

IP DISTRIBUTION IN THE HOME, WIRED VS. WIFI

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Operators can use alternative IP distribution techniques to WiFi within the home. Instead of sending technicians to the customers' premises, operators can send Do-It-Yourself kits that customers can easily install on the existing coax network. This whitepaper will address this issue.

Services:

Broadcast TV

Broadcast TV has been, and is still by far, the most popular service. The native error correction systems in DVB T/C allow consumers to watch live TV, and this without pixilation and interrupts. This is possible if the entire distribution system, from broadcaster to consumer, is capable of processing the broadcasted signal in a satisfactory manner.

Video on Demand

With the introduction of streaming services such as Netflix and HBO, consumers rely on fast and prioritized bandwidth for real-time streaming. The demand for peak download speed is affected by the response time from ordering a movie until buffering has completed and playback is initiated. However, just as important is the robustness of the download link, which must ensure that the buffer remains capable of providing uninterrupted streaming services.

Distribution Media:

Wireless

Wireless technologies are certainly here to stay. Smart phones, tablets and personal computers rely on wireless links to provide the best possible (best effort) portability to consumers. As much as unlicensed frequency bands are one of the key success factors for WLAN, it is also the reason why consumers are forced to share the available common bandwidth in their neighborhood. While portable devices provide freedom of mobility, they often suffer from size constraints. This results in limited antenna efficiency and limited battery capacity and ultimately leads to limited transmitting power.

Wireless technologies do provide an important link in the entertainment infrastructure for portable devices. However, cable is the ideal way of providing adequate bandwidth for high resolution streaming on fixed mounted large screen TVs. This eliminates problems of bandwidth sharing with neighbors and unpredictable throughput due to limitations of guaranteed available bandwidth.

PDS

Coaxial cabling has been supplemented or replaced in recently established and/or renovated buildings. For example, by PDS cabling based on CAT5, 5e and 6. While PDS cabling is well-suited for Ethernet distribution, the absence of screening efficiency and impedance response over frequency makes it far from ideal for the distribution of DVB T/C services.

It may appear obvious to retrofit existing in-home installations with PDS cabling, namely to ensure the growing population of smart TVs that have dedicated bandwidth for streaming services. However, the cost of installing a PDS network, and the fact that visible cabling is difficult to avoid in retrofit installations, means that PDS cabling may not always be the ideal solution.

Coax

A large portion of European residences have an internal distribution network intended to distribute cable TV, terrestrial TV or satellite TV via coaxial cables.

Decades of entertainment installations have led to the dominance of coaxial cables inside residential homes. This is the obvious choice to ensure immunity to terrestrial broadcasts overlapping with TV frequencies. Common offerings in CATV service packages are Internet distributed through DOCSIS.

Residential installations are often owned and maintained by the house or building owner. They function as transportation media for the CATV and DOCSIS services provided by a service provider.

Commercial considerations:

Consumers have a desire for TV Anywhere, multiscreen services, OTT and IP video. DKT is aware of how crucial it is for service providers to find ways to further optimize their network, both throughout the service distribution network and in the consumer's home.

There is also a desire to allow the consumer themselves perform the necessary upgrade. As a result, over the past few years DKT has seen an increasing demand for operator pre-approved "Do-It-Yourself" concepts. This means investing and recommending good quality devices for in-house installation, which also leads to lower OPEX (call center activities) and increases customer satisfaction.

IPLoC Introduction:

The IPLoC from DKT allows for retrofitting Ethernet connectivity over existing coaxial infrastructures. This is by using MoCA technology. The method to utilize existing infrastructure is by simply inserting an IPLoC device near the router and another IPLoC device near smart TVs. By using a simple self-installable methodology, customers can themselves upgrade their existing in-house coaxial infrastructure.

The Push-On-IPLoC is the most universal component to enable IP services over existing coaxial infrastructures.

The standard outlet across Europe has architecture with one dedicated TV and one radio port. This is based on IEC adapters separated by 30mm and sometimes supplemented with a dedicated DOCSIS data port (commonly known as the Multimedia port). The Push-On-IPLoC enables the consumer to remove the connectors from the wall outlet, insert the Push-On-IPLoC and inject IPTV, Internet and telephony (IP traffic in general) services into the existing Cable-TV (DVB-C/T) distribution coaxial network.

Near router (far end to the TV set):

The PDS cable from an available RJ-45 port is simply connected to the RJ-45 port on an IPLoC device. The IPLoC device is inserted into the TV outlet closest to the router. IP services are enabled throughout the coaxial distribution network in the home.

Near the TV / Set-top-box / other IP clients (near end to the TV set):

Simply plug the Push-On-IPLoC into the TV's wall outlet and connect the power. The device auto-negotiates with the other IPLoC devices and establishes an optimized point-to-multipoint network.

Optional WLAN:

A WLAN enabled IPLoC device allows the wireless network in the home to be expanded with new wireless network coverage areas. The philosophy is that multiple smaller WLAN cells will provide better home coverage than a single large cell. The WLAN cells from the WLAN-enabled IPLoC devices will supplement the WLAN cell from the primary wireless router. Connection to devices is established with minimum effort by pressing the Wireless Protected setup button.

Conclusion:

Operators can use alternative IP distribution techniques to WiFi within the home. Instead of sending technicians to the customers' premises, operators can send Do-It-Yourself kits that customers can easily install on the existing coax network.

The benefits of the DKT IPLoC solution (amongst others):

- Neutral form factor (outlet instead of box, customer perception)
- Can be offered to interested customers only, others can remain on existing operator offerings -> Lower CAPEX
- It is unlikely that a technician or other skilled labor must be dispatched when the customer wants to subscribe, upgrade, downgrade or even terminate his service -> Lower OPEX
- Customers can install the unit themselves, meaning that solution providers can send units by post when customers subscribe -> Less Truck-roll
- Swap of defective equipment via postal services. Unskilled labor can exchange in basement, customers can upgrade and replace the units themselves, in most of the cases (RMA cases) -> Lower OPEX and Increased customer satisfaction