

draft-dessez-homenet- googleplus-interconnect

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Problem space

Interconnecting home networks
in order to:

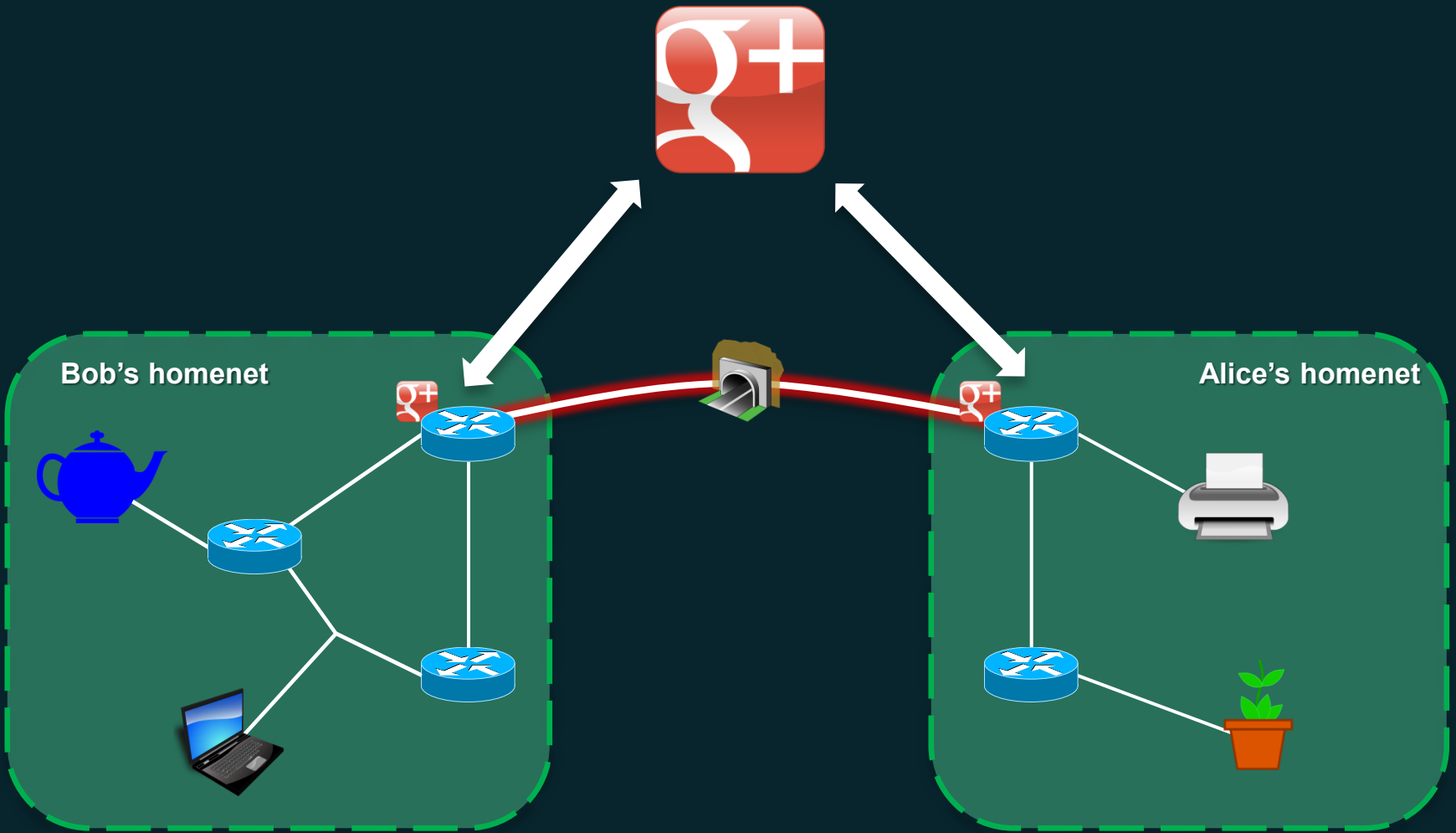
- Expand the boundaries of a single homenet to include other homenets
- Enable Service Discovery on these connected homenets
- And do it in a user-friendly and relatively secure manner



Goals

- Creating a mesh of homenets connected by encrypted tunnels
- Enabling automatic DNS-SD browsing over multiple homes
- Making those connections derive from the relations among homenets in a social network





Summary, from a user's perspective

- Plug a “Gplus-enabled” router in your homenet
- Create a Page on Google Plus for your home
- Delegate the management of the Page to the router
- Configure on your router's UI what services you want to share with what circle of connected homes

- Manage the relationships of your home with other homes directly in the social network



https://plus.google.com/u/0/b/109988850362621109918/109988850362621109918/posts

About Posts More View profile as: Yourself

Bob's homenet

Change cover +2

Share what's new...

Text Photos Link Video Event

In your circles 3 people

Have you in circles 2 people

Bob's home Shared privately - 10:23 PM #IPv6

This post contains network settings for other homenets

```

===== Network Settings =====
Global IPv6 = 2000:c0ca:c01a:24:6092:96ff:febb:885f,
Global IPv4 =
ULA prefix = fda0:d1b:62f8::/48
ULA IP address =
fda0:d1b:62f8:d43b:6092:96ff:febb:885f
Local domain name = bobs-homenet-a00d1b62f8.test

```

Bob's home Shared privately - 10:21 PM

This post contains security settings for other homenets

```

===== Security Settings =====

```

Read more

Bob's home Shared privately - 10:23 PM #IPv6

This post contains network settings for other homenets

```

===== Network Settings =====
Global IPv6 = 2000:c0ca:c01a:24:6092:96ff:febb:885f,
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Local domain name = bobs-homenet-a00d1b62f8.test

```

Posts

- config directory
- communication channel

Google+ Page
Represents a home

Home Find people Have you in circles Your circles

Relevance Actions Type a name

Cédric's home Cedric Dessez Alice's homen... Maico's house

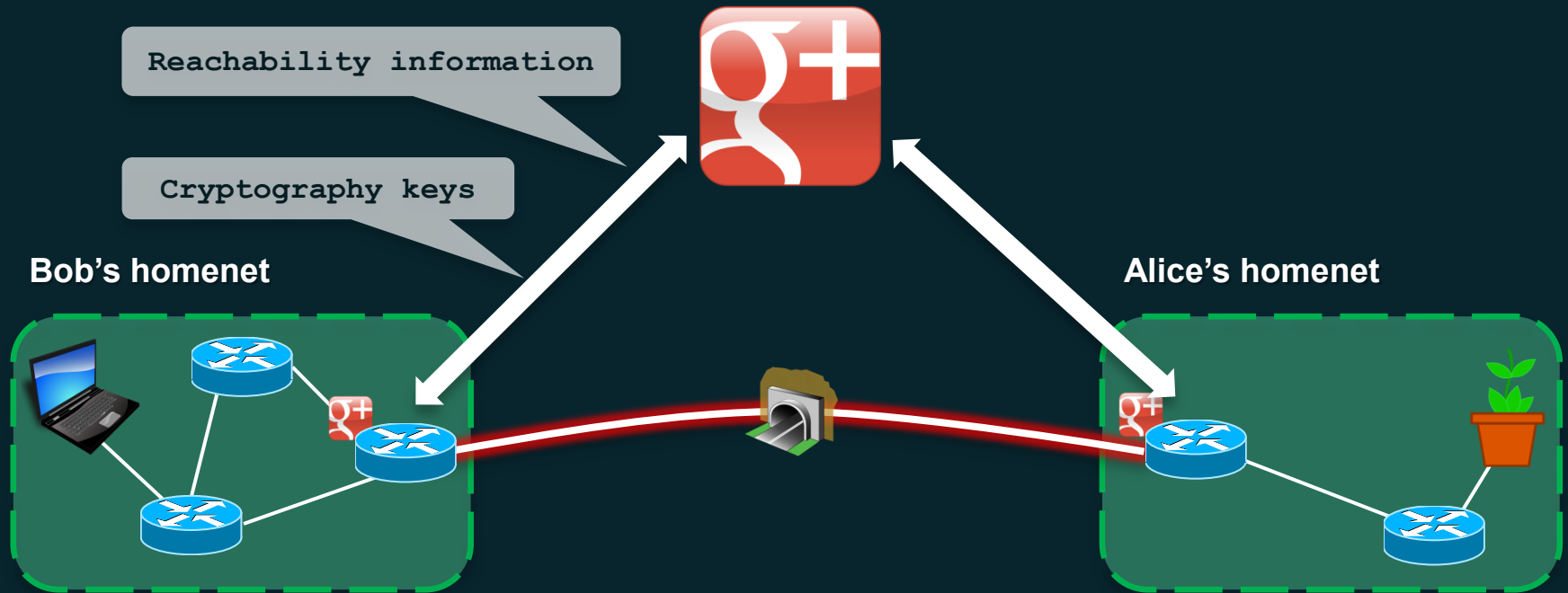
Drag people to your circles to follow and share

+ Close... 1 Client... 2 VIP 2 Family 3 Family 3 people in this circle

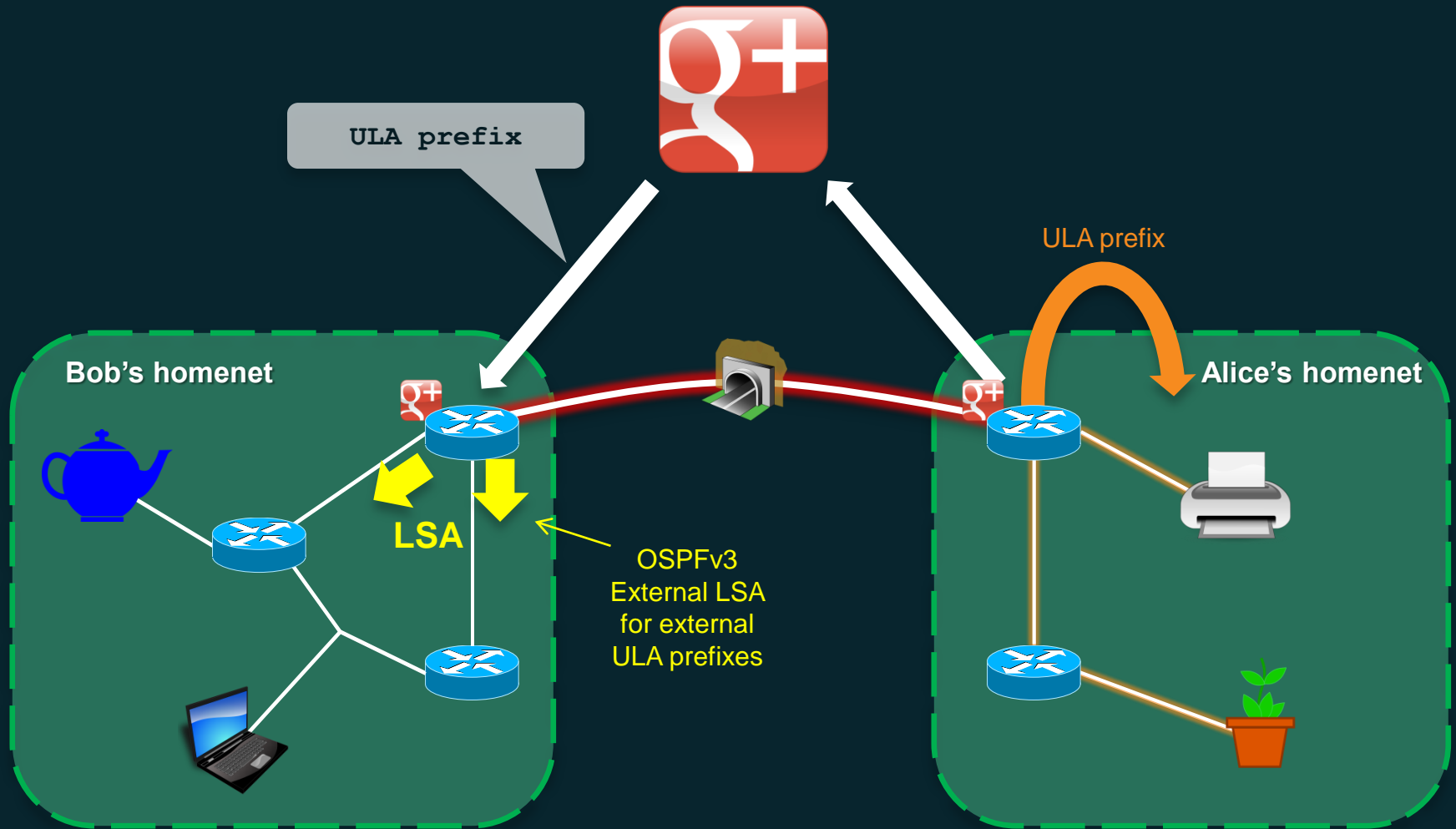
 **Circles**
≈ ACLs

Managing the tunnels

- Need to exchange configuration information to bootstrap the tunnels

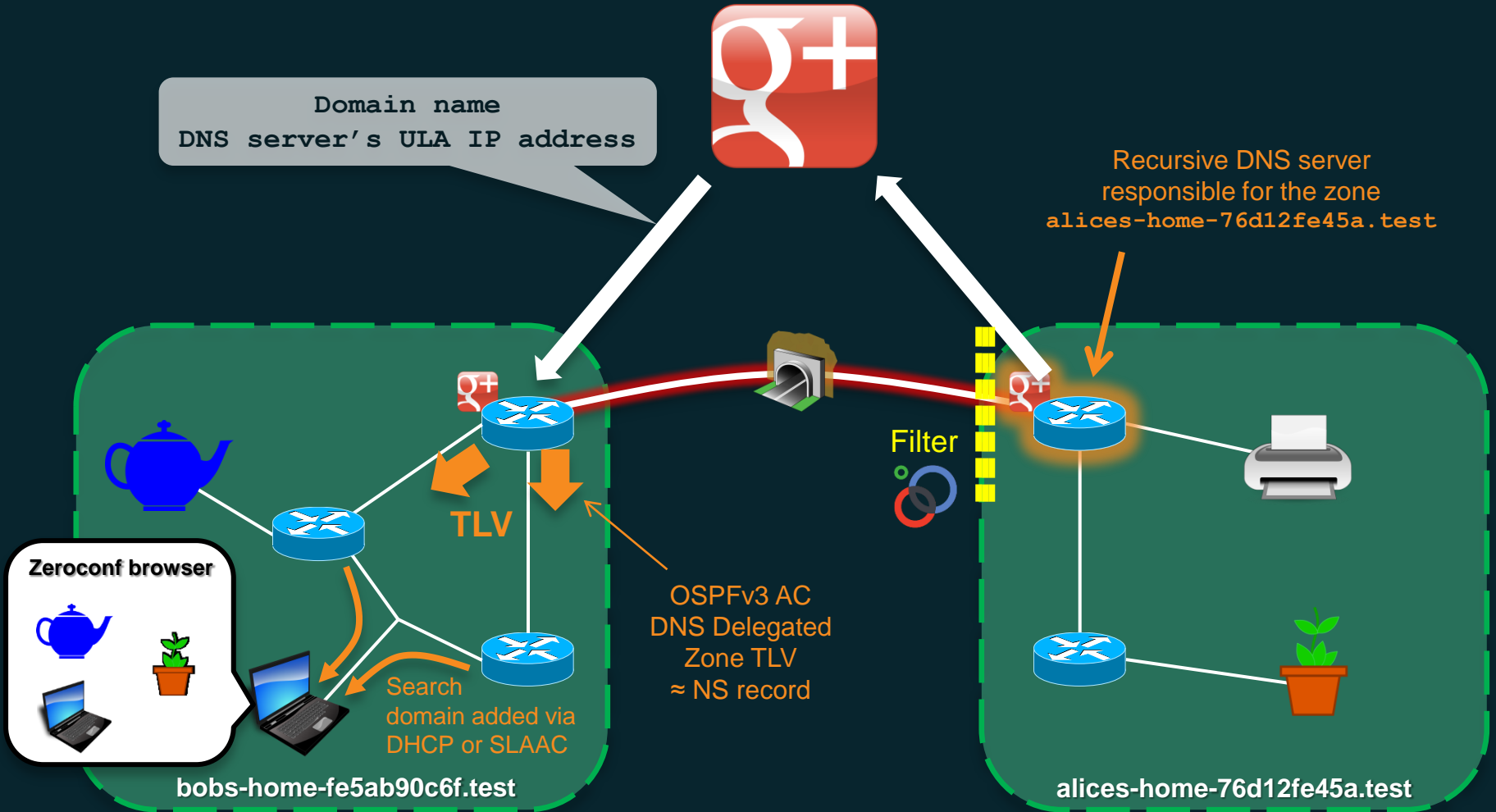


Adding routes to the other homenet



Enabling service discovery (DNS-SD)

All homenet routers implement the Hybrid u/m DNS-SD proxy



Proof of Concept

- OpenWRT
Hnet environment (github.com/fingon/hnet)
- OpenVPN
- Python and Lua
- Google APIs



Come to see the prototype at
Bits-N-Bites on Thursday evening

Questions?



Assumed environment

- OSPFv3 Auto-Configuration
- IPv6 prefix(es) delegated and assigned as described in `draft-arkko-homenet-prefix-assignment`
- Hybrid m/u DNS-SD Proxy as described in `draft-cheshire-mdnsext-hybrid` and `draft-stenberg-homenet-dnssdext-hybrid-proxy-ospf`

Overall functional architecture

