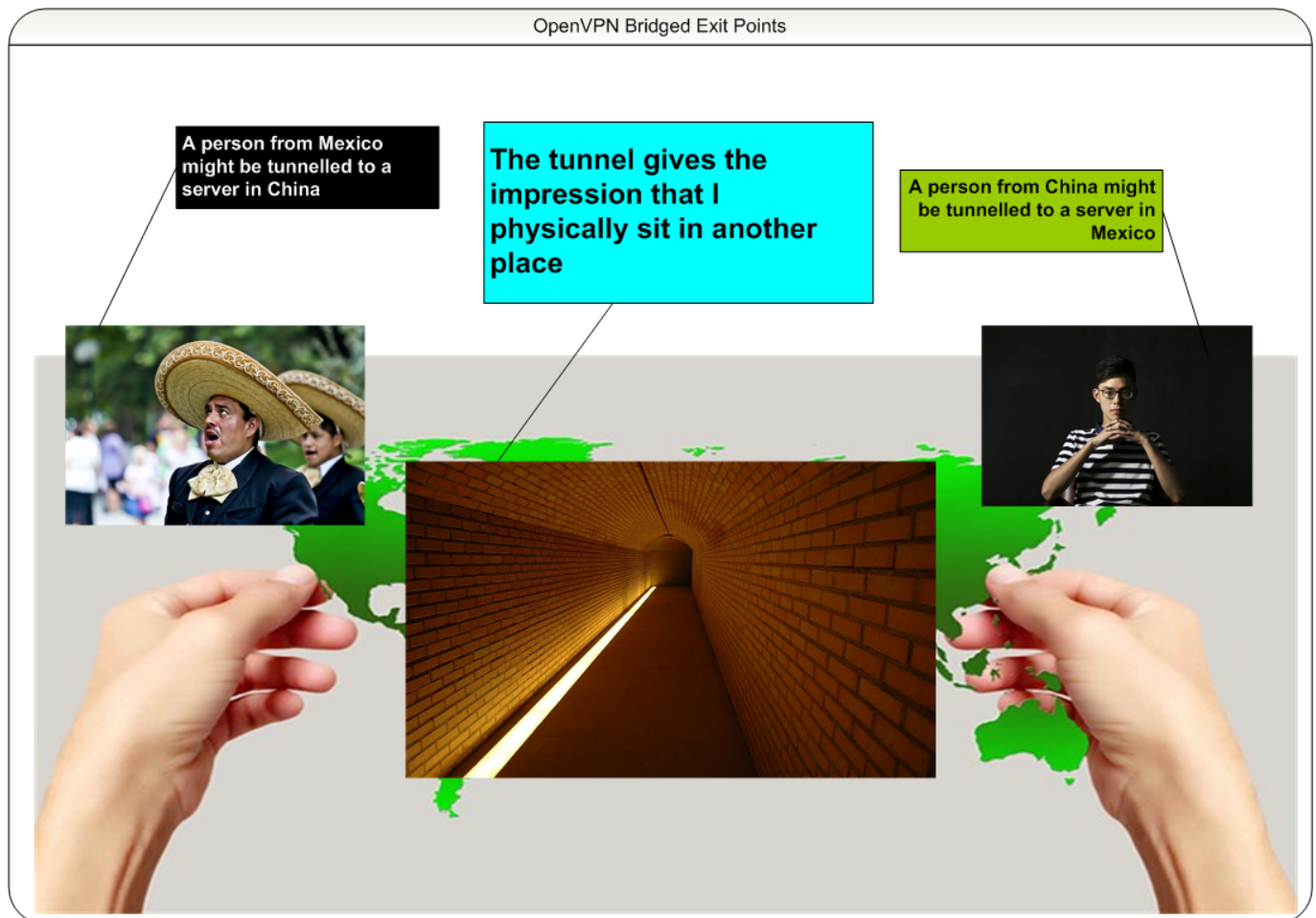# OpenVPN Bridges

Introduction

- We are very exited 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.

Our Setup

For this document we will configure the following setup.

The Hardware

- One Ubuntu 18.04 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.

> **Only one Ethernet port?**
>
> - If your server has only one Ethernet port it is not a train smash!
> - We offer an alternative which will use the **dummy** module to mimick a real Ethernet port.

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.

Steps Involved

- Prepare the hardware and OS
- Install and configure OpenVPN
- Install and configure CoovaChilli
- Configure RADIUSdesk, MESHdesk and APdesk

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