

1 BGP

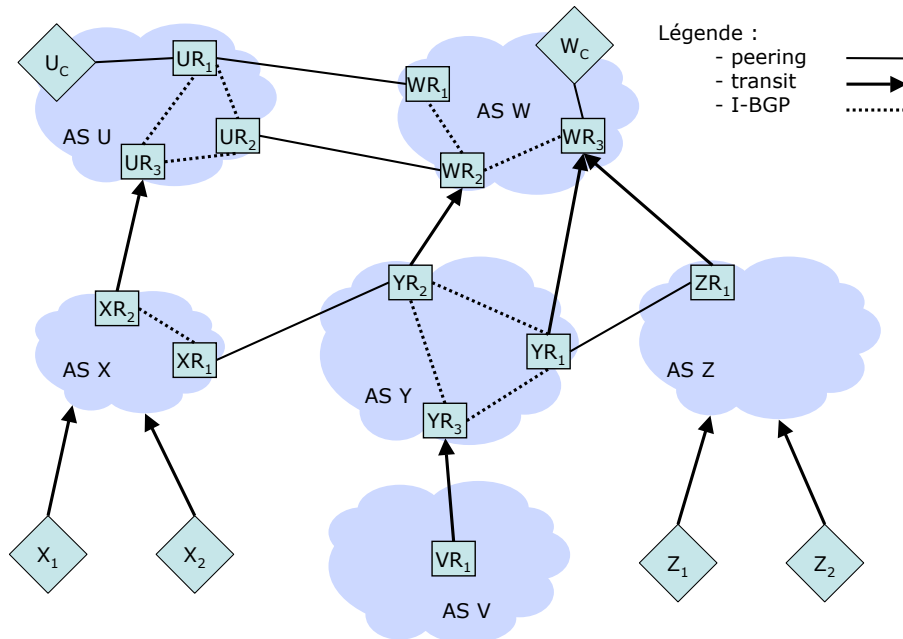


Figure 1: Example network of ASes.

There are six ASes shown in the picture above (U, V, W, X, Y, Z). The diamond-shaped boxes are customers of the ASes (ISP) they are connected to. Some relationships are marked as peering and transit. The circles with names like WR_1 stand for BGP routers. The first letter of such router names indicates the ISP they belong to. Within each AS, the dotted lines show I-BGP connections.

1. Which AS does not have correct I-BGP interconnections?
2. Consider the relationship between Y and Z. Which of these statements are true?
 - Z will hear routes to V announced by Y, and may also hear routes to V announced by W.
 - Z MUST use a route to V announced to it by Y, since that is a route from a peering relationship.
 - Y will usually not announce routes to Z_1 and Z_2 to W.
 - Y will usually not announce routes to Z_1 and Z_2 to V.
3. U wants to ensure that packets sent to U_C from W are sent to it via UR_1 and not UR_2 . Clearly explain how it might try to do this. Can it always ensure that the desired behavior happens? Why or why not?
4. W would like to ensure that packets sent to W_C from X_1 reach it via AS X and U, and packets sent to W_C from X_2 reach it via AS Y. Can this be done with BGP? If so, how?

Solution:

1. W does not have complete i-BGP interconnection
2. (b) and (c)
3. Using MED
4. No, W can ignore MED
5. We cannot - X must use the roads that are advertised. Y will not announce the road to X.