

Dual-Homing Support for Single-Link Sites

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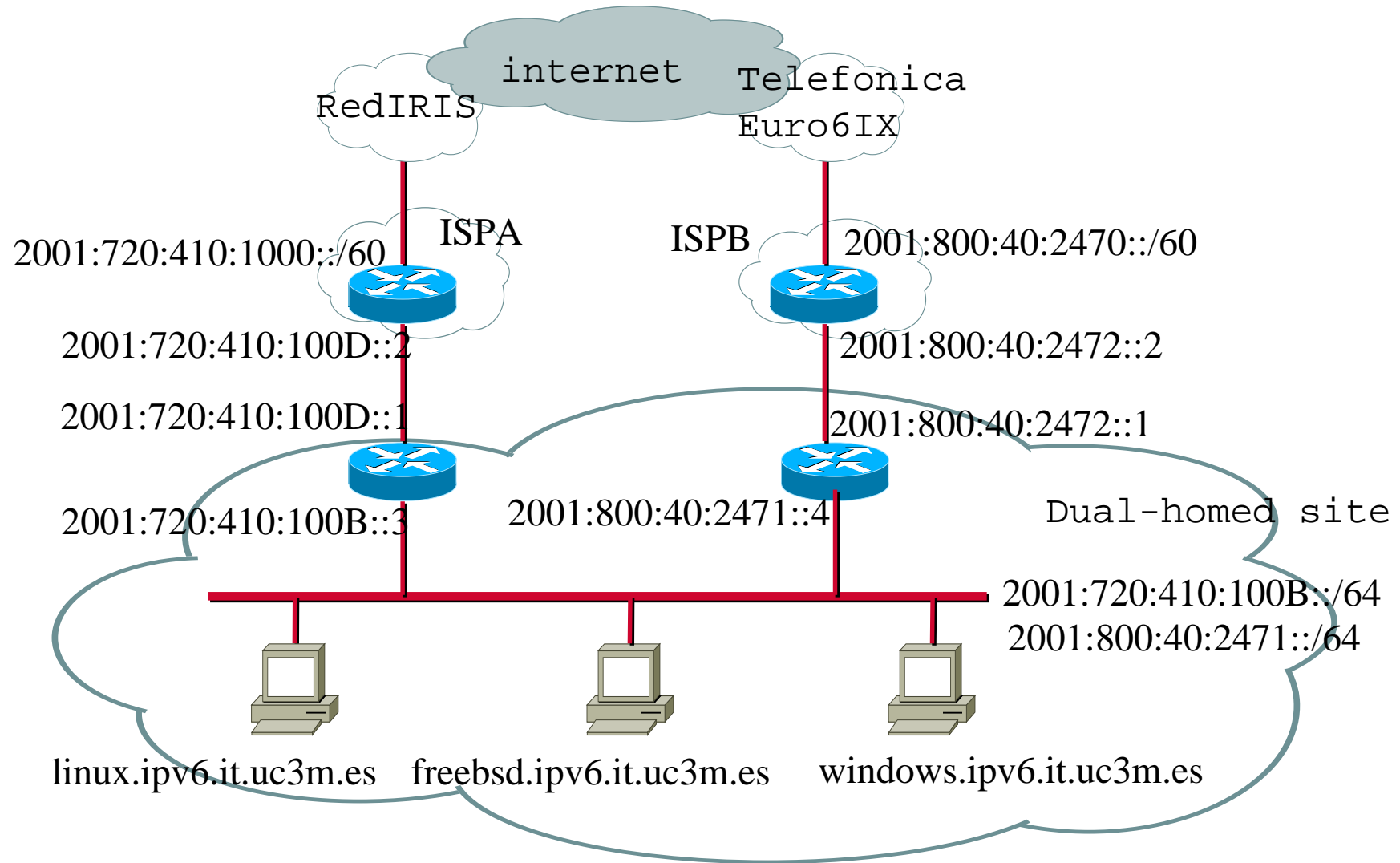
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Design goals

- SOHO networks multi-homing support present the greatest challenge in terms of scalability with respect to the number of nets
- Reduced set of requirements
 - draft-huitema-multi6-experiment-00
- Incremental approach
 - Minimize changes to external hosts
 - Unmodified Hosts within the mhsite interact with external hosts as if they were in a singlehomed site
 - Modified hosts within the mhsite obtain as much mh-benefits as possible
- No full global routing information in the mh site

Experimental Testbed



Normal Operation

i.e. No outage

- Ingress Filtering Compatibility
 - Source Address Based Routing
- Load Sharing
 - Longest prefix match rule of the DAS provides some
 - Can be improved using Policy table or additional optimisation
- Policing
 - Policy table of DAS provides some
 - Optimisation in order to provide alternatives to manual configuration

Fault Tolerance

- Outage in Link Between mhsite and direct ISP
 - RFC 3178
 - Optimisations : deprecation of associated prefix
- Outage in other elements
 - Externally initiated communications – Apps should retry with alternative addresses RFC3484
 - Internally initiated communications- The problem here is that the host should retry with a different SOURCE address:
 - Retry with random combination of source and dest addresses
 - Try with all available source address simultaneously and keep the fastest answer
 - Preserving established communication: no solution without modifying external hosts

Summary

- Currently supported features (only require additional configuration)
 - Ingress filtering compatibility
 - Load sharing
 - Policing
 - Fault tolerance when direct link fails
 - Fault tolerance for externally initiated communications
- Features that require modification to internal hosts
 - Fault tolerance for internally initiated communications
- Features that require modification to external hosts
 - Preservation of established communications when a non-direct link fails

Analysis of incremental approach against RFC 3582 goals

Basic capabilities

3.1.1 Redundancy	Internal changes
3.1.2 Load Sharing	No changes ,possible opt
3.1.3 Performance	No changes, possible opt
3.1.4 Policy	No changes ,possible opt
3.1.5 Simplicity	Incremental changes
3.1.6 Transport Survivability	External changes required
3.1.7 Impact on DNS	No impact
3.1.8 Packet Filtering	Internal configuration

Additional capabilities

3.2.1 Scalability	PA addressing
3.2.2 Impact on Routers	Internal routers only
3.2.3 Impact on Hosts	Internal hosts only (except 3.1.6)
3.2.4 Host-Routing interaction	Source address based routing
3.2.5 Operations & Management	More complex host management
3.2.6 Cooperation between Transit Providers	Not required
3.2.7 Multiple Solutions?	Multiple optimizations
4 Security Considerations	none