



AV Network Best Practices (Managed Switch Network Infrastructure)

"The network is the foundation of a reliable system."

Best Practice's AV Network

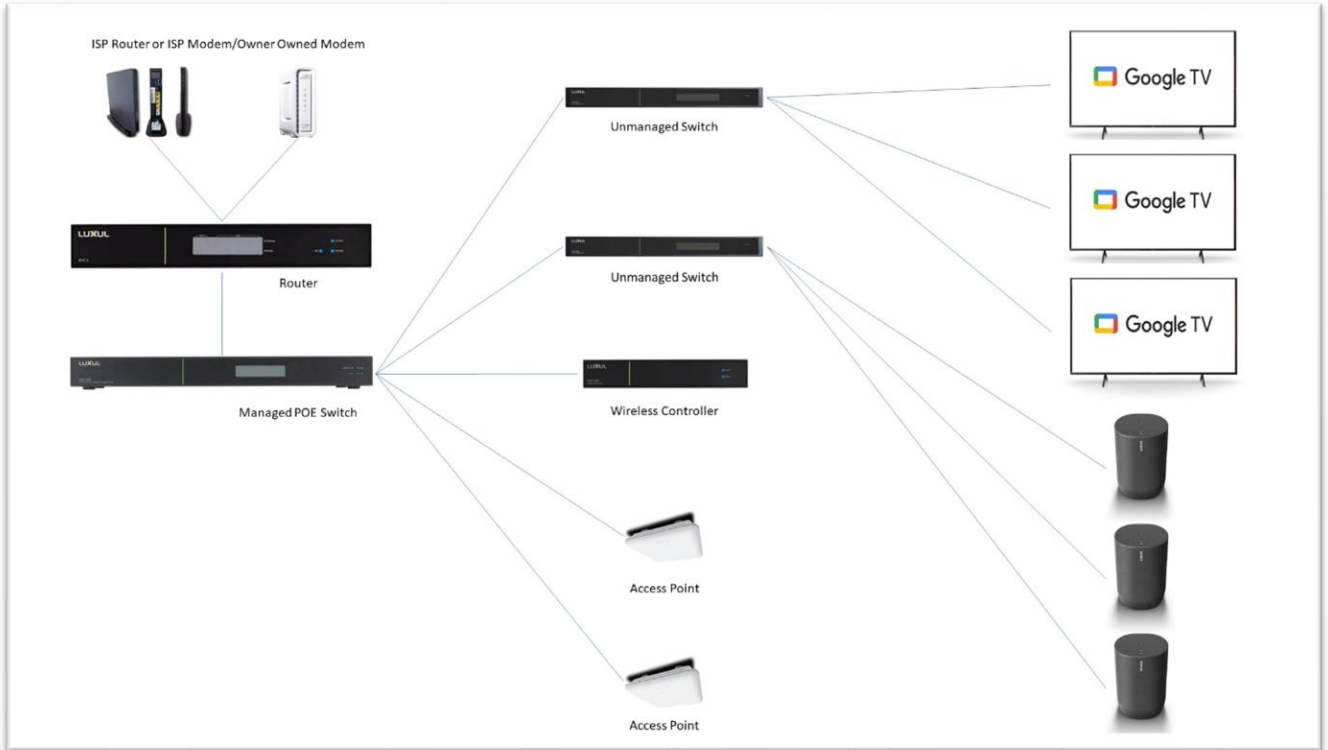
Building the Infrastructure: (Multiple Configurations)
This is assuming understanding of network configurations.

Android/Google TV and Sonos are Used as Examples

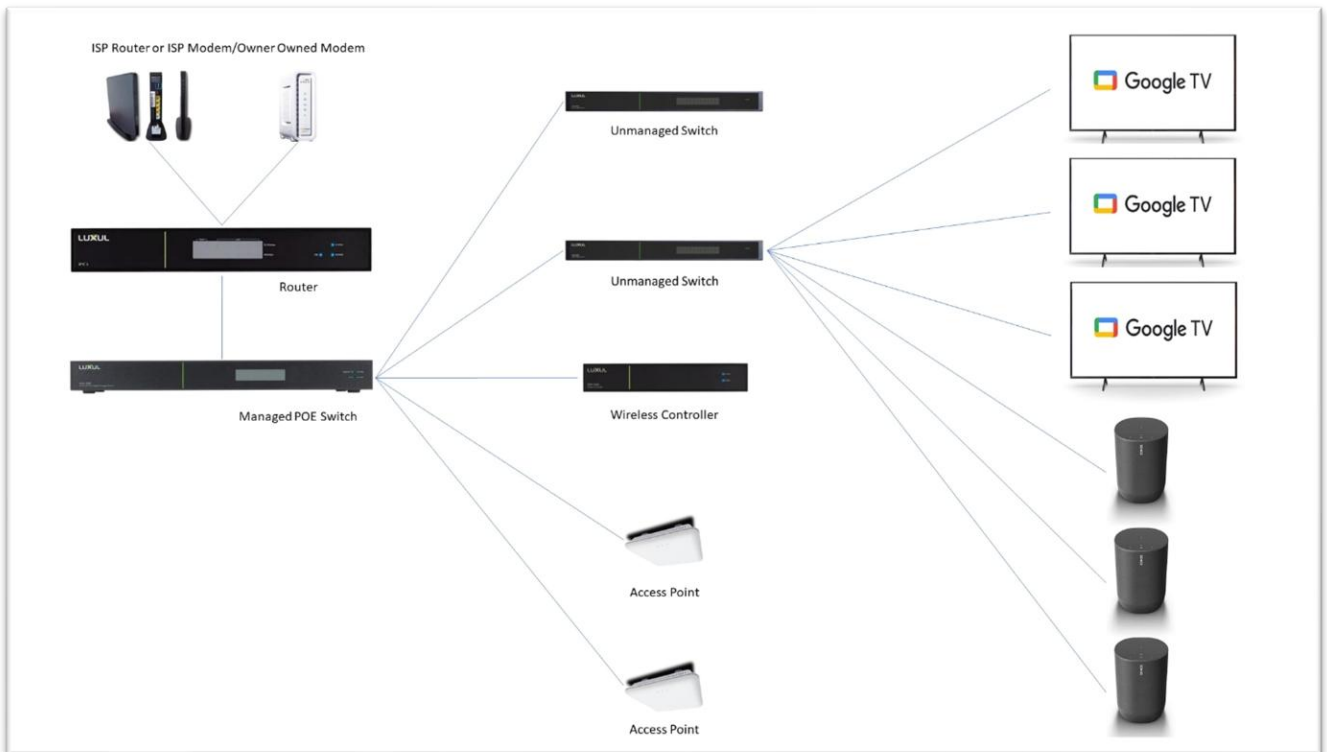
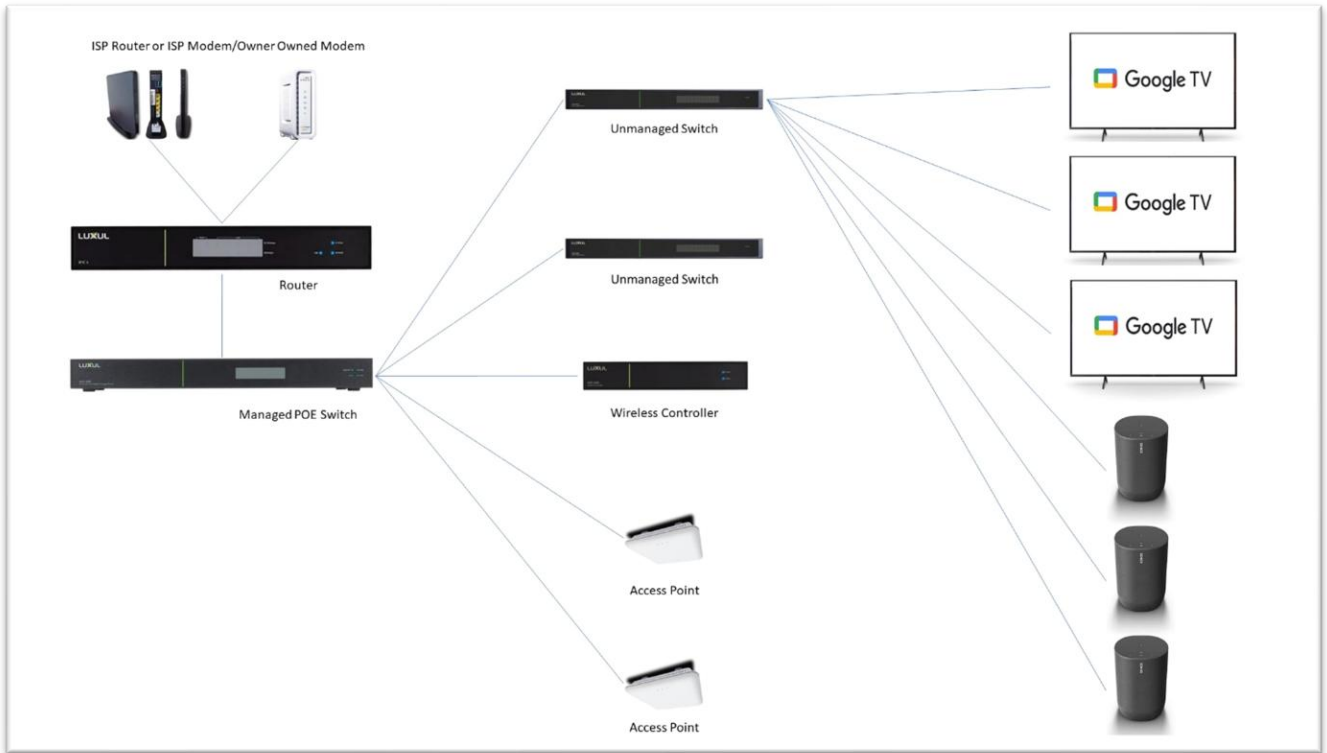
Recommended "Best": (Managed Switch)

- Layer 3 Router – Behind Configured ISP Router or ISP/Consumer Purchased Modem
- Layer 3 Managed Switch – Behind LAN Layer 3 Router
- Non-Blocking and Full-Duplex Layer 2 Unmanaged Switch(s) – Cascading from Layer 3 Managed Switch
- Multiple APs or Single AP – Behind Layer 3 Managed Switch

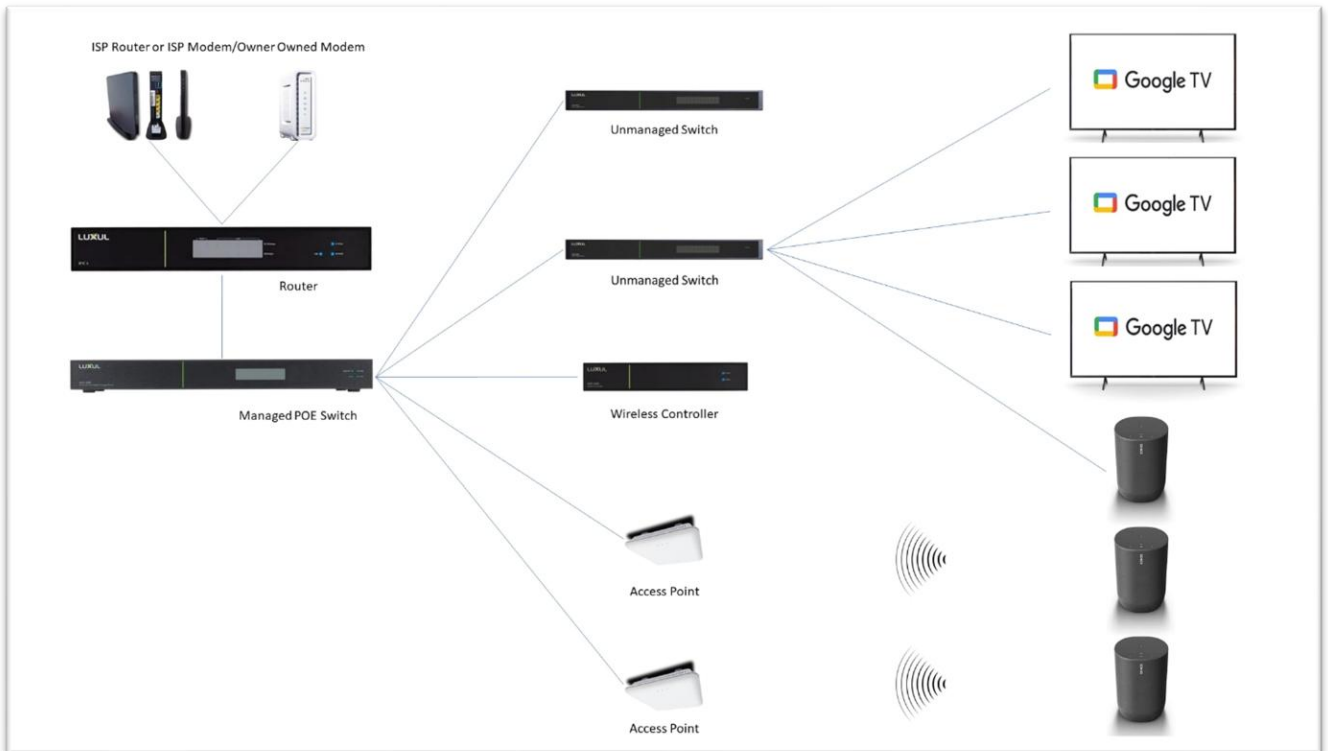
- **Option 1:** All “Like” Protocols or Devices on Same Switch. *(See Below)*
 - All Google TVs Wired to One Switch
 - All Sonos Devices Wired to One Switch



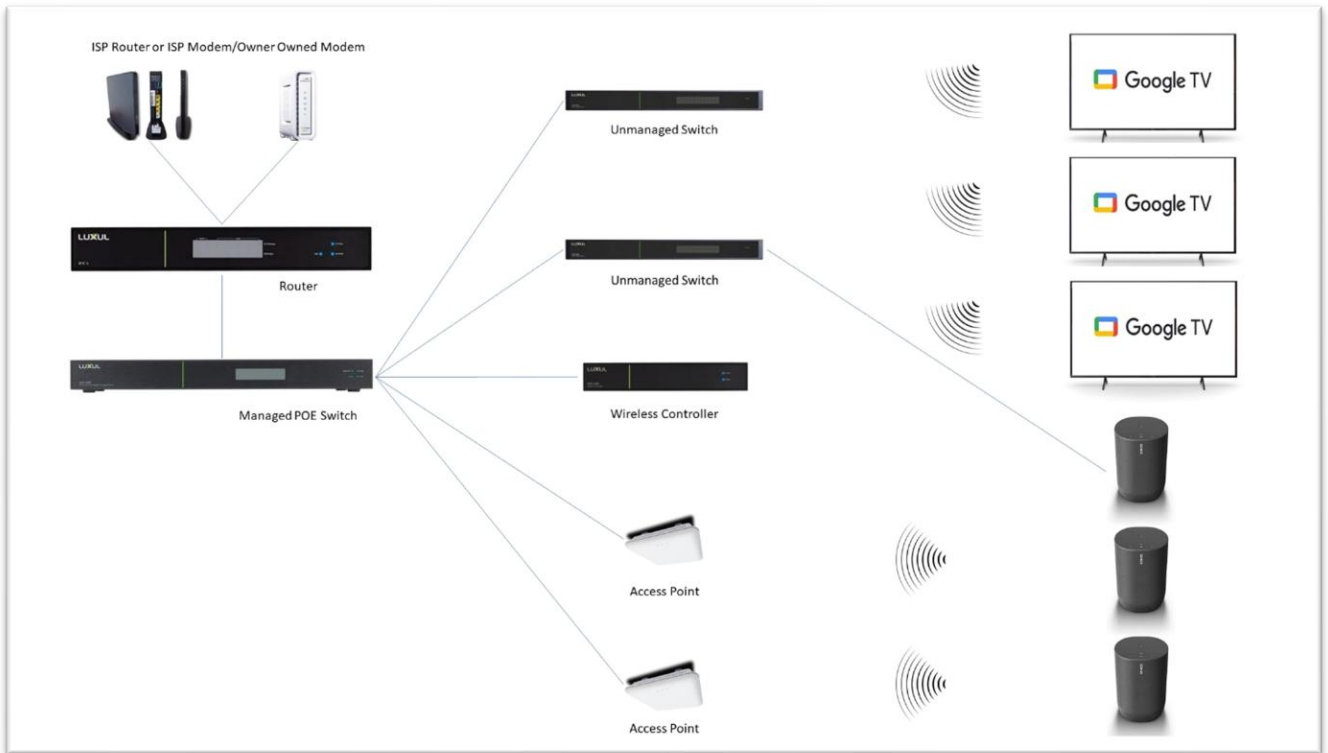
- **Option 2:** Multi “Like” Protocols or Devices can Share the Same Switch. (See Below)
 - All Google TVs Wired to Same Switch and Sonos Devices



- **Option 3:** If you are using Sonos, make sure (1) is Wired and the rest can be Wireless (*See Below*)
 - Make Sure the APs are All on the Same Switch (This Diagram is using the POE of the Managed Switch) (*See Below*)



- **Option 4:** Google TVs in this Configuration can All be on Wi-Fi, Sonos will still need (1) Wired Connection (See Below)
 - Make Sure the APs are All on the Same Switch (This Diagram is using the POE of the Managed Switch) (See Below)



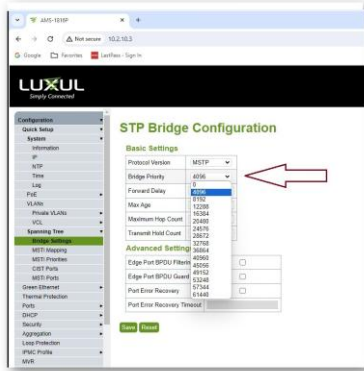
- When using more than (1) Managed Switch
 - Main Managed Switch needs to be the LOWEST Number, making it the Priority.
 - Example: 32768
 - Next Managed Switch needs to be a HIGHER Number, so all traffic gets Managed by the Priority Switch.
 - Example: 36864

****If you don't change these settings, the Managed Switch with the LOWEST MAC Address will assume Priority.***

Example of Root Bridge Priority in a Daisy Chain Configuration

Root Bridge Priority

*Daisy Chain



RACK
Location
 Default 32768
 MAC 00:50

RACK
Location
 Default 36864
 MAC 00:40

Guest House
 Default 40960
 MAC 00:30



Example of Root Bridge Priority in a Star Topology Configuration

- Main Managed Switch will be the **LOWEST**, while the Managed Switches off the Priority Switch can all be the same, just needs to be a **HIGHER** number.

Root Bridge Priority

*Star Topology



RACK
Location
 Default 32768
 MAC 00:50



Pool House 36864
 Default 32768
 MAC 00:40



32768



Guest House 36864
 Default 32768
 MAC 00:30



For Networks that will be using SONOS (5 or More Devices)

STP (Spanning Tree Protocol):

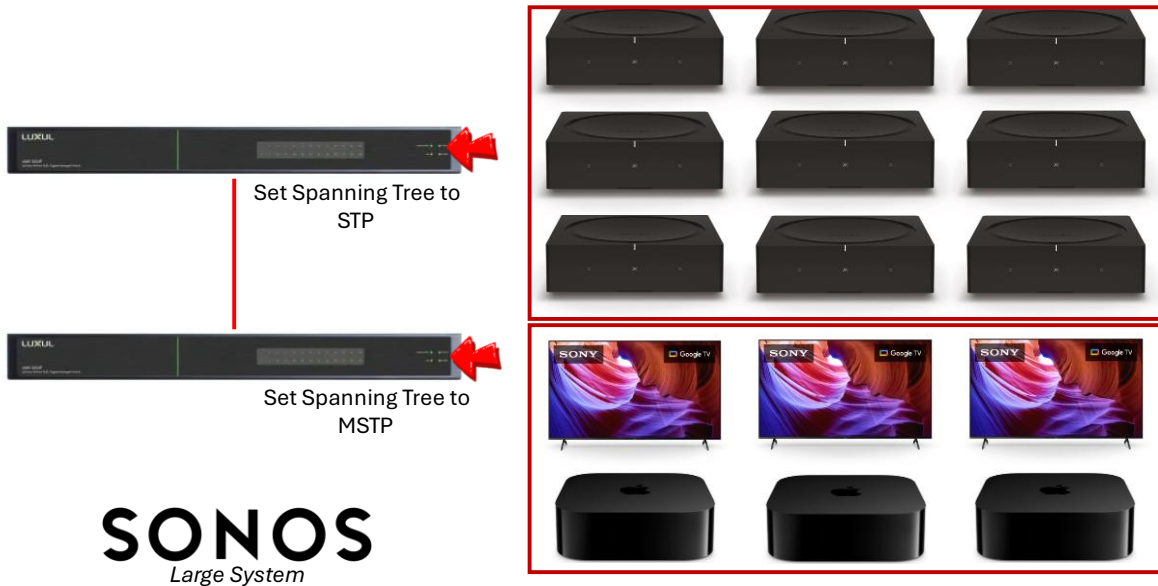
- Sonos (SonosNet)
 - o **Needs STP**
- Android/Google TV ("Zero-Configuration Networking" Protocols, including Multicast version of DNS Service Discovery ([m]DNS-SD) Ethernet [V]LAN or inter-VLAN), Nest (Weave), Ring (Z-Wave), Apple (Real Time Streaming Protocol (RTSP), Apples Bonjour ("Zero-Configuration Networking") etc..
 - o **All Needing MSTP**

Configure (2) Managed Switches

Program one Managed Switch that has ALL Sonos devices to:

- Spanning Tree Protocol to **STP**
- Set Path Cost to **Specific** and Path Cost to **10** for Each Port with a Sonos Device

Program the other Managed Switch to **MSTP** and Follow Above Instructions



SONOS
Large System

Configuration

Quick Setup

System

POE

VLANs

Private VLANs

VLAN

Spanning Tree

Bridge Settings

MSTI Mapping

MSTI Preset

CIST Ports

MSTI Ports

Green Ethernet

Thermal Protection

Ports

CIST Normal Port Configuration

Port	STP Enabled	Path Cost	Priority	Admin Edge	Auto Edge	Restricted Role	TCN	BFDU Guard	Point-to-point
1	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
2	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
3	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
4	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
5	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
6	<input checked="" type="checkbox"/>	Specific	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto
7	<input checked="" type="checkbox"/>	Auto	128	Non-Edge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto

enter the value 10

<input checked="" type="checkbox"/>	Specific	10	128
<input checked="" type="checkbox"/>	Auto		128

SONOS
Large System