



STORAGE DEVELOPER CONFERENCE

SNIA ■ SANTA CLARA, 2015



[CoprHD.github.io](http://CoprHD.github.io)

# Introduction to CoprHD: An Open Source Software Defined Storage Controller

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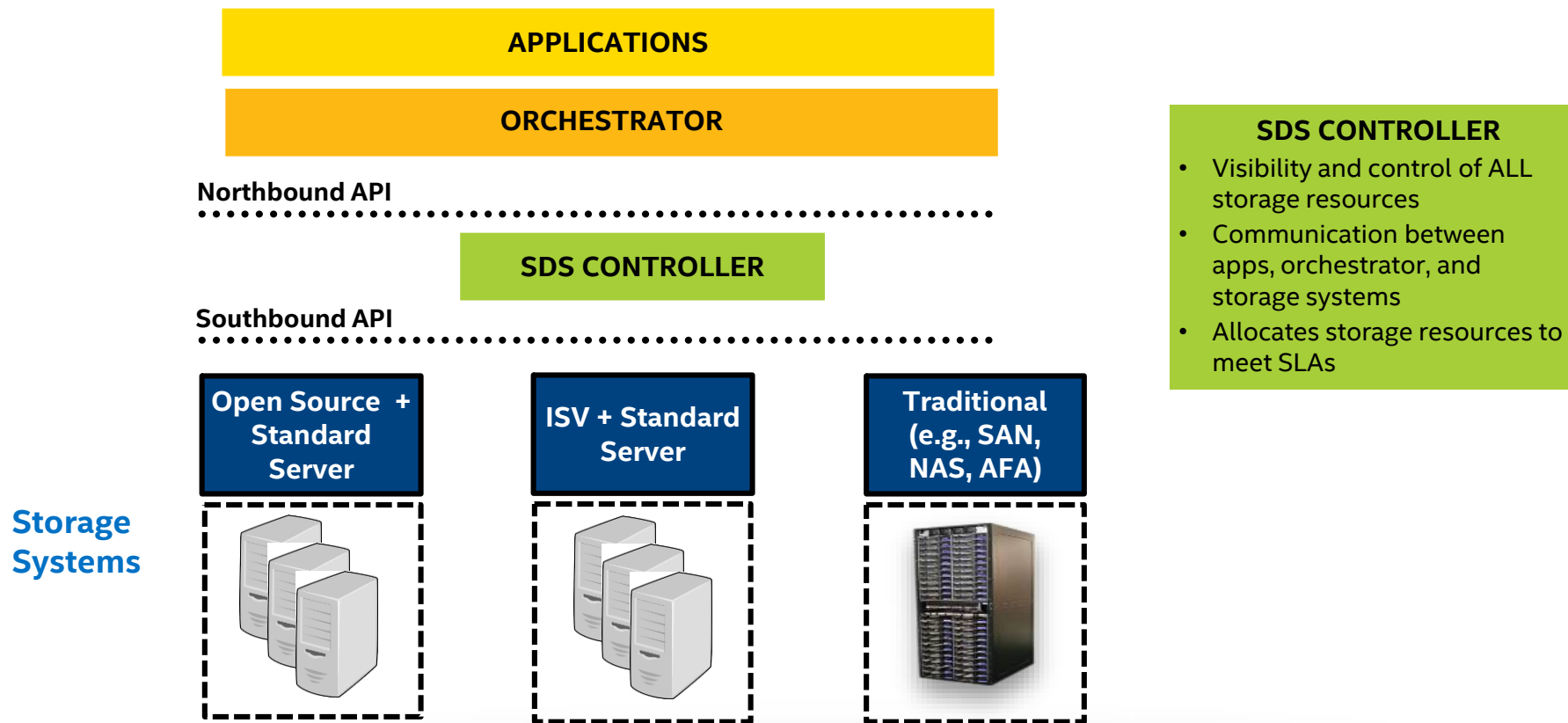
# Agenda

- ❑ CoprHD Overview and Architecture
- ❑ Demo
- ❑ Community Engagement
- ❑ Help Needed

# Software Defined Storage (SDS) Architecture

*Software Defined Storage (SDS) brings “cloud” benefits to storage, including auto-provisioning, self service, and single pane of glass for management.*

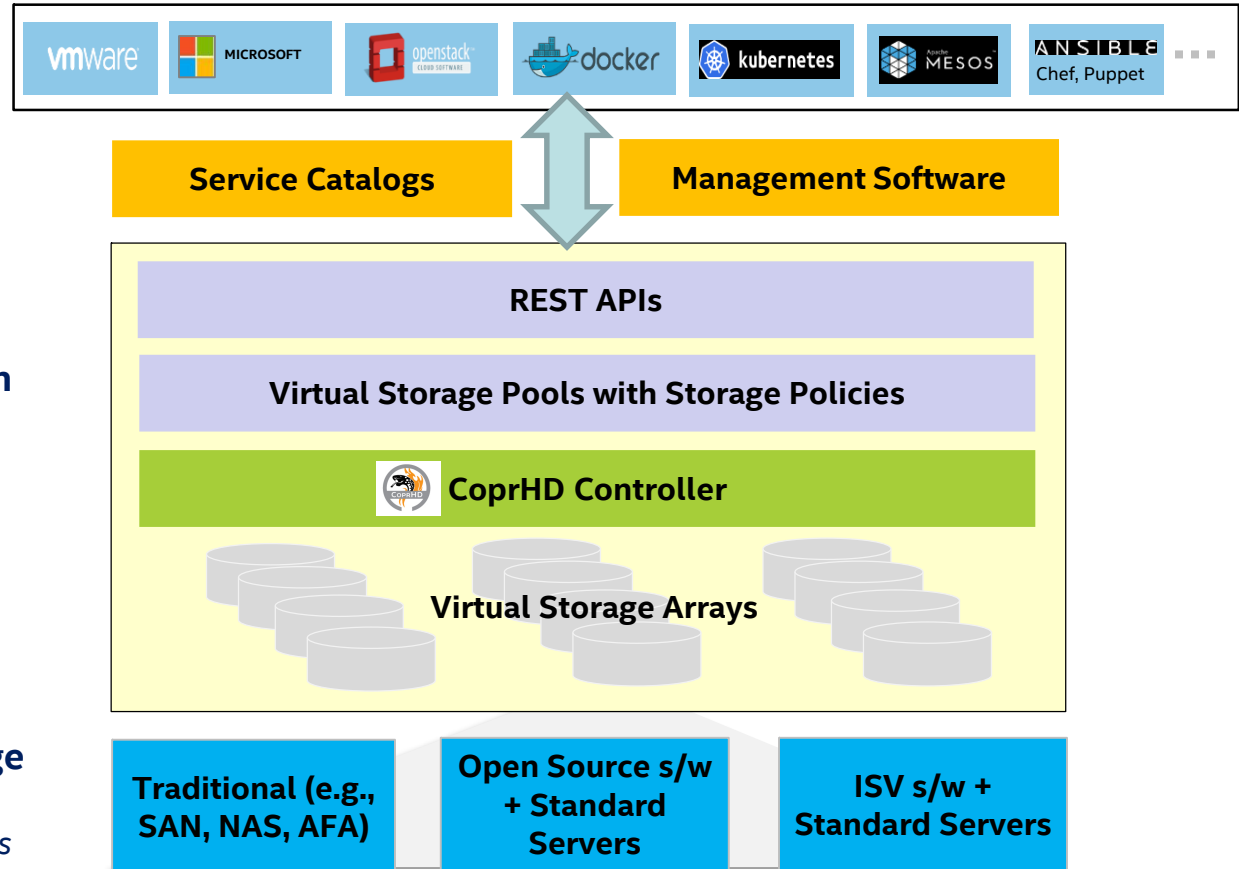
*A key enabler of the new SDS architecture is an **SDS controller** for single pane of management*



# What is CoprHD?

An “open source” SDS controller that discovers, pools, and automates the management of a heterogeneous storage ecosystem

- 5 Integrate with traditional, cloud, cloud native computing stacks
- 4 Self-service provisioning via REST APIs and catalogs
- 3 End to end storage automation (intelligent resource selection and placement, local and remote protection, SAN zoning, host attach, migration and tech refresh)
- 2 Classify storage using policies (virtual storage arrays and pools)
- 1 Discover heterogeneous storage systems (traditional, scale-out, SAN/IP networking, host config, across one or more DCs for new and existing storage)



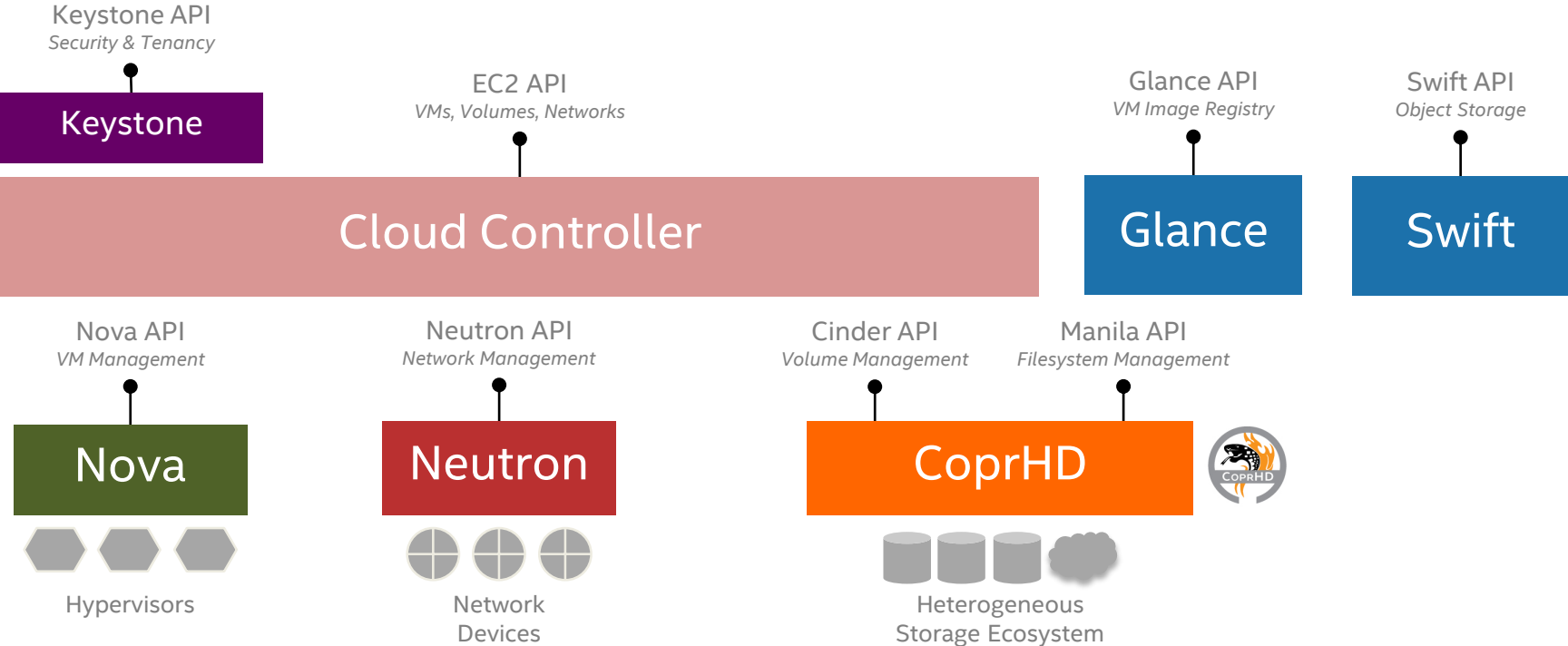
# What CoprHD is NOT

- ❑ Storage system life-cycle management tool
- ❑ A capacity planning, alerting, chargeback, and historical reporting tool
  - ❑ CoprHD can integrate with and complement those tools
- ❑ You don't need CoprHD if ...
  - ❑ Your storage ecosystem consists only of built-in storage as part of a hyper-converged system (e.g. VSAN storage built into vSphere)

# Why CoprHD and Open Source SDS Controller?

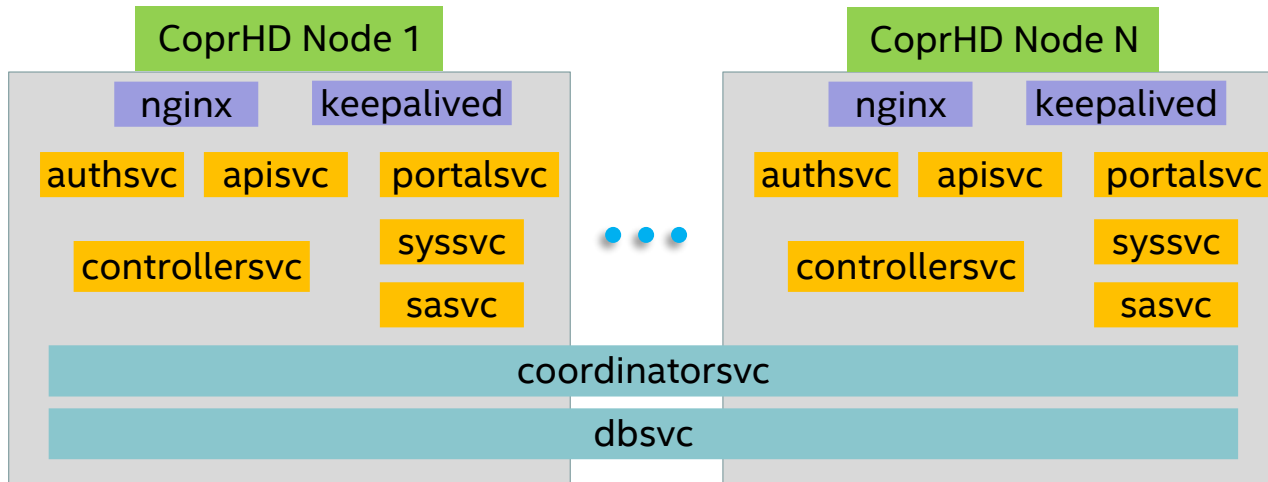
- ❑ Storage automation is a universal challenge
- ❑ With many very hard problems to solve
  - ❑ Provisioning, placement, geo-protection, migration, optimization, and tech refresh
- ❑ Create a project focused on solving them well
- ❑ Then plug in everywhere, including OpenStack, VMWare, Microsoft and Cloud Native Computing

# CoprHD in OpenStack “Big Tent”



**CoprHD as a Drop-in alternative for storage automation**

# CoprHD Architecture



*Active active configuration, state-less services, do not share any resources*

<b>dbsvc</b>	<b>Comprises a distributed column-based database used as a persistence layer for all provisioning data (Cassandra backed)</b>
<b>coordinatorsvc</b>	<b>Offers distributed shared memory used for cluster coordination (ZooKeeper based)</b>
<b>controllersvc</b>	<b>Performs asynchronous operations on storage devices and comprises all of the device-specific code</b>
<b>apisvc</b>	<b>Provides all public APIs for storage provisioning and storage management</b>
<b>authsvc</b>	<b>Provides the authentication APIs</b>
<b>portalsvc</b>	<b>Implements the CoprHD web-based GUI</b>
<b>sasvc</b>	<b>Offers automation services on top of the provisioning APIs</b>
<b>syssvc</b>	<b>Provides various system management and monitoring interfaces, access to internal logs, etc.</b>



# DEMO

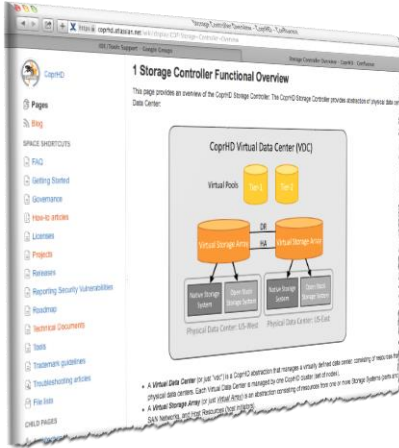
# Licensing & Governance

- ❑ Independent project – not currently in a Foundation
- ❑ Source code (mostly Java) is licensed under Mozilla 2.0
- ❑ Governance – forming now!
  - ❑ Technical Steering Committee
  - ❑ Committers
  - ❑ Contributors & Users
  - ❑ Open for comments now:  
<https://coprhd.atlassian.net/wiki/display/COP/Governance>
- ❑ Open for contribution since mid-August

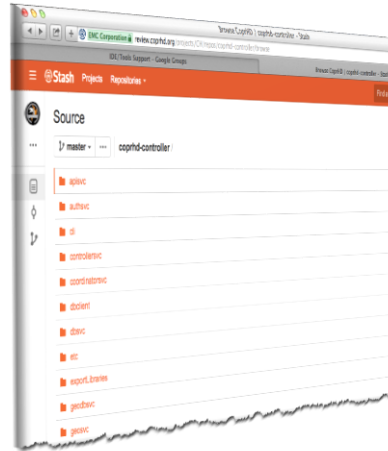
# CoprHD Community Resources

Project Home Page: <http://coprhd.github.io/>

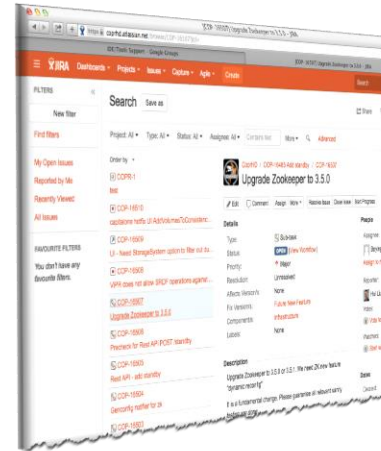
[Developer Wiki](#)  
(Confluence)



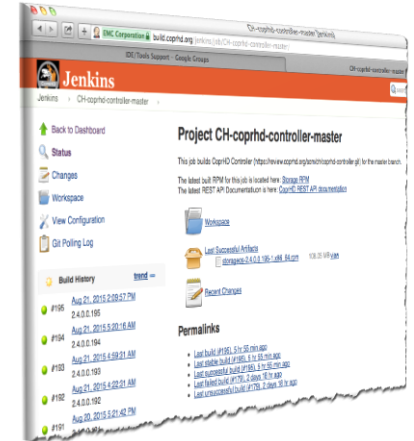
Source Code Repository  
(Stash)



Issue Tracking  
(Jira)



CI/CD  
(Jenkins)



[CoprHD public HipChat room](#)



[CoprHD Developer Google group](#)



# Community Engagement

- ❑ Discussions underway with 50+ companies to bootstrap the CoprHD community
  - ❑ Storage Vendors
  - ❑ Enterprises and Academic Institutions
  - ❑ Channel & Technology Partners
  - ❑ Open source projects: OpenStack, Mesos, Kubernetes
- ❑ We need you to join the community!

# New Projects – Your Help Needed!

- ❑ CoprHD development distro support
  - ❑ Docker Image
  - ❑ CoprHD Vagrant
  - ❑ CoprHD PowerShell Client
- ❑ Improve CoprHD OpenStack Integration
  - ❑ Natively implement Cinder/Manila API to simplify drop-in replacement in OpenStack
- ❑ CoprHD Driver SDK
  - ❑ Simplify the process of adding support for new storage systems
- ❑ Container ecosystem integration
  - ❑ Create plug-ins for Docker libstorage, Mesos, Kubernetes
- ❑ Improve intelligent placement algorithms
  - ❑ SLO-based Placement and Resource Selection
- ❑ Drivers for more storage systems

# Upcoming Events – You are invited!

- ❑ December CoprHD developer meet-up (hosted by Oregon State University) in Corvallis, Oregon



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# THANK YOU