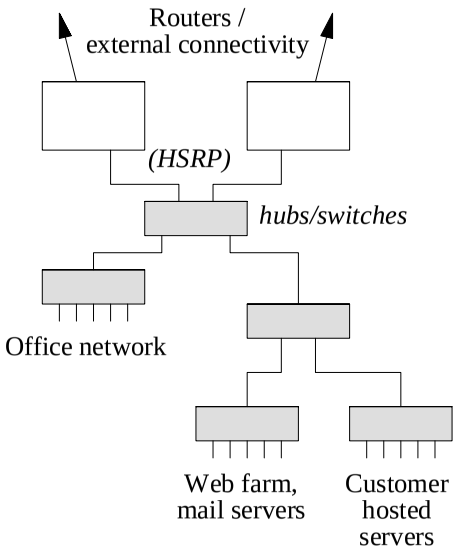
Don't build your network like this...



What is wrong with this design?

1. Whole network is one large broadcast domain. Broadcasts packets are seen everywhere. (Windows NT servers are worst offenders)

2. All switches must learn all MAC addresses. Hosts have large ARP tables.

3. Security: customer hosted servers and office machines can break your mail and web networks (by configuring a wrong IP address, ARP spoofing etc)

4. There's no such thing as a "layer 2 traceroute", so any network problems are very hard to locate

5. A broadcast storm in one part of the network will affect the whole network

6. Top switch/hub is a single point of failure. Reboot it and your whole network stops working for a while!

7. Switches form a tree. There are no backup links.

8. All traffic aggregates at the central switch, which could be a performance bottleneck.

9. What happens if you need to add more ports on the border routers, and you have run out of slots?

Principles to follow

- ☛ It's better to have part of your network fail than your whole network fail
- ☛ Keep different types of traffic - especially different levels of trust - on PHYSICALLY SEPARATE NETWORKS (not just separate subnets on secondary addresses on the same cable) - separated at layer 3
- ☛ If you have anything redundant (e.g. power supplies, fans, network links), make sure they are continually monitored

Approaches to resilience:

(1) Buy components which are inherently resilient

(2) Build your network so it can withstand failures

(3) Do both