

# OpenStack on FreeBSD

# Project mission

- Build a production-ready cloud computing platform (OpenStack) for FreeBSD
- Increase popularity of the FreeBSD and fill the gap with cloud computing
- Become a catalyst for many open-source software

# Why OpenStack on FreeBSD

- Permissive license
- Consistency (separated base system and ports)
- Less overhead
- Native ZFS support
- PF, IPFW

# Challenges

- Hypervisors
- FreeBSD-specific bugs in OpenStack libraries
- No support for in-kernel module in openvswitch (no VXLAN and GRE tunnels). Alternative - Lagopus SDN by NTT
- Packaging (consumes a lot time)
- Maintaining documentation

# Hypervisors

- Xen doesn't support UEFI host, slow networking, broken disk backends (Copy-on-Write)
- Bhyve is missing a framebuffer for non-UEFI VMs, no support for disk backends, much faster, requires improvements to work with nova

# Scope of work

- Implementing drivers and fixing platform-specific issues
- Build server and CI
- Maintaining ports tree
- Documentation
- Community

# Status

- Keystone (authentication and authorization)
- Glance (stores and retrieves virtual machine disk images)
- Nova (compute instances)
- Horizon (web-based dashboard)
- Cinder (persistent block storage to running instances)
- Platform-specific fixes to use Xen Dom0 and Bhyve as hypervisor for Nova
- Network driver (L2) for Nova and FreeBSD 11
- Floating IP support for Nova using PF
- NFS support for Cinder

# Future

- OpenStack Appliances based on Pike release
- Supervisord for managing OpenStack Services
- ZFS driver for Cinder and native ctld iSCSI target
- Baremetal provisioning
- Bhyve as the hypervisor
- Neutron