Fun with Zeroconf

Zeroconf in openSUSE

Daniel Gollub <dgollub@suse.de>
Tom Patzig <tpatzig@suse.de>
Novell

Content

- Brief Zeroconf Introduction
- Zeroconf Implementations
- ZeroCode ?!
- Demonstration

Brief Zeroconf Introduction

Zeroconf

- Zero Configuration Networking
- Set of network techniques

- Opens new possibilities for development
- Fitting best for ad-hoc networks
- Compatible to non-technical people
  - obsoletes part-time/casual sysadmins ;)

- http://www.zeroconf.org

Zeroconf

- Addressing
- Naming
- Discovery

Zeroconf - Addressing

- Automatic IP Address assignment
- **No DHCP Server required !**
- Link-Local addresses
  - IPv4 169.254.0.0/16
  - IPv6 FE80::0
- Standardized techniques
  - RFC 3927 IPv4LL
  - RFC 2462 IPv6

Zeroconf - Naming

- Mulicast DNS (mDNS)
- **No DNS Server required !**
- Coexistence to DNS server possible
- DNS top level domain “.local”
- mDNS Multicast Address:
  - IPv4 224.0.0.251
  - IPv6 FF02::FB
- http://www.multicastdns.org/

Zeroconf - Discovery

- DNS-Based Service Discovery (DNS-SD)
- Browse and announce network services
- Based on plain DNS (again, **no DNS Server req.**)
- “Human readable” service description
  - service name
  - service type
  - optional configuration parameters

- http://www.dns-sd.org/

Zeroconf Implementations

Zeroconf - Implementations

- Apple's Bonjour (formerly Rendezvous)
  - Apache License 2.0
  - http://developer.apple.com/networking/bonjour/
- Avahi
  - LGPL
  - http://www.avahi.org

Zeroconf Implementation: Avahi

- Full Zeroconf implementation
  - IPv4LL (avahi-autoipd)
  - mDNS
  - DNS-SD
- D-Bus Interface
- Bindings
  - Mono
  - Python

ZeroCode ?!

ZeroCode ?! - Avahi

- http://www.avahi.org/wiki/ProgramingDocs
  - D-Bus Interface
  - libavahi-client
    - client-browser-services.c
    - client-publish-services.c

KDE Application? - KDNSSD!

Publish Services:

```
DNSSD::PublicService *service ;

service = new DNSSD::PublicService("my service" ,

             "_fosdem08._tcp",port);

if (!service->publish())

  return -EFOO;
```

KDE Application? - KDNSSD!

Browse Services:

```
DNSSD::ServiceBrowser *browser ;

browser = new DNSSD::ServiceBrowser("_fosdem08._tcp");

connect(browser,SIGNAL(serviceAdded(DNSSD::RemoteService::Ptr)),this,
          SLOT(newServ(DNSSD::RemoteService::Ptr)));

browser->startBrowse();
```

Demonstration

Zeroconf

Zeroconf Applications in openSUSE:

- IM (Kopete, Pidgin)
- FileSharing (Giver, Kepas)
- bssh, bvnc
- DAAP (Banshee,...)
- VLC
- Synergy
- Konqueror, Nautilus
- ...
- BballL

Zeroconf

Questions ?

Novell®

General Disclaimer

This document is not to be construed as a promise by any participating company to develop, deliver, or market a product. Novell, Inc., makes no representations or warranties with respect to the contents of this document, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc., reserves the right to revise this document and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes. All Novell marks referenced in this presentation are trademarks or registered trademarks of Novell, Inc. in the United States and other countries. All third-party trademarks are the property of their respective owners.