Arquitetura de Redes Avançadas
Networking Project

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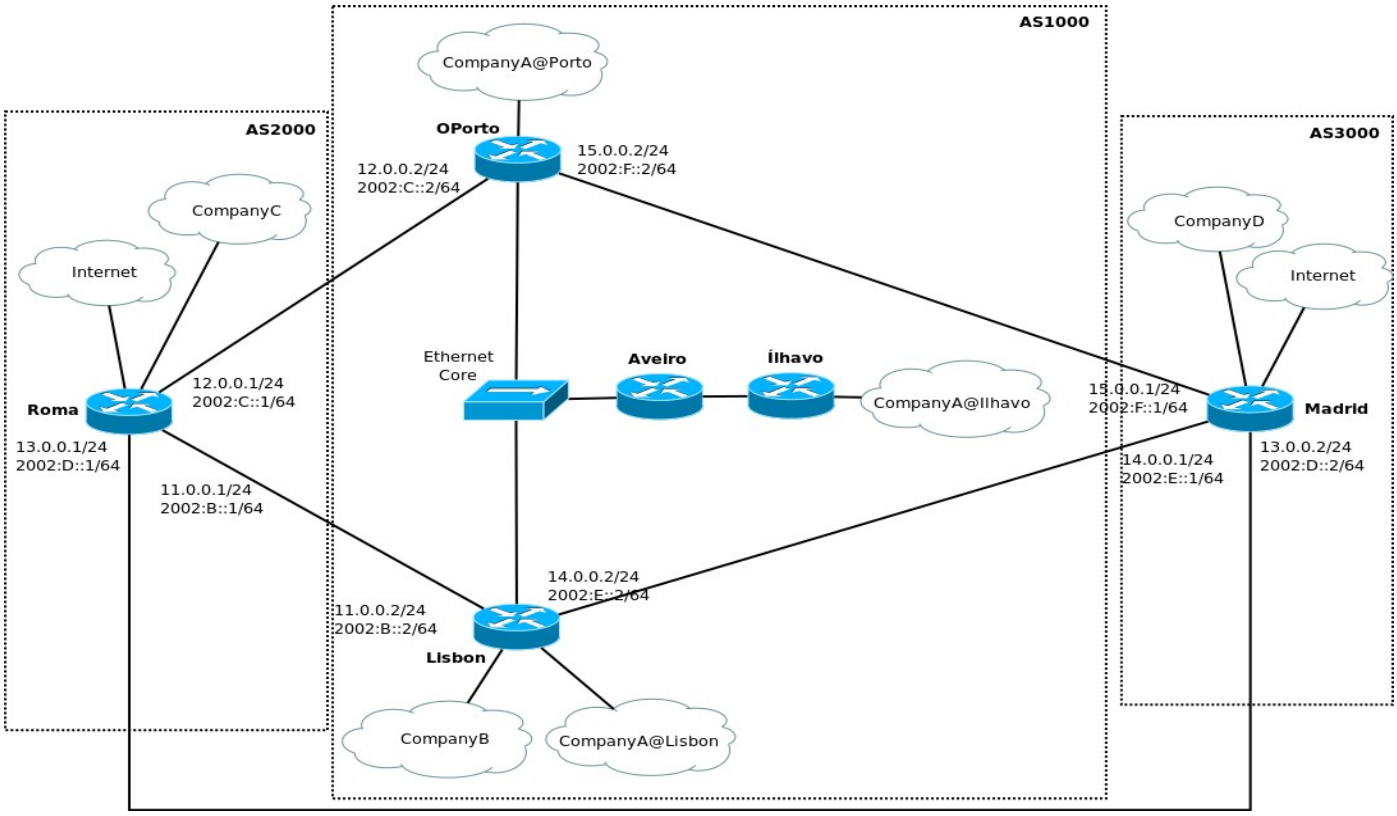

Problem description:

- Suppose you are responsible for managing the network of operator 1000, which is an autonomous system with ID AS1000.
- Operator XY has *peering* relationships with AS2000 and AS3000 based on two different routers (Lisbon and Oporto).
- Consider that the different companies have the following IPv4 and IPv6 addresses:

CompanyA@Porto	81.100.1.0/26	2001:81:1:0000::/52
CompanyA@Ilhavo	81.100.1.128/26	2001:81:1:2000::/52
CompanyA@Lisbon	81.100.1.192/26	2001:81:1:4000::/52
CompanyB	81.100.2.0/26	2001:81:2:0000::/52
CompanyC	80.1.1.0/24	2001:80:1::/48
CompanyD	82.1.1.0/18	2001:82:1::/48

Requirements:

- Operator 1000 should guarantee the connectivity of all IPv4 and IPv6 networks of their clients with the other companies.
- AS1000 should not be used as a transit AS between AS2000 and AS3000.
- Company A users located in Ílhavo should preferentially access CompanyC through Lisbon and CompanyD through Porto.
- In order to reduce costs and have a better security control, the Sales Department of CompanyA required virtual private connections between the Porto, Lisbon and Ílhavo poles, with a guaranteed bandwidth of 2Mbps.
- All Videoconference and VoIP traffic between the poles of CompanyA should use this private connections.
- VoIP should be based on the SIP protocol. The demonstration of this service is mandatory. For simplicity purposes, you can consider that calls are directly established between SIP terminals.