

# OpenVPN Bridges

## Introduction

- We are very excited about a new feature which is now part of **MESHdesk** as well as **APdesk**.
  - With this feature you can bridge one or more of the entry points (or SSIDs) with a OpenVPN tunnel that can sit any place on the Internet.
  - I can now for instance connect to a SSID in South Africa while it will appear that I am browsing from an IP Address that is located somewhere in Europe or North America.
  - This feature opens up the door to so many new possibilities but those we leave to your own creative powers.
  - Our tests have proven that there is not reason for a dramatic drop on bandwidth while going this route, in fact, depending how and where you connect, you might even experience an increase in available bandwidth!
  - We are sure by now you are in a dire need to check out this feature. Unfortunately the initial setup can be quite involved, but once everything is in place it should run like a Swiss watch.
  - We will follow a divide and conquer rule and break the tasks up into categories in order to accomplish our goal.
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## Our Setup

For this document we will configure the following setup.

### The Hardware

- One Ubuntu 14.04 server with two Ethernet cards and one public IP Address.
  - Eth1 will have the Public IP Address (198.27.111.78)
  - Eth0 will be segmented using VLANs.
  - We will **not** need any VLAN capable switches.
- Another server (can be the same) running the latest SVN of RADIUSdesk
- An Access Point with Internet access, running the latest build from SVN of the MESHdesk firmware.

### Segmenting Using VLANs

- We will use VLANs configured on Eth0 as follows:
  - VLAN 101 will have Address range 10.101.0.0/16.
  - VLAN 102 will have Address range 10.102.0.0/16.
  - VLAN 103 will have Address range 10.103.0.0/16.
- These VLANs will each be bridged on the one side with a VLAN on eth0.
  - br0.101 are bridged with eth0.101.
  - br0.102 are bridged with eth0.102.
  - br0.103 are bridged with eth0.103.

## The VPNs

- The other side of the bridge is a VPN tunnel.
  - We will create three instances of OpenVPN in server mode.
  - Each of these instances will be bound to a common IP Address (198.27.111.78) but it will have a unique port to ensure uniqueness.

## The Captive Portals

- Each of the bridges will have a Coova Chilli captive portal running.
  - The IP Address range of each of these Coova Chilli instances will be such that it can provide enough IP Addresses but also in such a manner that the OpenVPN server will be able to provide up to 100 Clients with IP Addresses and the RADIUSdesk server should provide another 100 Clients with IP Addresses without a conflict.
  - The IP Address range should also reflect that which was assigned to the VLAN.

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## Steps Involved

- [Prepare the hardware and OS](#)
- [Install and configure OpenVPN](#)
- [Install and configure CoovaChilli](#)
- Configure RADIUSdesk
- Configure MESHdesk
- Configure APdesk

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