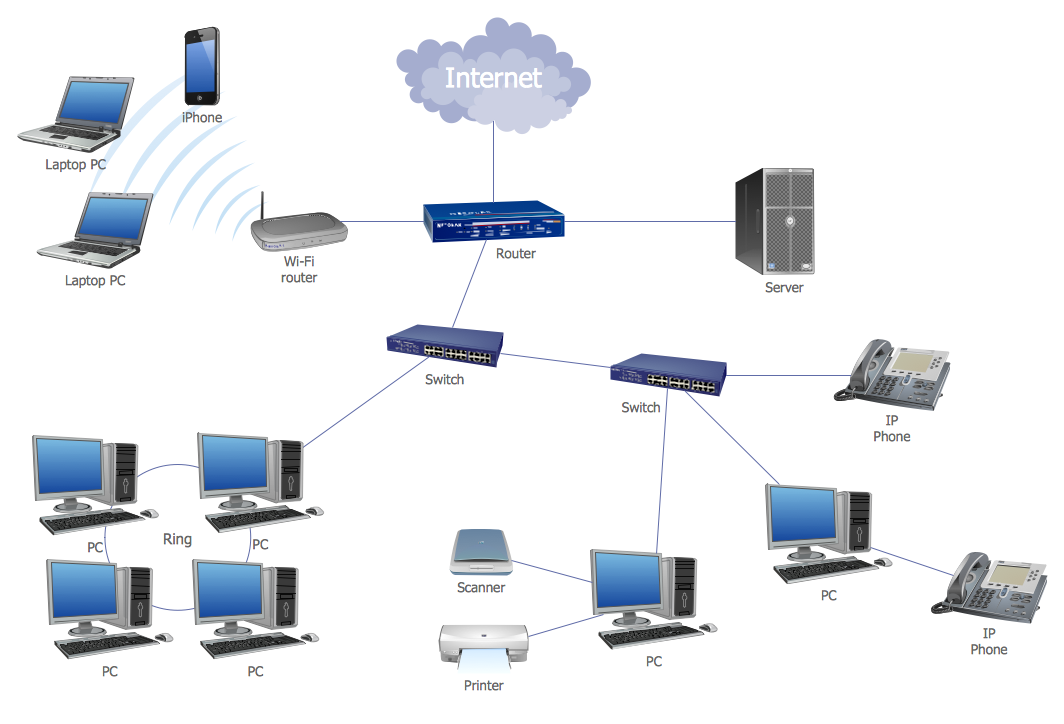
Networks - Design

# Architecture

## Small Network

Small networks such as those in homes are commonly designed for minimal cost, meaning the network is compact and the router is normally combined with the modem and switch. Another common part of design is chaining switches together as the network expands.

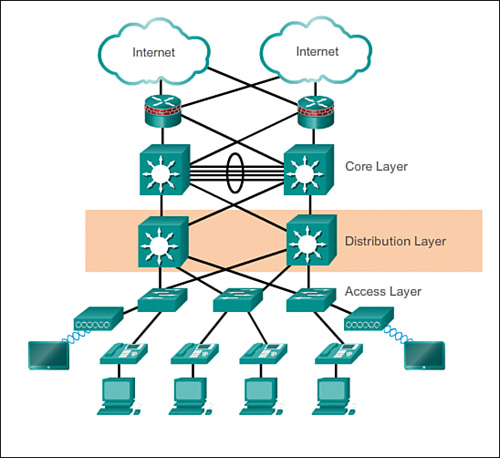


This style of network design leads to mutliple single points of failure, where is a single cable or unit is damaged, the whole or large parts of the network will go down. In a business this style of network is dangerous, since large downtime can lead to poor service and significant profit loss.

## Campus Network Design

Good network design provides as much redundancy as possible for the budget allowed. In order to provide redundancy, each switch must connect to more than one switch. To do this there are several layers to the network:

* Access layer: access switches are connected to client devices
* Distribution layers: distribution switches are connected to the access switches; they tend to be layer 3 switches making them very heavy duty and expensive
* Core layer: High speed backbone, switching pckets to optimise communication on the network. The core layer does not perform any packet manipulation which would slow down switching.



Collapsed core models use the distribution layer to manage connections to other campus networks.

