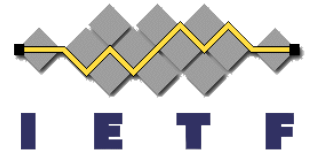


# Exploring the multi-router SOHO network

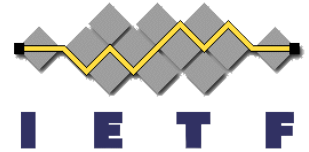
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draft-baker-fun-multi-router

Fred Baker

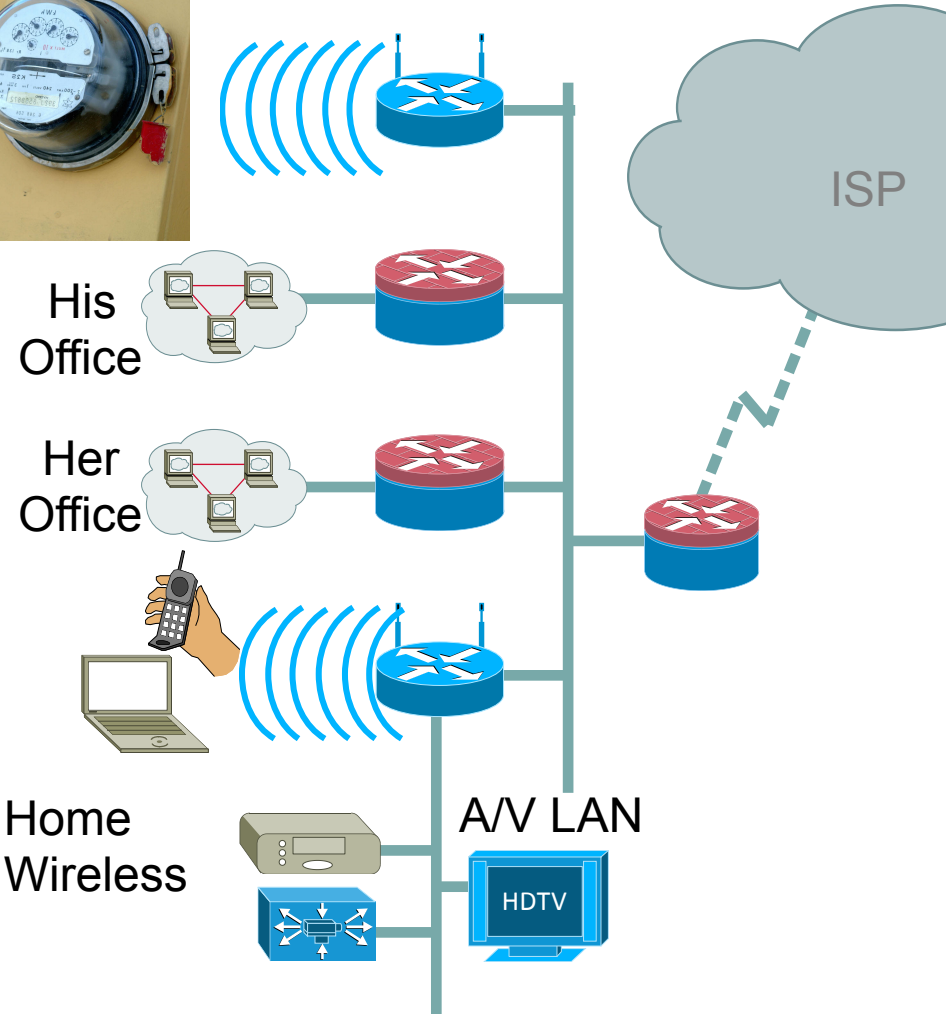


# Residential Network and Home Area Network Interaction

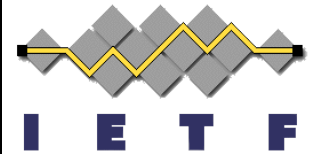


- Imagine a high end home network:
  - Audio/Video
  - Wireless
  - Telecommuting
  - Home Area Network
- What is the HAN?
  - Network connecting sensors in the home
  - Communications with utilities
  - Services to residents

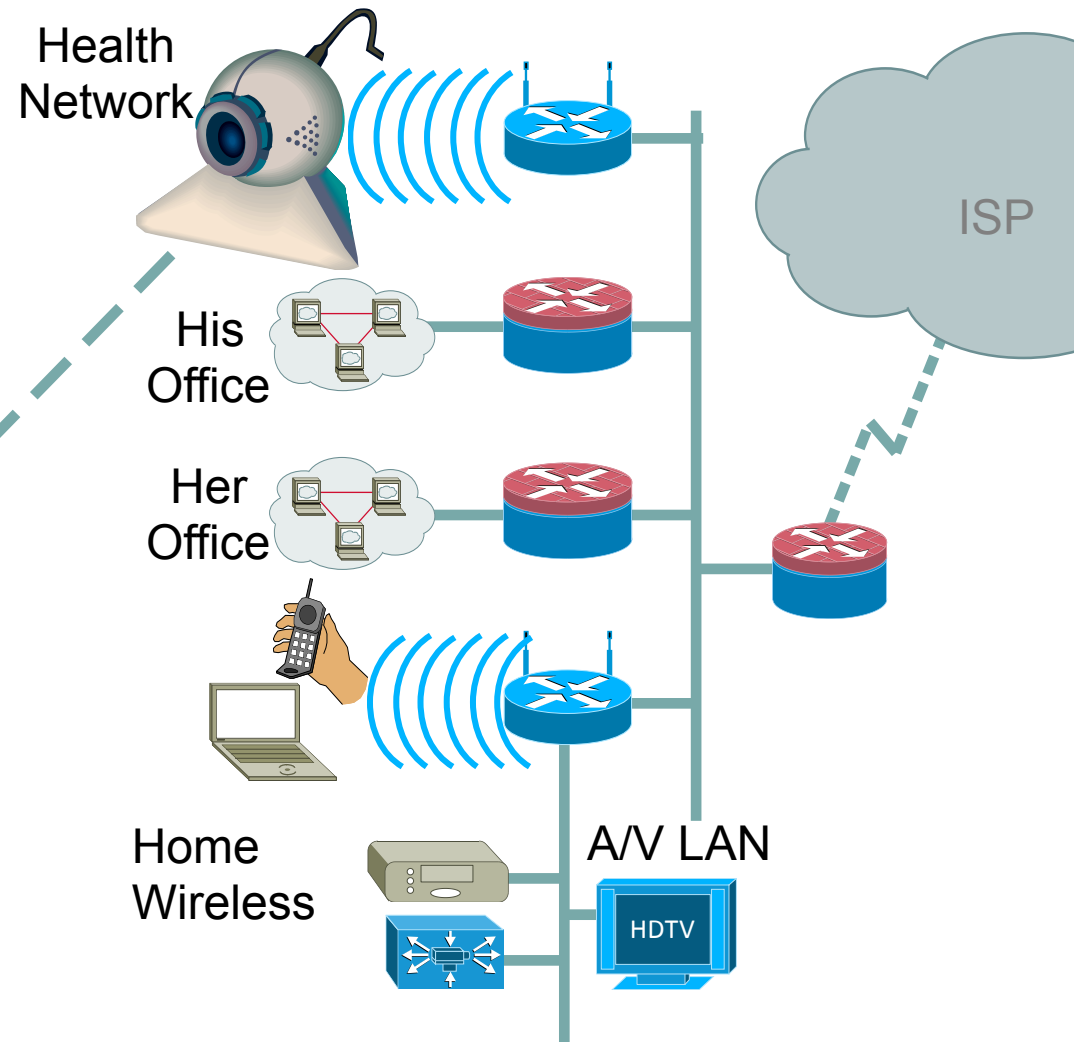
“Home Area Network”



# Related to sensor networks for health...

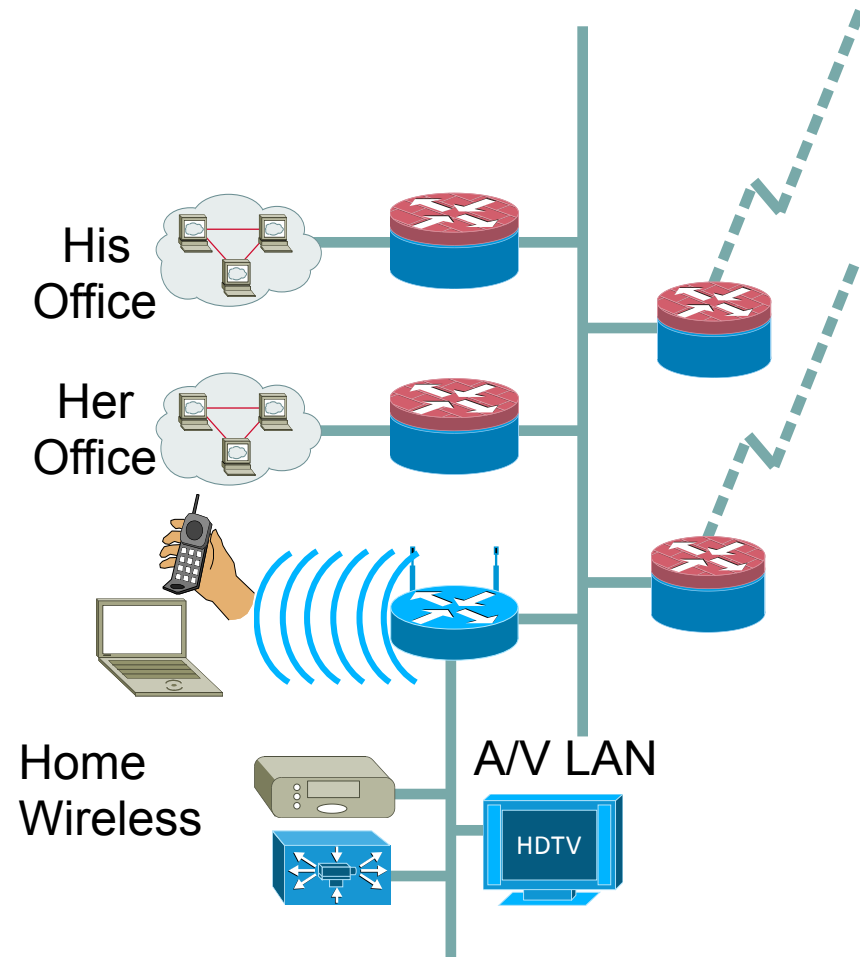


- Infrared
- Motion sensors
- EKG
- Pedometers
- ...

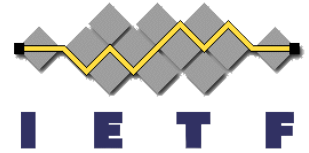


# Add residential multihoming

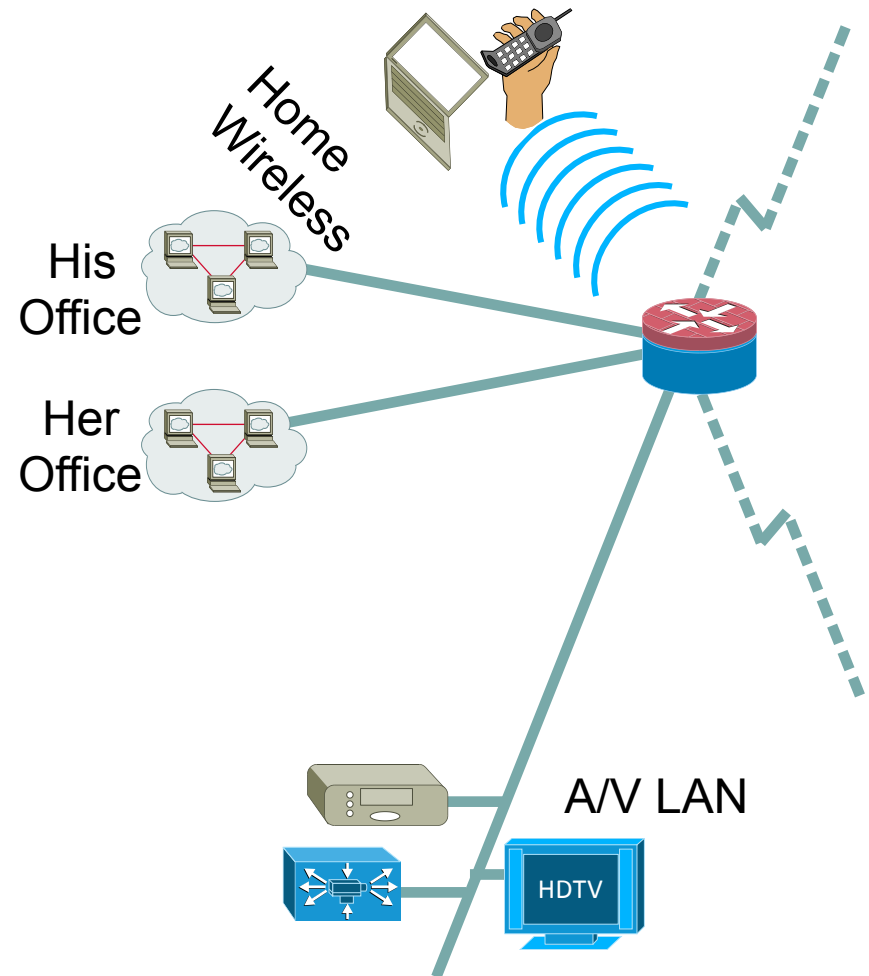
- Requirement in Japan
  - Typical residence typically has at least two ISPs
  - One serves IPTV **only**
  - One is for general internet access



# We could do this all with one router (and my company would like to sell it to you)



- My home is actually somewhat like this
- Cisco 871/891 is not exactly free

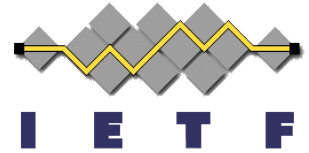


# Discussion in the draft

- Issues
  - Routing in a small network
  -
- Issues
  - Routing/Designated Network
  - Assigning Segment Numbers
  - Possible Requirements

# Issue:

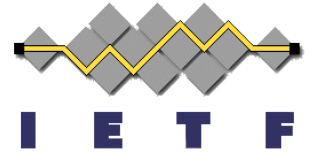
## Routing in a small network



- If you go with the lower cost add-as-you-go model, you wind up with multiple routers
  - That implies some variation on routing within the home
  - Hiding your head under a rock is not a good solution to routing
- If you go with the low cost multiple base model, you wind up with multiple base routers
  - That implies some variation on routing within the

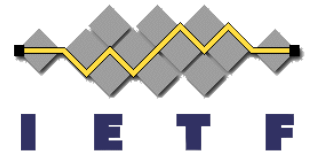
# Issue:

## Assigning Subnet Numbers



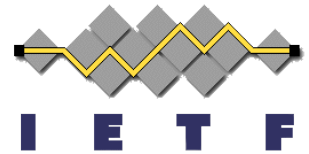
- If you have multiple LANs, you wind up with multiple subnets
  - That implies some way to (zeroconf) assign subnet numbers
- What recommendations do we make?
  - If you have multiple LANs, you wind up with multiple subnets
    - That implies some way to (zeroconf) assign





# Assigning Subnet Numbers

- One way to do this might be to
  - Have ISP-facing router implement a DHCPv6 server to allocate subnets
  - Use OSPF/IS-IS to identify a significant (“designated”) router on each LAN
  - Designated router allocates subnet prefix from the DHCPv6 server
- That’s an  
server to allocate subnets
  - Have ISP-facing router implement a DHCPv6



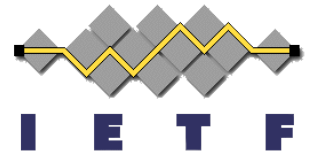
# Exit Routing

- The current IPv6 multihoming model calls for
  - Hosts, which have no knowledge of routing, select optimal source address
  - Routers, which have no semantic for the purpose,

multihoming

model calls for

# Recommended upstream route



- In routing, a router or network generally tells neighboring routers or networks what routes it might be able to handle
  - Japanese IPTV ISP only accepts traffic using its assigned source address and heading to it
  - Other ISPs will require use of their source address (BCP 38) and give access to other destinations

8

In routing, a router or network generally tells neighboring routers and networks what routes

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