SWITCH

The Swiss Education & Research Network

SWITCHaai WAYF

Event:	AAI-Info Day Meeting
Date:	November 29 2005
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Presentation Overview

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- WAYF Service Description
- How to achieve High Availability
- Use of Anycast
- Load Balancing Effect
- Availability Monitoring and Control
- Home Organization Preselection
- Additional Features
- Conclusion

WAYF Service

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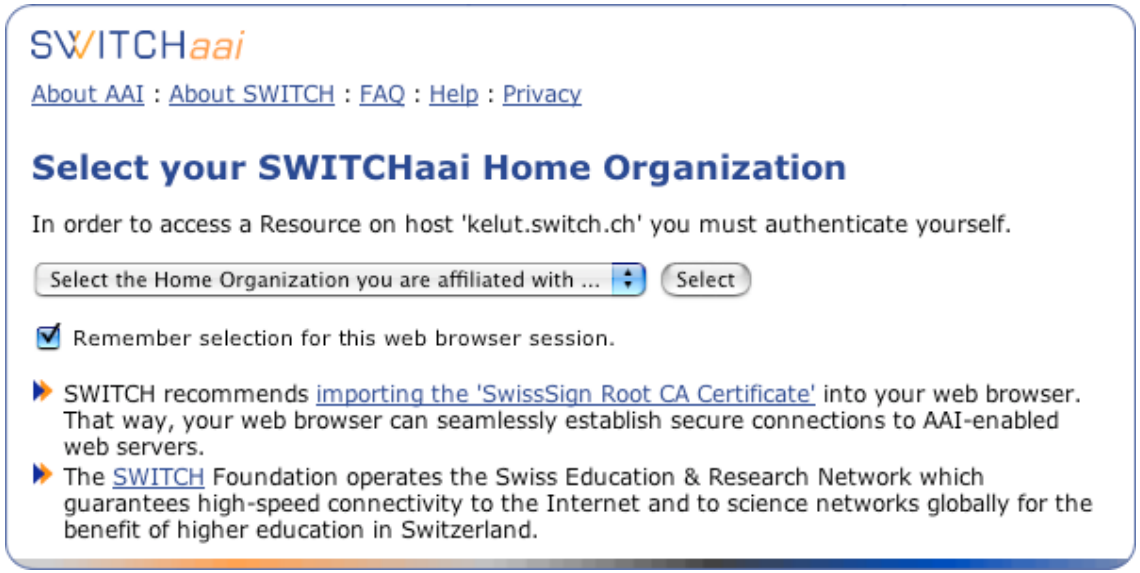
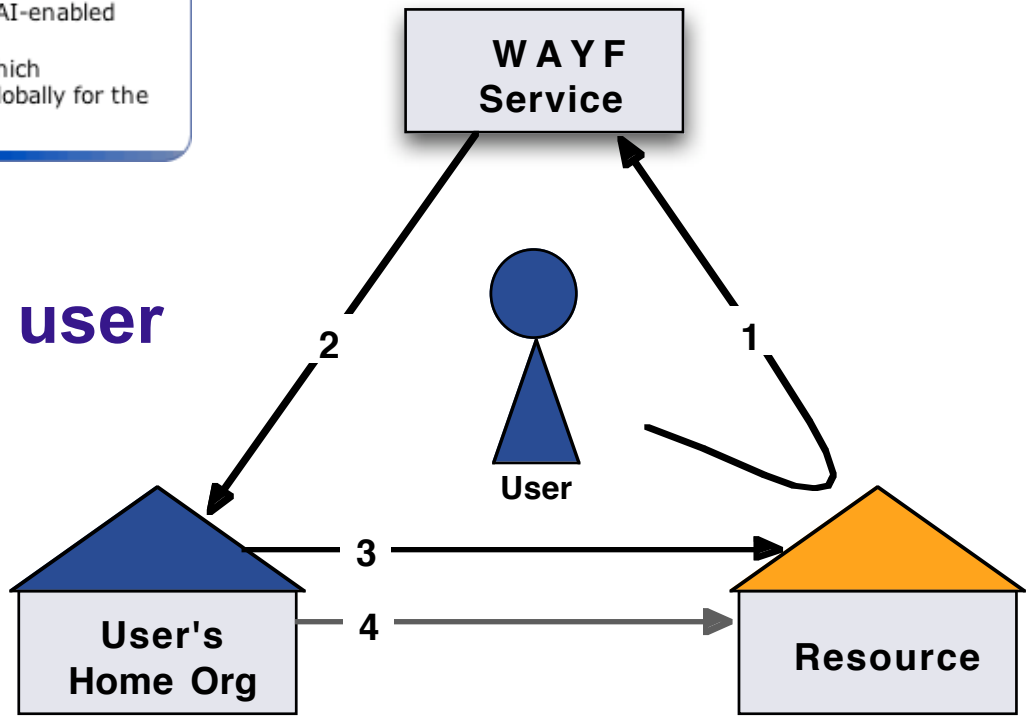


Facts about WAYF:

- Stateless requests
- Two requests per visit
  1. (Show drop-down list)
  2. Redirect User to IdP

⇨ **Task of WAYF is to guide user to his Identity Provider**



How to achieve High Availability

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Answer: Redundancy

Stateless services like the WAYF can be made redundant easily

Main Problems:

1. How to determine when failover situation occurs?
2. How to handle a failover situation?

Failover Handling:

- Use DNS record to switch hosts
- Hide service behind load balancer
- Use master/slave services that share same IP
- Use Anycast (only recommended for specific services)

Use of Anycast

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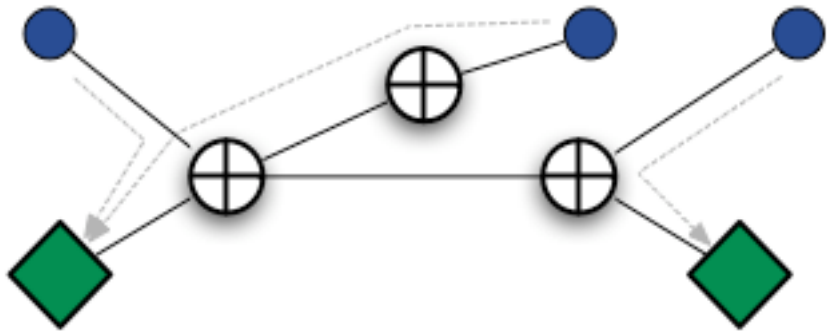
- Best suited for connection-less applications
- Used for DNS system of Root Servers (DNS queries mostly UDP)
- WAYF is stateless and routing within backbone is very constant
- Anycast is implemented using routing system
- Request to an IP is routed to the “nearest” Anycast instance
- Changes propagate within seconds (~ 3s)

⇨ Results in High Availability and Load Balancing



Load Balancing Effect

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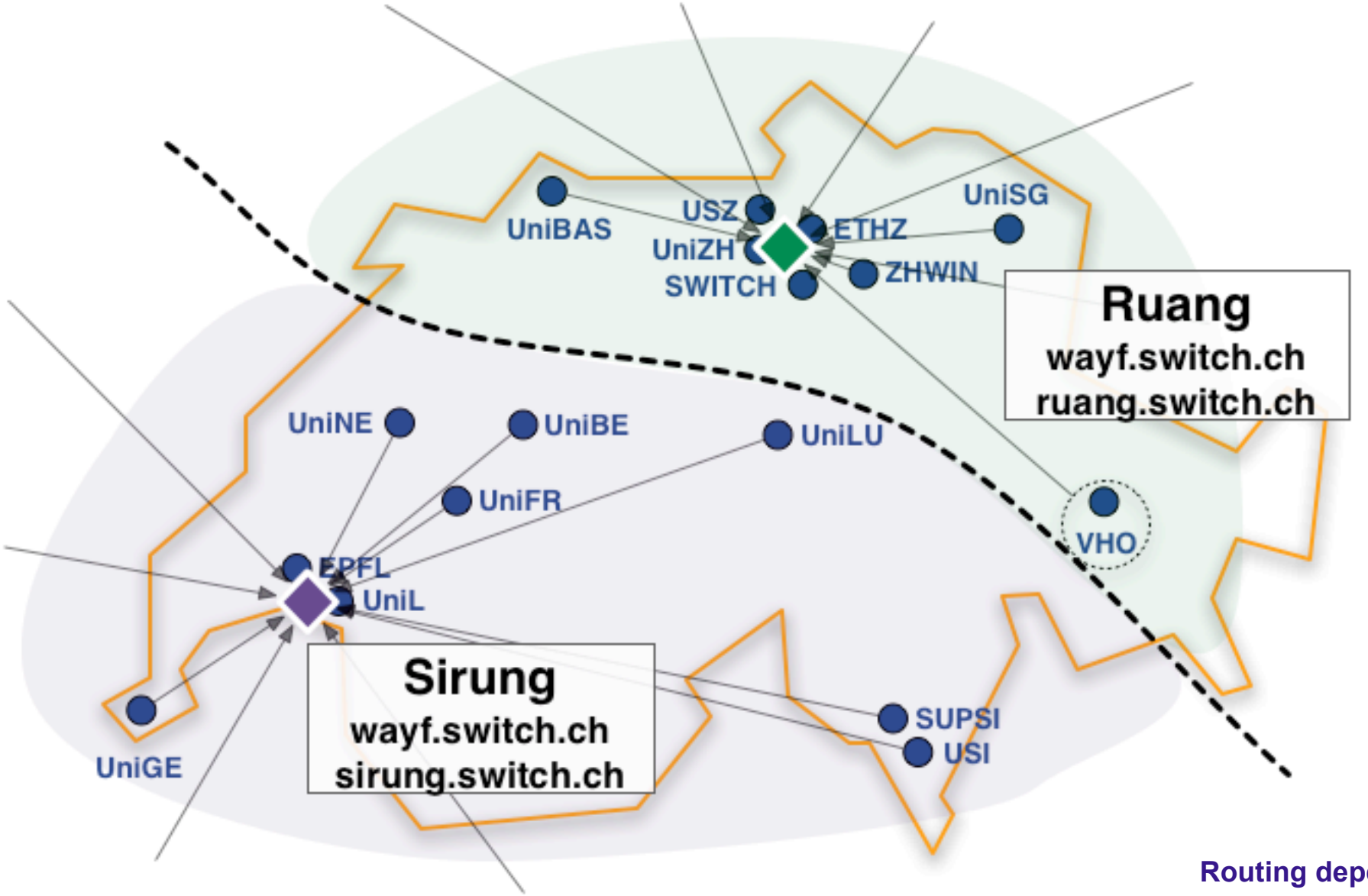

Routing dependent

Availability Monitoring and Control

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From inside the backbone :

- SWITCH Big Brother (Email notification)

From outside the backbone:

- Alertra.com (Email notification)

On WAYF Instance:

- Routing Daemon Zebra/Quagga controls announging of IP
- WAYFcheckservice script (Email notification and failover actions)
  - Polls service every minute. In case of problems tries to restart service.
  - If that fails, the Anycast IP announcement gets stopped immediately.
  - If host stops working before withdrawing route to Anycast IP (e.g. hardware failure, …) remaining hosts take over within max. 40s

Home Organization Preselection

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Goal is at most one click per session for HomeOrg selection

Two Cookies:

- Short term: Optionally skipping WAYF for current browser session
- Long term: Remembers past choices (100 days). Can be used to preselect Home Organization in following sessions.

Resource hints the WAYF with URN:

Append part of your IdP providerID (URN) to WAYF URL

https://wayf.switch.ch/SWITCHaai/WAYF/unige.ch?shire=...

Transparent mode:

Users never see the WAYF. Append ‘redirect’ to WAYF URL

https://wayf.switch.ch/SWITCHaai/WAYF/redirect/unizh.ch?shire=...

Additional Features

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- Overall enhanced ease-of use for the user
- Light-weight implementation of a WAYF service
- Uses PHP instead of JSP
- Multilingual (Currently en, fr, de, it)
- Ready for push-update from Resource Registry (not used yet)
- OpenSource (BSD License)

Source Code and Feature Requests

Contact haemmerle@switch.ch

Questions