DIEMOUNT SOLUTIONS

Using POF for In-House Communication

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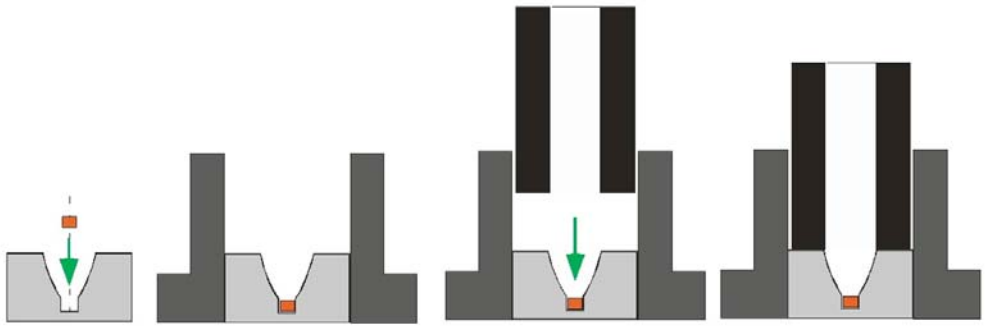
Overview

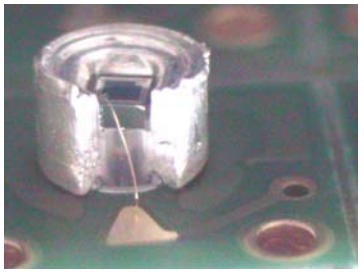
1. **DieMount GmbH: company, technology and products**
2. **Broadband access for IPTV, VoIP and video gaming**
3. **POF and its competitive technologies**
4. **POF cables and installation options**
5. **Proposal for local POF infrastructure**

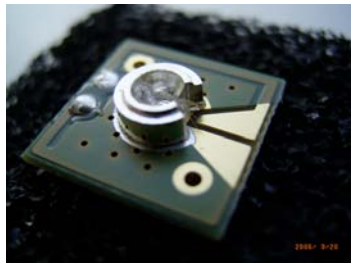
Quick facts DieMount

- Founded in 2001
- 5 employees
- Business fields
  - POF data transmission systems,
  - LED illumination
  - Fiber optic sensor systems

DieMount technology







- Fiber chip coupling via microstructured submounts

- POF splitters

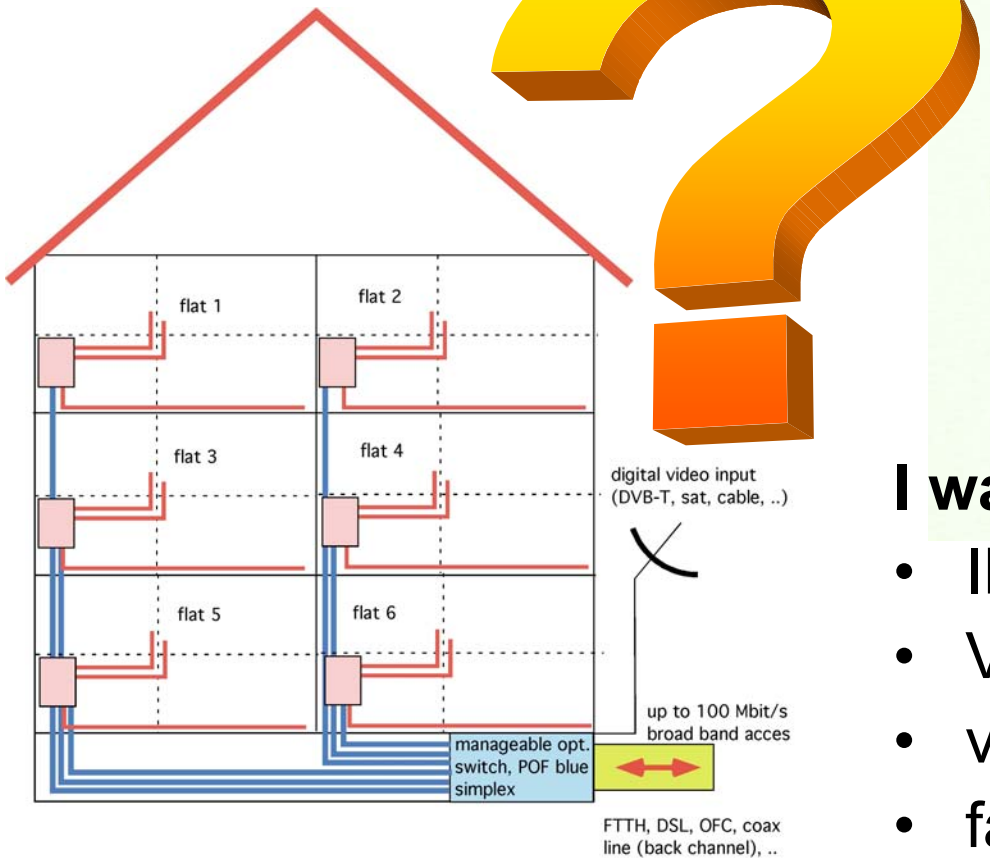
DieMount products

30m distance

70m distance

Optospider™ POF data communication products

Broadband access demand



I want:

- IPTV (10 to 12 Mbit/channel),
- VoIP (quality of service),
- video gaming via internet,
- fast downloads.

Inhouse communication technologies

wired

strukturierte Verkabelung
Kat. 5 + RJ45-Stecker
ISO/IEC 11801/15018
1000 Mbit/s

CAT5

wireless LAN
2,5 GHz ISM-Band
IEEE 802.11
54 Mbit/s (bis 720 Mbit/s)

WLAN

optische Polymerfaser
1 mm SI-POF
EN 50173-4
100..1000 Mbit/s

POF

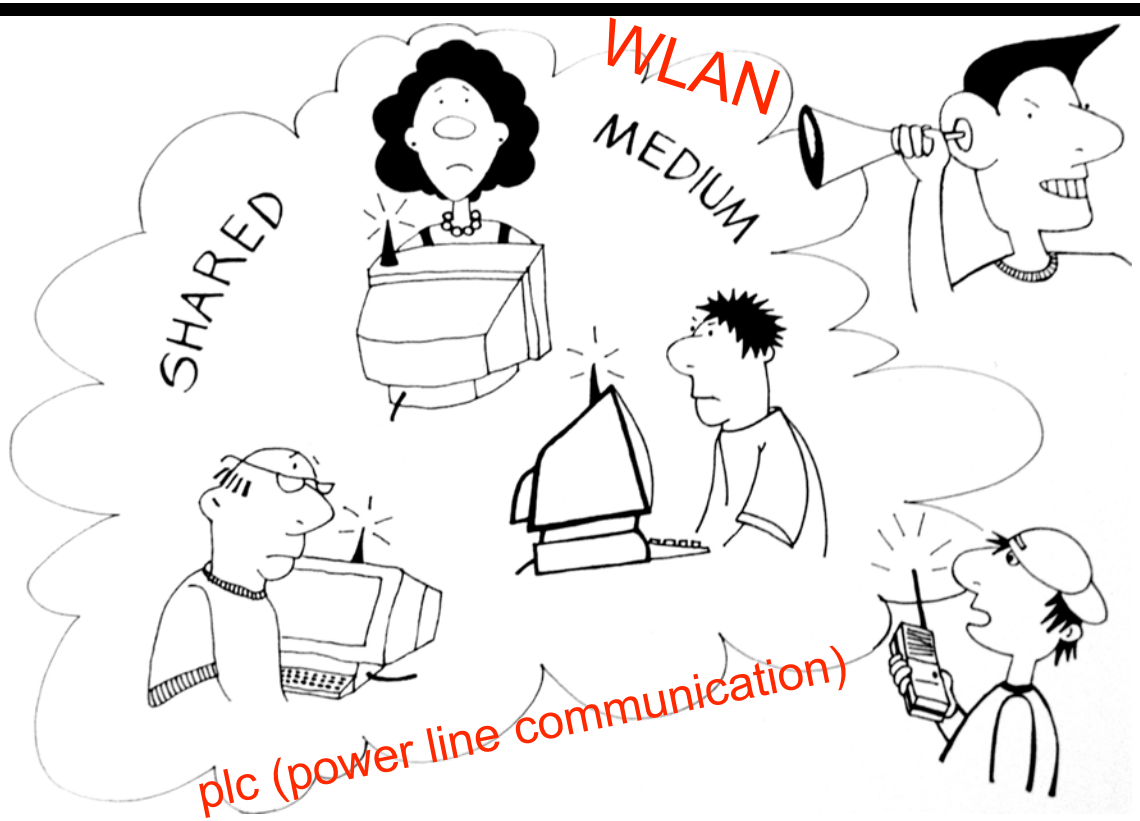
powerline communication
bis 30 MHz
HomePlug AV
bis ca. 60 Mbit/s shared

plc

shared medium

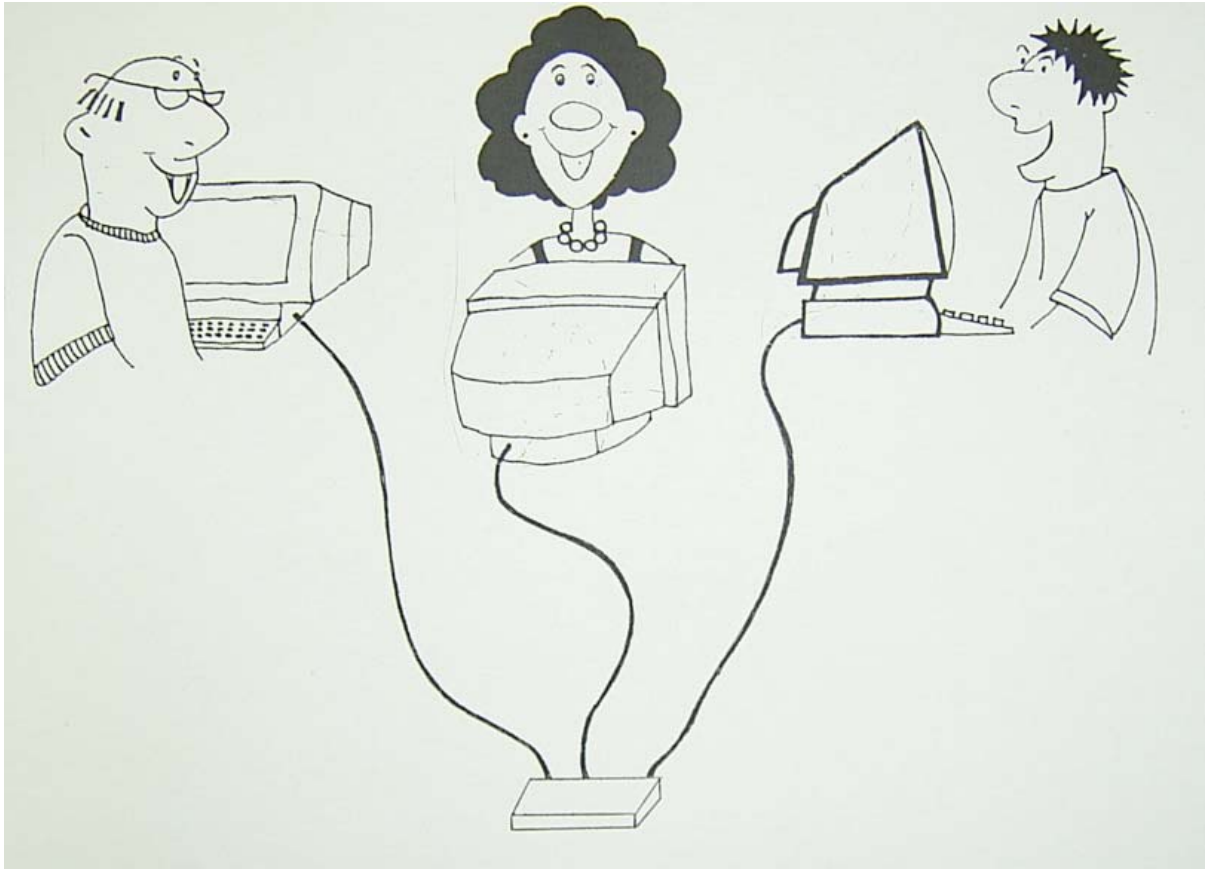
Olaf Ziemann: 8.03.07 In-Haus-Netze Topologien

Shared media communication



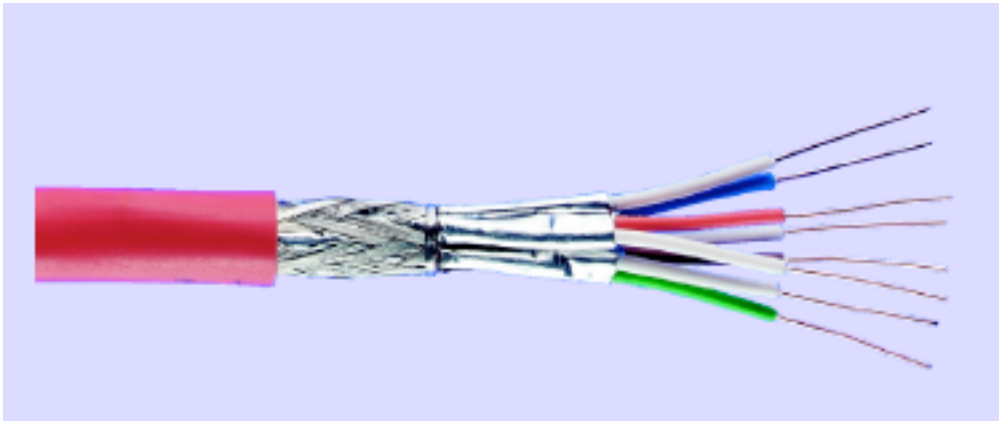
- bandwidth reduction with every new network node
- obstacles like walls, ceilings or rf-shortcuts reduce signal and bandwidth
- mutual interference with neighbour network
- unauthorized interception

Wired data transmission



- bandwidth for each network node is fixed and reliable
- shared medium problems do not occur

CAT5 or POF?



	CAT5	***POF***
cable diameter	5 to 6mm	1 to 2.2mm
cable termination	expert required	simple blade cut
installation time/effort	high (installation parallel to power lines not allowed)	low (installation parallel to power lines not allowed)
WAF factor	low	high

Low WAF factor

The

„**woman acceptance factor** (WAF)" is low, if the inhouse communication system installation requires massive changes in the house infrastructure.

- Large diameter wall holes,
- Brickwork slot,
- Cabel tunnel installation,
- ….

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High WAF factor

media converter

The

WAF is high, if the inhouse communication system installation requires nearly no changes in the house infrastructure.

- The cable is nearly unvisible,
- Cable routable on or under the wallpaper,
- Cable termination in some seconds,
- ….

High WAF factor

nearly invisibly installed POF

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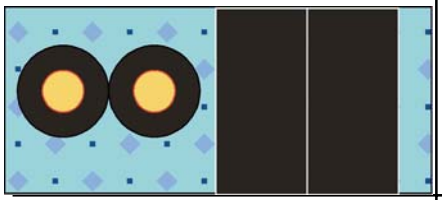
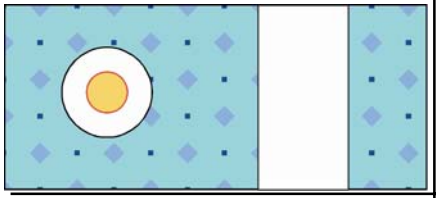
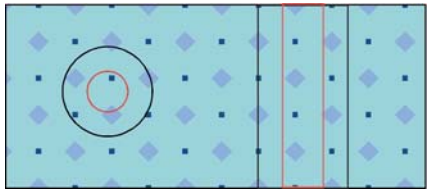
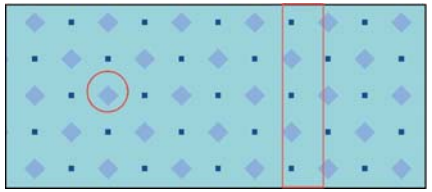
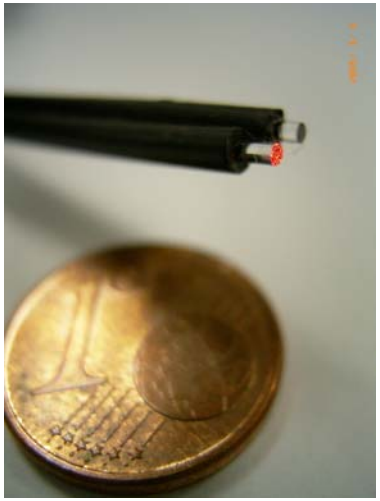
POF cable types

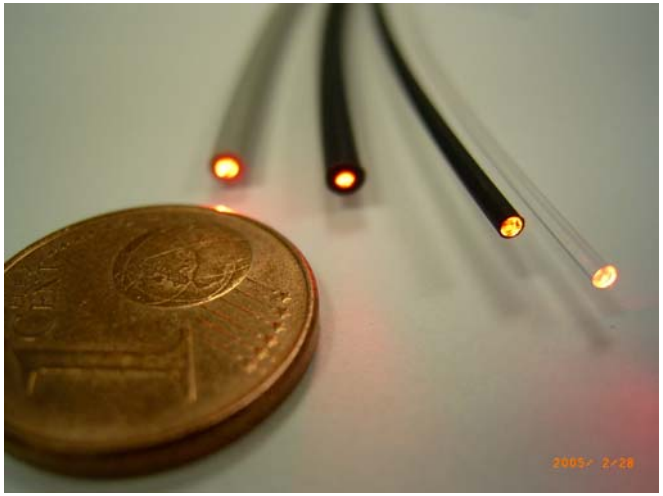
cable on wall paper	*POF cable types*	*dimensions*	*jacket materials*
	standard duplex black	2.2mm x 4.4mm	PE (polyethylen)
	simplex white	2.2mmØ	PE (polyethylen) or PVC (polyvenylchlorid)
	simplex transparent jacket	2.2mmØ	PE (polyethylen) or PVC (polyvenylchlorid)
	bare fiber	1mmØ	–

Duplex and simplex POF



Duplex POF:

- 0.37 to 0.50 €/m
- risk to mix up Tx and Rx channel



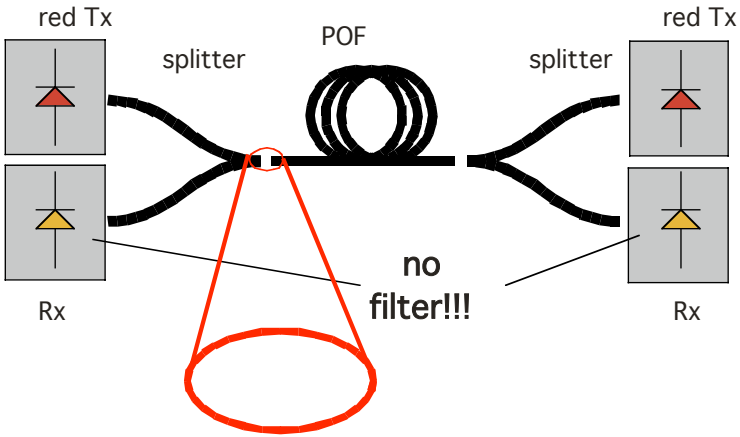
Simplex POF:

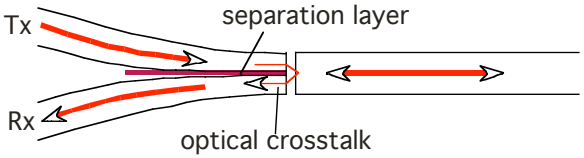
- 0.08 €/m (bare POF) to 0.3 €/m
- PE, PVC, PA cable material
- 1.0x1.0mm to 2.2x2.2mm cross section
- each colour and “invisible” transparent
- no preferred bending direction
- no risk to mix up Tx and Rx channel

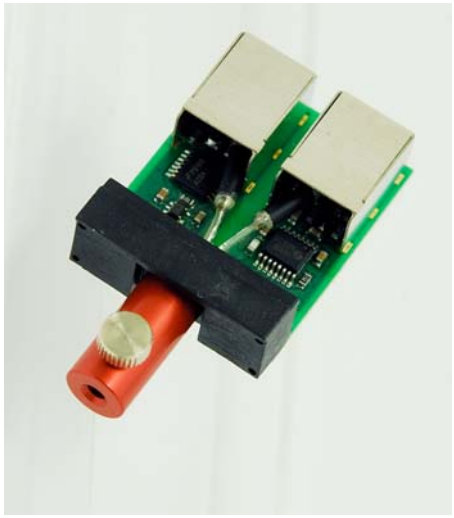
Simplex POF transceivers

Summary:

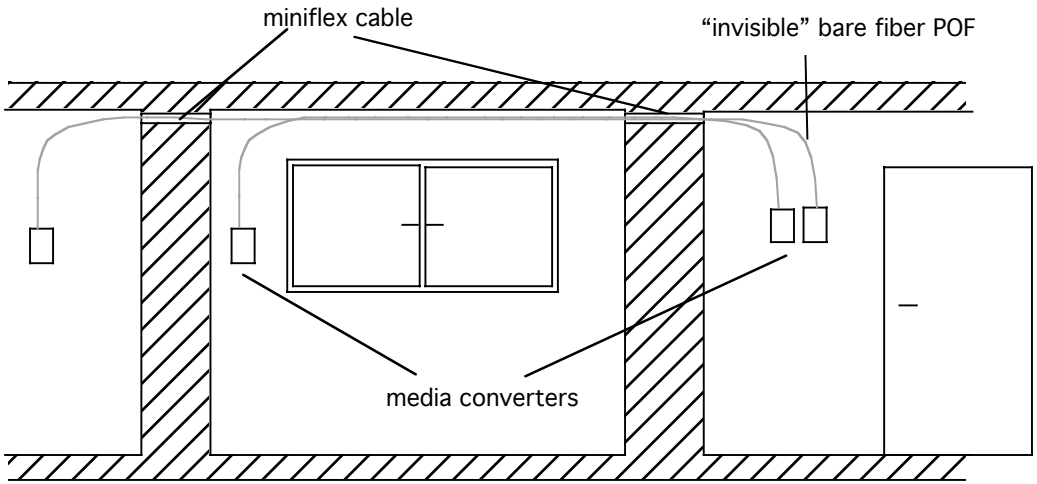
To realize the most inconspicuous POF data network in private appartments and houses simplex POF transceivers are necessary.





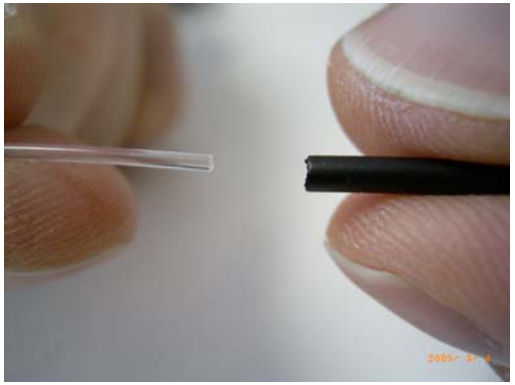


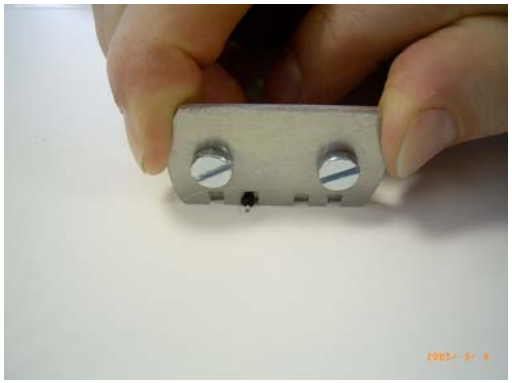
Ceiling level installation

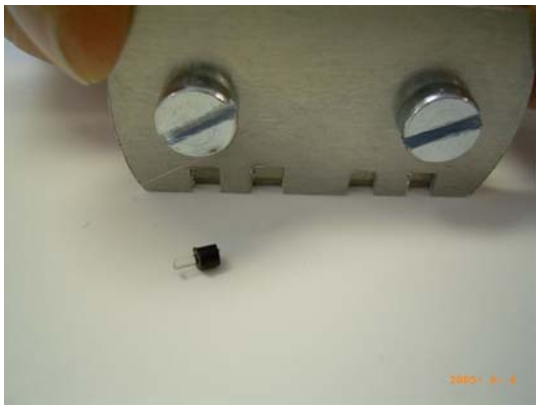


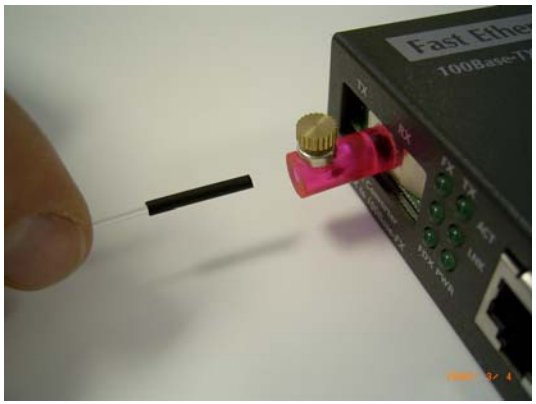
- **POF is installed above eye height and should be as invisible as possible, i.e. simplex POF (white) and bare fiber POF preferred.**
- **No around door cable trip necessary; the cable length is reduced.**
- **Small 3-4mm wall holes reduce cable length further.**
- **Bare fiber POF is protected at critical parts by miniflex cables.**

Simplex bare POF termination



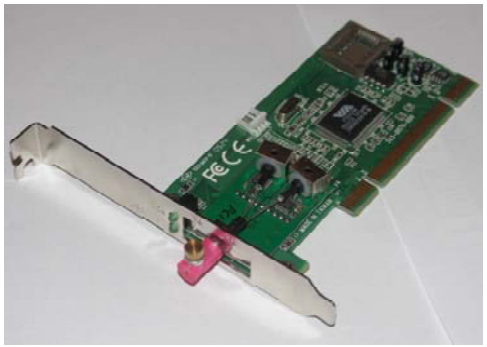


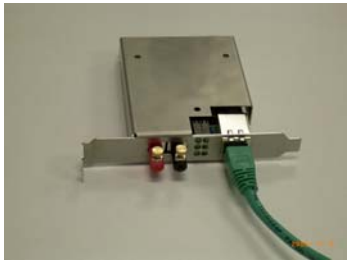




System installation requires different types of network nodes:

- Media converters
- PCI-cards
- Switching units for house and appartment
- …





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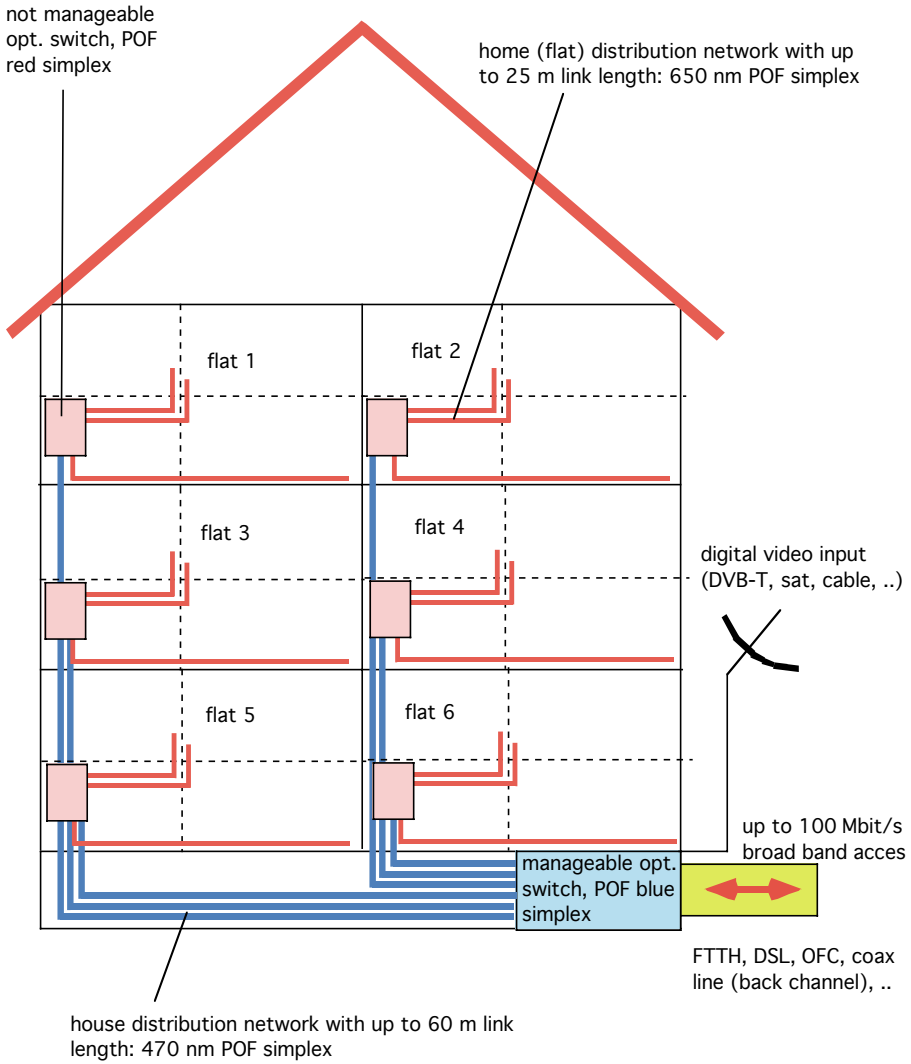
Local telecom infrastructure



- **Public network connection up to 100 Mbit/s**
- **Services: Tripleplay**
  - **data (internet)**
  - **phone (VoIP)**
  - **IPTV**
  - **digital TV fed in locally to the LAN (DVB-T, DVB-S, DVB-C)**
- **House net manageable due to data security requirements (extension up to 70 m)**
- **Home (flat) net not manageable (extension up to 30 m)**

Thank you for your attention!

System and distribution partners wanted!