Quick Site Selection Methods Comparison

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When setting up the Distributed Data Center, the architect has to decide which method will be used for site selection to distribute client traffic between the sites.

Apart from strictly network oriented tasks (routing, switching, etc) the distribution of client traffic is accomplished with proper site selection. The distribution is done using the GSLB (Geographic Server Load Balancing) typically using:

- HTTP redirect by leveraging the HTTP redirect function,
- DNS based site selection, or
- RHI (Route Health Injection) and L3 routing.

What are the advantages of each method?

The HTTP redirect solution:

- is independent of any GLSB devices or mechanisms,
- offers persistence to the selected site by default, and
- can be complemented with any other method for a more sophisticated site selection.

The DNS based site selection:

- works with any application (e.g. FTP, web, mail, etc),
- requires minimal configuration changes in the DNS authoritative server,
- can take load or Data Center size into account,
- offers different load balancing methods (round robin, weighted round robin, site proximity, source address, etc)

The RHI combined with L3 routing:

- does not reply on DNS and thus also supports legacy applications
- has good reconvergence especially if IGP protocol is fine tuned
- is independent of the application protocols
- also addresses the client's browser stale IP addresses.

What are the disadvantages?

The HTTP redirect solution:

- relies on HTTP and is thus protocol specific,
- requires additional FQDN (Fully Qualified Domain Names) for redirection
- is not “transparent” to the user since they may bookmark a specific location and thus lose automatic failover.

The DNS based site selection:

- client DNS caching can break the desired site selection operation,

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- guaranteed session persistency is harder to implement,
- requires a “site selector” device

The RHI combined with L3 routing:

- relies on host routes (32 bits) which cannot be propagated thru Internet
- Application-aware devices like load balancers must be tightly integrated with routers
- Lacks intelligent load balancing functionalities – is more suitable for disaster recovery.

The Data Center architect should also not forget about server, application health monitoring - typically a task for application and content engines like Cisco ACE or CSS.

There are also disadvantages to Distributed Data Centers, like the need to mirror data not only from primary to secondary DCs but also vice versa. And don't forget the session persistence which has to be properly addressed.

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