



Simple, Intelligent, High Bandwidth Solutions

MaGiC-SFP™ Introduction

*“Put some MaGiC in your network.”*



*All of the market conditions are in place, yet one problem persists:*

*How to efficiently distribute reliable bandwidth into brownfield buildings at low cost.*

- Increasing 5G and wireless point-to-point to building entry points.
- Fiber and Ethernet are not always a practical or economical option.
- Growing need for wireless LAN backhaul in both buildings and in homes.
- Massive growth of streaming services and smart devices.



MaGiC-SFP™ minimizes the challenges to distributing bandwidth over the last 300ft on the WAN side of the network and wireless backhaul of the LAN side of the network.

---

- MaGiC-SFP™ offers up to 2.5Gbps of symmetrical data.
- Plugs into SFP cage found in gateways, ONU's, Ethernet switches, APs and media converters, that support 1000BaseT/SGMII. SFP/+ must support two watts.
- Simple to install, fast to deploy, highly reliable.
- No management software.

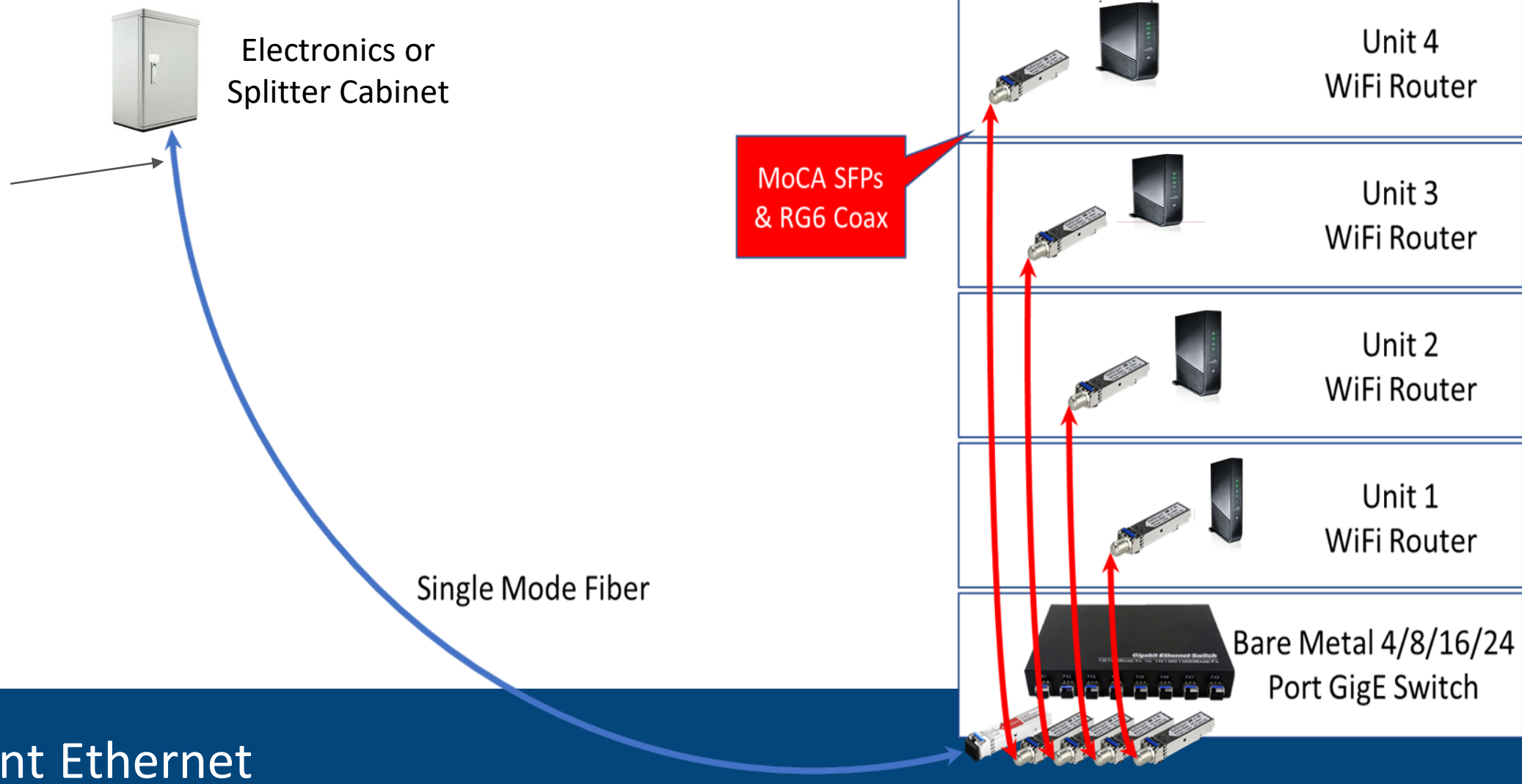


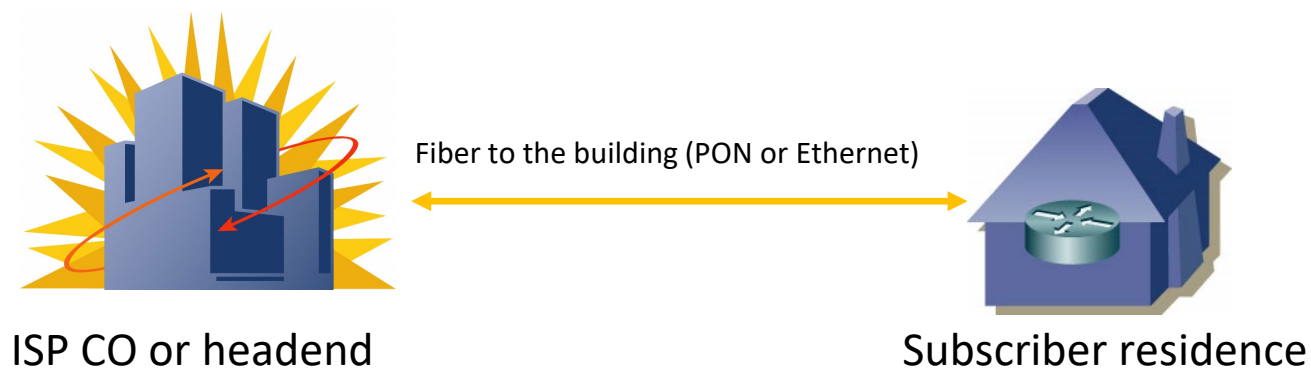
## MaGiC SFP: Multi Gigabit Coaxial - Small Form-Factor Pluggable

---

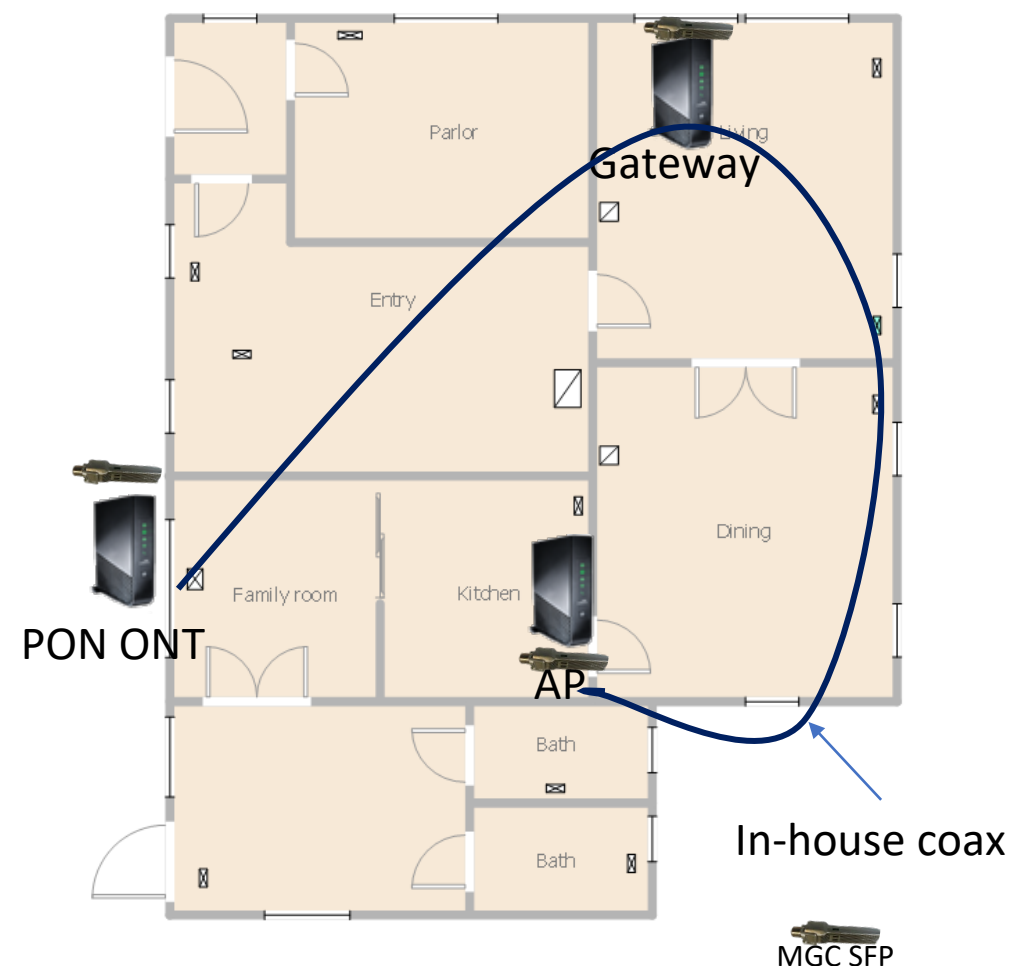
- Follows the SFP/SFP+ standards and is a pluggable module that fits into any existing network that uses coax.
- Transports data at fiber speeds: 2.5Gbps.
- Massively less expensive and dramatically reduced install time compared with rewiring an existing building with new fiber.
- Uses MoCA<sup>®</sup> Access<sup>™</sup> 2.5 industry standard.

MaGiC SFP eliminates need to pull fiber to last unit.





- PON ONT uses SFP port to support any number of transport mediums within the home.
  - Cat5, coax, fiber
- Gateways and APs with SFP+ port can connect in mesh mode to all other devices at 2.5G using MaGiC SFP™ .
  - No wireless mesh “dead zones.”
  - No new wiring needed.



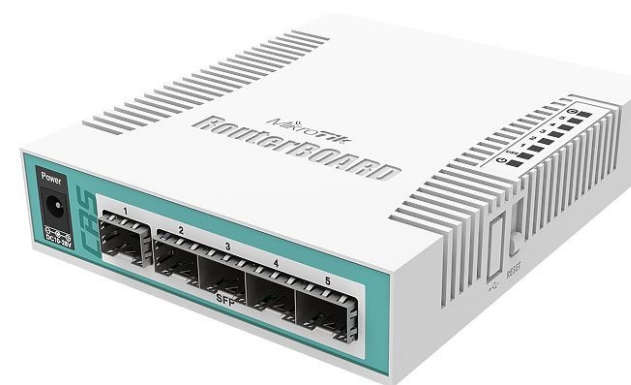
## In-Premise Network Distribution



Media Converter



Network Gateway



Mikrotik Switch

MaGiC SFP™ with growing portfolio of SFP+ CPE



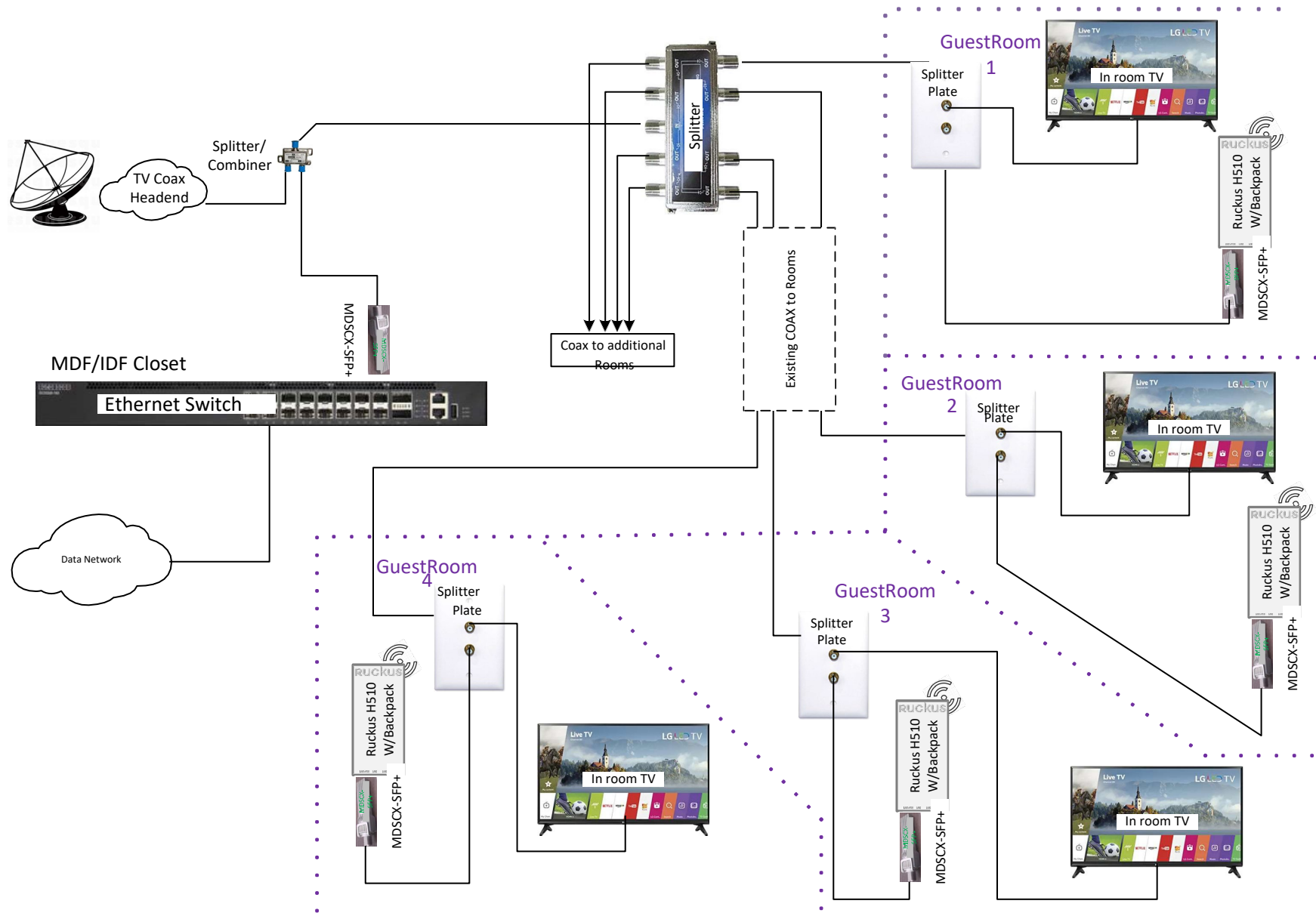


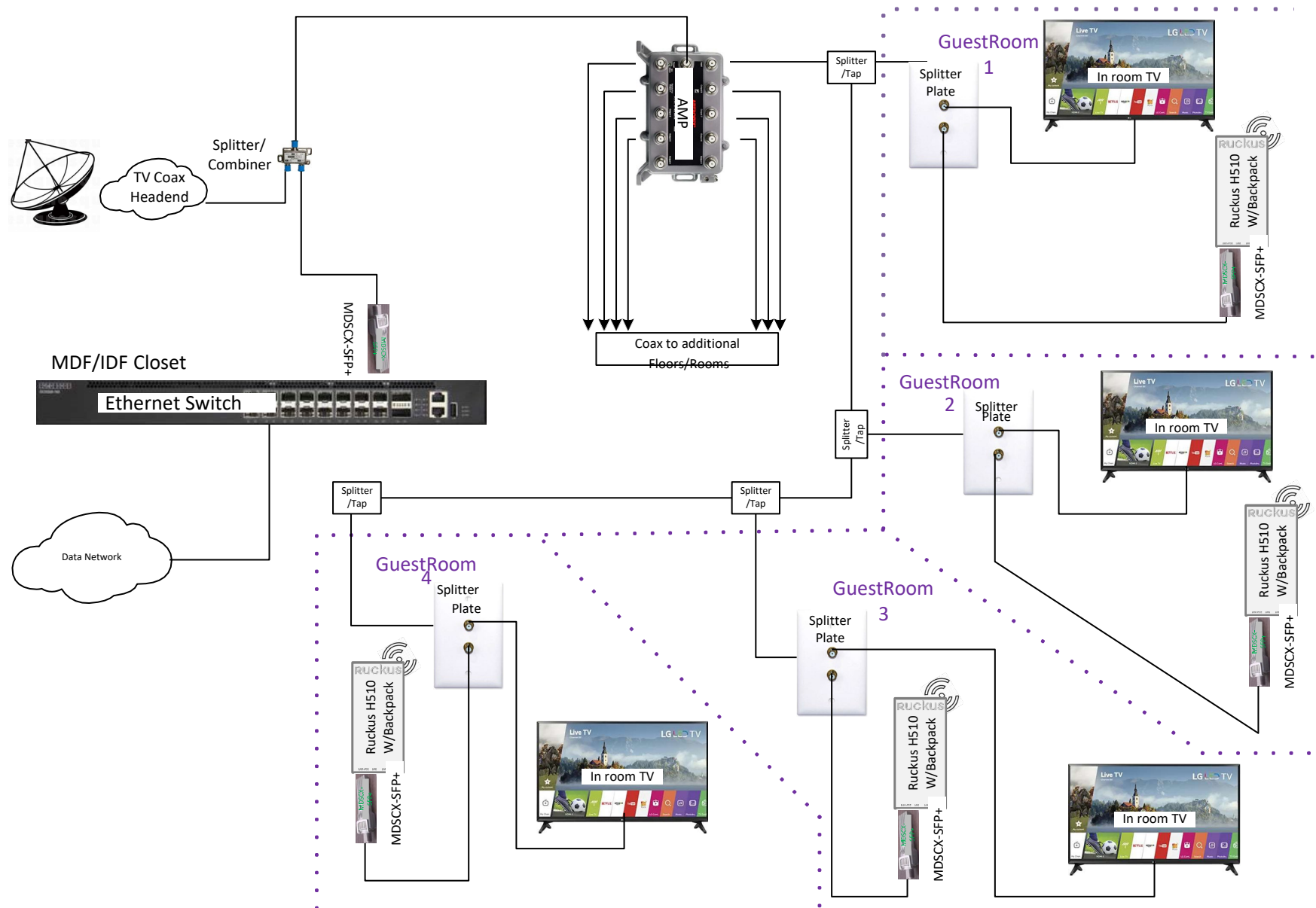
- Last 100M access over existing coax building wiring.
  - Any High-Speed distribution to the building with final distribution using in-building coax.
    - Co-exists with existing cable or satellite operator's installation.
    - supports 1:15 users
- In-premise network distribution.
  - Using simple low cost SFP+ based CPE, operators can support ANY transmission medium in the home without having to purpose build it.
- Wireless AP backhaul in-premise.
  - Migration to a complete wireless mesh installation is accelerating, but there will always be homes with “problem areas” where wireless mesh/backhaul of the access point's traffic simply does not work.
    - Using WAPs with SFP+ ports, operators can backhaul the traffic with MaGiC SFP™ at speeds up to 2.5G in either direction.
- Hospitality/commercial WAP backhaul and powering.
  - Using standalone power injectors, a single, low-cost SFP/SFP+ based Ethernet switch combined with the MaGiC SFP provides both data and power to remote APs in hallways, hotel rooms, public spaces and meeting rooms.
- Point-to-point (P2P) building-to-building or in-building.
  - Using two media converters with two MaGiC SFP's to deliver 1Gbps in a point-to-point application.



Transmission Medium	Speeds	Numbers of Existing Deployments	Cost to Install	Supporting Technology	Comments
2-4 wire copper twisted Pair	<1G	High	\$100/Unit	DSL, G.fast, phone – streaming not supported.	Most Telecom companies began Internet access using this medium and achieved a foothold prior to cable modem technology.
8 wire copper twisted pair (Cat5/6)	10G	Low (35% of existing Buildings)	\$150/Unit	Ethernet	Primarily used in commercial buildings and data centers with recent construction now including this to units.
Coax	10G	High (Nearly 100%)	\$100/Unit	RF, DOCSIS, MoCA	Installed since early cable distribution days. Cable modem technology has since used this to take the lions share of all Internet access due to its high speeds and longevity.
Fiber	400G	Very Small	\$200/Unit	Ethernet, PON, ATM, FDDI	Installed in data centers and some commercial buildings and long haul transmission avenues. High value residential buildings are starting to see fiber as part of the construction.
Wireless	1G+	High	\$0	Wi-Fi, fixed wireless, 3G/4G/5G	Wireless technologies continue to evolve from several megabits to 1Gpbs. However wireless transmission can be impeded due to interference and number of devices even within a single residential unit creating rooms or areas where wireless performs poorly.

## Technology Comparison





MaGiC-SFP™ Tree Diagram



- MaGiC SFP:
  - Requires no software.
  - Simple to install.
  - Offers the most bandwidth.
  - Only MoCA Access-based SFP/SFP+ solution over coaxial cable.
  - Available now.