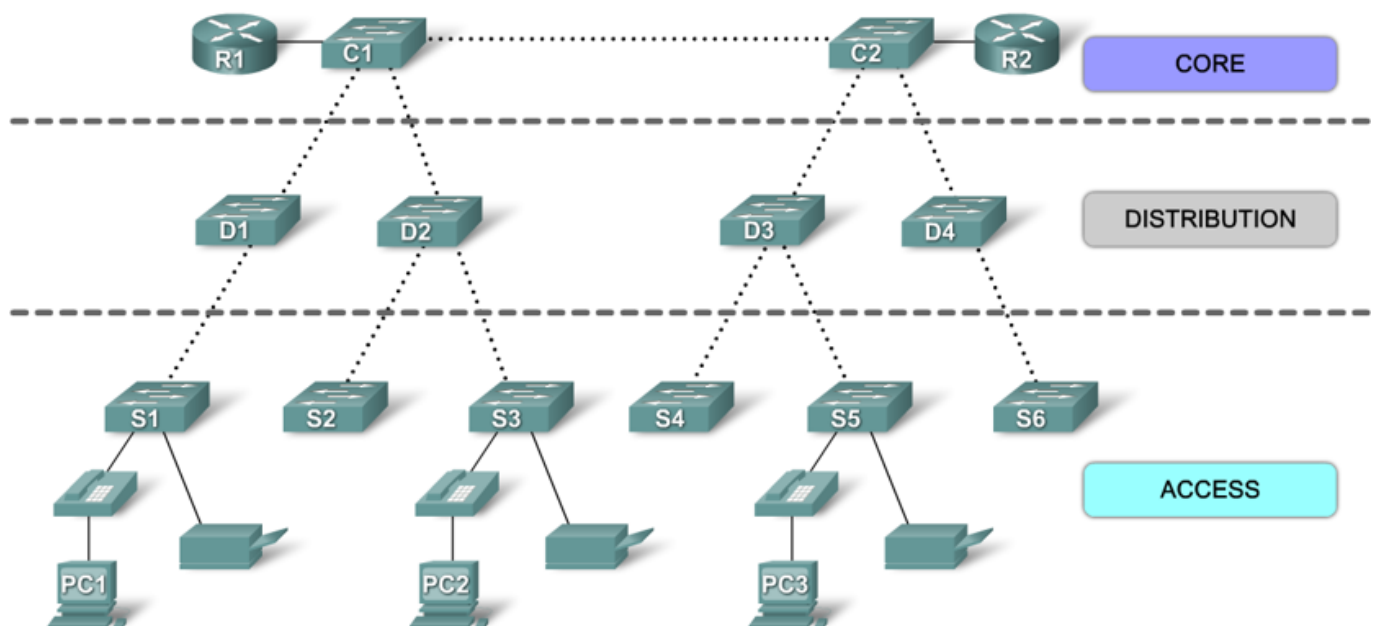# Cisco Introduction to Scaling Networks

The hierarchical network model

A Hierarchical Network in a Medium-Sized Business

The general Purpose of each layer:

- Core, The backbone of traffic of the network, also is where the network can conenct to the rest of the internet
- Distribution, aggregates traffic from the access layer before moving to the core layer
- Access, the interface for users where end devices can connect and access the network

Benefits of designing a network in this fashion:

1. Scalable, can be easily expanded to accomodate more users
2. Redundant, distribution and core redundancy makes the network less likely to fail entirely
3. Performance,
4. Security, implementing port security and other policies at the access layer make the network secure
5. Manageability, consistent configurations among switches make management simple
6. Maintainability, the structure allows expansion without making the network too complex to work with.

Key principles to make the hierarchical network effective:

- Keeping network diameter at a minimum(number of devices data has to go through before arriving at the destination)
- Bandwitdth aggregation, some switches can use etherchannel to increase the bandwidth for traffic
- Redundancy, investing in many network devices to provide multiple paths for data to travel mitigates failure.

Shopping the right cisco switch

Cisco switches generally come in 3 groups:

- Fixed switches, these are switches that intend to work out of the box. They do not have any cuztomizable options.
- Modular configuration switches, these are switches that can have interfaces to plug in custom components
- Stackable switches, these are switches that can be stacked...

Features of Cisco Catalyst Switches