

Peer Review of Group 5

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Introduction:

After analyzing the topology and the policy of the group 5, we find some problems and give the solution respectively.

Analysis and Problems:

We analyzed the report of group 5 and found following problems:

1 Area 1 and 2

They made area1 and area2 into private AS. In these private AS, they run OSPF as IGP in whole private AS. On the border routers of private AS, each of border routers is connected to private AS 64514 with 2 links. Area1 and area2 have been changed into private AS. But there are still some problems about growing problem. If this private AS grows and grows again, this AS will be too large as area30. The routers which are directly connected to AS 64512(also 64513)'s border router don't run EGBP. And we cannot set policy for that.

2 Area 30

They divide area30 into 5 stub areas. Each stub area has two border routers which are connected to area0 with 2 links. Area30 is divided into 5 stub areas, which has still some problems. But if 2 stub areas want to communicate with each other. It will make more traffic in area 0. And it will increase the routing table in area 0.

3 Incoming Traffic and stub areas

We can assume that ISP1 and ISP2 are directly connected, but if two ISP are not connected directly and connected to same NAP, maybe there is a problem.

There is no primary and backup between area0 and each stub areas. Because between area0 and stub areas, only run OSPF which can not set any policy to support primary and backup.

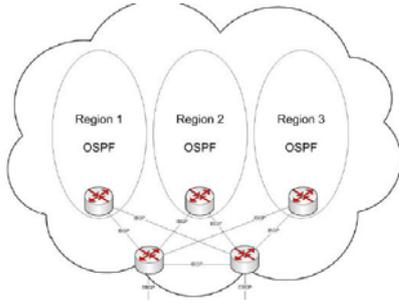
4 Link Problem

The high-end border router which is in STOCKHOLM are connected 8 links to stub areas with 1-Gb link, and 3 links to core routers with 10-Gb link, and 1 link to ISP2 with 10-Gb link, and 1 link to another border router with 40-Gb link. Which link this router will use to connect to ISP1?

This router only has a 40-Gb link, why not use 40-Gb link to connect to ISP2 and 10-Gb link to connect ISP1. If company A has a new contract with a higher speed which is more than 1-Gb connecting to ISP1, company A must rearrange at least 3links.

Solution:

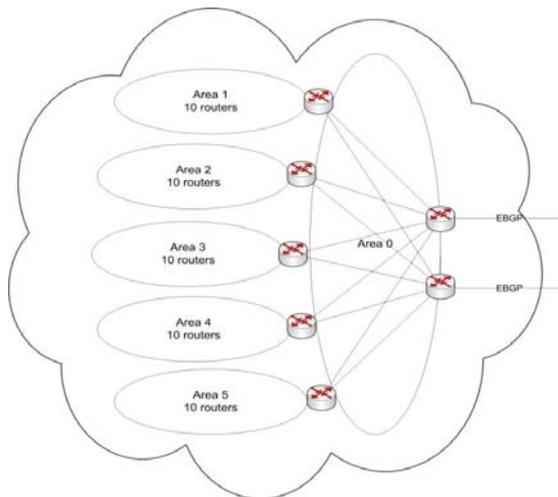
1 About area 1 (or 2):



As the picture above shows, there are two ABRs (area border routers) which are connected with the core routers with 1-Gbps interface. The area 1(2) with area 0 will communicate via EBGP. The two ABRs communicate with IBGP. In the internal area 1, the area is divided into three regions. Each region inside will run OSPF. It will decrease the large overhead of area 0 into some IGP region and the IBGP router will receive only the aggregated information.

2 About area 30

We setup this big area as an As. This AS consists of 6 areas. Area 0 is a backbone area, which all other OSPF areas must connect to. All traffic between areas must go through Area 0. In the other 5 areas



which consist of 10 routers for each, they will run OSPF in their own domain. In this As, there are two ABRs which in the area 0 connect outside using EBGP. There are also have 5 routers considered as communicating router to the two ABRs in area 1 to 5 (Each area has one). They also have two links, one is primary and the other is a backup. Once primary down, the backup will take effect. These 5 routers and two ABRs will run OSPF in area 0.

In this way, the network will be more stable since the routing table will be smaller. And the convergence time will be shorter than ever before. If one of the router in Area2 (here is just an example) is down, it would not affect the other areas. The expansibility is also improved.

3 Stub areas and Incoming Traffic Policies

if use OSPF only, we can not set any policy to implement primary and backup. So we should make stub as a private AS to implement it. If two ISP are not connected to each other directly or they are connected via NAP then we could use prepending of AS_PATH to control incoming traffic.

Conclusion:

The group 5 did a good job. They improved performance of the network infrastructure a lot. If they consider the problems above, the job will be perfect.