This talk will also be broadcast next Wednesday on the Salzburg Free Radio “Radiofabrik”, and be available as a podcast on Chaostreff Salzburg’s “Let’s Netz; der Chaostalk – Technik, Web, Politik” (http://sbg.chaostreff.at/projects/letsnetz/).

Joining dn42

A playground for network technology

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Overview

What is dn42, and why should I care?

Prerequisites

Getting a glimpse

Basic Operation

Essential protocols

The basic idea

- A set of agreed-upon rules and protocols to join different (private) networks via (primarily) VPN tunnels using the public internet
- A VPN-based overlay network over the public internet
- Unlike tor, not connected to the public internet
- More like a small, seperate “internet” in itself, coincidentially using the public internet as the connectivity fabric

Motivation

Why would such a thing be useful?

Example 1

Semi-public connectivity

- You have a hackerspace or home LAN
- You can't provide or don't want to provide IPv4 or IPv6 connectivity to the LAN hosts via the public internet
- You still want to provide services to other hackerspaces or make your home LAN available from your local hackerspace

Example 2

Technology enthusiasts

- Play around with advanced routing (including BGP) without working at an ISP
- Operate a DNS “root” server
- In general, learn a bit about how the public internet is stiched together

For the full experience

- Root server on the internet with public IP
- Work through the getting started guide
- Someone to peer with
- Time to figure stuff out ;-)

For basic access

- Someone with a full setup who is willing to provide you with a VPN tunnel

Getting a glimpse

"Looking Glasses"

- Network graph
- Traceroute, ping, route lookup...

The Registry

- Keeps all information of network-wide interest
- For example,
  - Address allocations
  - DNS nameserver information
  - A user database used to track ownership over allocated resources
- Is kept in a monotone repository
- Is a set of plain-text files with a simple structure
- Has a web-based query and editing interface

Resource Allocations

Allocations are done and tracked in the *registry*.

Address Allocation

- IPv4 addresses are allocated from `172.20.0.0/14`
- IPv6 addresses are using *Unique Local IPv6 Unicast Addresses*, mostly (i.e. in `fd00::/8`)

Other stuff

- AS numbers
- Which routes may be advertised by which AS
- DNS servers
- SSL certificates

BGP

DNS

OSPF

Thank's for your attention!

If you want to start with dn42, we are around for the whole duration of the camp.
Just ask us, and if we are still mentally capable, we might be able to help ;-).

References

Unique Local IPv6 Unicast Addresses **rfc4193**

Unique Local IPv6 Unicast Addresses. URL: https://tools.ietf.org/search/rfc4193 (visited on 08/16/2016).