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# A PC as a RG: opportunities and roadmaps

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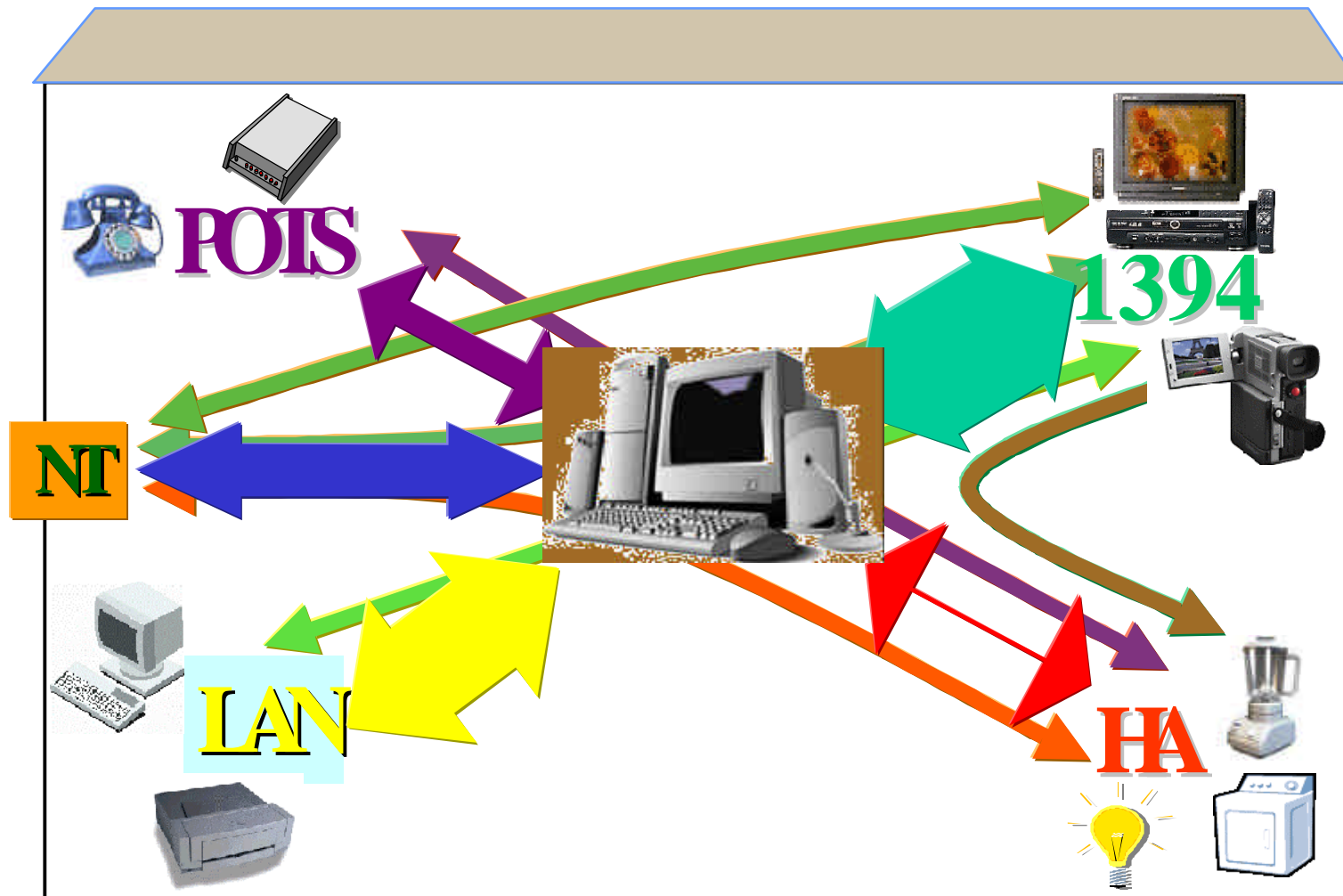
<http://www.telecomitalialab.it>

# Why using a PC as a Residential Gateway ?

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- ◆ **Scenario architecture and visions**
- ◆ **Pros and cons**
- ◆ **Implementations and tests**
- ◆ **Conclusions (?)**

# Now and then



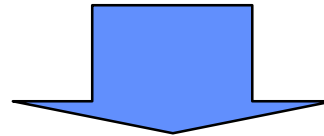
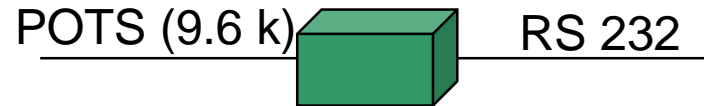
# Main drivers

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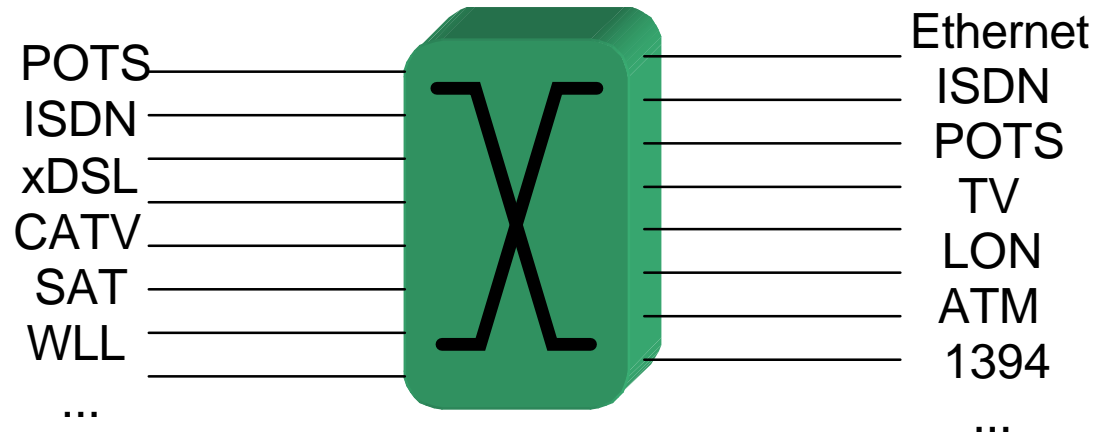
- **“Islands” migrating towards an homogeneous interconnected fabric of networks (cabling, cost analysis, “appeal”)**
- **TV/PC/HiFi full integration (tuning, storage, replay, distribution)**
- **Services offered as “bundles” (for school, multimedia, telework, games, house control, ...)**
- **Services “generated” by the customers**
- **Need for storage**
- **Low degree of intelligence on appliances**
- **Not just for sharing the access, but for new scenarios**

# Enhanced public-to-private network interface

From the “mini modem”...



...to the “mega router” ?



# Enhanced public-to-private network interface

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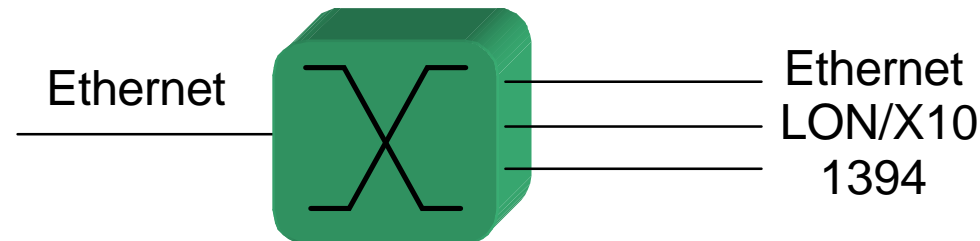
## Why can it be needed ?

- It simplifies the architecture of the Home Network
- It performs routing between heterogeneous networks

...thus enabling...

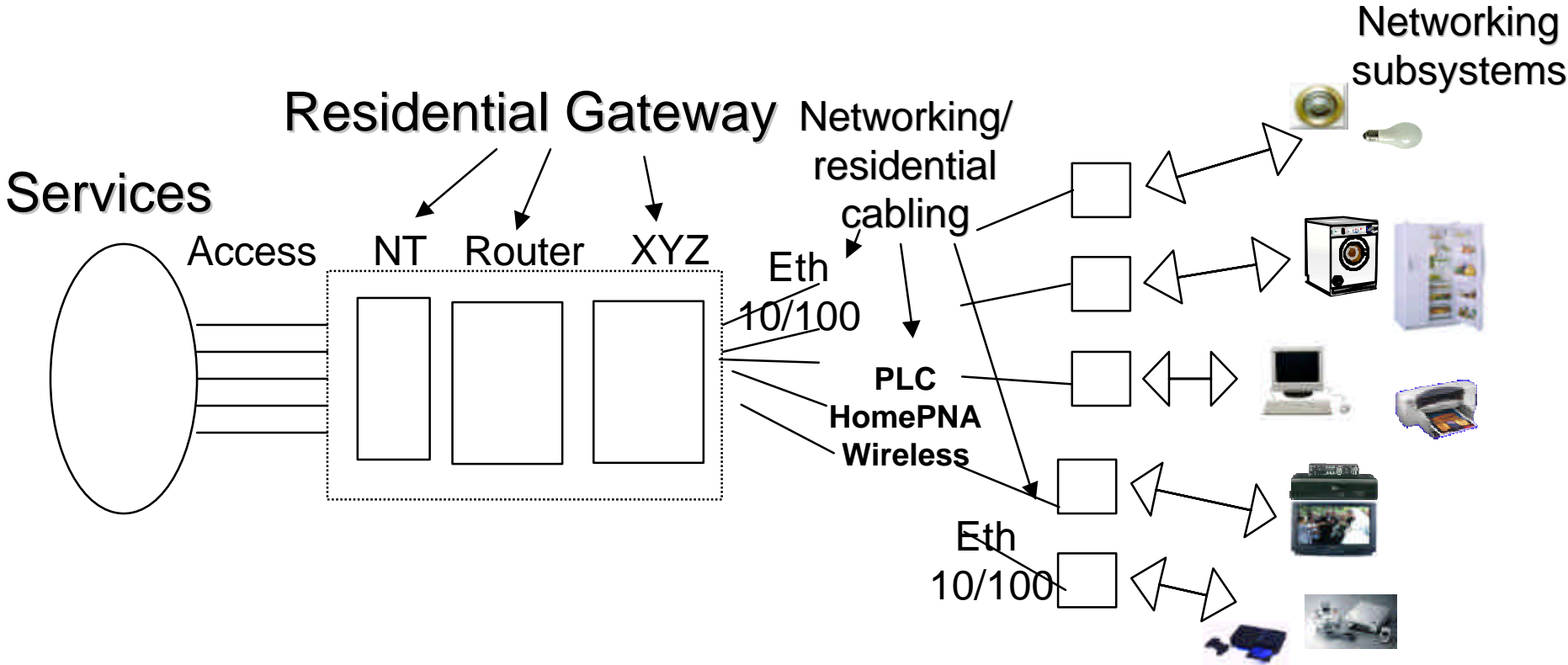
- new home terminals to be reached by advanced services
- new local home networking scenarios

...so it could be something like...

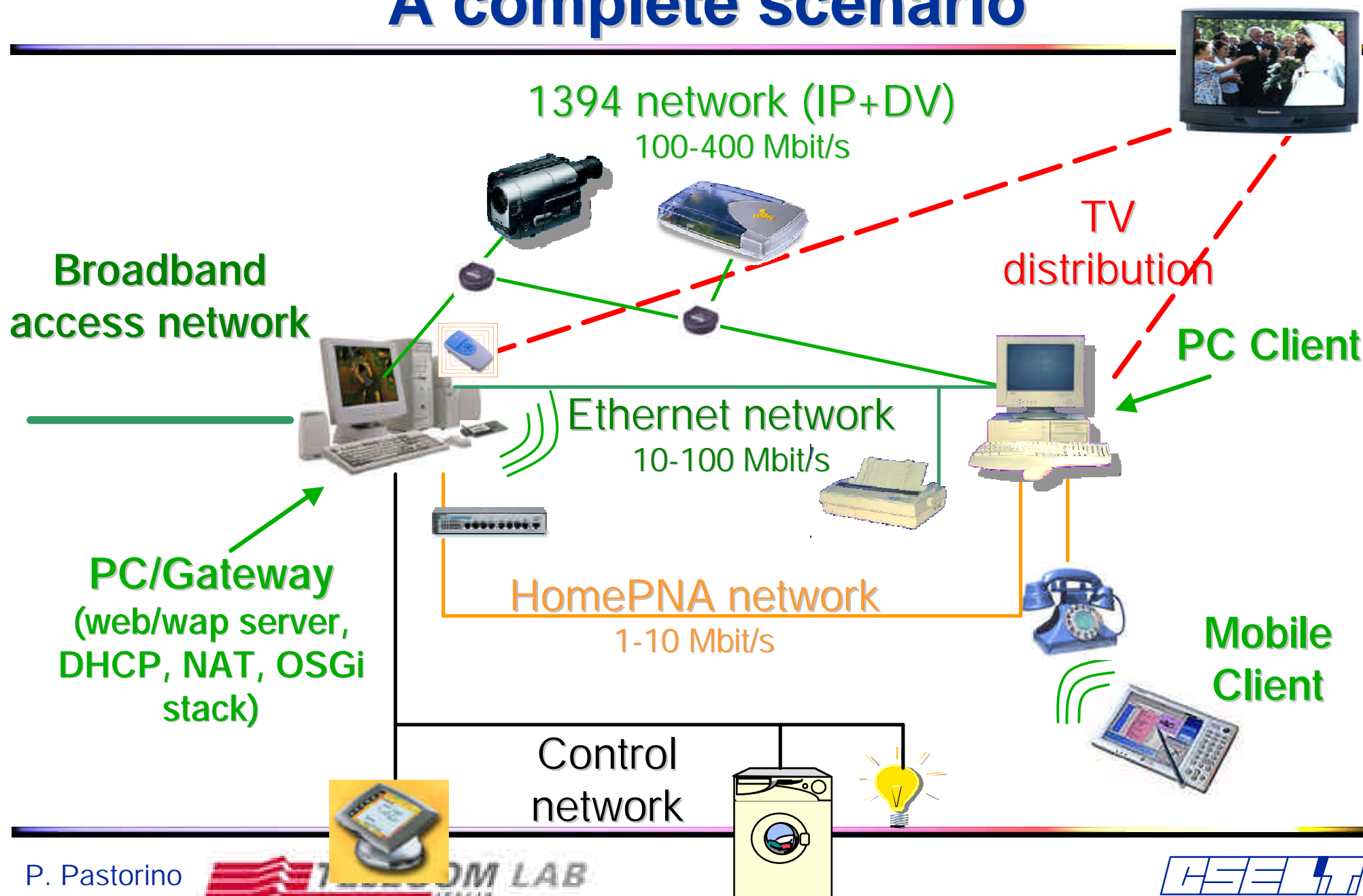


Could it be a PC ?

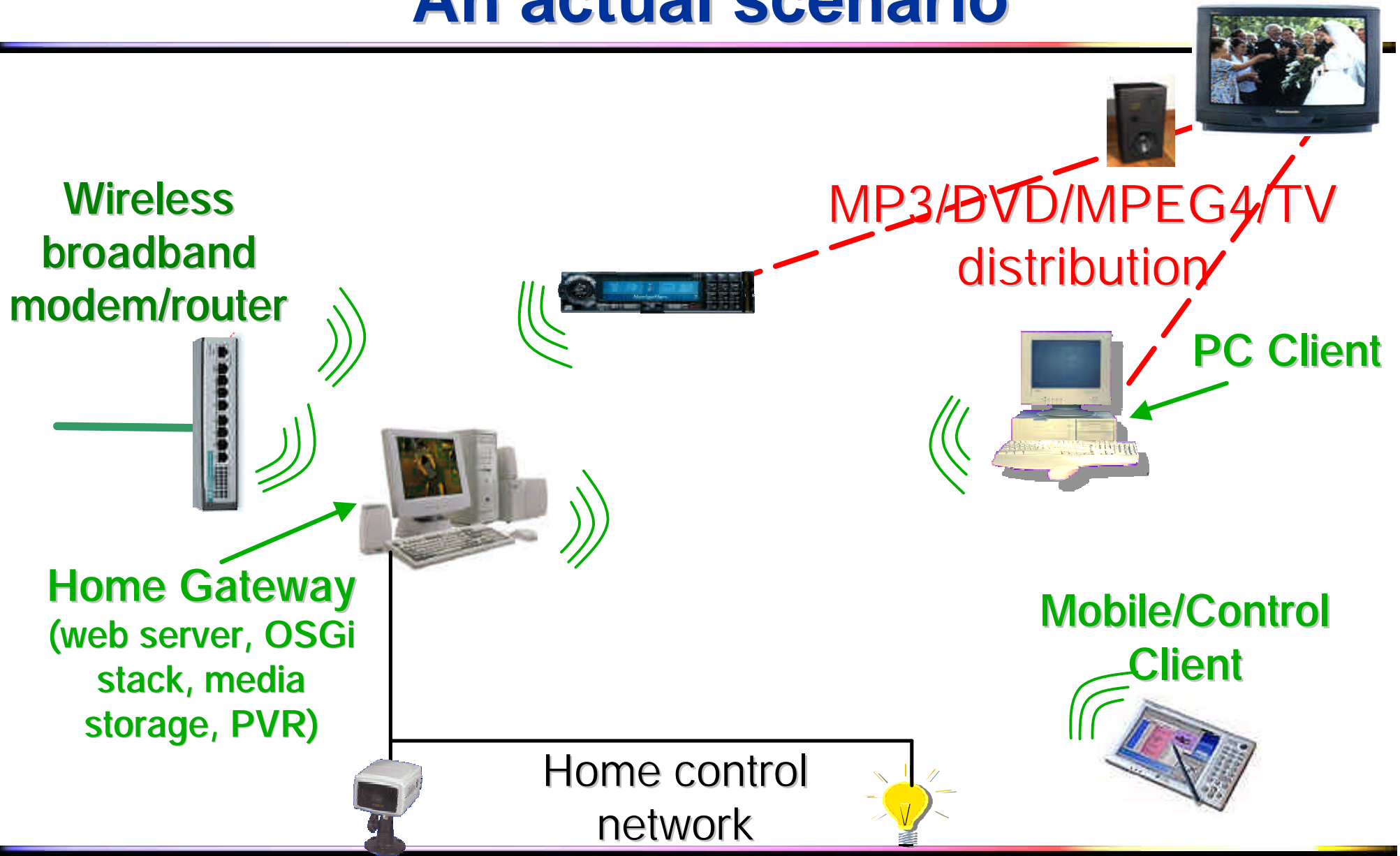
# General structure



# A complete scenario



# An actual scenario



# But first why a PC and why now ?

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- It is already present in the current Internet connected houses
- It is a first step of a seamless migration
- Many initiatives are seeing it as a central point of the connected house

**...so it can rapidly enable...**

- new services and scenarios (the simple access could be free, but not the services)

# HW/SW functionalities needed

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- ⇒ **Bridging / Routing**
- ⇒ **Firewall**
- ⇒ **Web server**
- ⇒ **Service (OSGi/UPnP) stack**
- ⇒ **Real time OS (?, is it mission critical)**
- ⇒ **Applications support (digital VCR, ...)**
- ⇒ **Separation of private and public network**

**The cost can be that of a good DVB-S receiver**

# Advantages

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- It is not a new box (low development/upgrade costs)
- Huge number of applications already available
- Wide availability of standard network interfaces
- Straightforward integration of TV, multimedia, games
- The OSs are becoming (hopefully) more stable and secure
- Multi-vendor
- Easy HW upgrade and integration (storage/peripherals)
- Can be a STB or hidden in a cabinet
- Keep the HW simple and work on the SW

# Disadvantages

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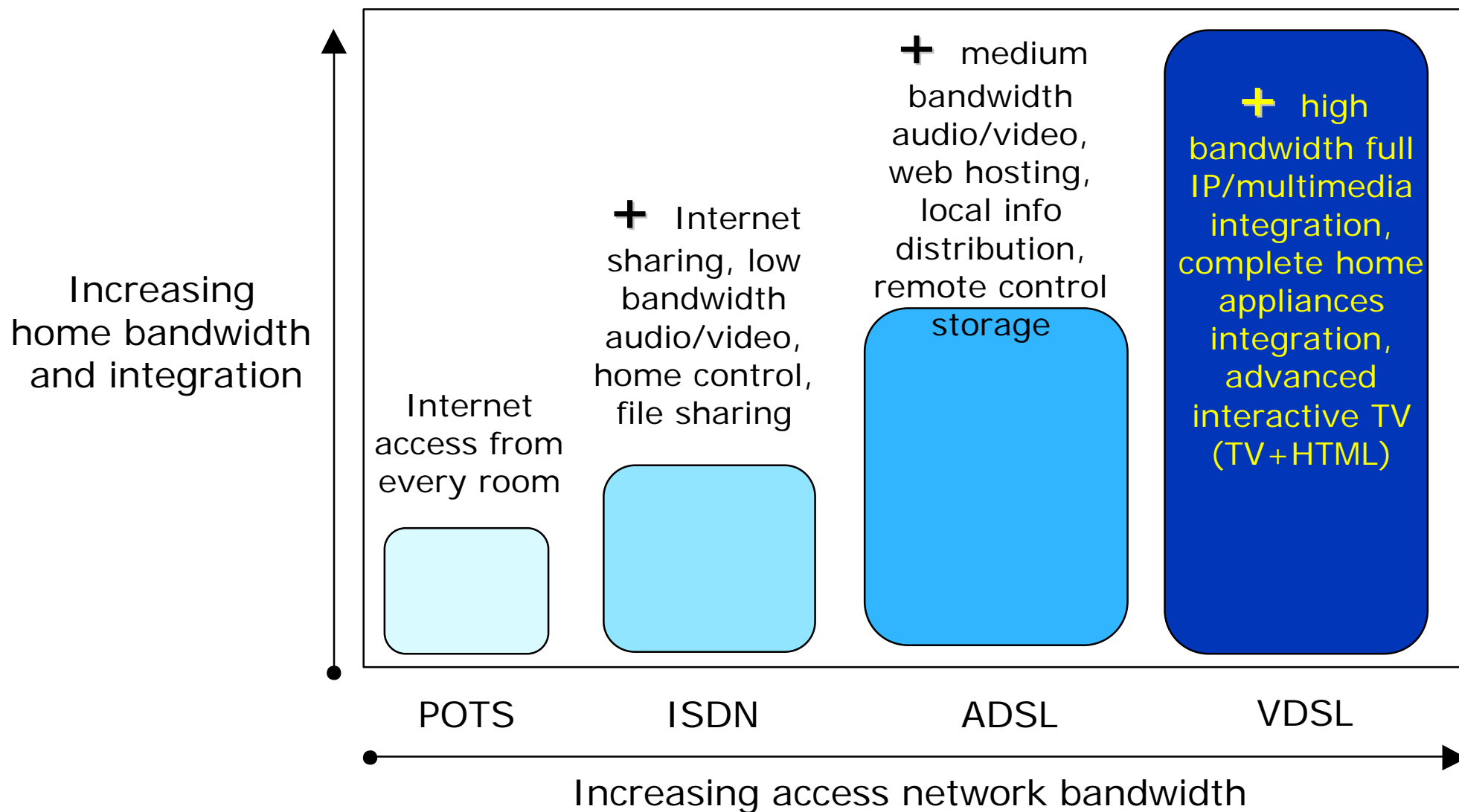
- It is an old box designed for other purposes
- Can be unstable (both HW and SW)
- Bulky
- Open for the user, partially closed and unsafe for the provider
- Not always user friendly
- Not optimized for a single specific service
- Not placed in front of the couch

# But the user...

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- ...does not need too many boxes
- ...does not need dedicated boxes
- ...does not want to see a box at all (sometimes)
- ...needs something that can enable an easy integration of audio/video, entertainment
- ...wants to reuse the box for local scenarios
- ...wants to start now (maybe...)

# Scenarios implemented



# So what is missing ?

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**So a RG is essentially a PC but:**

- More stable
- Better looking
- Owned by the provider (or specifically designed for)

**and it could be a failure if it does not comply with the  
PC world**

# Conclusions

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- Useful for a first stage, the tests are encouraging
- Can be offered “hidden” as a part of a bundle of interfaces, applications, nodes
- A specialized RG is needed for special services (security, home control, QoS dependent, IPsec based, multimedia storage/creation...) and fast/reliable routing (e.g. to/from IEEE1394)
- Wide availability