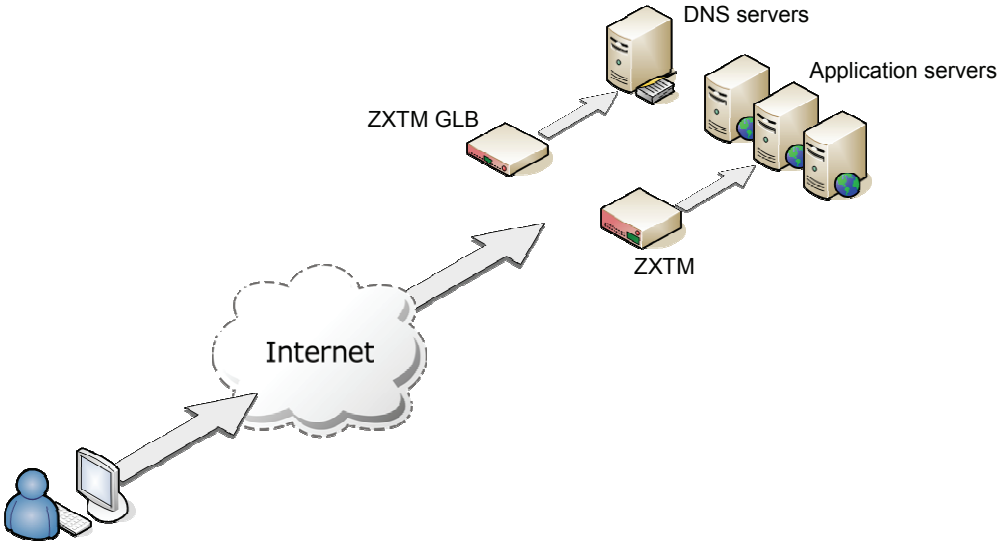
Multi-site session persistence with ZXTM GLB and ZXTM

Introduction

This document describes how to configure ZXTM and ZXTM GLB for multi-site session persistence:

- An organization hosts a web-based application at two or more discrete locations
- ZXTM GLB manages DNS resolution to direct users to the most appropriate location, based on site availability, load and geographic proximity
- ZXTM at each location manages the HTTP traffic, detects when sessions are established or re-used and redirects a user to a different datacenter if their session data is located there.



A ZXTM and ZXTM GLB is located at each datacenter.

Simple Scenario – no session persistence

Taking www.zeus.com as an example, assume that there are two datacenters:

- The UK datacenter has IP addresses 65.34.12.1 and 65.34.12.2
- The US datacenter has IP address 171.151.131.121

Each IP address identifies the ZXTM(s) in the datacenter that manage the traffic.

Configure the following DNS name:

- www.zeus.com resolves to all three IP addresses, and ZXTM GLB is used to filter the DNS responses to direct users to either the UK or US datacenters as appropriate

The online service is published as www.zeus.com.

If no session persistence is required, the above configuration will suffice.

Session Persistence requirements

In the simple scenario, a user may be transparently redirected to a different datacenter because his web client may spontaneously re-resolve www.zeus.com. If this happens when the user is in the middle of a transaction, his session will be broken.

This situation may happen during prolonged transactions, or it the user pauses during a transaction (for example, filling a shopping cart, then checking out later).

For this example, we'll assume the simple case that session persistence information is keyed by an HTTP cookie, and lasts for the duration of the browser session. More complex cases can be catered for by extending the example solution.

Strategy

Configure additional specific DNS names for each datacenter:

- uk.zeus.com resolves to the two UK IP addresses only
- us.zeus.com resolves to the US IP address only

We will use a pair of trafficscript rules on the ZXTM to detect when a session is established, and then add an additional 'DC' session cookie that identifies the datacenter.

The trafficscript rules can ensure that:

- Before the user establishes a session, he is always sent to www.zeus.com for GLB to select a datacenter for him;
- Once the user has established a session, if he arrives at the 'wrong' datacenter, he is redirected to the correct one using the specific DNS name;
- A user does not use the specific DNS names unnecessarily (e.g. through bookmarks); if no session is established, he is directed to www.zeus.com.
- Optionally, if a user has a session with a datacenter but no nodes are available, we force him back to www.zeus.com to select a different datacenter

Response Rule

We wish to detect when a session has been established, and add the 'DC' cookie that identifies the datacenter. In this case, we'll consider Java Servlet persistence, keyed by a 'JSESSIONID' cookie.


```
$domain = "zeus.com";
$this_dc = "uk.zeus.com";

$session = http.getResponseCookie( "JSESSIONID" );
if( $session ) {
  http.setResponseCookie( "DC", $this_dc, "domain=".$domain );
}
```

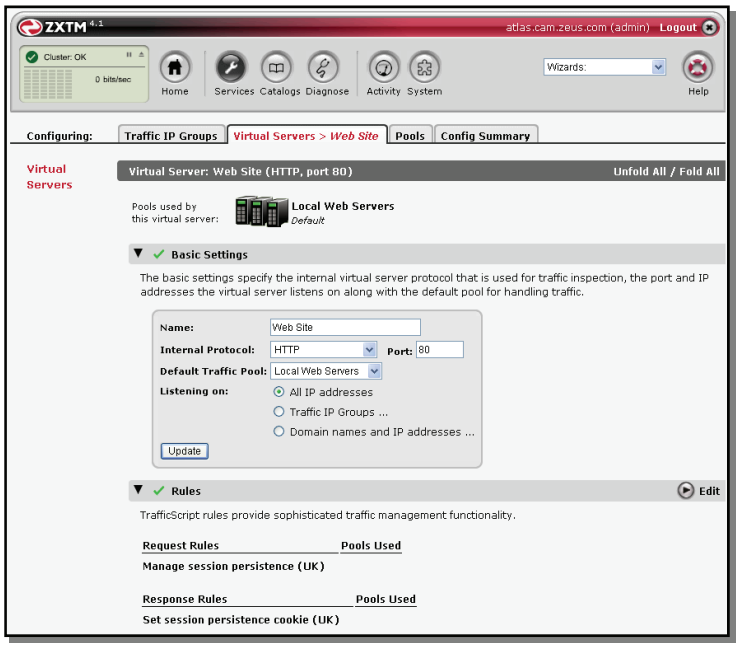
Note that we pin the DC cookie to the 'zeus.com' domain, so that the client provides it no matter which DNS name they use to access the service.

Request rule

Process each request as follows – this rule is for the ZXTM in the UK datacenter cluster:

```
$this_dc    = "uk.zeus.com";
$generic_dc = "www.zeus.com";
$local_pool = "Local Web Servers";

#--------------------------------------

$preferred_dc = http.getCookie( "DC" );
$host = http.getHostHeader();

if( !$preferred_dc && $host != $generic_dc ) {
   # No preferred datacenter, user used a specific DNS name
   http.redirect( "http://". $generic_dc . http.getRawUrl());
}

if( $preferred_dc != $this_dc ) {
   # redirect to preferred datacenter
   http.redirect( "http://". $preferred_dc . http.getRawUrl());
}

# optional - if we want this datacenter, have used the specific
# name, but there are no nodes, redirect back to the generic dc
if( $preferred_dc && $host == $preferred_dc
      && pool.activenodes( $localpool ) == 0 ) {
   http.redirect( "http://". $generic_dc . http.getRawUrl());
}
```

The ZXTMs in the US datacenter clusters would use an identical rule, just changing the value of $this_dc to 'us.zeus.com'.



Finding out more

www.zeus.com

You can find out full product details, including specifications, product options and customer stories on Zeus' website, at http://www.zeus.com/products/zxtmglb/.

Zeus Technology Limited (UK)
The Jeffreys Building
Cowley Road
Cambridge CB4 0WS
United Kingdom

Sales: +44 (0)1223 568555
Main: +44 (0)1223 525000
Fax: +44 (0)1223 525100
Email: info@zeus.com
Web: www.zeus.com

Zeus Technology, Inc. (U.S.)
Suite 320 - 5201 Great America Parkway
Santa Clara
CA 95054
United States of America

Phone: 1-888-ZEUS-INC
Fax: (866) 628-7884
Email: info@zeus.com
Web: www.zeus.com

