

Multi-Area OSPF

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This past week I've been learning about multi-area OSPF. OSPF is a dynamic routing protocol that allows routers in large networks to have automatic updates about remote networks. However, without area segmentation, OSPF routers have very large routing tables, large link-state databases, and extremely frequent SPF calculation that can eat up processing power creating too large of a demand on the CPU and memory reducing its functionality. Using multi-area OSPF allows the architect to design a hierarchical routing scheme. The main group of routers in an OSPF network is the backbone area or also known as "area 0." Using multi-area OSPF allows for smaller routing tables, reduced link state databases, and a reduced frequency of SPF calculations. Two-Layer OSPF multiarea OSPF networks have a backbone and regular non-backbone areas. The backbone area primarily coordinates the fast and efficient movement of packets, interconnects with other OSPF areas, and is the core which all other traffic from other areas use to reach remote areas. Regular non-backbone areas are composed of end devices, and connects users with resources, is set up around functional or geographical groups, and does not have other area traffic pass through it. All areas being attached to the backbone area combined with network summarization allows for the backbone quickly get packets to the right area while area routers to the end devices. The main types of routers in OSPF are Internal routers, Backbone routers, Area border routers, and Autonomous System Border Routers. This combination of routers allows for effective communication throughout the whole network. Overall, multi-area OSPF is an effective way to reduce the resources required to dynamically route a network.