Business Case – MaGiC™ SFP

Overview

All broadband providers face the same problem – delivering fiber speeds over the "last mile" (25ft – 600ft) to their customers. MDSlink's patented MaGiC technology solves this problem. By using MaGiC operators and integrators can deliver fiber speeds, up to 2.5gbps over existing coax cable eliminating the need for any new wiring.

Another challenge for operators is wireless backhaul. Deploy in building, wireless mesh networks is becoming more prevalent however up to 10% (or more) of these installations may encounter an insufficient amount of bandwidth for wireless backhaul over longer distances.

Currently the last mile market is cluttered with the same ethernet over copper solutions that have been deployed for many years including G.fast, Powerline and MoCA. Though some of these technologies have been upgraded in some form or fashion in attempt to deliver higher speeds most fail as practical solutions due to bandwidth or distance limitations or the need for additional CPE or proprietary software stacks.

While fiber (PON/XGS-PON) is still the first and best option for the last mile, or realistically the last 600ft. The cost and time to deploy it may make it impractical in many instances and in some cases access to building walls and conduit may be impossible.

Why MaGiC SFP (Small Form-factor Pluggable)?

MaGiC SFP addresses these challenges:

1. MaGiC offers both a 1.0G and 2.5G near symmetrical data throughput version. Note: SFP+ port must support 2.5G
2. Meets the current 2.5G to the premise requirement.
3. Enough power to handle the last 600ft. (cable quality dependent).
4. Plugs into most existing gateways, ONU's, Ethernet switches, etc.
5. Simple, fast and reliable.
6. Minimal training.
7. No configuration & transparent. VLAN's, VLAN tagging, TR69/TR369, IGNM, SNMP – packets in, packets out.

Market Attractiveness

The most common use cases:

Point to Point – WAN & LAN use cases, from the side of the home to the center of the home. MDU's building to building or demarcation to each floor or wireless access point. Wireless back haul on the LAN in the home.

Point to MultiPoint – WAN or LAN MDU's demarcation to multiple customers over existing tap cascades.

Emerging markets – Caribbean, Latin and SA, Middle East - Markets that have not yet invested in a Fiber network plant, or simply are at the beginning stages.

Adding bandwidth to the existing, in-building SMATV or Satellite distribution networks.

Hospitality – use case to add coverage with access points to the existing wireless hallway designs. Supplementing or upgrading existing wireless networks using MaGiC to a media converter or to a wireless gateway/router.

Competitive Technology Costs

Until now there has not been a cost-effective way to deliver gigabit speeds to customers.

MDSlink's MoCA-SFP delivers up to 2.5gb of near symmetrical data over coax cable at a low cost. A simple, stable, and easy to install Ethernet based solution.

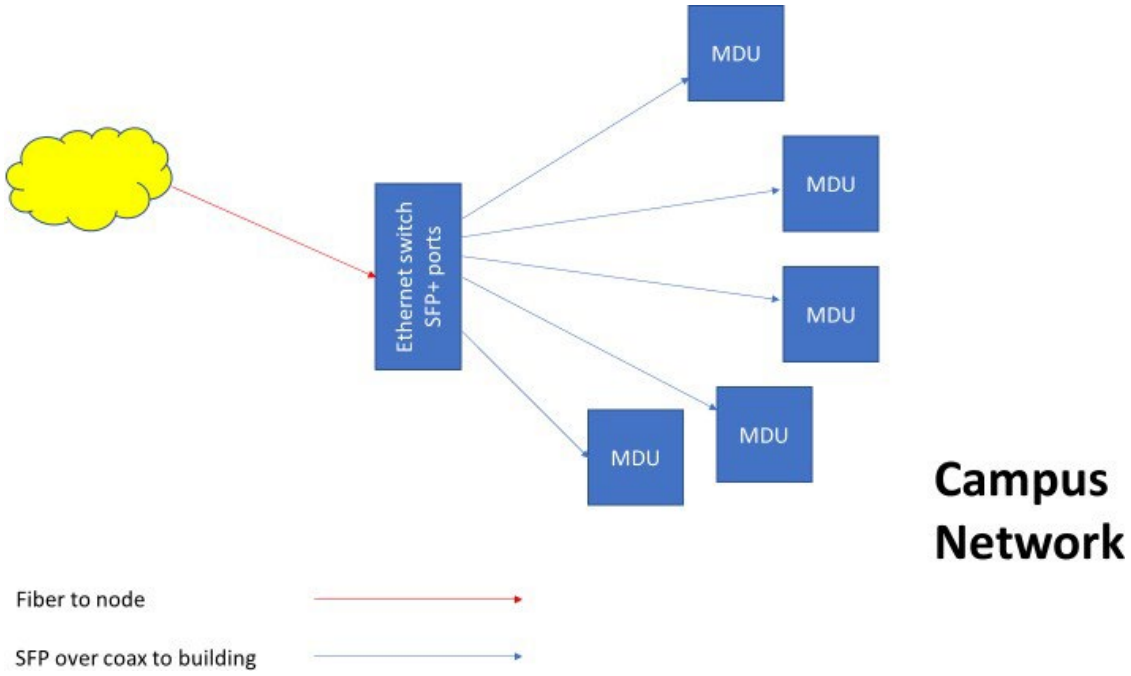
In-Home Backhaul for Wireless Mesh Networks

Proliferation of wireless mesh networks in homes gives rise to concerns that data back-haul will become a significant issue. The number of homes affected is undetermined though unofficial estimates suggest 25% or more of homes will require additional technology to solve this issue.

Diagrams – Use Cases

Use Case: Campus Network

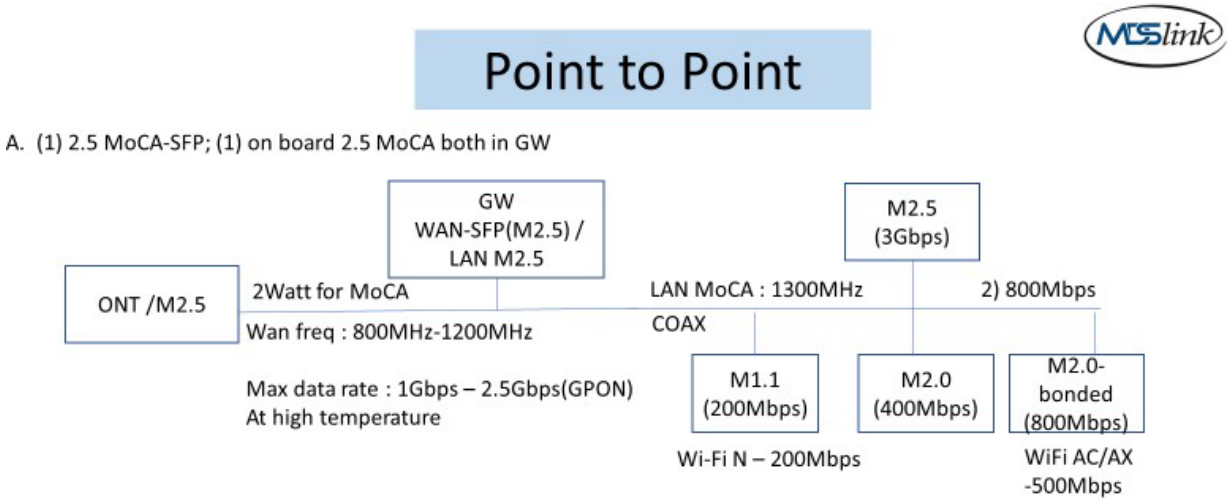
This use case provides connections from the main building of a campus/neighborhood/resort to multiple buildings that may be found as part of the total campus. By using an Ethernet switch with multiple SFP ports the network can be configured point to point from the MDF of the main building to each building. Delivering up to 2.5gbps transport over existing coax cable.



Use Case: Point to Point WAN

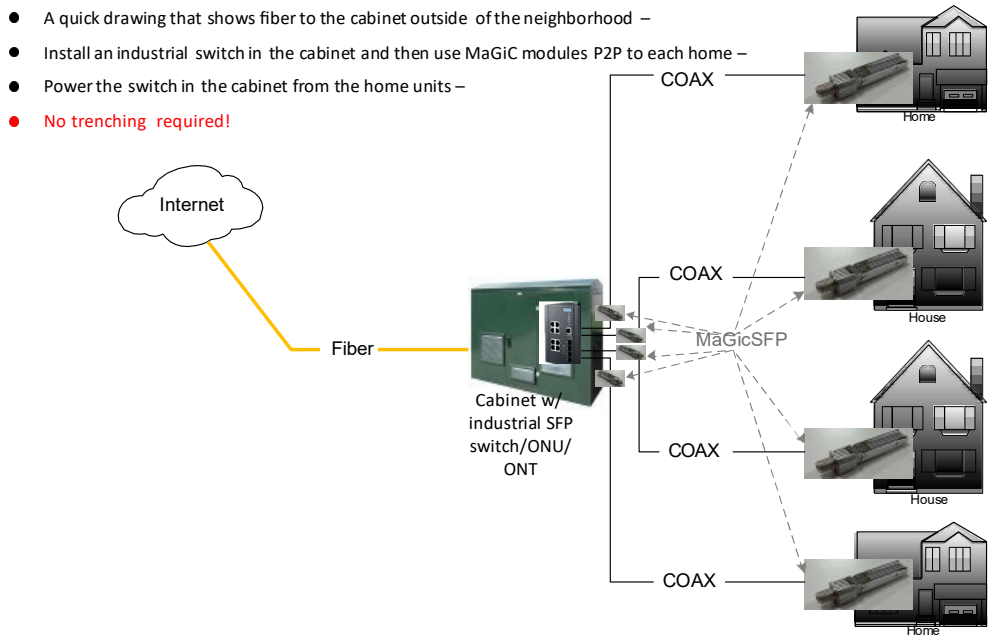
This Use Case provides a connection from outside of the home using an ONT (Optical Network Transceiver) /ONU communicating with the in-home gateway. In this use case MaGiC can transport from 1gb up to 2.5Gb of data on the WAN (Wide Area Network) and the same on the LAN in the home.

MaGiC SFP solves the wireless backhaul challenge and the symmetrical requirement in this use case.



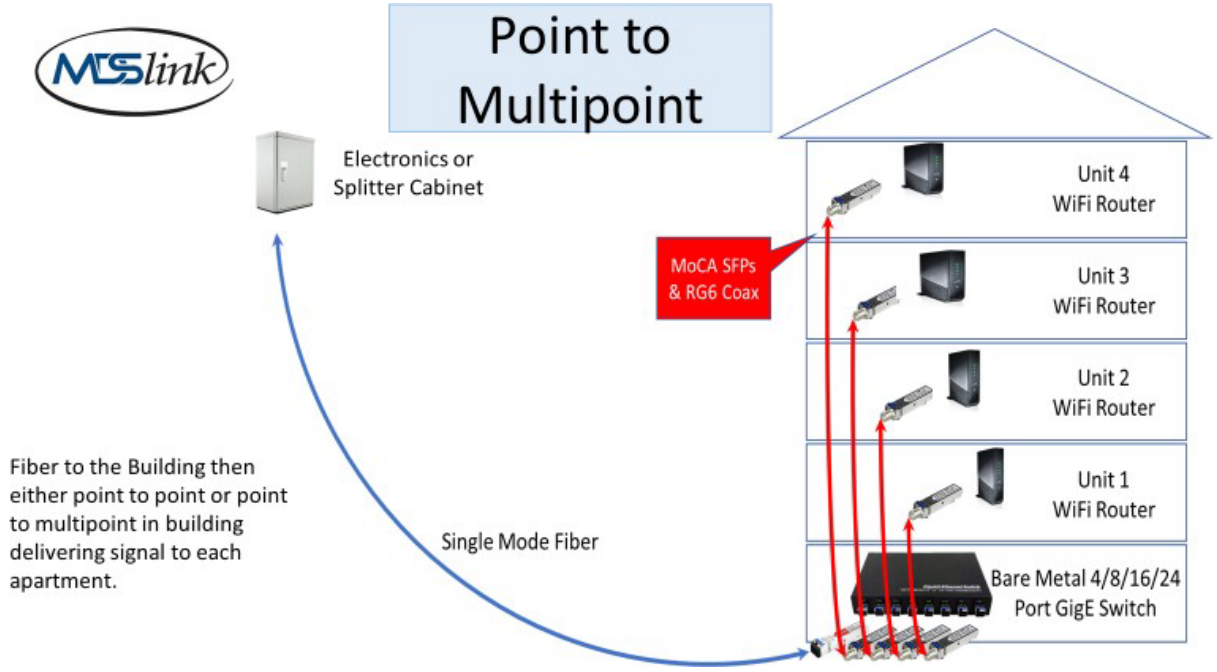
Use Case: Curb (Cabinet) to The Building

In this use case the operator/integrator can place the OLT or ONU or even an Ethernet switch at the telephone pole outside of the home/building. Using a MaGiC SFP the operator/integrator can leverage the coaxial cable running into the home/building. With this connection data rate transport of up to 2.5gb may be achieved.



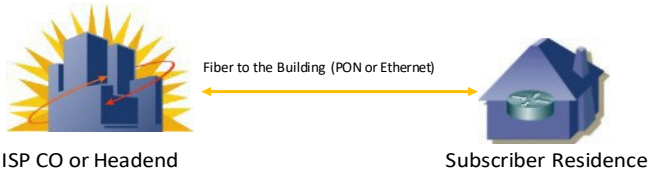
Use Case: Point to Multipoint

This use case is the classic MaGiC point to multipoint topology. One MaGiC SFP can support multiple users thereby reducing the overall cost of deployment. In this use case MaGiC SFP is plugged into an Ethernet switch in the MDF or on each floor in the IDF. The matching MaGiC SFP plugs into the SFP port on the gateway, media converter or a wireless access point. In each of the end point solutions MaGiC SFP can be fully managed at the edge.

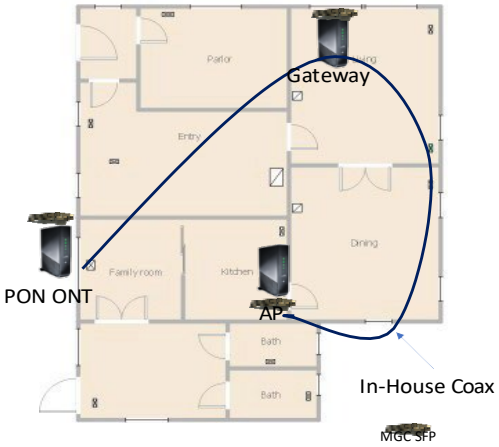


In-home Wireless Backhaul

This use case provides a wired connection to the main wireless access point or extender in the home. Then having additional extenders to connect creating a more robust wireless mesh in home network.



- PON ONT uses SFP Port to support any number of Transport Mediums within the home
  - CAT5, COAX, Fiber
- Gateways and AP's with SFP+ Port can connect in mesh mode to all other devices at 2.5G over exis g coax using MaGiC SFP™ .
  - No wireless mesh "dead zones"
  - No new wiring needed



Conclusion

These examples demonstrate just some of the many ways that our customers are using MaGiC to deliver high speed broadband over existing coaxial cable. Since no cookier cutter approach addresses all network needs Whether it is reducing installation time, saving on BOM costs or simply being able to service a customer when all other options fail MaGiC is a welcome addition to the operator's and integrator's arsenal of tools.