

# Open DOVE Proposal

- [Name](#)
- [Repo Name](#)
- [Description](#)
  - [Additional information](#)
- [Scope](#)
- [Resources Committed \(developers committed to working\)](#)
  - [Additional contributors](#)
- [Initial Committers](#)
- [Vendor Neutral](#)
- [Meets Board Policy \(including IPR\)](#)

## Name

Open DOVE

## Repo Name

opendove

## Description

DOVE (distributed overlay virtual Ethernet) is a network virtualization platform that provides isolated multi-tenant networks on any IP network in a virtualized data center. DOVE provides each tenant with a virtual network abstraction providing layer-2 or layer-3 connectivity and the ability to control communication using access control policies. Address dissemination and policy enforcement in DOVE is provided by a clustered directory service. It also includes a gateway function to enable virtual machines on a virtual network to communicate with hosts outside the virtual network domain. The overall DOVE architecture is shown below:

[blocked URL](#)

Users interact with Open DOVE to create and manage virtual networks through the Open DOVE Management Console (DMC) which provides a REST API for programmatic virtual network management and a basic graphical UI. The DMC is also used to configure the Open DOVE Gateway to configure connectivity to external, non-virtualized networks.

The Open DOVE Connectivity Server (DCS) supplies address and policy information to individual Open DOVE vswitches which implement virtual networks by encapsulating tenant traffic in overlays that span virtualized hosts in the data center. The DCS also includes support for high-availability and scale-out deployments through a lightweight clustering protocol between replicated DCS instances. The Open DOVE vswitches serve as policy enforcement points for traffic entering virtual networks. Open DOVE uses the VxLAN encapsulation format but implements a scalable control plane that does not require the use of IP multicast in the data center.

The DOVE technology was originally developed by IBM Research and has also been included in commercial products.

## Additional information

Open DOVE was recently presented in the OpenDaylight technical workstream calls on June 17, 2013 (see [here](#) for material and recording).

## Scope

Open DOVE includes:

- DOVE Management Console (controller bundle)
  - REST APIs
  - Basic GUI
- DOVE Connectivity Server with clustering
- DOVE vswitch (Open vSwitch + user-space extension)
- DOVE Gateway
- OpenStack Networking plugin to enable DOVE for cloud networking

## Resources Committed (developers committed to working)

- Jay Kidambi (IBM)
- Amitabha Biswas (IBM)
- Ryan Moats (IBM)
- Stephan Benny (IBM)
- John Buswell (IBM)
- Prashanth Nageshappa (IBM)

## Additional contributors

- Katherine Barabash (IBM)
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## Initial Committers

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## Vendor Neutral

Open DOVE is based on an existing codebase, but will adhere to the following:

- No vendor package names in code
- No vendor branding present in code or output of build
- No vendor branding present in documentation

## Meets Board Policy (including IPR)

Inbound Code Review has been completed with no issues found. {Phil Robb : 7/30/2013}