
homefibre digital network gmbh Austria

# More Connectivity
# More Flexibiity

## A Concept for an
## Optical In-Building & Home Network Infrastructure

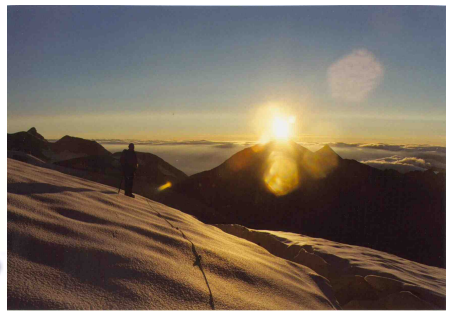
## Homefibre

**Founded 2004**

**IPRs on POF Outlets and DVB Streamer**

**Product development and production with**

- **Rutenbeck (Germany, 250 Empl.);**
- **Radiantech (switches)**
- **Mitsubishi Rayon & Mitsubishi Internat.**
- **Fränkische Rohrwerke**




# Home Network Market

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## The Market Demand – More IP - Connectivity

**Prepared for the Future**: Number of Network Devices, Services and Bandwidth in the home are increasing dynamically…


**More Services:**
**IP-TV**
**OTT-TV**
**DVB-Satellite IP**
**PVR; NAS;**
**Internet**
**Radio / Audio**

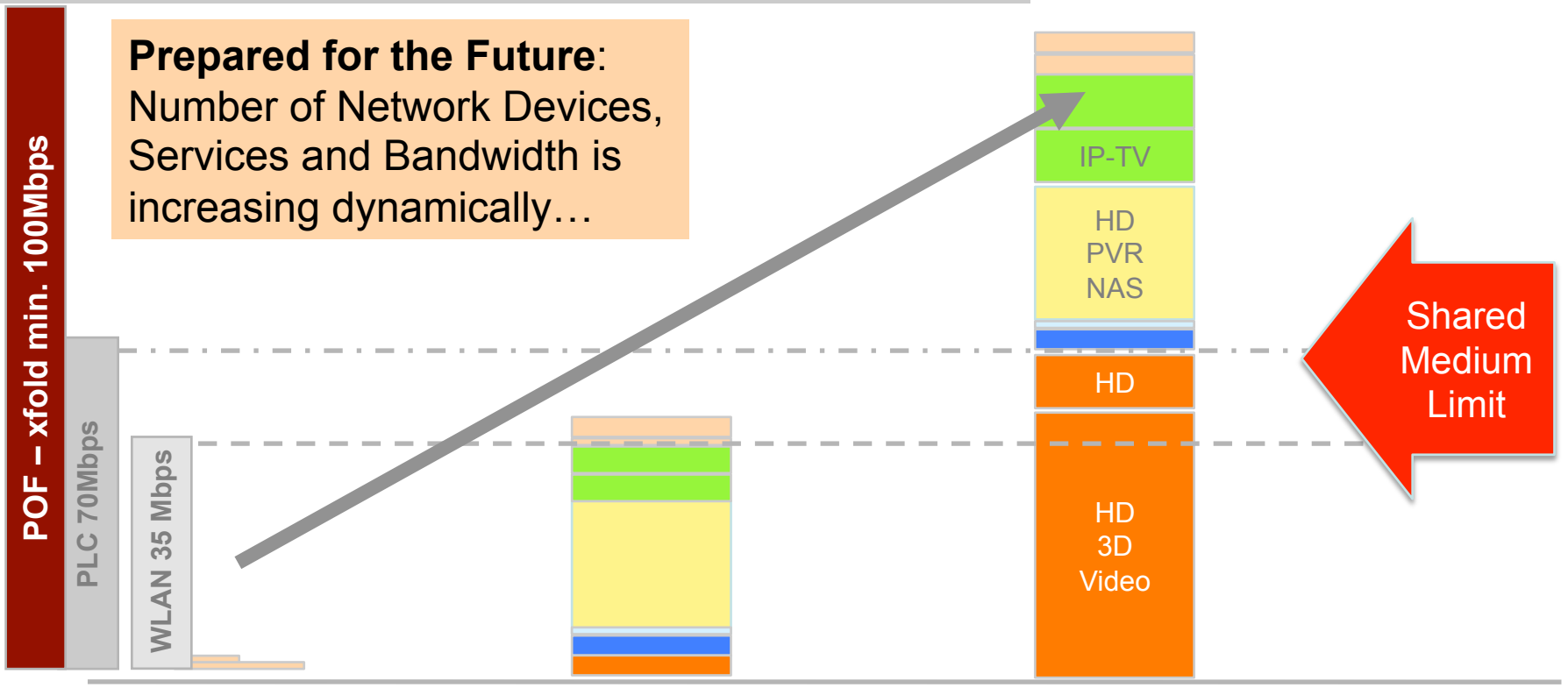
**IP - Smart Home**
**Energy, Comfort, Security.**

**Until today** | **Today 2011-2012** | **From today - 2012 – 2015 >**

# Home Network Market

## Home Network Bandwidth Requirement

**Prepared for the Future**: Number of Network Devices, Services and Bandwidth is increasing dynamically…




**Until today**

**1 to 2 PC**

**Today 2011-2012**

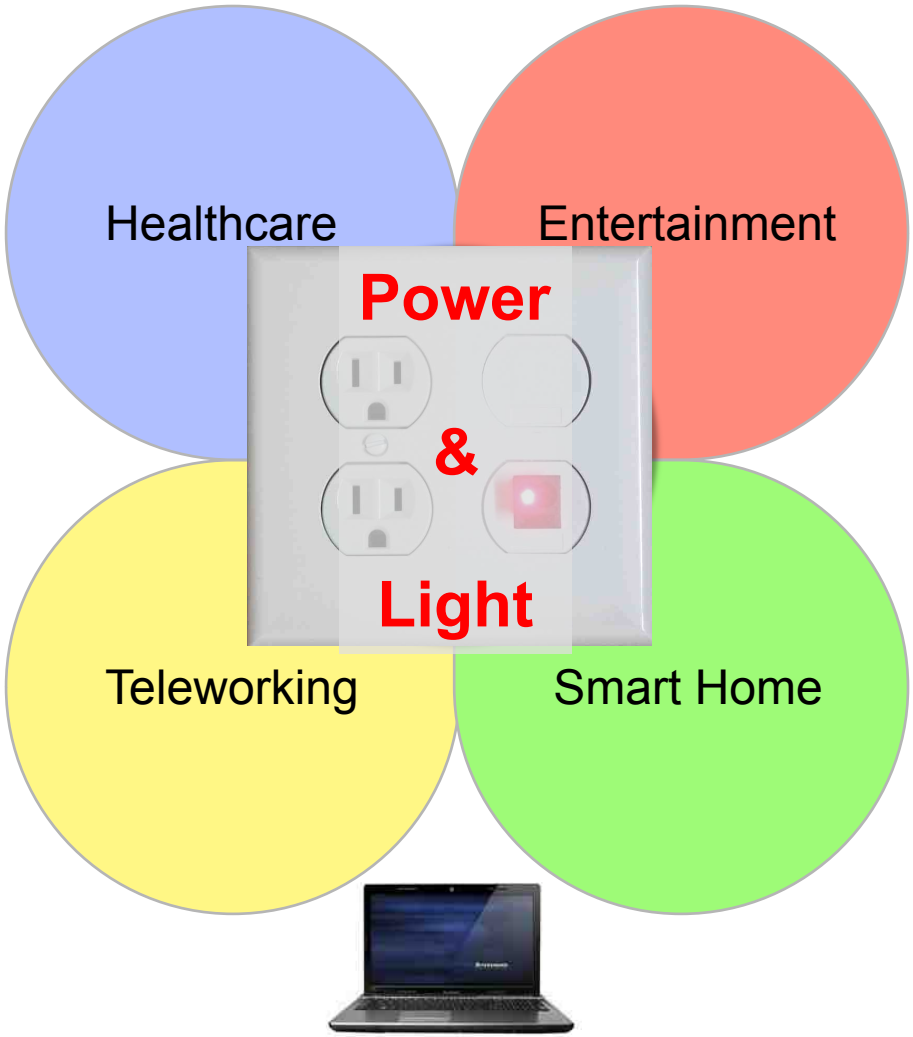
**2 PC**
**2 IP-TV**
**1 NAS**
**1Printer**
**1 Game Station**
**1 NetTV – Stand.Video**

**Tomorrow 2012 – 2015 >**

**2 PC**
**2 IP-TV – HD-TV**
**1 NAS**
**1Printer**
**1 Game Station**
**2 NetTV – HD & 3D Video**

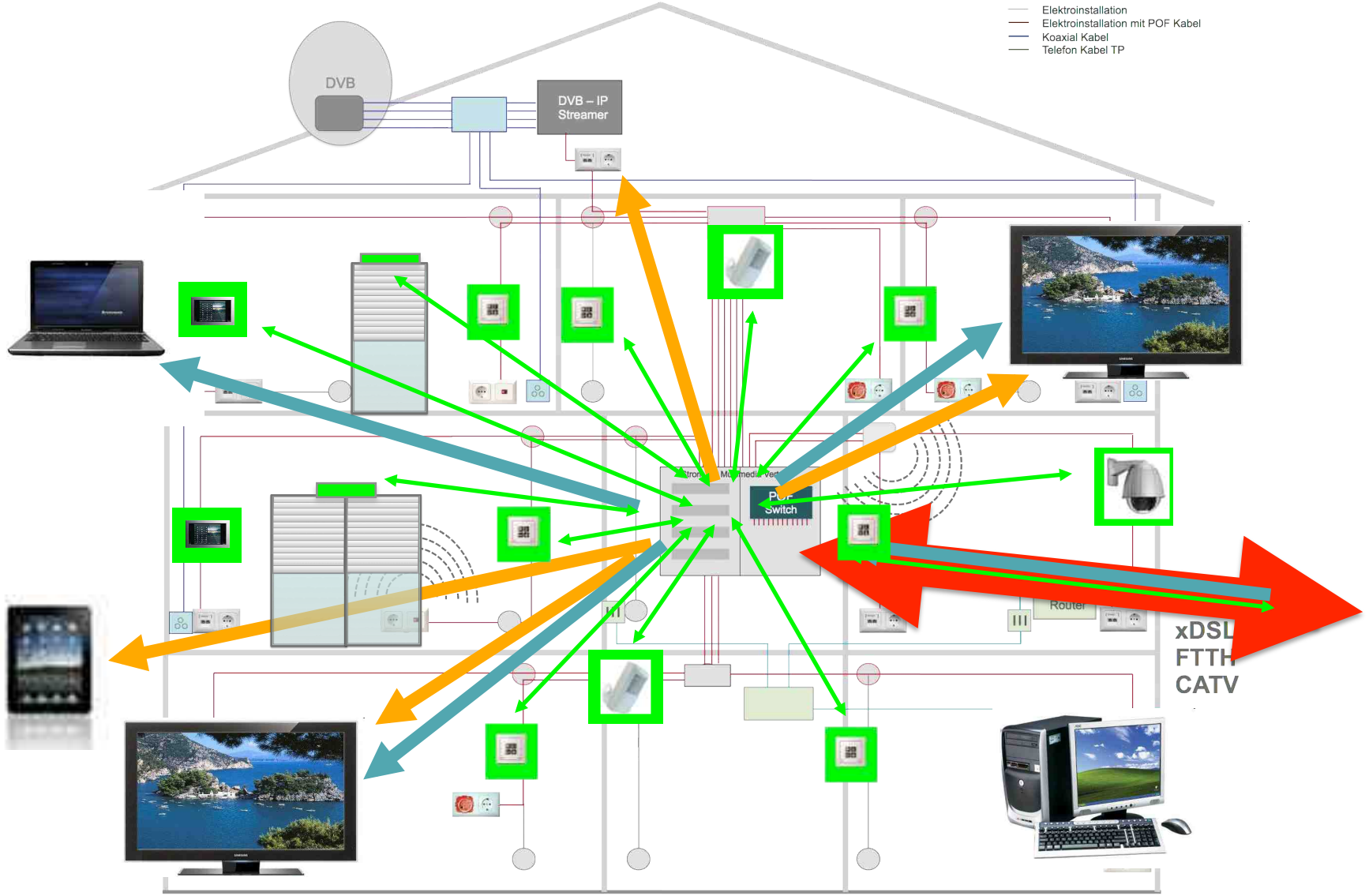
# Home Network Market

## Applications & Requirement




# Home Network Requirement

## Integration and Connectivity



# Home Network Requirement

## Beyond Today Network Limitations

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| | |
|---|---|
| **More Connectivity** | **Less Installation Cost** |
| **More Flexibility** | **Less Dependencies** |
| **More Reliability** | **Less Interferences** |
| **More Quality** | **Less Failure** |
| **More Safety** | **Less Piracy, Less Hacker** |
| **More Health** | **Less Radiation** |
| **More Efficiency** | **Less Power Consumption** |

# Home Network Requirement

## Flexible Connectivity

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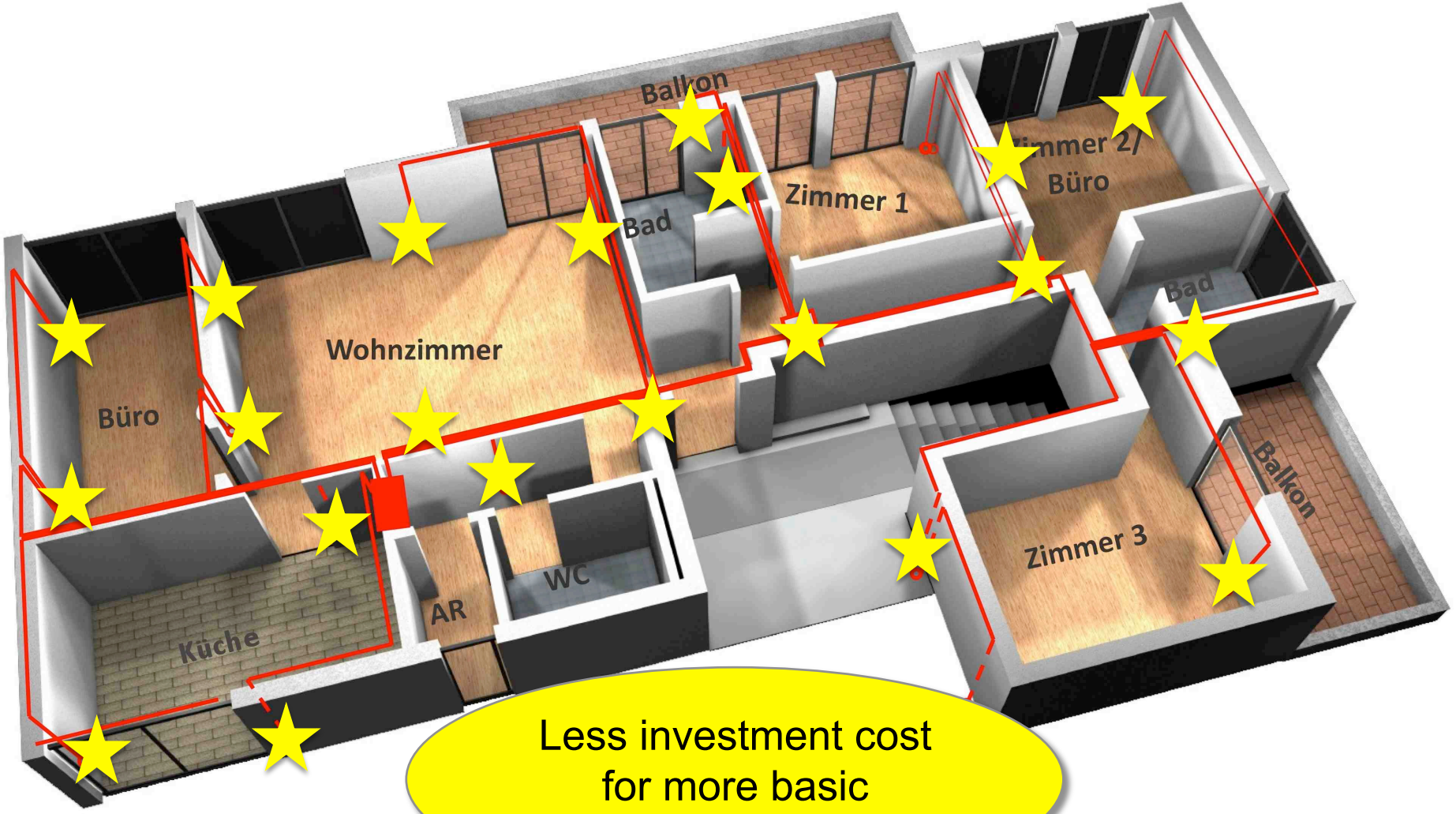


Less investment cost
for more basic
Infrastructure

# Home Network Requirement

## Flexible Connectivity

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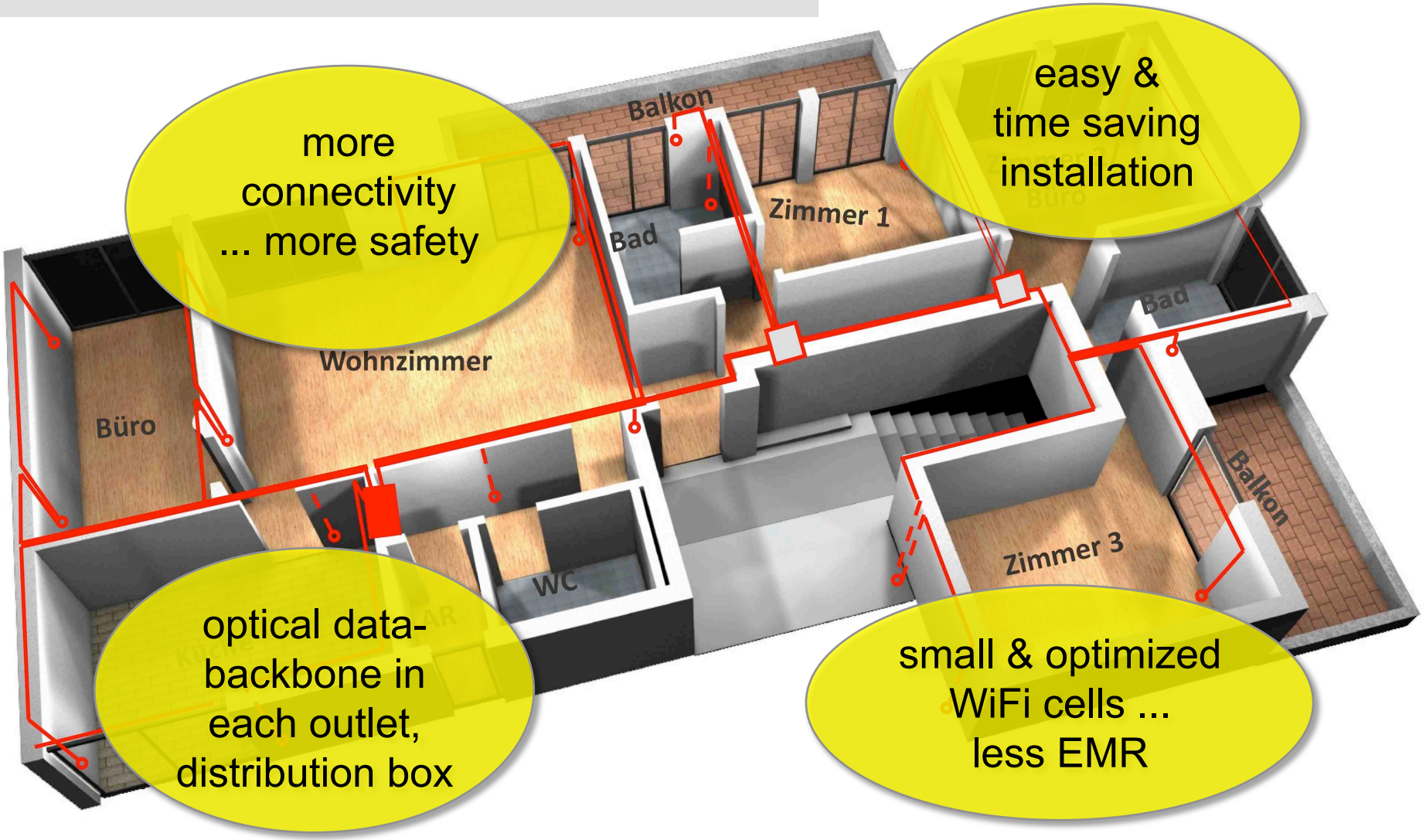
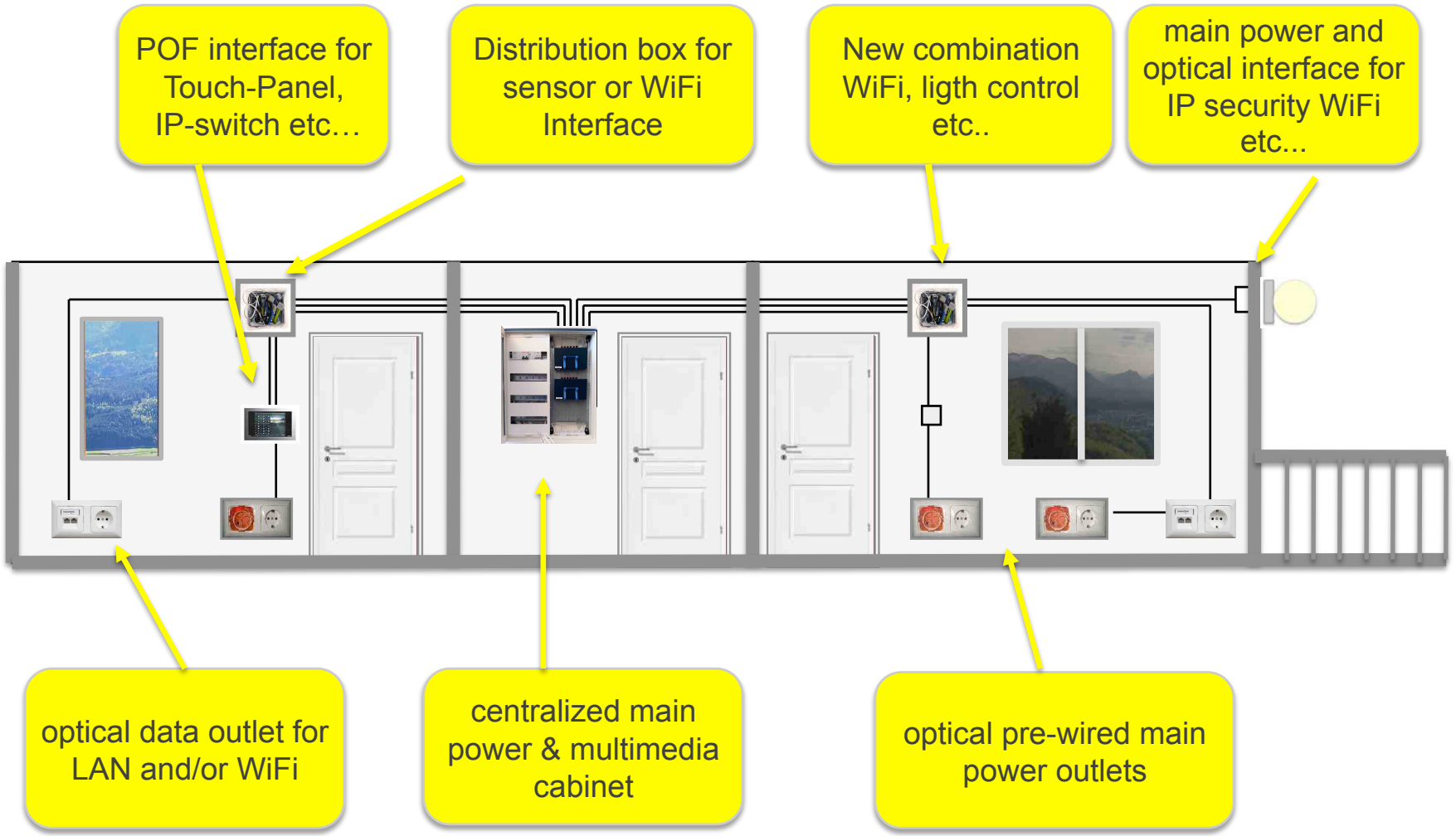


# Home Network Requirement

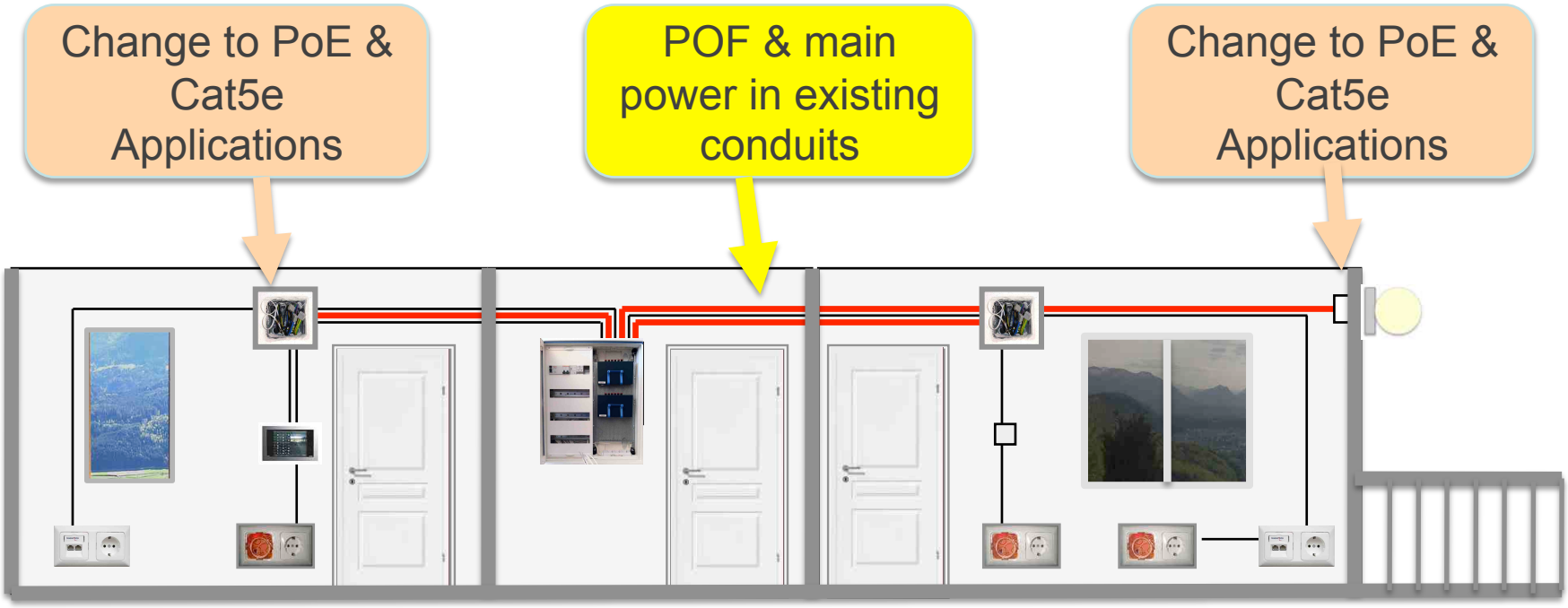
## Flexible Connectivity



# Home Network Requirement

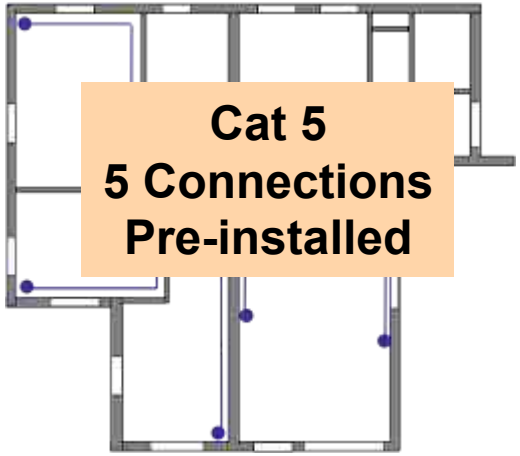
## Flexible Connectivity

There is a big market to utilize existing conduits in existing buildings to optimize the infrastructure and to combine PoE, Cat5e and WLAN

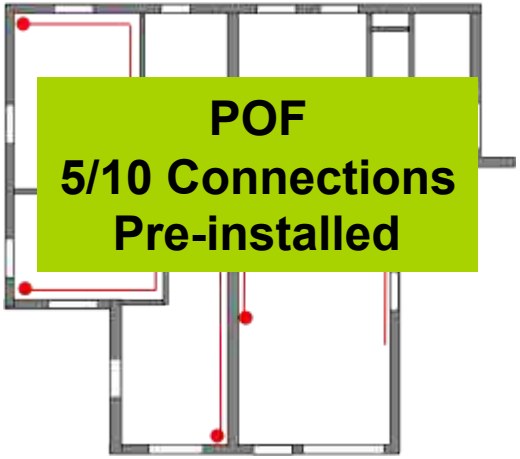


# Optical Home Network Infrastructure

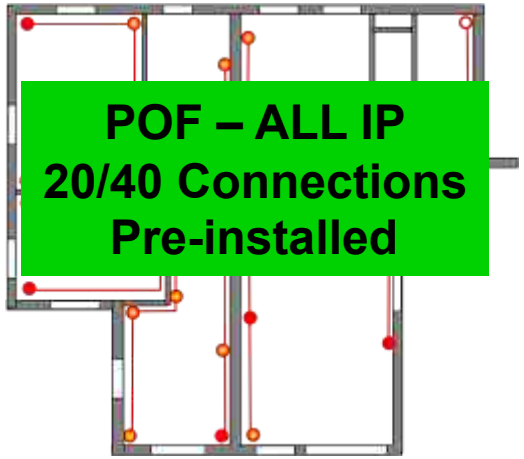
## Reduced Installation Cost – Increased Benefit/Value



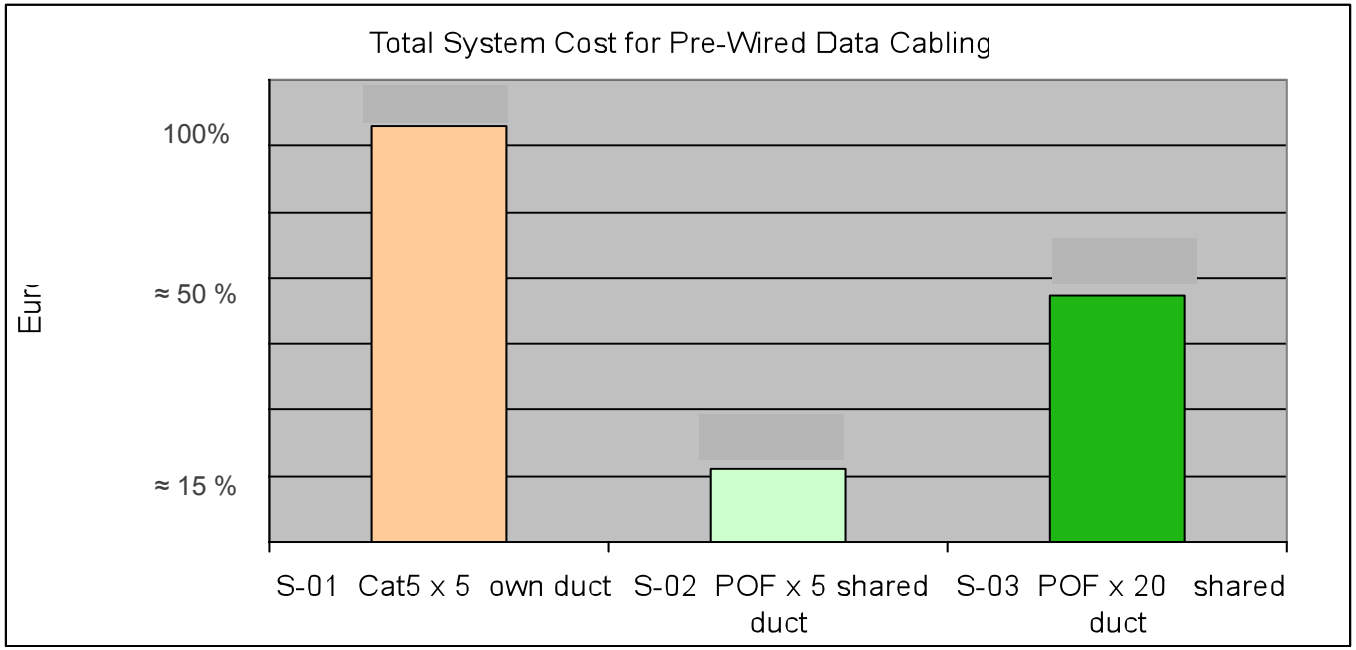
**Cat 5**
**5 Connections**
**Pre-installed**



**POF**
**5/10 Connections**
**Pre-installed**

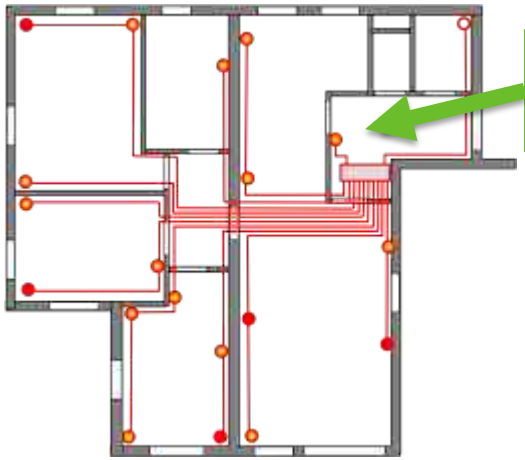


**POF – ALL IP**
**20/40 Connections**
**Pre-installed**



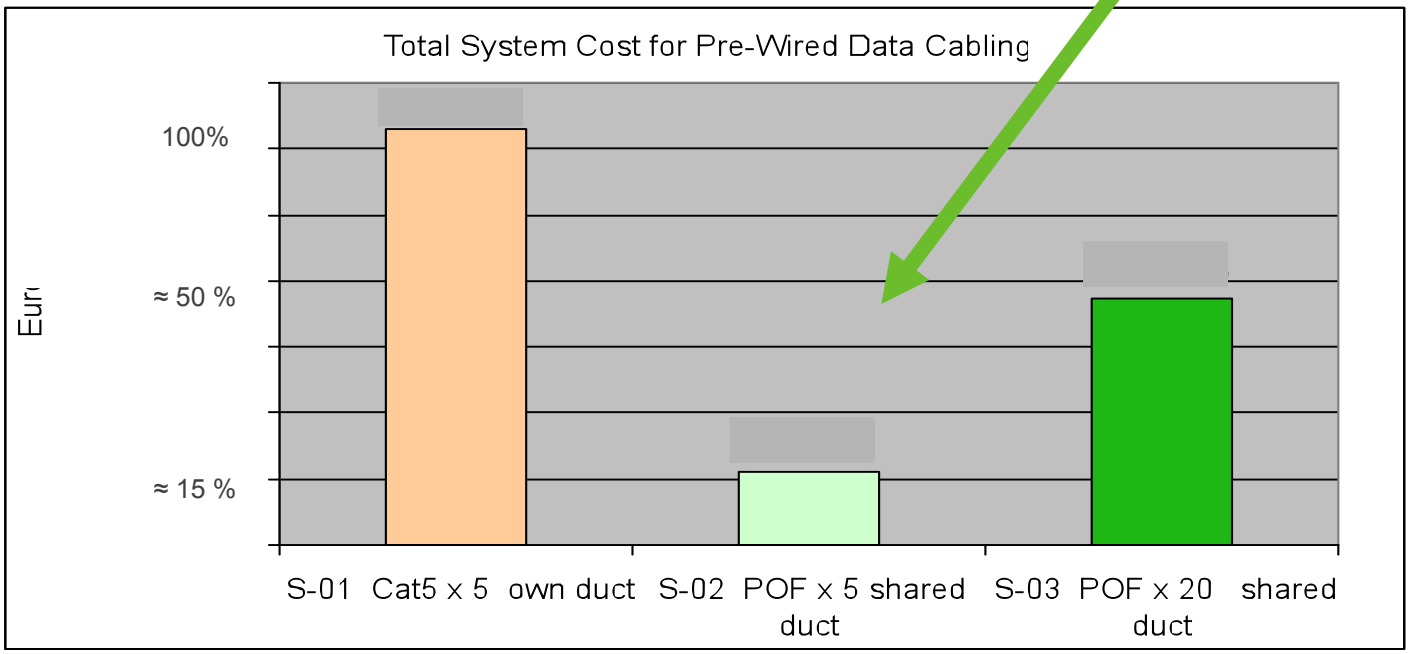
# Optical Home Network Infrastructure

## Reduced Installation Cost – Increased Benefit/Value



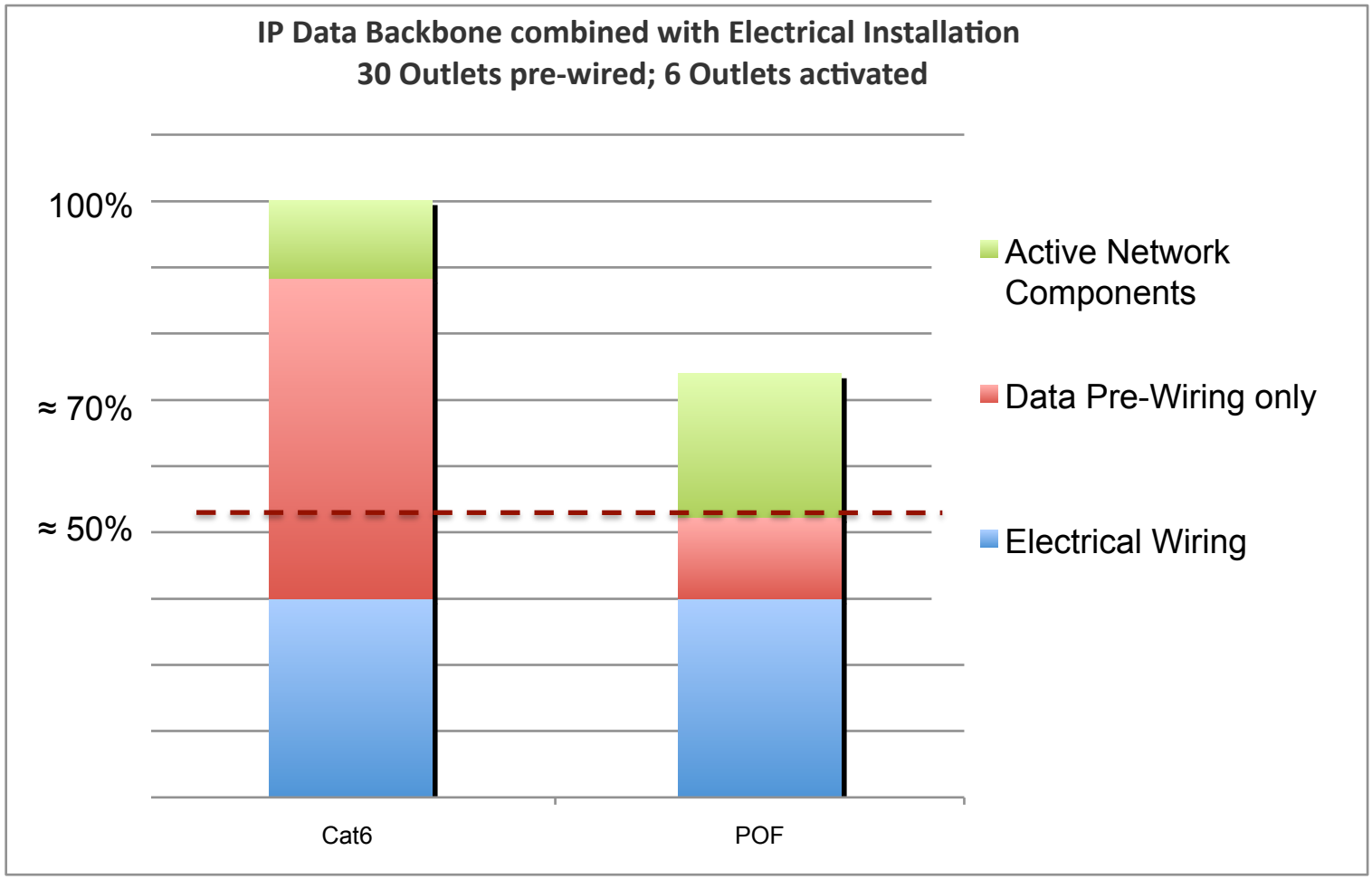
10x more connectivity

Save ≈ 50% to 90% installation cost



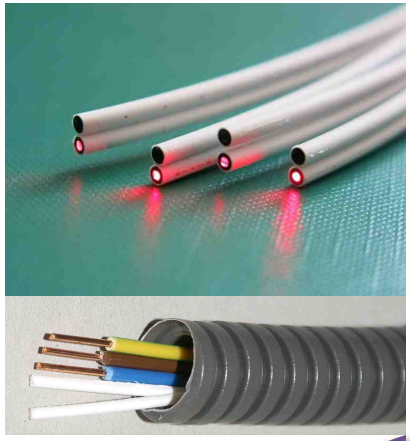
# Home Network Requirement

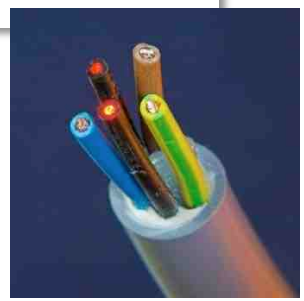
## Economical Beneft



# Optical Home Network Infrastructure

## Multiple Installation Concepts & Solutions





# Home Network Requirement

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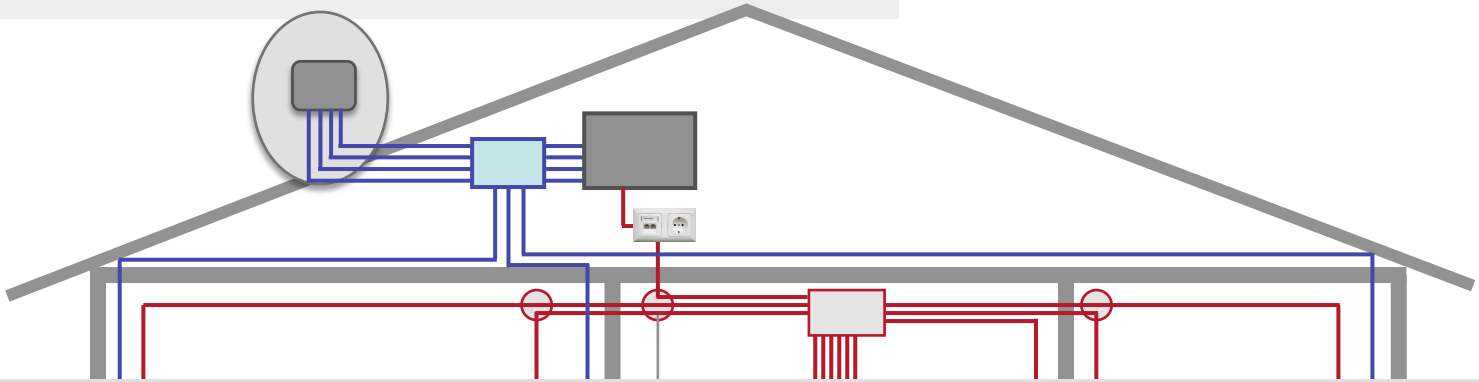


## Flexibility to choose Technology

| No WiFi | Optimized LAN and WLAN | Maximized WiFi usage |
|---|---|---|
| All network devices wired | High density of LAN connectivity | multiple distributed WiFi access points in the home |
| high density of LAN connection points (RJ45) | Small WiFI clusters for high speed mobility | low number of LAN connection points |

# Home Network Requirement

## Optimiozed WiFi Usage

www.next-up.org/Newsoftheworld/2011.php www.cartoradiations.fr

Parliamentary Assembly
Assemblée parlementaire

http://assembly.coe.int

COUNCIL OF EUROPE CONSEIL DE L'EUROPE

Doc. 12608
6 May 2011

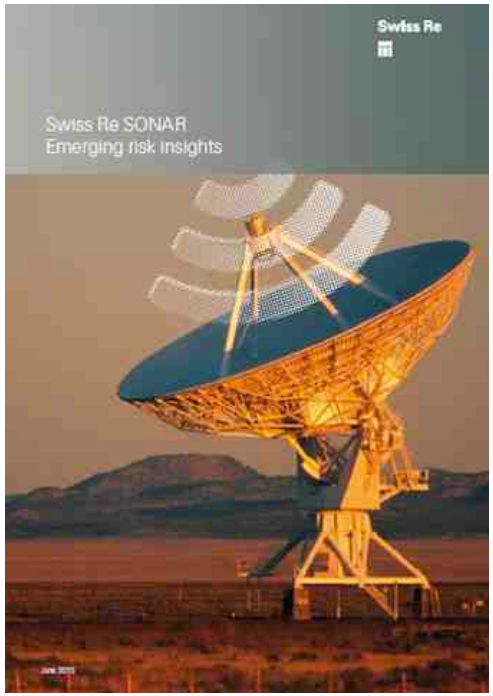
**The potential dangers of electromagnetic fields and their effect on the environment**

61. In connection with the proven or potential risks of electromagnetic fields, it should also be noted that after a Lloyd's report, insurance companies tended to withhold coverage for risks linked with electromagnetic fields under civil liability policies, in the same way as, for example, genetically modified organisms or asbestos, which is hardly reassuring given the potential risks that stem from these electromagnetic fields.

8.2.1. set preventive thresholds for levels of long-term exposure to microwaves in all indoor areas, in accordance with the precautionary principle, not exceeding 0.6 volts per metre, and in the medium term to reduce it to 0.2 volts per metre;

# Home Network Requirement

## Optimized WiFi Usage




## Executive summary

This Swiss Re SONAR report features emerging risk topics which could impact the insurance industry in the future. Topics were mainly derived from Swiss Re's internal SONAR process and have been assessed by Swiss Re's emerging risk management experts.

# Home Network Requirement

## Optimized WiFi Usage

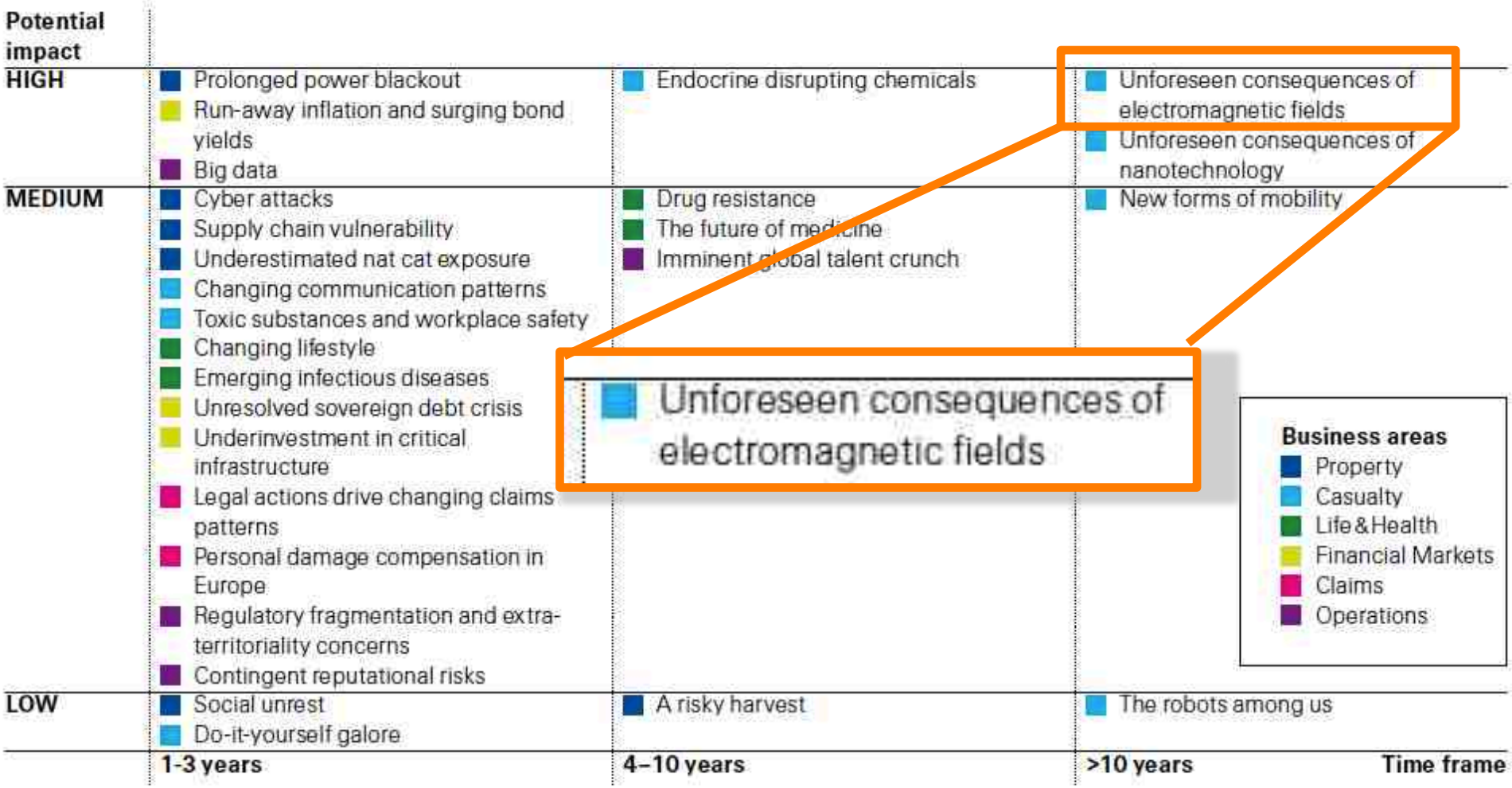



**Figure 1**
Overview of the emerging risk topics covered in this report by timeframe and potential impact.

# Home Network Requirement

## Optimized WiFi Usage

| | |
|---|---|
| Overall impact | HIGH |
| Time frame | >10 years |

### Unforeseen consequences of electromagnetic fields

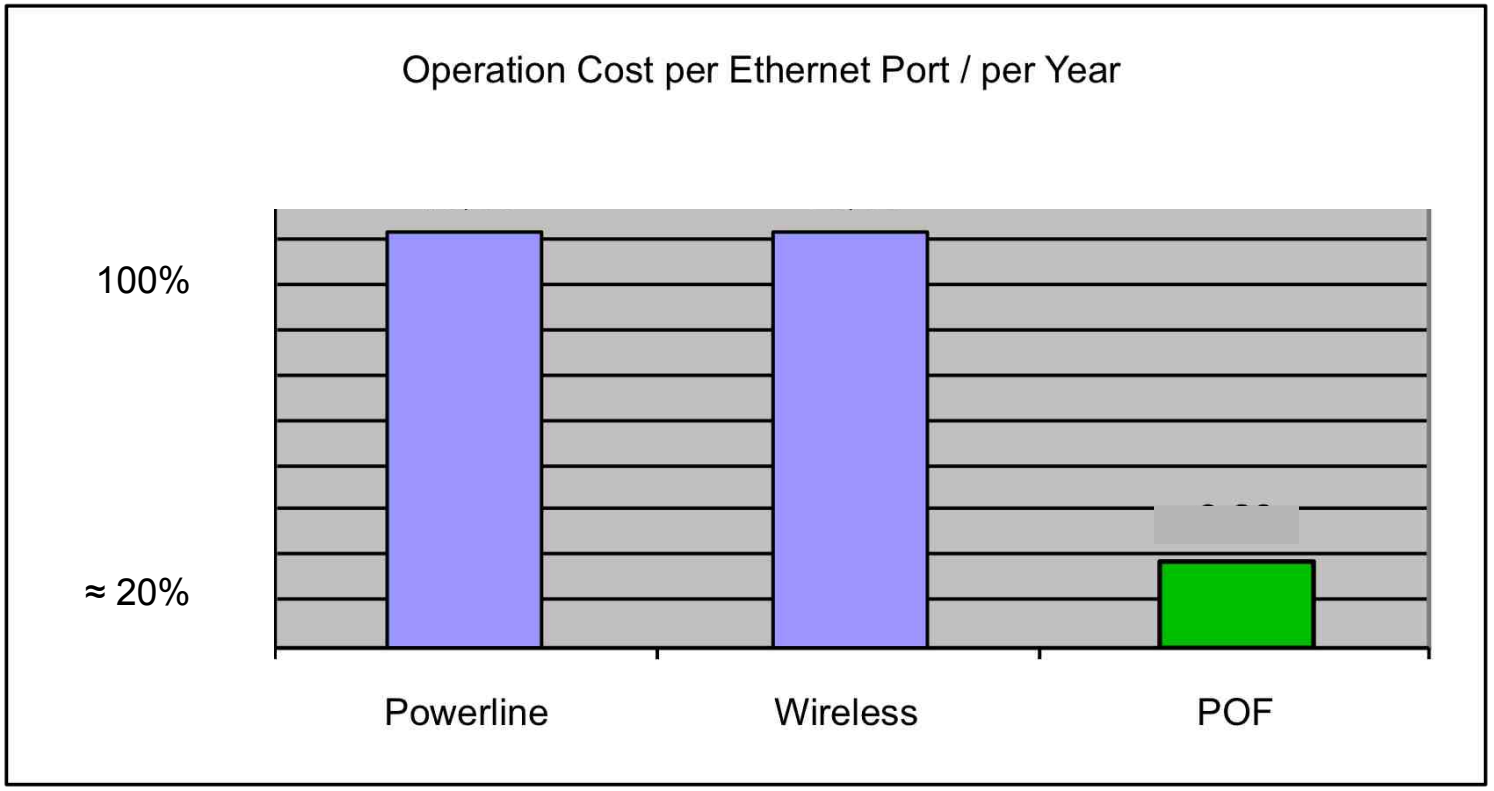
The ubiquity of electromagnetic fields (EMF) raises concerns about potential implications for human health, in particular with regard to the use of mobile phones, power lines or antennas for broadcasting. Over the last decade, the spread of wireless devices has accelerated enormously. The convergence of mobile phones with computer technology has led to the proliferation of new and emerging technologies. This development has increased exposure to electromagnetic fields, the health impacts of which remain unknown.

the optical backbone = prepared for the optimized WLAN

Anxiety over the potential risks related to EMF has risen. Studies are difficult to conduct, since time trend studies are inconsistent due to the still rather recent proliferation of wireless technology. The WHO has classified extremely low-frequency magnetic fields and radiofrequency electromagnetic fields, such as radition emitted by cell phones, as potentially carcinogenic to humans (Class 2B carcinogen). Furthermore, a recent ruling by an Italian court suggested a link between mobile phone radiation and human health impairment. Overall, however, scientific studies are still inconclusive regarding possible adverse health effects of EMF.

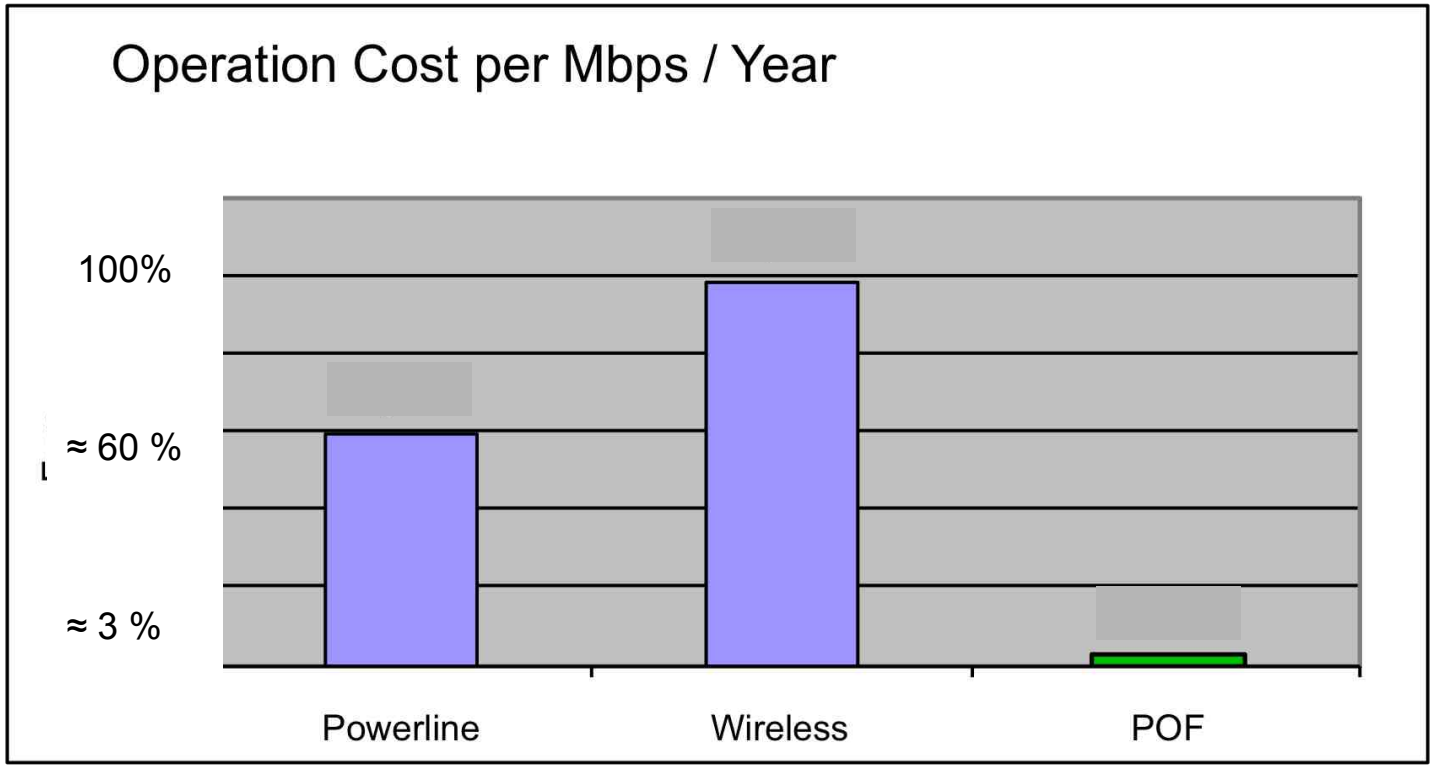
# Home Network Requirement

## More Energy Efficiency



# Home Network Requirement

## More Energy Efficiency



# The Market

# Optical Home Network Market

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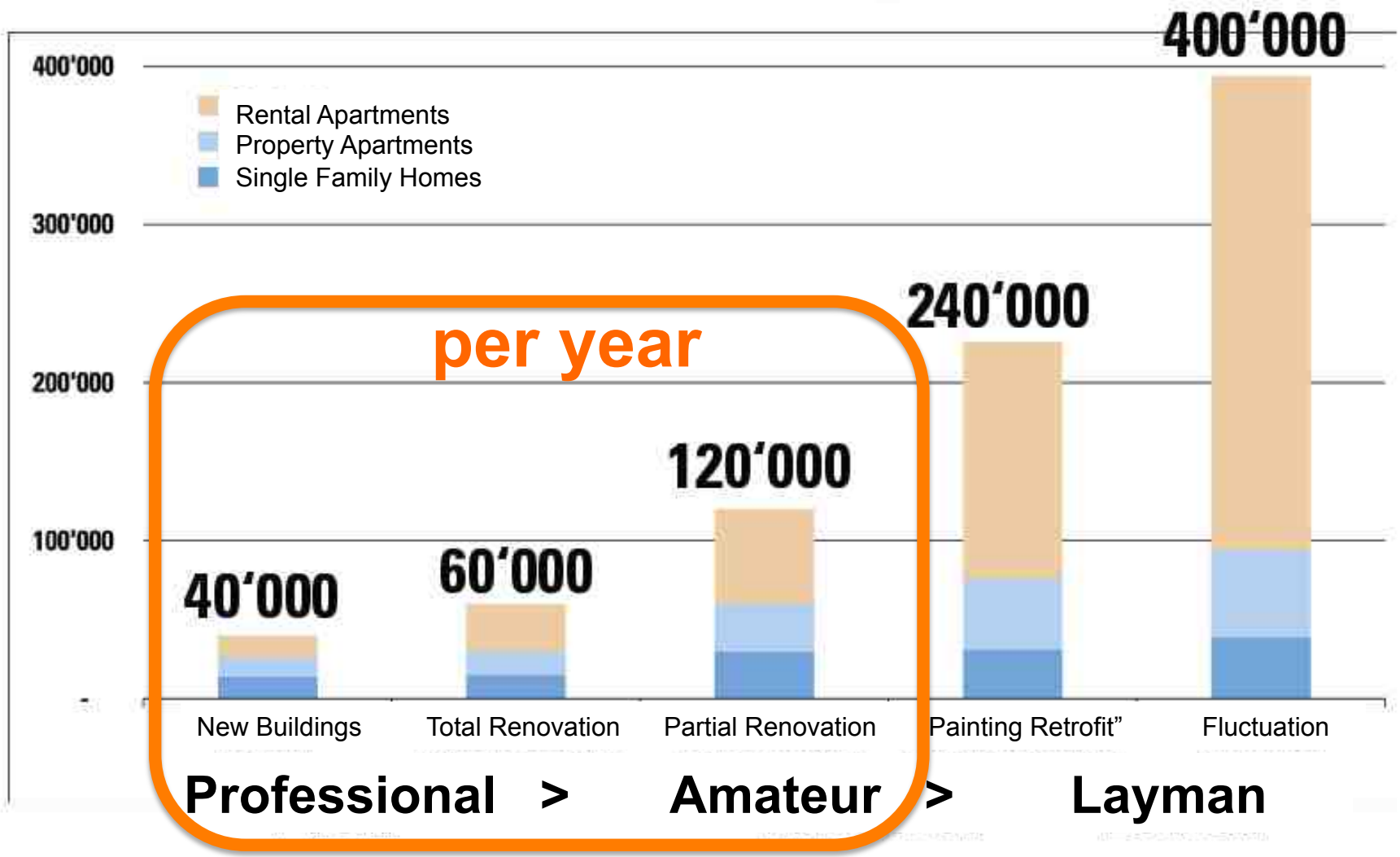
| | Single Family Home | Multi Dwelling Unit Condominium | Public & Hospitality Building Office Building |
|---|---|---|---|
| **New Buildings** |  |  |  |
| **Retrofit existing Buildings** |  |  |  |

# Optical Home Network Market

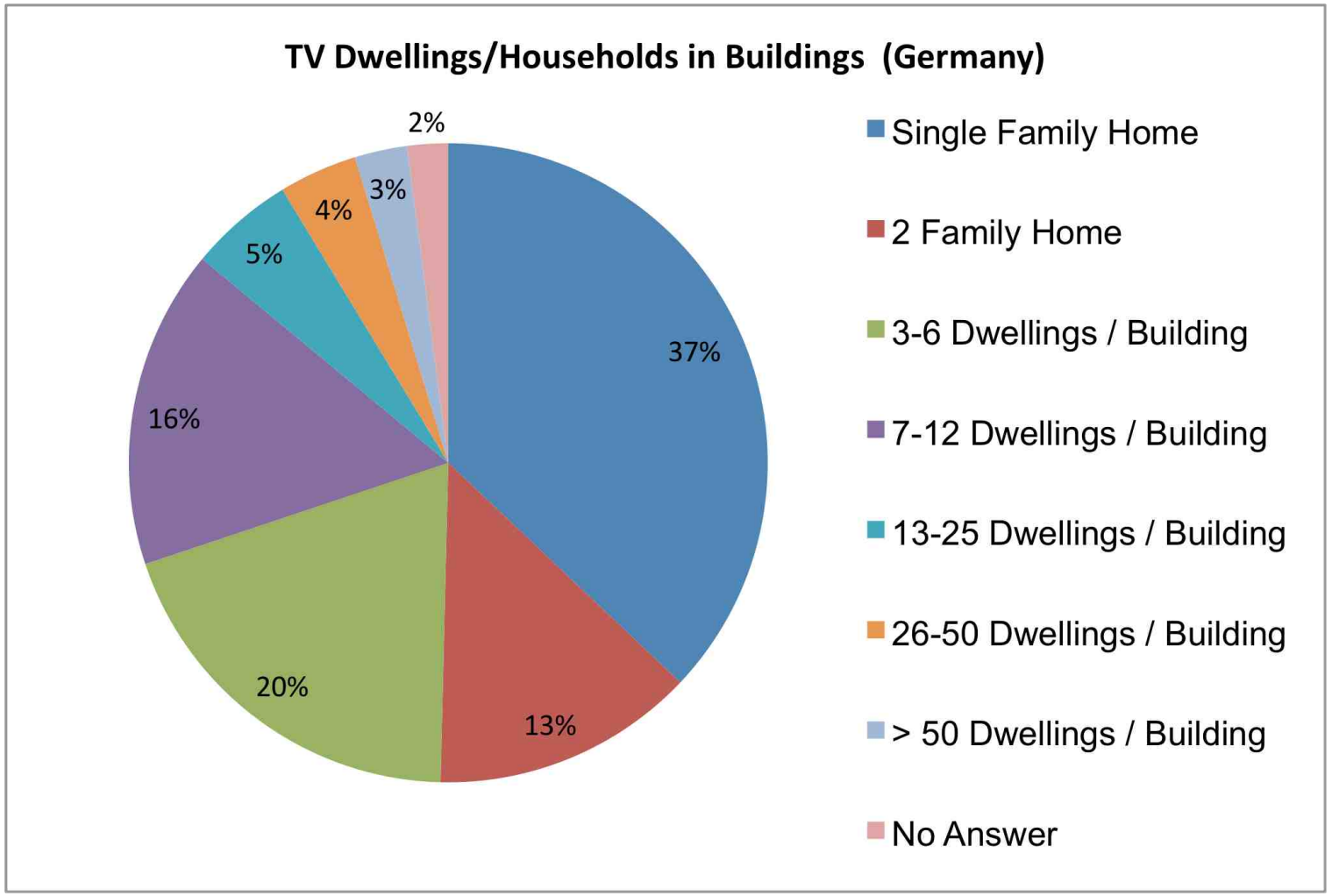
## Renovation & Retrofit e.g. CH




Source: Asut Workshop Homenetwork Januar 2011 Wüest & Partner

# Optical Home Network Market

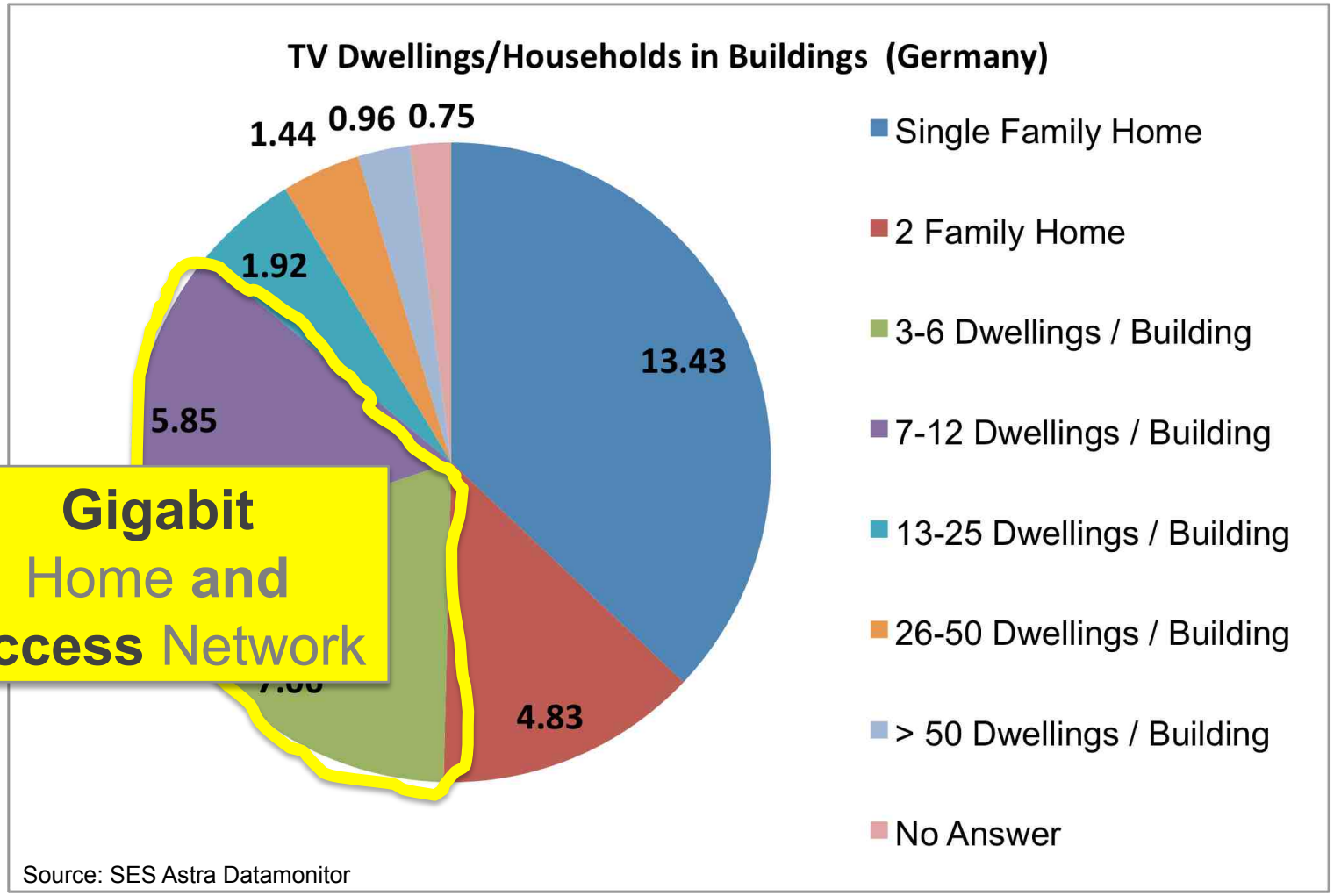
## Structure of Housholds in Buildings (D)




Source: SES Astra Datamonitor

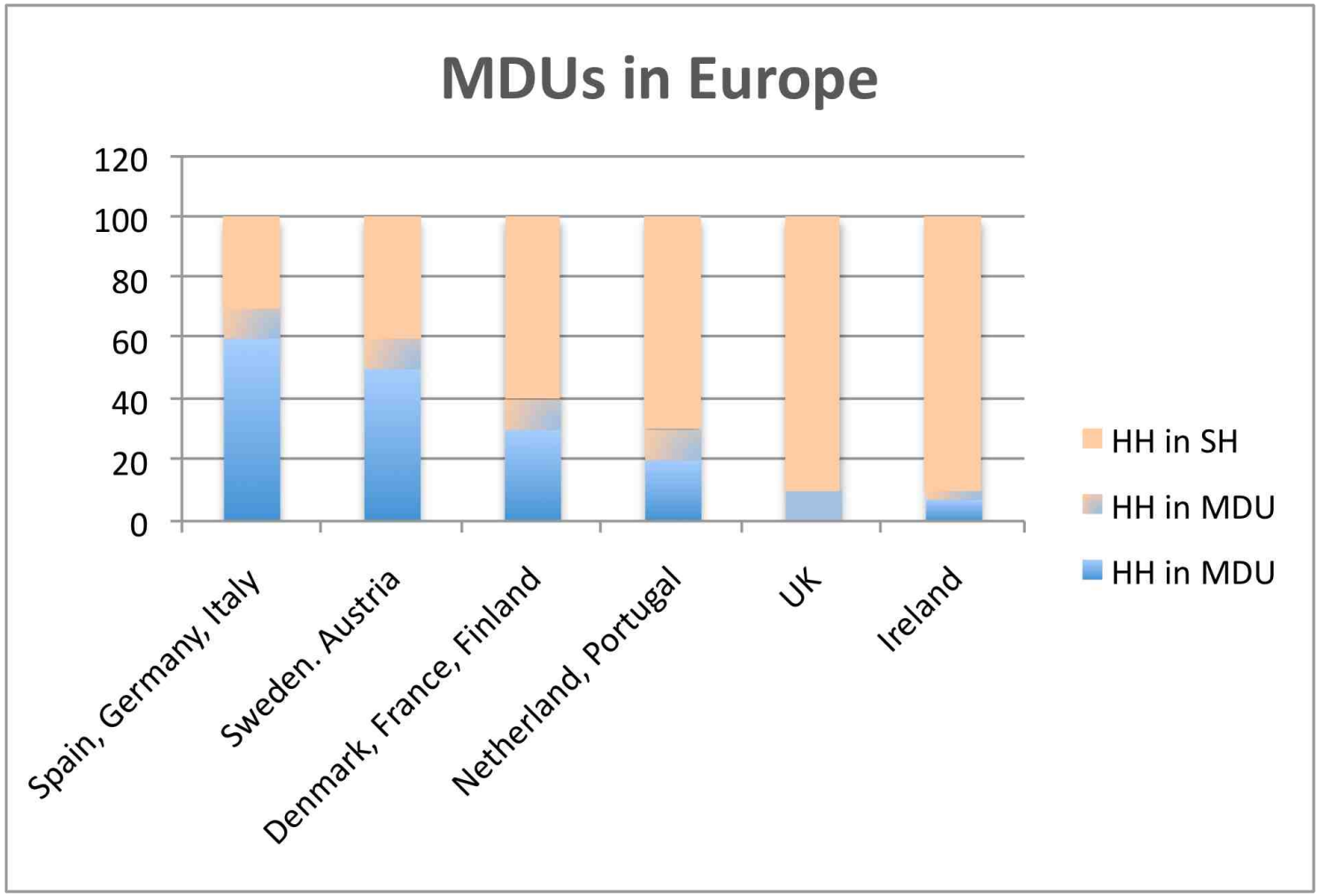
# Optical Home Network Market

## Structure of Housholds in Buildings (D)



# Optical Home Network Market

## Building Structure

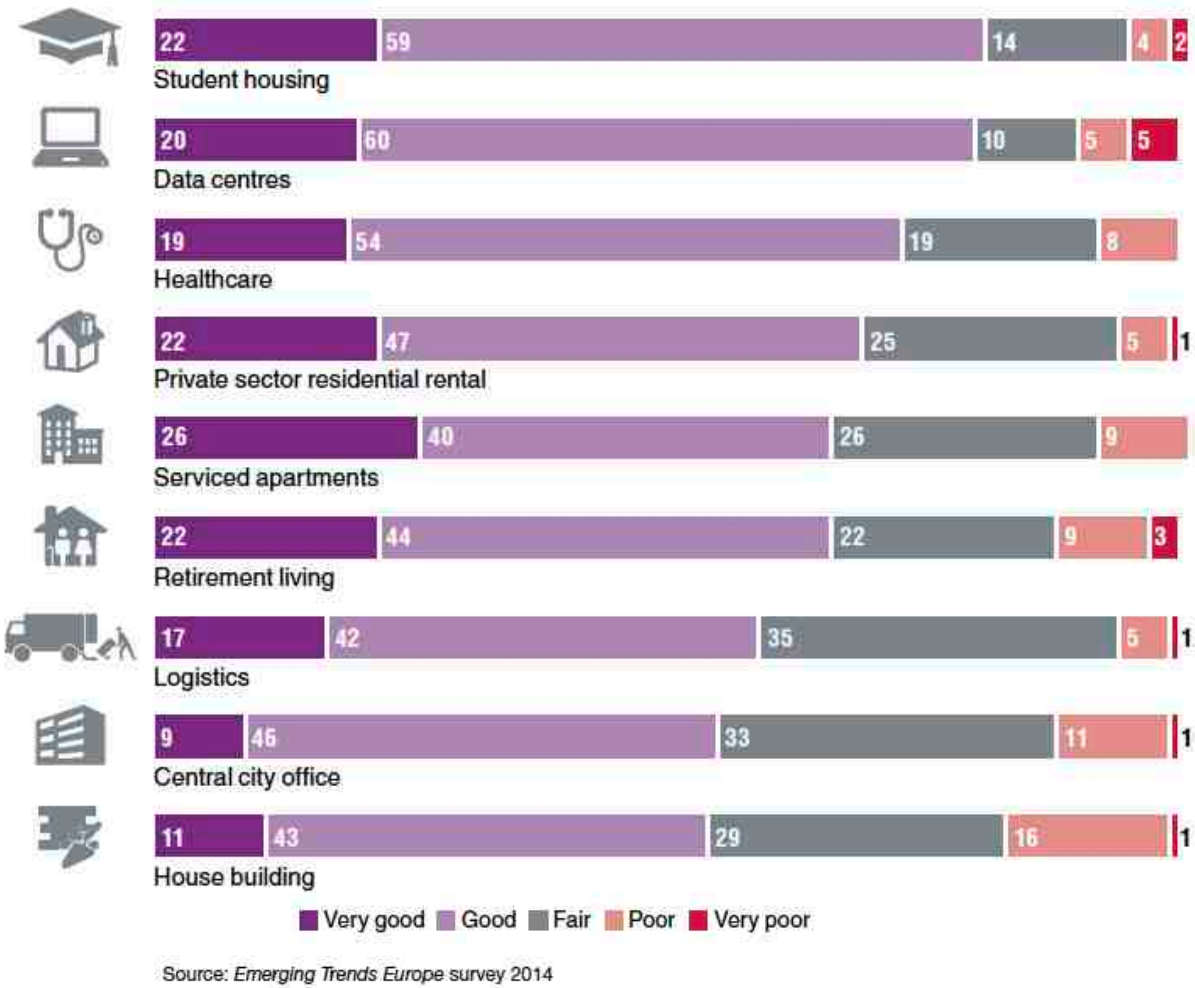



Source: FTTH Council

# Optical Home Network Market

## Market Trends

Figure 8 **Sector investment prospects 2014**




Source: *Emerging Trends Europe* survey 2014

# Optical Home Network Market

## Market Size

320 Mio Households (TV)
70 % Broadband Access
& Home Network > **210 Mio HH**

POF – 20% of the
EU Home Network Market

**= 42 Mio HH**

42 Mio x 400 €* = 16,8 Billion Euro

**Do it yourself Home Network**

**Retrofit Solution for existing buildings**

**One Network for All – for new buildings**

* Source: ALPHA - Architectures for fLexible Photonic Home and Access networks / Programme: Information and Communication Technologies
**Deliverable D4.4 Techno-economic analysis of transmission and shared-medium access technologies for access and in-building networks/ 2010**

# Optical Home Network Market

## Market Size

320 Mio Households (TV)
70 % Broadband Access
& Home Network > **210 Mio HH**

POF – 20% of the
EU Home Network Market

**= 42 Mio HH**

42 Mio x 15 Phy = 630 Mio Phy

**Do it yourself Home Network**

**Retrofit Solution for existing buildings**

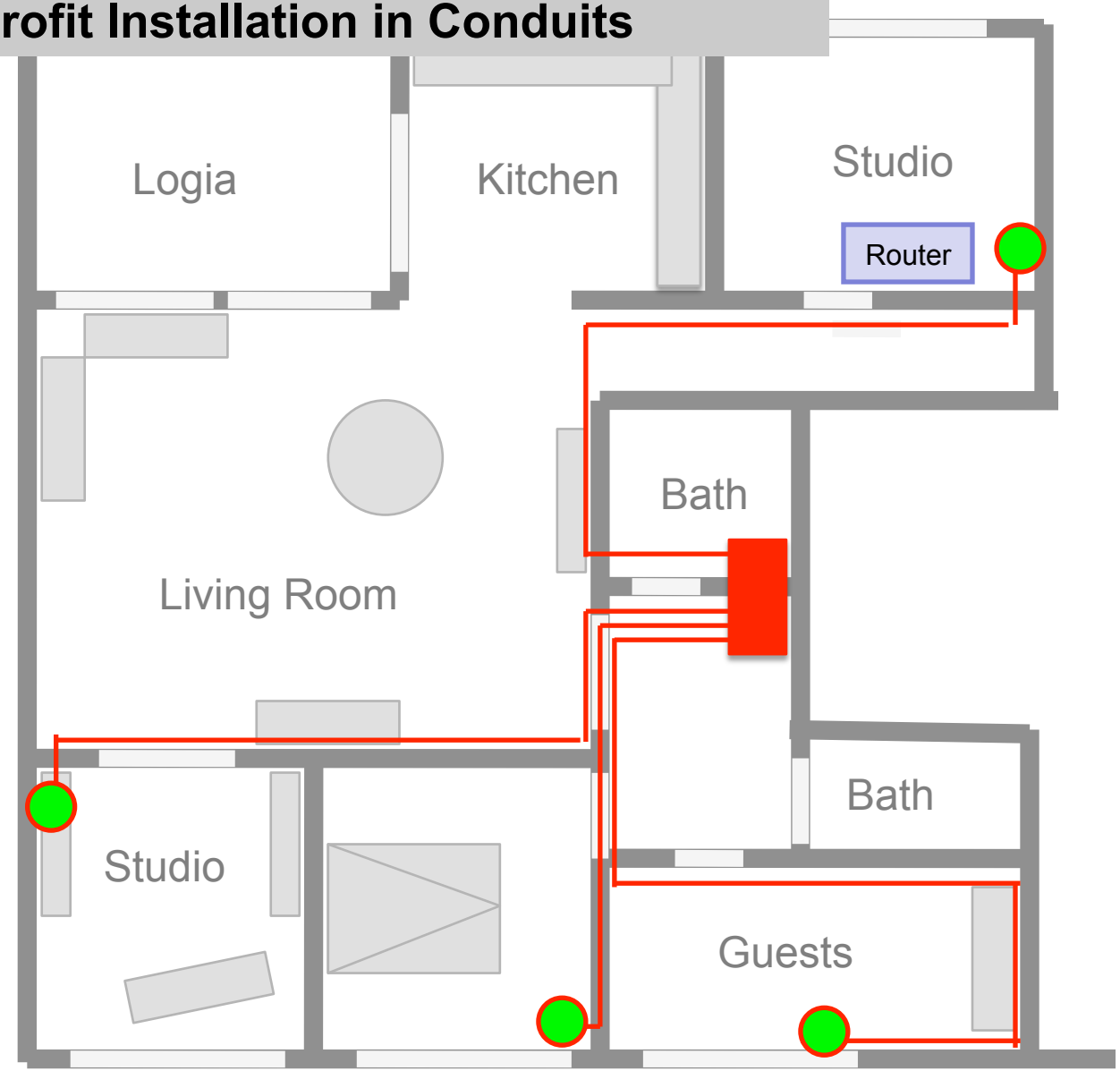
**One Network for All – for new buildings**

ALPHA Architectures for fLexible Photonic Home and Access networks
Programme: Information and Communication Technologies
Deliverable D2.2.p (Public version of Deliverable D2.2)
“Techno-economical analysis for the identified capacity upgrade, dynamic capacity allocation, aggregate transport of wired-wireless signals and infrastructure convergence solutions”

# Practical Experience and Installations

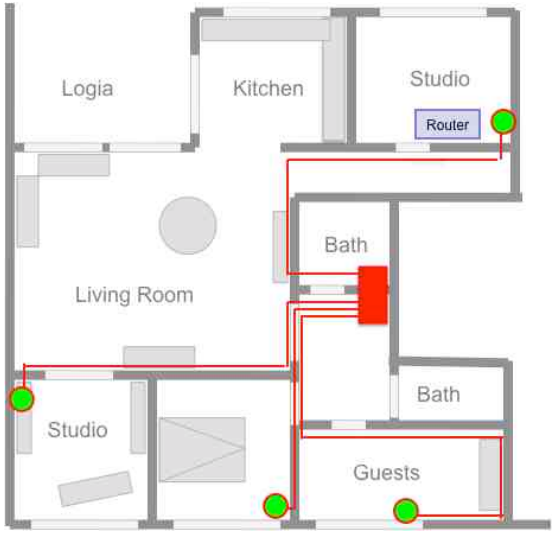
# POF Optical Network Projects

## Retrofit Installation in Conduits



# POF Optical Network Projects

## Retrofit Installation in Conduits




# POF Optical Network Projects

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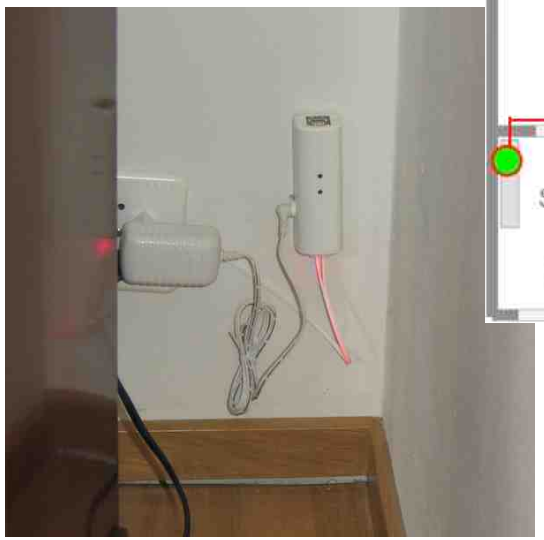
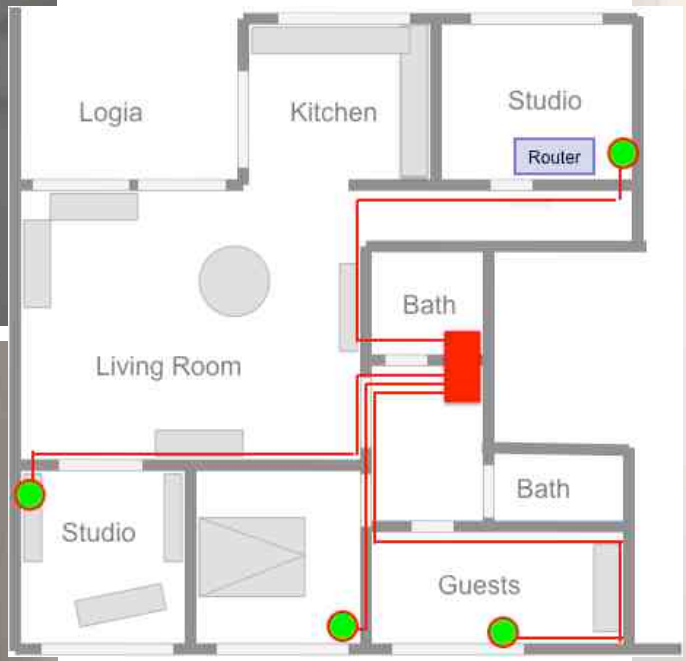
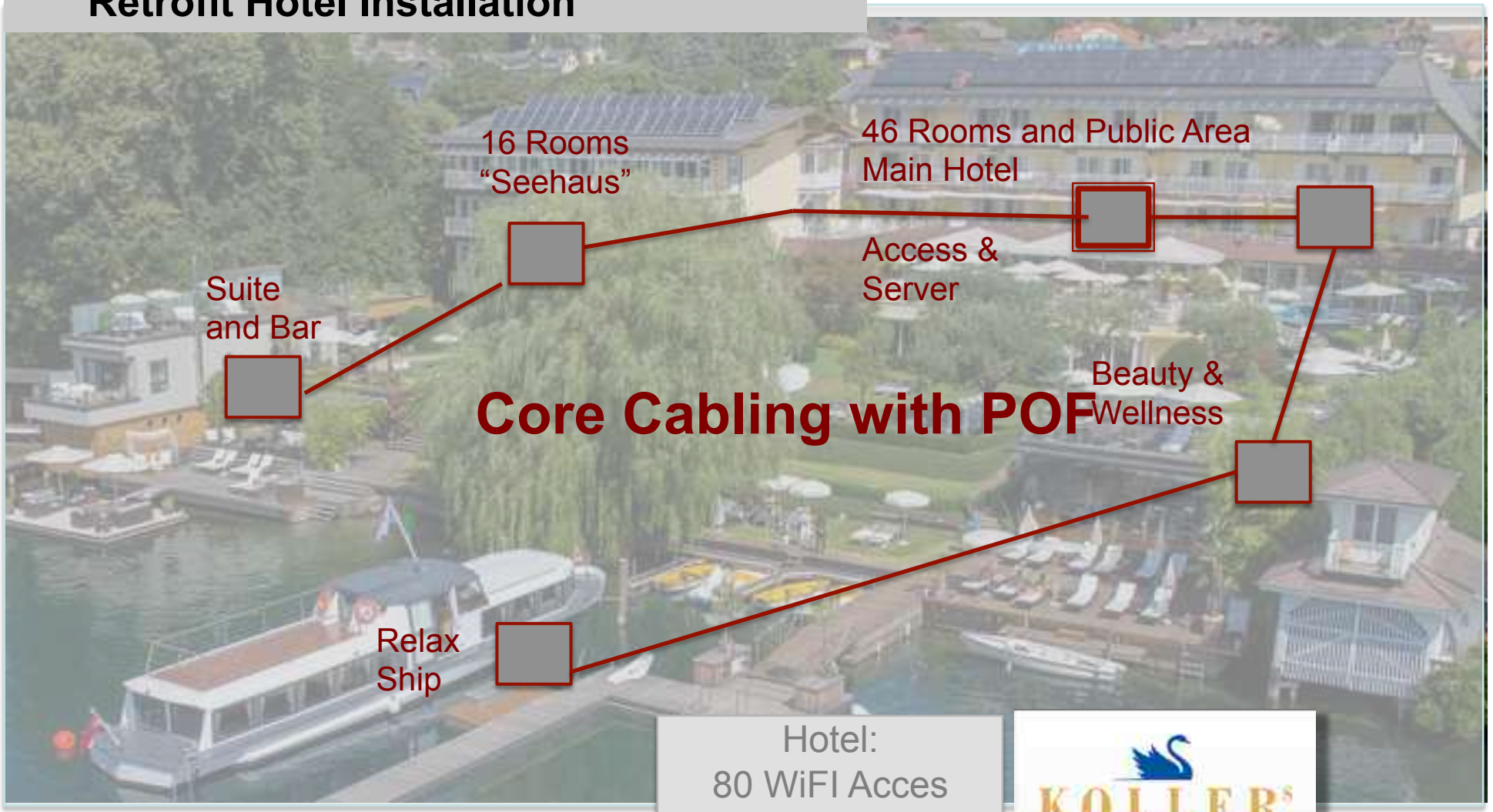





# POF Optical Network Projects

## Retrofit Hotel Installation




Hotel:
80 WiFI Acces Points with Data Outlet

KOLLER'S HOTEL

# POF Optical Network Projects

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3. Floor

Vertical Access & Distribution Network
**1GBps required**

2. Floor

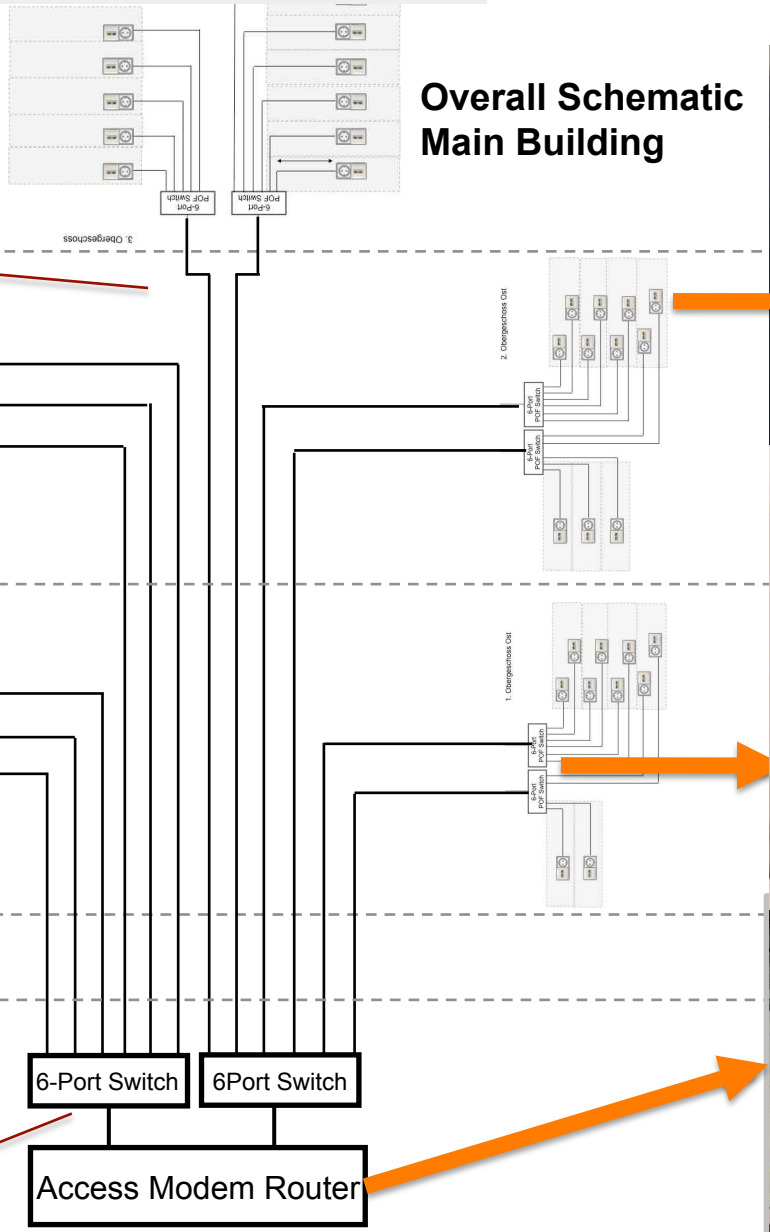
Horizontal wiring to each room, currently 100Mbps UpGrade to 1Gbps step by step

1. Floor

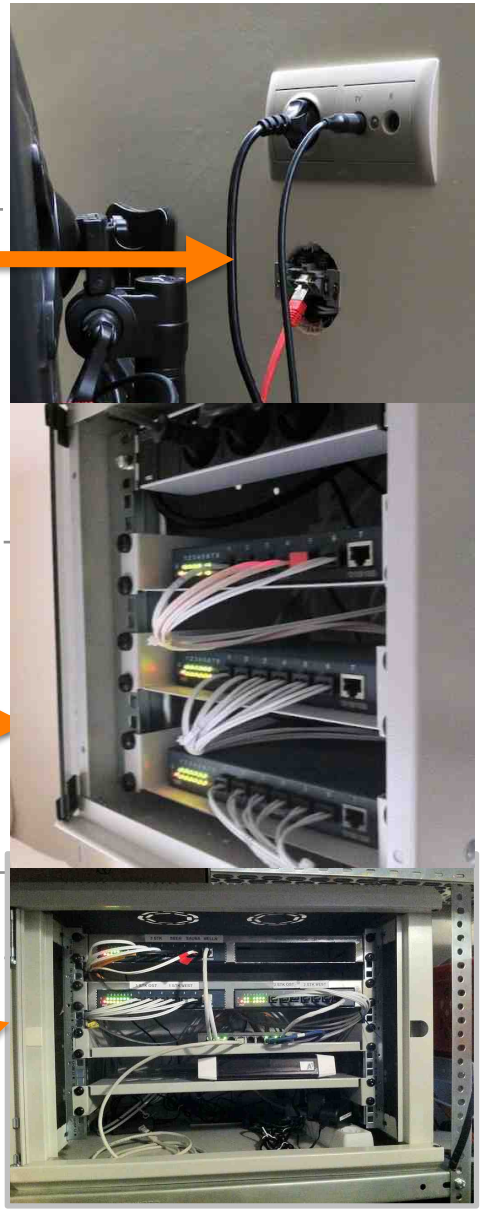
Groundfloor

Basement

Central Main Switch & Modem Router




**Overall Schematic Main Building**



# POF Optical Network Projects

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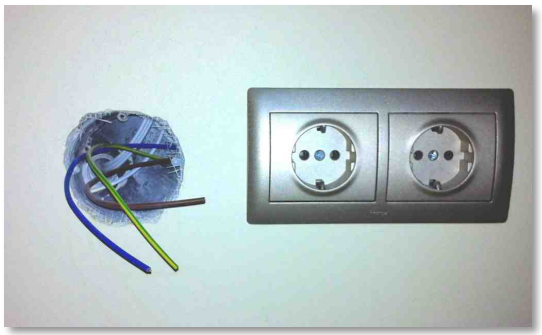
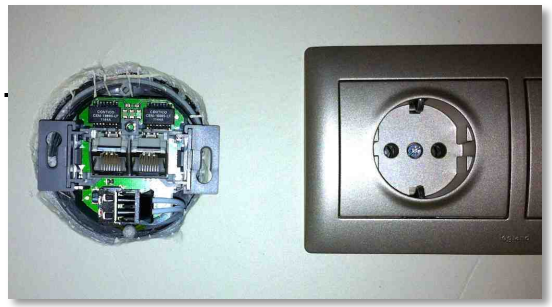
Each room is equipped with an optical backbone ...

future upgrade to 1 Gbps possible and planed  step by step ...





# POF Optical Network Projects

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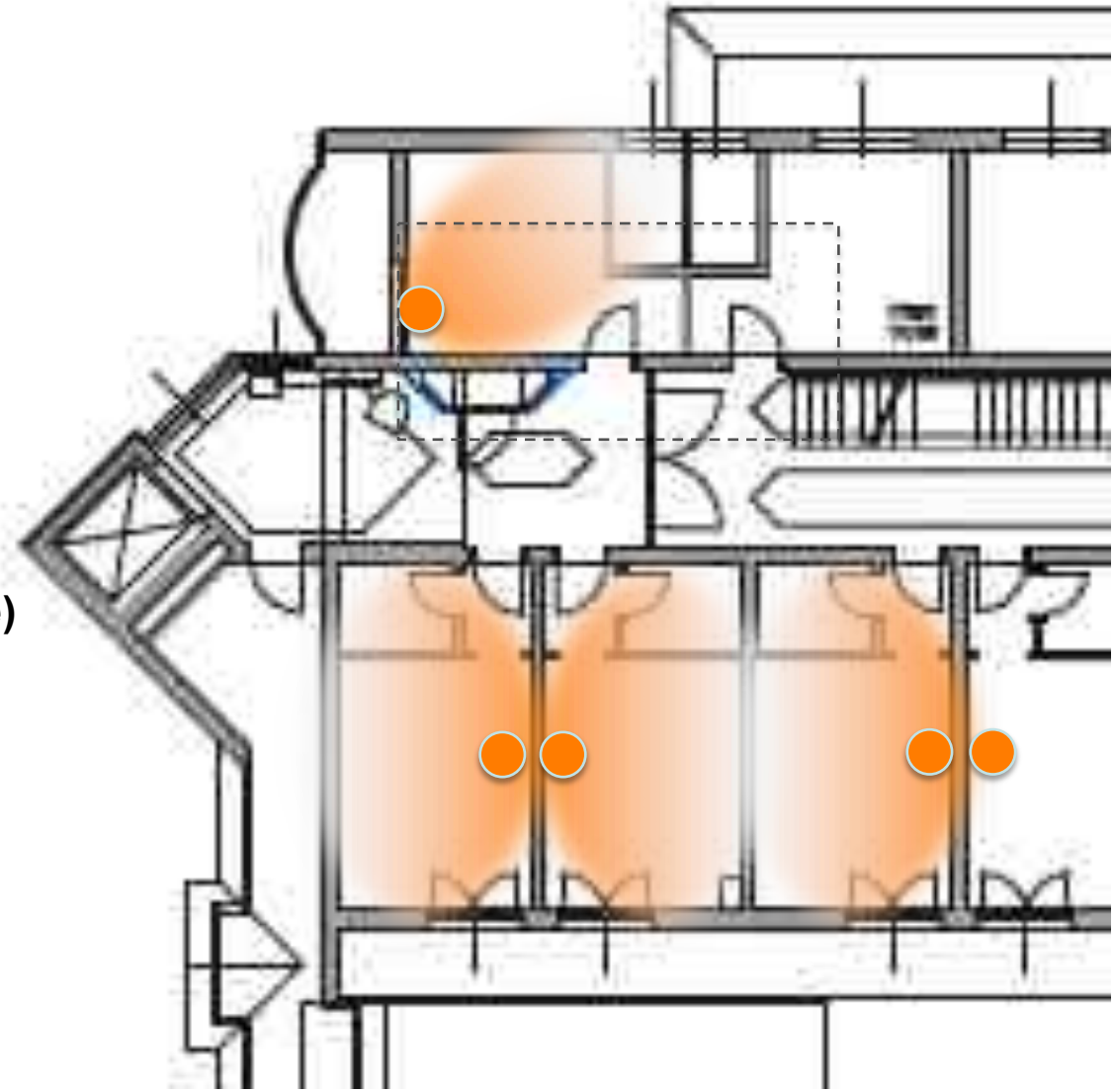
**Each room with WiFi Access Point**

- **low radiation**
- **lower interferences**
- **stable operation**
- **switch on/off (e.g. night time)**



# POF Optical Network Projects

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POF WiFi Access Point

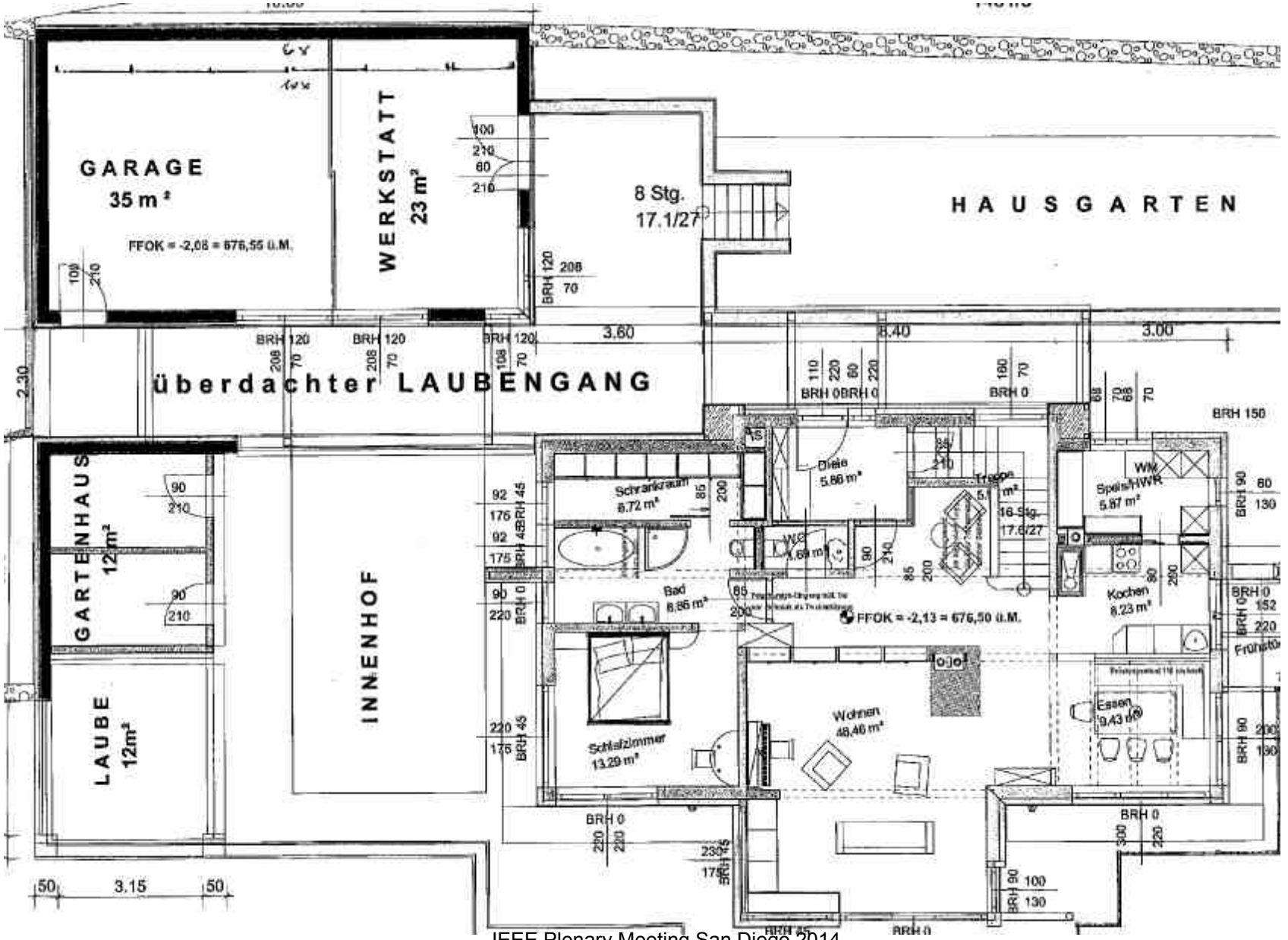
Small WLAN access points in each room guarantee low EMR and stable and reliable connectivity.

# POF Optical Network Projects

## New Private Home

WiFi Access Point & Data Outlet

# POF Optical Network Projects



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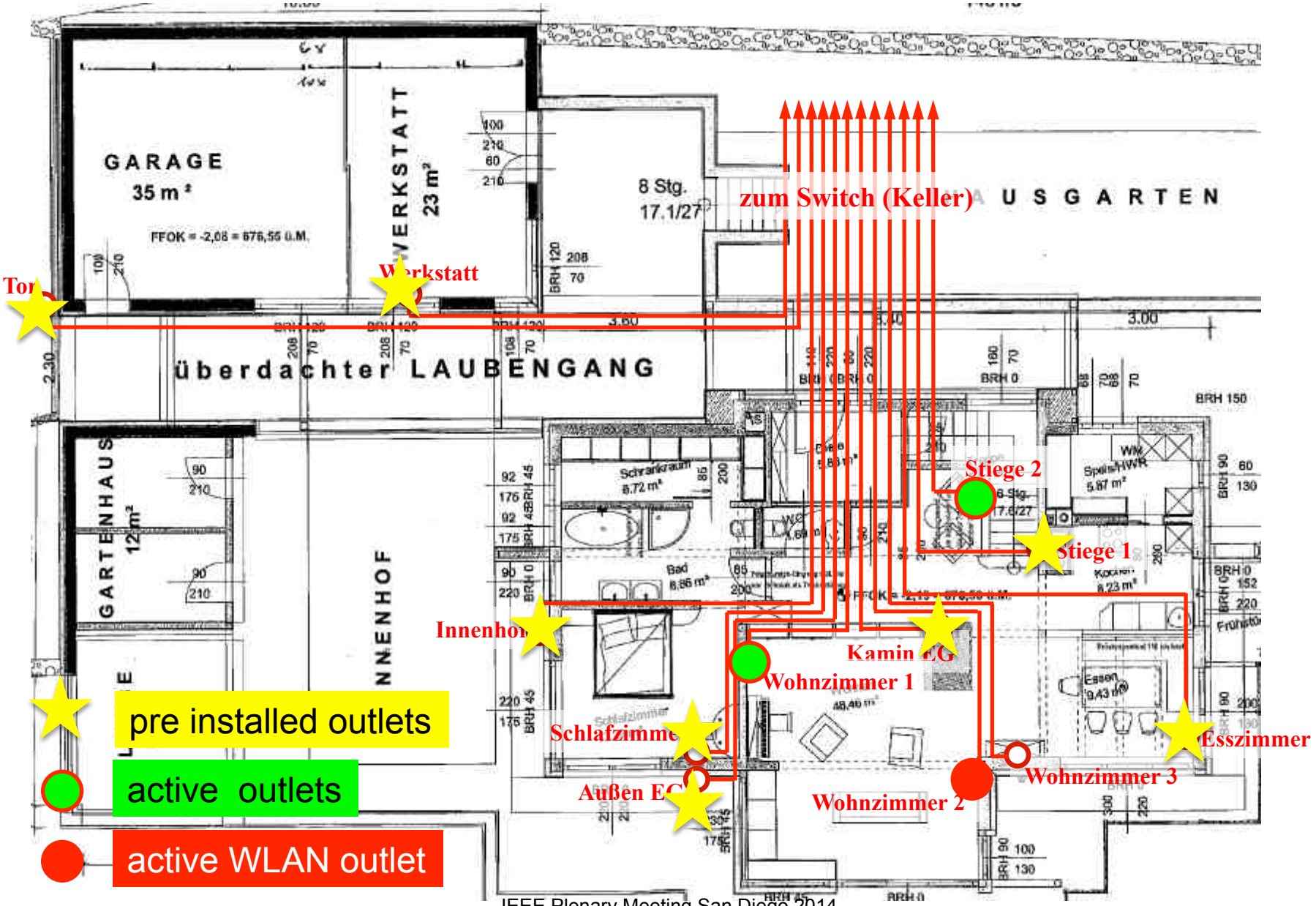

# POF Optical Network Projects

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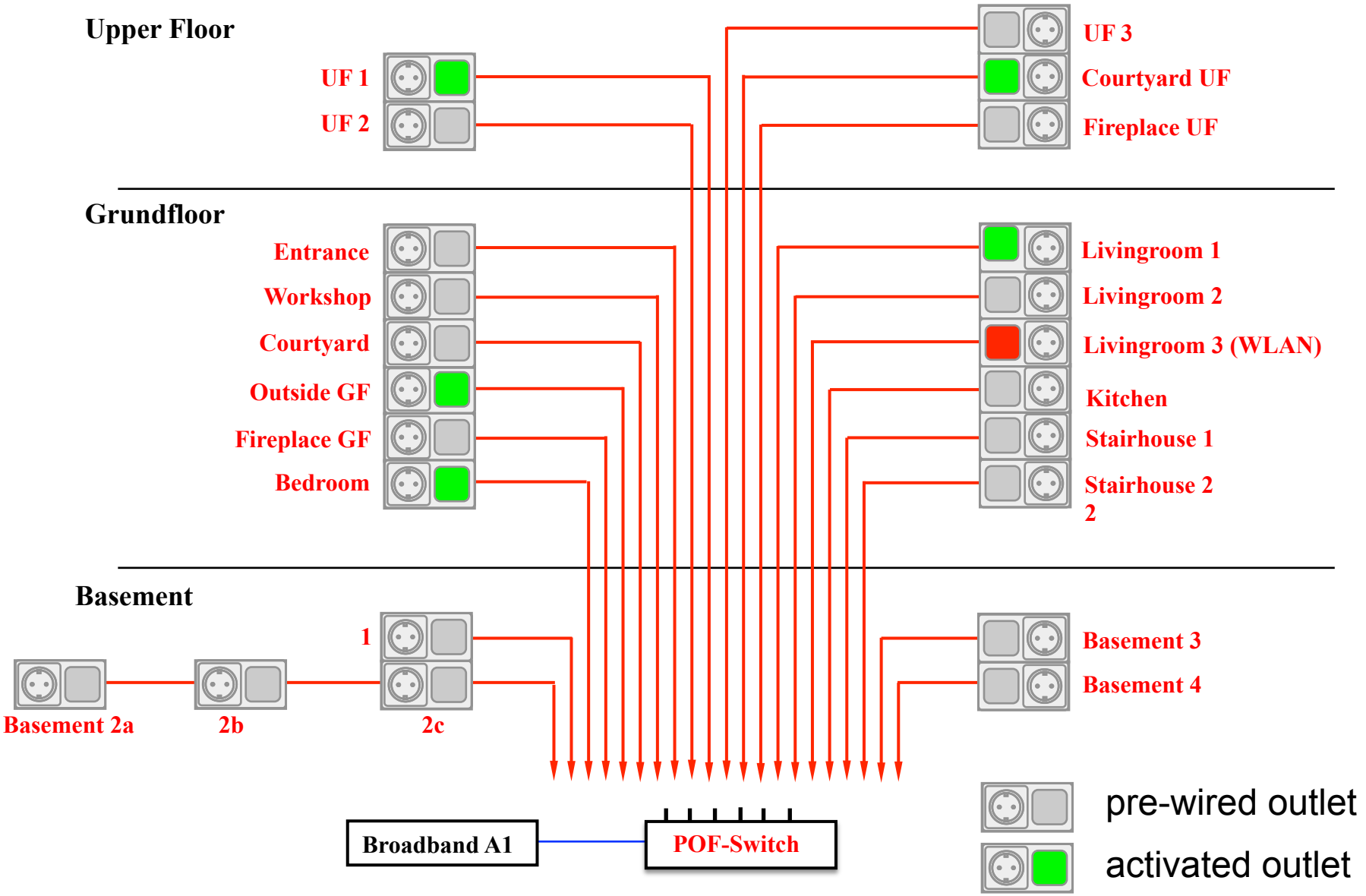

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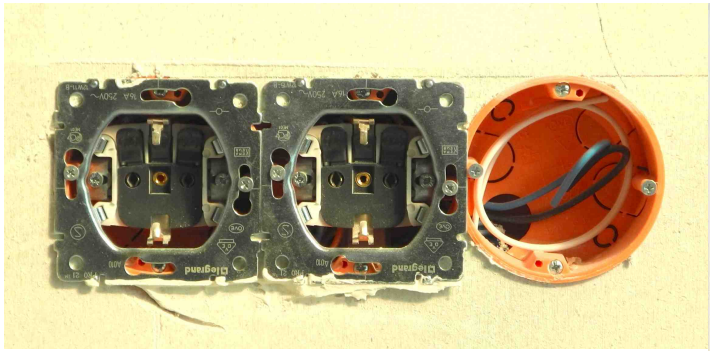

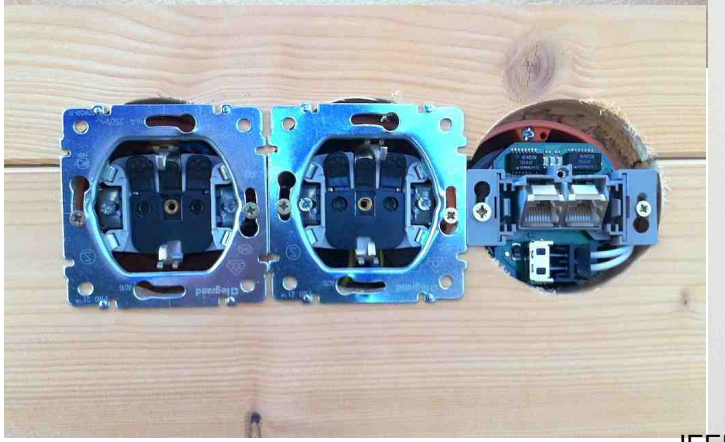

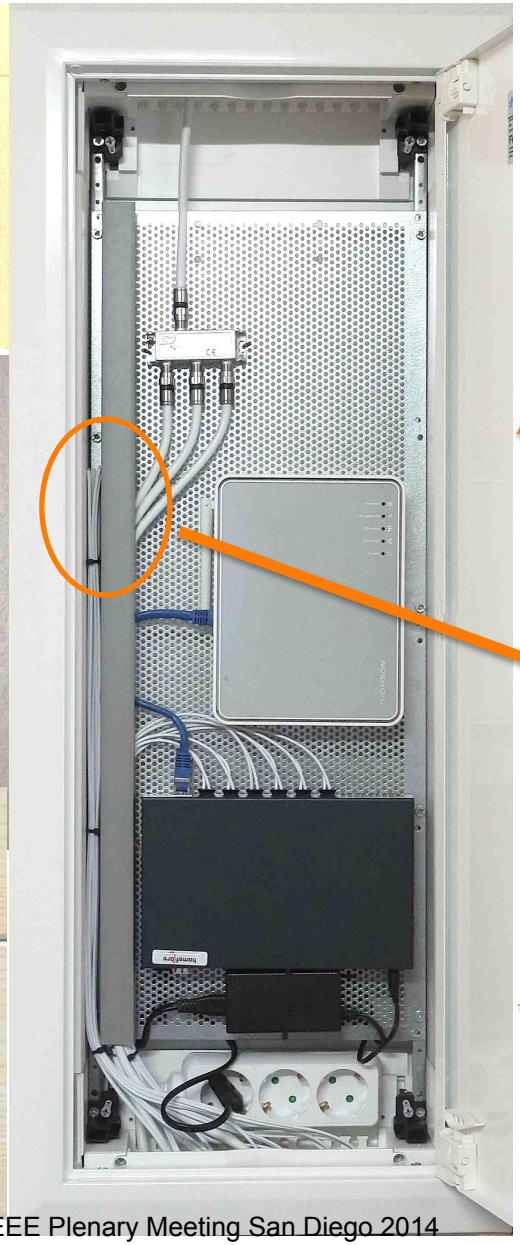

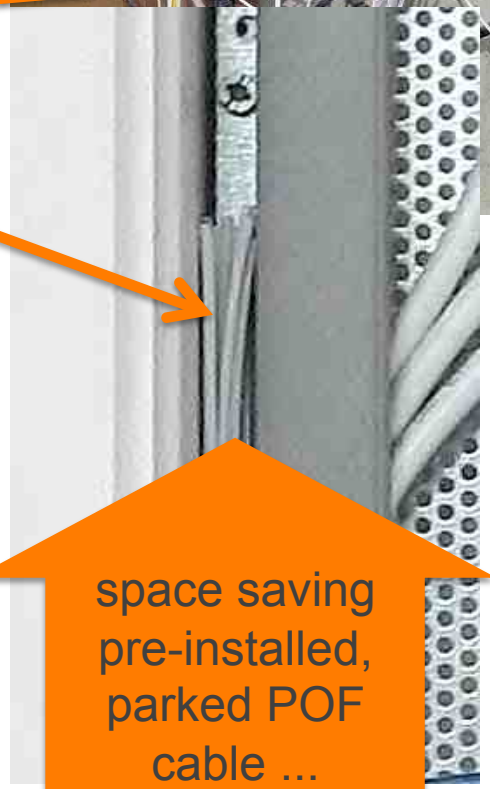

space saving pre-installed, parked POF cable ...

# Home Network Requirement

## Beyond Today Network Limitations

homefibre

More Connectivity & More Flexibility

Optimized Usage of WLAN

**Optical POF Gigabit Databackbone**

# Thank you

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