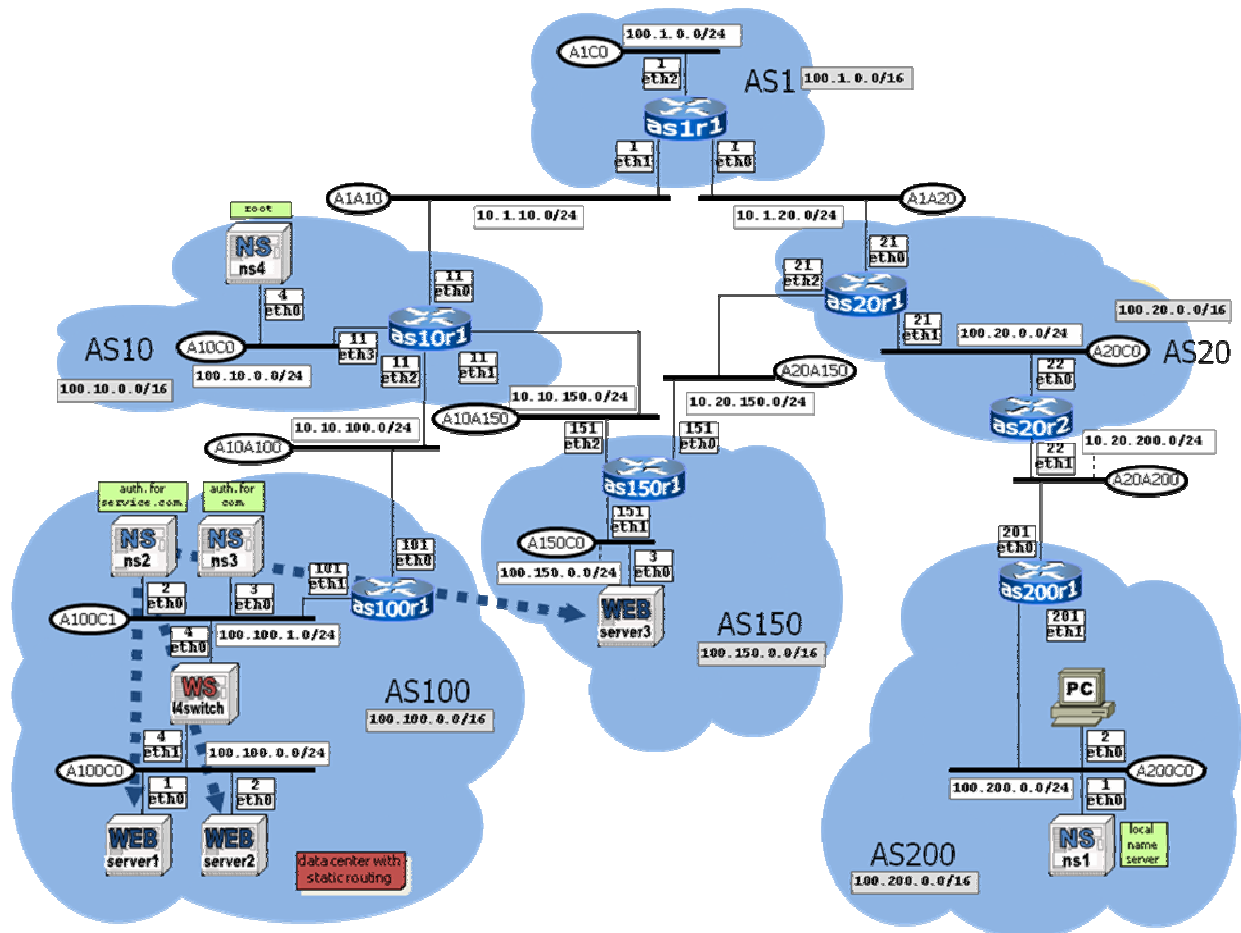




ICN – Examination date: 22-06-2012 – “Michelin Man”

Available time: 150 minutes

Using Netkit, implement the network shown in the following picture. Networks used to interconnect border routers must be announced in BGP. All the networks that are internal to autonomous systems must be reachable from any other internal network.



Important notes:

1. **ns1**, **ns2**, **ns3**, and **ns4** are name servers; **ns1** is a local name server for the hosts on network 100.200.0.0/24; **ns2** is the authority for **service.com**; **ns3** is the authority for **com**; **ns4** is root name server.
2. **server1**, **server2**, and **server3** are web servers running Apache2 and offering the service **www.service.com**; each server shows a different html page when requested.
3. **ns2** implements a load balancing for **www.service.com**, always returning the same pair of addresses 100.100.1.4 and 100.150.0.3 (note: don't use location-based load balancing).
4. **server1** and **server2** are behind **l4switch**, that is a layer 4 Web switch with a round robin policy to be set up using the following commands:

```
iptables --table nat --append PREROUTING --destination 100.100.1.4 --match statistic --mode nth --every 2 --jump DNAT --to-destination 100.100.0.1
iptables --table nat --append PREROUTING --destination 100.100.1.4 --jump DNAT --to-destination 100.100.0.2
```
5. internal routing for **AS100** is static.
6. warning: remember to set the default route for all network nodes; in particular, to set **server1**'s and **server2**'s default route towards **l4switch**, and **l4switch**'s default route towards **as100r1**.
7. no router announces the default route 0.0.0.0/0.