



Major Medical ecommerce BGP Multihoming Project Summary

The challenge

As a result of previous work with another division, this major medical information e-commerce provider engaged Chesapeake NetCraftsmen to assist with its network connectivity needs. The client was planning to connect to the Internet via two ISPs, through two border routers running BGP.

Our consultants have extensive experience helping large and medium size e-commerce customers in meeting their redundancy, performance and security needs. BGP multihoming is a key aspect of a highly available, scalable, well-performing and secure infrastructure. Most often, the goals of multihoming are both redundancy and performance, i.e., fail-over to an alternate ISP if connectivity to one ISP is lost, while utilizing the bandwidth fairly, as much as possible, between the two ISPs. While many different design approaches exist, we made specific design recommendations and fully explained the trade-offs of different design approaches.

The Chesapeake NetCraftsmen solution

Review multihoming goals and expected equipment and link availability:

A discussion of what would be achieved through multihoming, equipment and link availability, and what would be required, from an operational perspective, to implement the redundant router and link, the ramp-up that would be required, and the maintenance window for the network expansion. The IP address space was covered, and we discussed the allocation of the address space currently in the DMZ. We also discussed the addition of another 10/100 switch for redundancy to the public Ethernet network.

Discussions with ISPs via conference call:

The goal was to discuss the clients' objectives with the ISPs and obtain important information from each ISP, such as the policy toward BGP dampening (or automatically not advertising the address prefix(es) when a link is unstable). We also clarified ISP support of such things as attribute manipulation and BGP Community Attributes.

Presentations of multihomed network design:

We provided diagrams which showed pros and cons of multihomed designs, and made a recommendation based upon the client's needs. We fully explained the rationale for our recommendation, both in writing and in person. Our recommendations, included with the actual diagrams, provided details on such things as how to add the additional Ethernet switch to the public network, how to add HSRP between the two Internet edge routers, how to announce your IP prefix(es) to each ISP, how to avoid becoming a transit network, how to influence both inbound and outbound traffic to achieve the desired results (load sharing) and how to have redundancy should a link or a BGP session to an ISP fail.

On-site Implementation:

Included actual installation during a maintenance window, configuration of routers (hardware and software) and testing to ensure that the policies agreed upon had been successfully implemented with the ISPs. This phase also included failover testing. We also provided on-site assistance after implementation.

The results

Following our work, the client's BGP multihoming was successfully implemented – under budget and ahead of schedule. The results of proper multihoming are both increased redundancy and performance, i.e., fail-over to an alternate ISP if connectivity to one ISP is lost, while at the same time shaping traffic to flow evenly and fairly between the various ISPs.