Fun with Zeroconf

Zeroconf in openSUSE

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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

• Multicast 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/](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 ?! - Avahi

- http://www.avahi.org/wiki/ProgrammingDocs
  - 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
• ...
• BbalL
Zeroconf

Questions ?
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