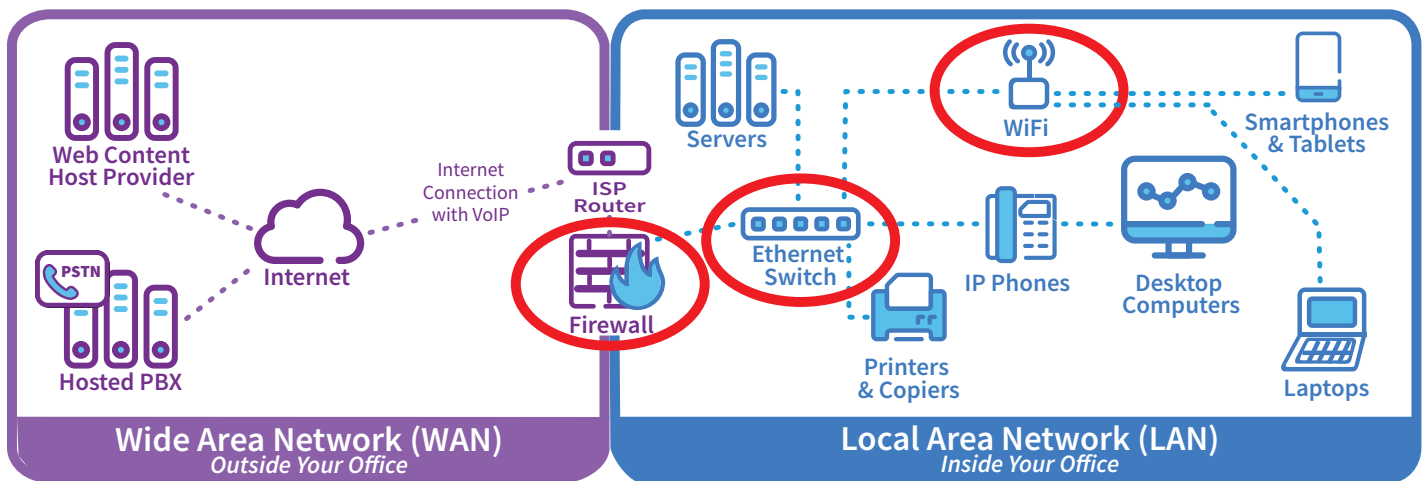


POPP-Provided LAN Equipment

LAN infrastructure is not optional, but who you get it from is. Protect your business productivity and help your Internet Phone System perform at its best with POPP-provided LAN equipment, including a firewall with Automatic Failover, Ethernet switch, and WiFi.

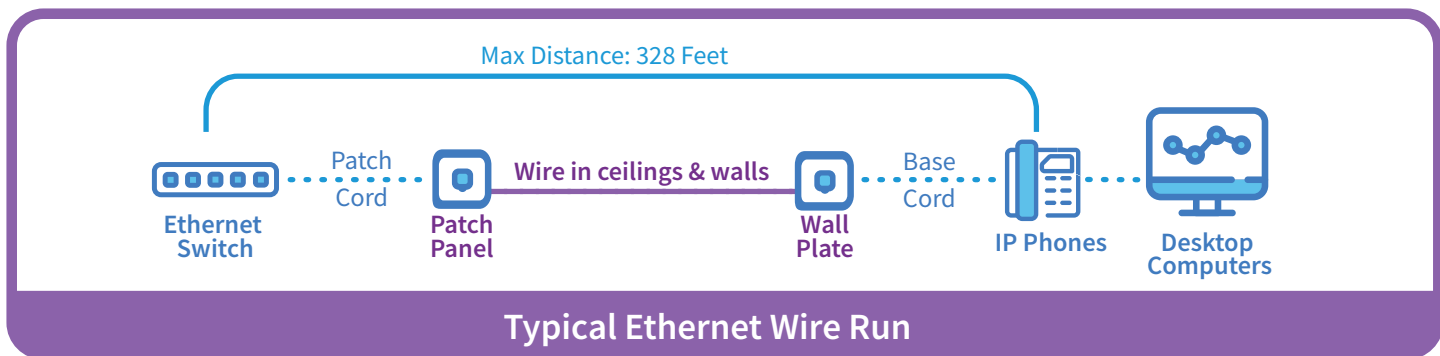


When you install your Internet Phone System combined with POPP-provided LAN equipment, we ensure that your LAN is equipped to provide secure, high quality VoIP/voice and fast data communications, while minimizing any upfront costs. Your team is backed by POPP’s knowledgeable and friendly helpline staff, all for one low monthly fee.

Benefit	Description
Firewall / VoIP Management Device with Automatic Failover (AFO)	<ul style="list-style-type: none"> Standard (stateful inspection) firewall protection from Dell/SonicWALL The firewall prioritizes voice traffic over data traffic for the best possible call quality using Quality of Service (QoS) Automatic Failover can re-route voice and data traffic via an optional second internet connection Works in conjunction with your own firewall, if you already have one
Ethernet Switches (Gigabit) with Power over Ethernet and Dedicated Voice VLAN	<ul style="list-style-type: none"> Super-fast (1000 Mbps) Ethernet switches from Cisco and Adtran IP Phones are powered directly from the switch, no need to purchase power supplies Voice virtual LAN (VLAN) keeps voice traffic isolated from your data
WiFi solutions from eero® and Linksys®¹	<ul style="list-style-type: none"> WiFi adds convenience and mobility for your employees and guests Extend WiFi coverage across large spaces using eero’s mesh network capabilities A separate guest WiFi network prevents guests from having access to sensitive data located on your computers
Wiring infrastructure to maximize your existing investment	<ul style="list-style-type: none"> We can generally reuse most, if not all of the Ethernet cabling already in place If your business does require new wiring, we can provide anything from a single new jack to re-wiring of an entire office space

¹For the most reliable, highest quality business voice calls, POPP recommends using a wired Ethernet connection whenever possible.

LAN Wiring Information



Wire Type:	Maximum Distance:	Maximum Speed: ²	Notes:
Category 3	100 Meters/328 Feet	10 Mbps	No longer widely used. Not suitable for VoIP
Category 5	100 Meters/328 Feet	100 Mbps	Suitable for most business environments
Category 5e	100 Meters/328 Feet 55 Meters/180 Feet	100 Mbps 1000 Mbps	
Category 6	100 Meters/328 Feet 55 Meters/180 Feet	1000 Mbps 10000 Mbps	Recommended for new LAN wiring installations and high bandwidth users or equipment

²The speed of a LAN connection is dictated by the wire used as well as the hardware capabilities of the equipment plugged in on either end of the wire. For example, an older computer with a 100 Mbps Network Interface Card (NIC) will only connect at 100Mbps, even if connected to a Gigabit Ethernet Switch and/or connected with Category 6 wire.

WiFi Information

WiFi Standard	Wireless Frequency:	Wireless Speed (up-to)	Notes:
802.11a	5 Ghz	54 Mbps	No longer widely used
802.11b	2.4 Ghz	11 Mbps	No longer widely used
802.11g	2.4 Ghz	54 Mbps	Commonly used
802.11n	5 Ghz / 2.4 Ghz	300 Mbps	Most commonly used
802.11ac	5 Ghz / 2.4 Ghz	1300 Mbps / 450 Mbps	Newest technology

The table above illustrates the differences in the various wireless standards used by WiFi access points and wireless devices. Most WiFi access points will work on 2-3 different standards and the wireless devices will select the optimal standard its hardware will support.

2.4 Ghz provides better range and is most common, but this frequency is crowded which can degrade performance.

5 Ghz has shorter range, but higher bandwidth. The frequency is less crowded and can be more reliable.



[Learn more at POPP.com](http://www.POPP.com) or call us at 763-797-7900.