

# IPv6 Market Drivers

## Opening The Door For Wireless Peer-Peer Device Revenue Generation in the Home

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# IPv6 Advantages

- **Massive address space expansion**
  - Needed for both Internet access, but more importantly for device connectivity
  - Number of network aware devices will grow rapidly
  - Devices don't necessarily need Internet access
- **Built in Security**
  - Especially important for wireless devices
- **Built in Mobility**
  - Needed for the on-the-move access
- **Peer-to-Peer support**
  - NAT stands in the way of peer-to-peer applications & security
  - IPv6 opens the way for real peer-to-peer applications without need of central authority
- **Zero configuration support ideal for Home networking**

# Initial IPv6 Network Drivers

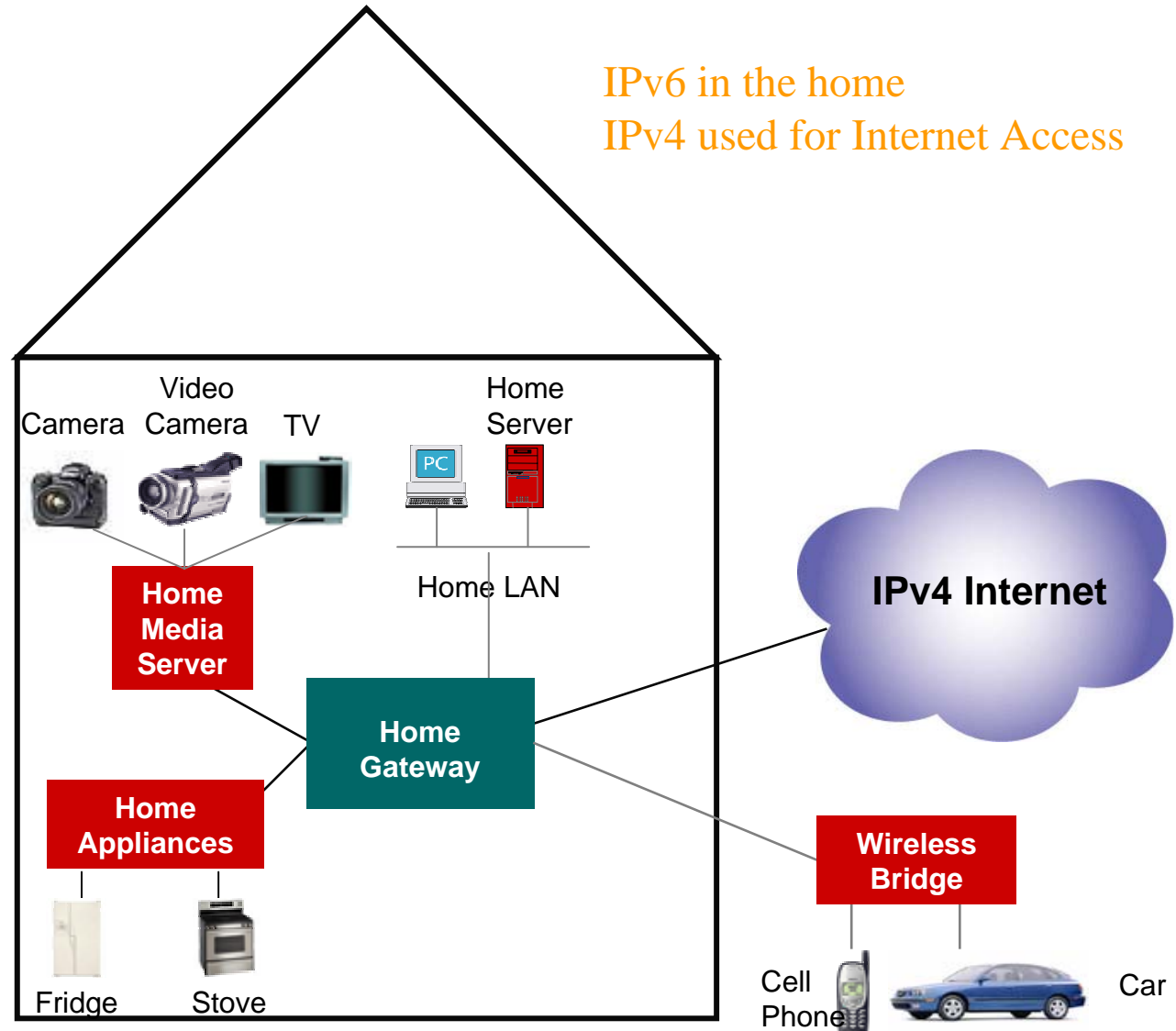
- What will drive IPv6: Internet access or device connectivity?
- In the Internet IPv4 may be used for sometime (it isn't going away)
- It is on the clients and devices that IPv6 networking is required
- Likely roll-out scenario
  - Initially IPv6 on devices, IPv4 Internet access
  - Later IPv6 upgrade to Internet

# Home Networking

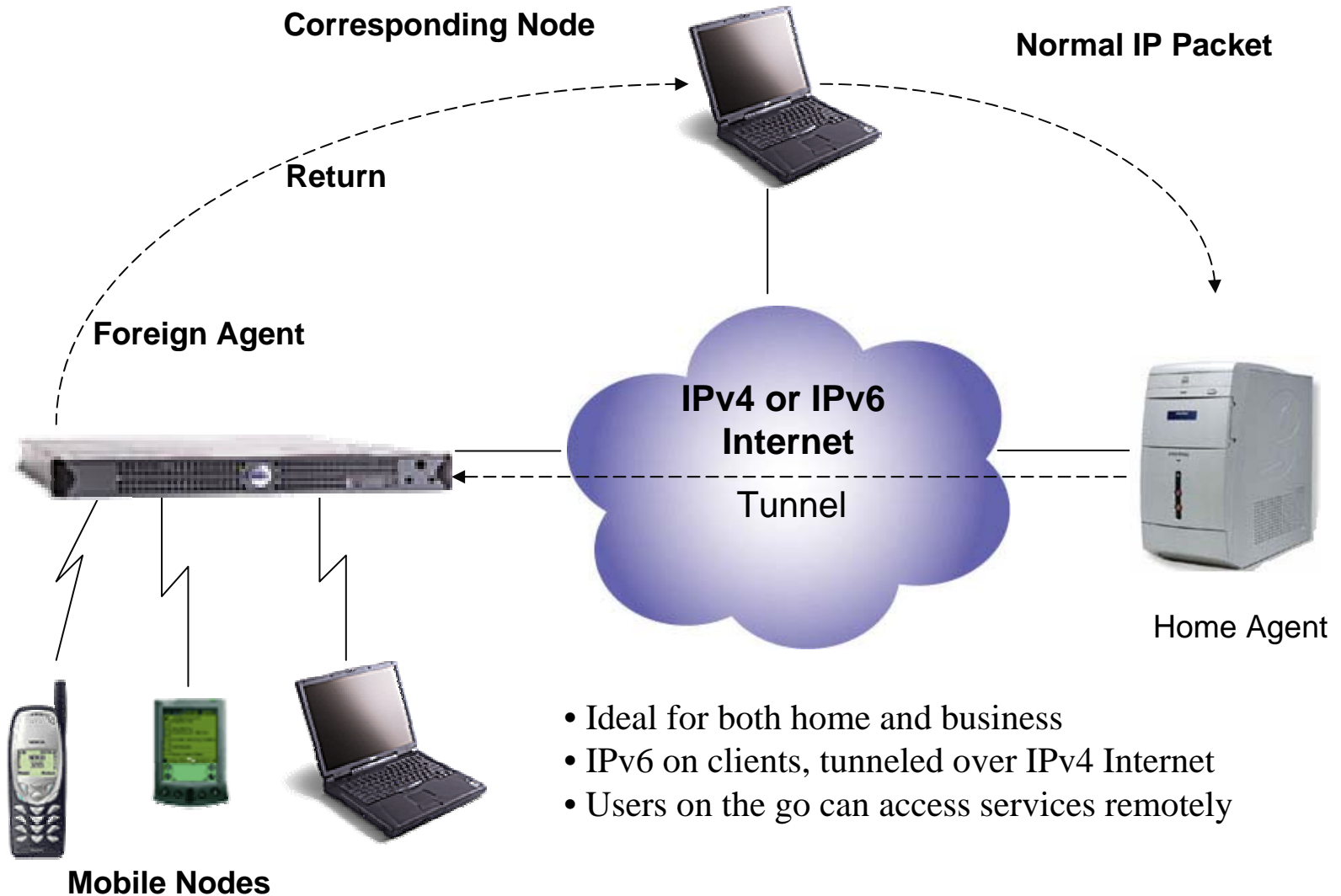
- Vast array of new embedded device possibilities
  - Consumer Electronic Equipment (Camera, TV, video recorders, game units)
  - Home Appliances (Stove, Fridge)
  - Home Infrastructure (Lights, heating, A/C)
  - Cars
  - Cell phones, wireless devices (a la Palm)
- Home Gateway Market
  - 618,000 units in 2000 => rising to 16.8M units by 2005
  - IBM, Cisco, Sun, Microsoft all have homenet projects underway
- New Technology such as IEEE 1394 and Bluetooth being developed
- Embedded IPv6 is an enabling technology that makes home networking possible
- Replacing IPv4 as Internet connectivity not needed in the first phase...use IPv6 for local connectivity...switch to IPv4 for Internet connectivity

# Home Networking Possibilities

IPv6 in the home  
IPv4 used for Internet Access



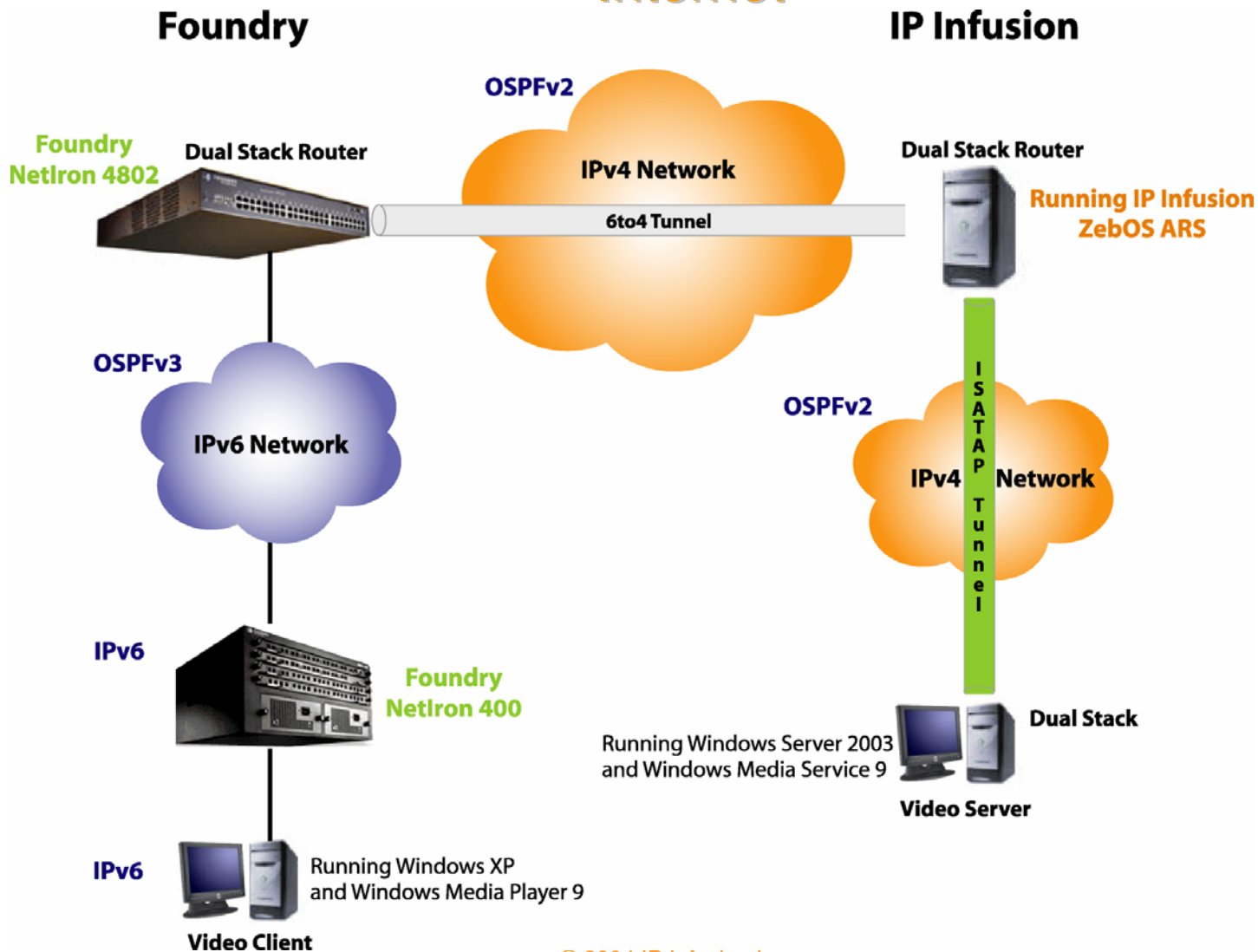
# Mobile IPv6



- Ideal for both home and business
- IPv6 on clients, tunneled over IPv4 Internet
- Users on the go can access services remotely

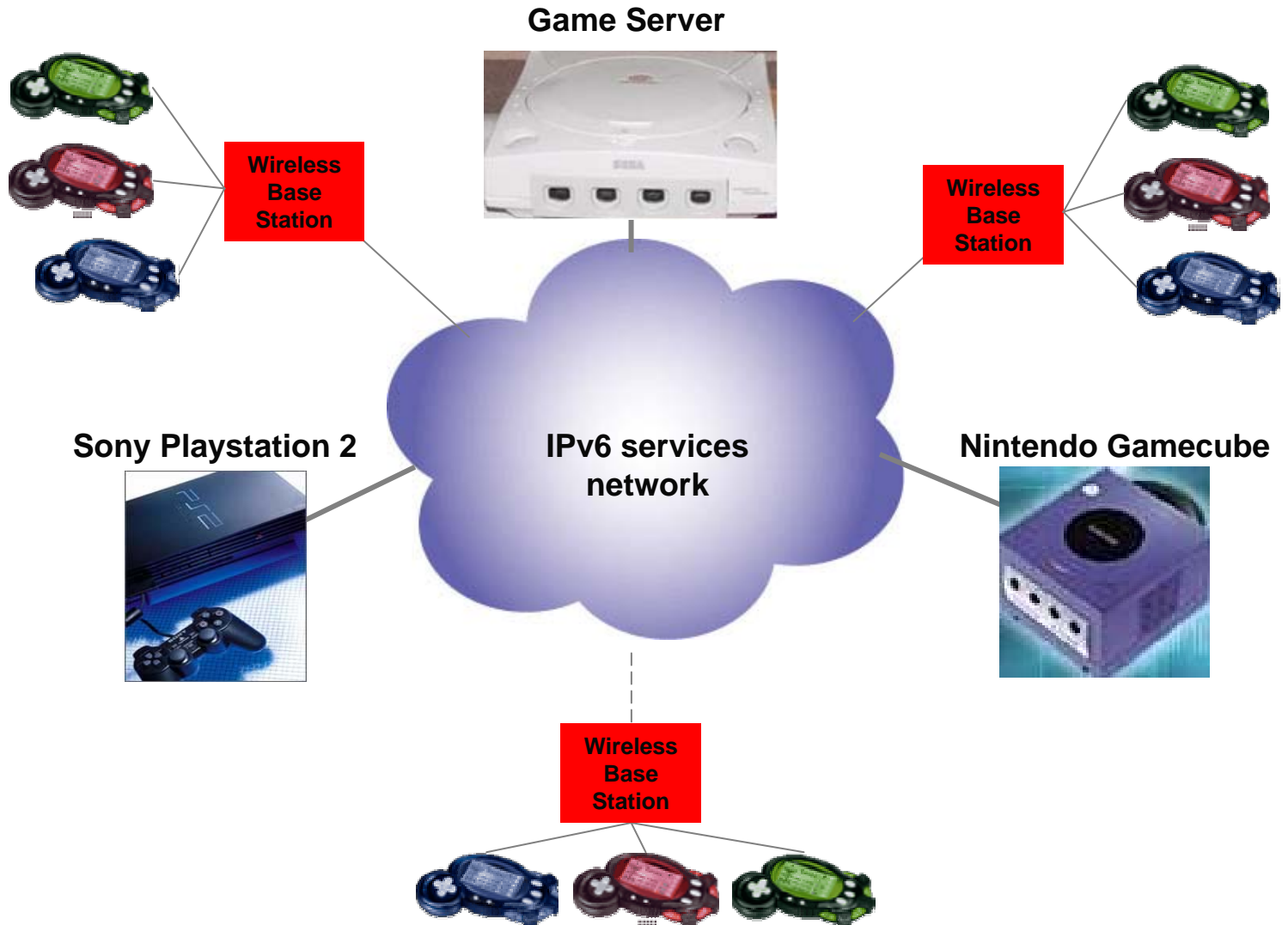
# Example IPv6 Forum Demo

## Windows Media Player IPv6 peer-to-peer over IPv4 Internet



# Peer-to-Peer Online Gaming

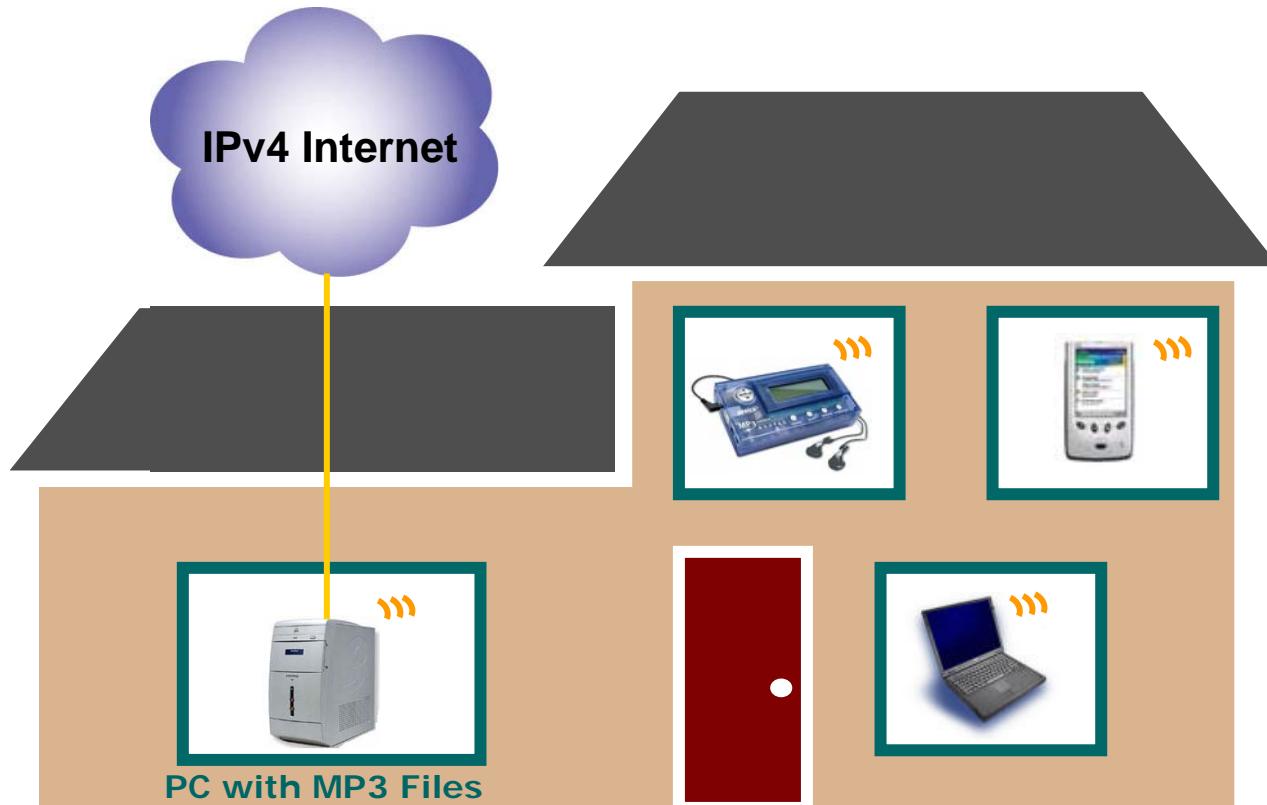
## Home & Public Hotspots



# Today's IPv6 Driver: Wireless Peer-to-Peer

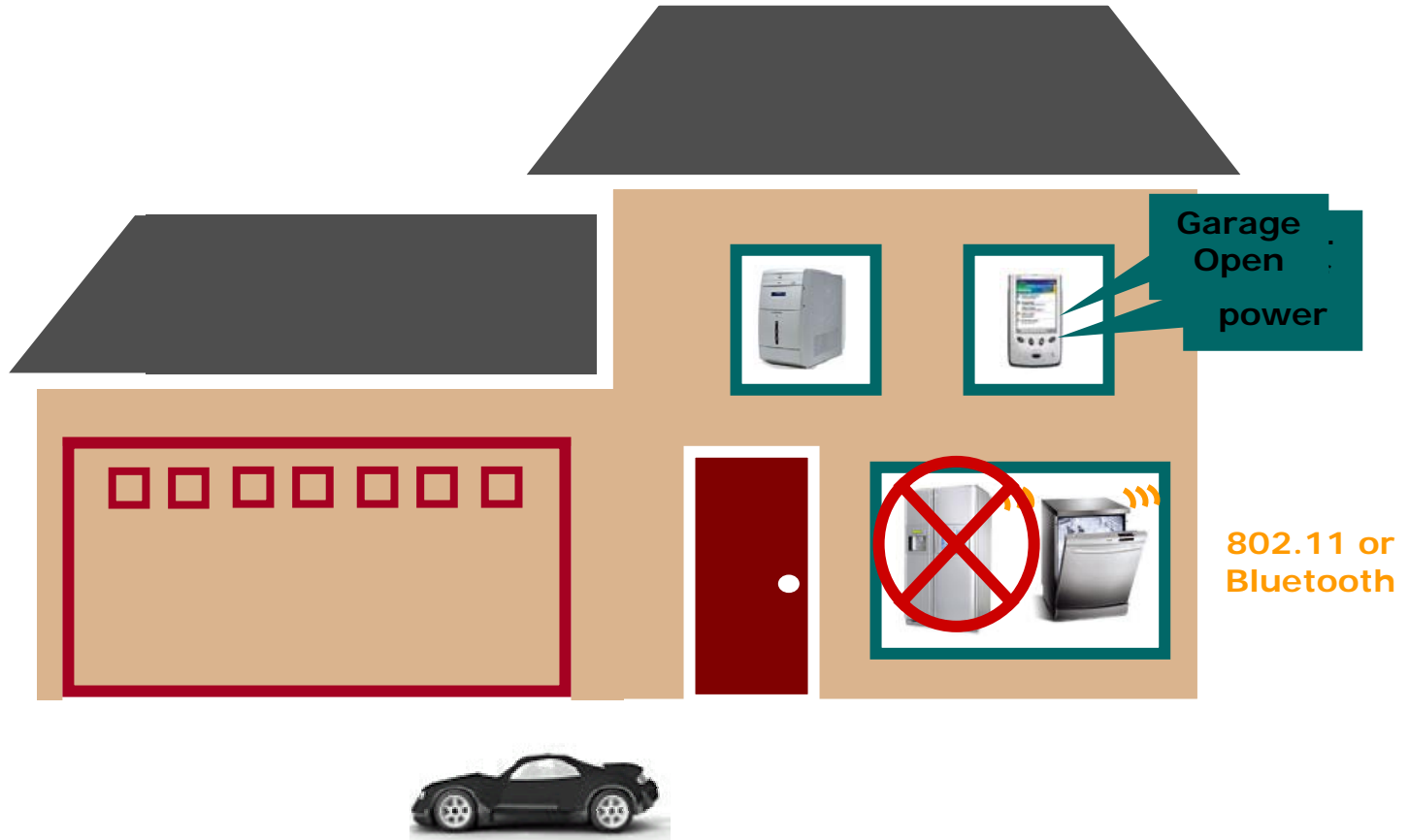
- No central authority needed
- Massive potential address space
- Mobility and dynamic group formation
- NAT must be removed

# Scenario 1: Wireless in the Home



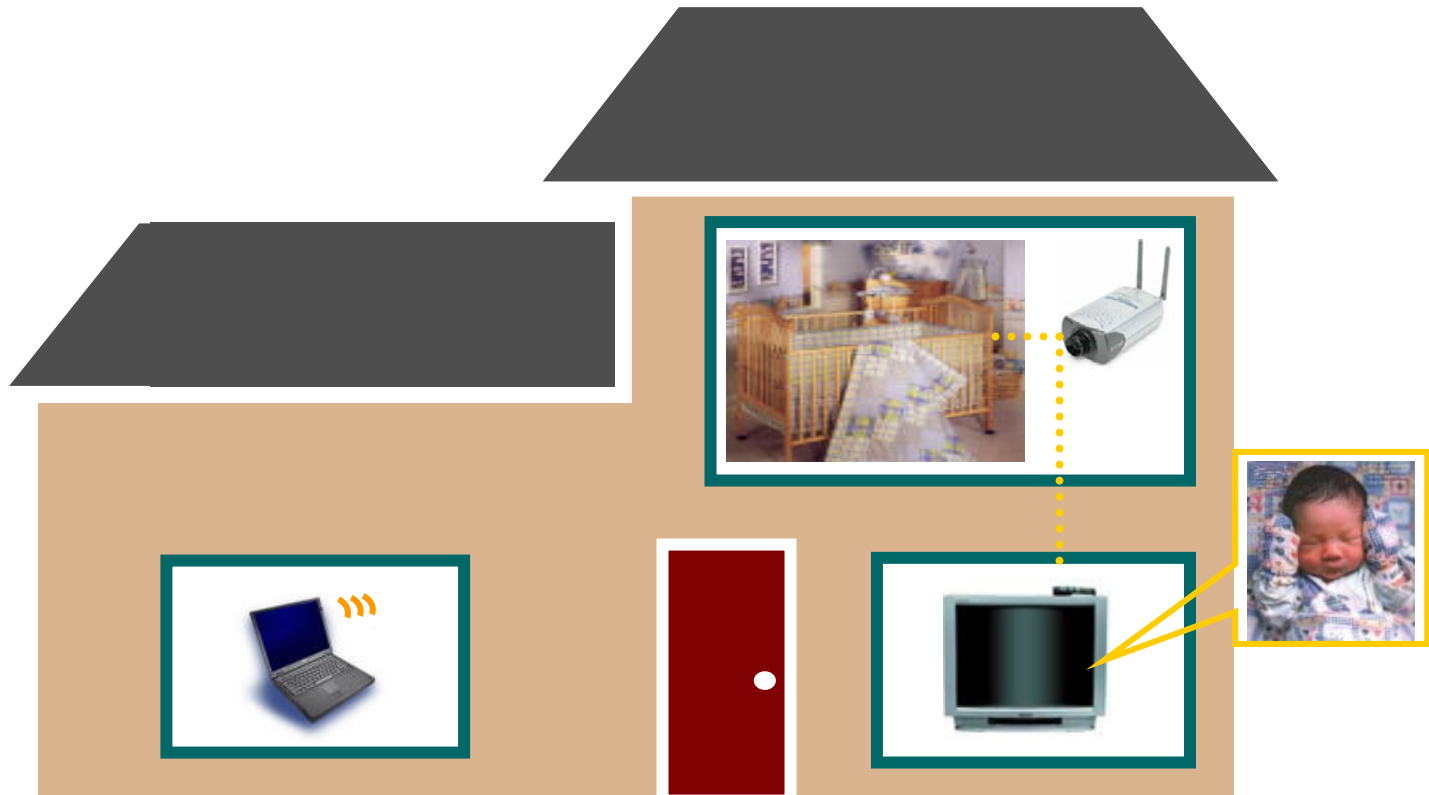
Devices are IPv6 enabled in the Home for direct video, music, and file sharing access. IPv4 gateway to Internet. IPv6 allows devices to security & easily share info without central authority

# Scenario 2: Smart Devices in the Home



Local access can be done without IPv6 (ie bridging), but getting access to this information over the Internet will require IP routing support. This can again be done via IPv6 to IPv4 gateways either in the Home or provided by the SP

# Scenario 3: Wireless Internet Camera



# Mesh for Public HotSpots: Airport Wireless Solutions

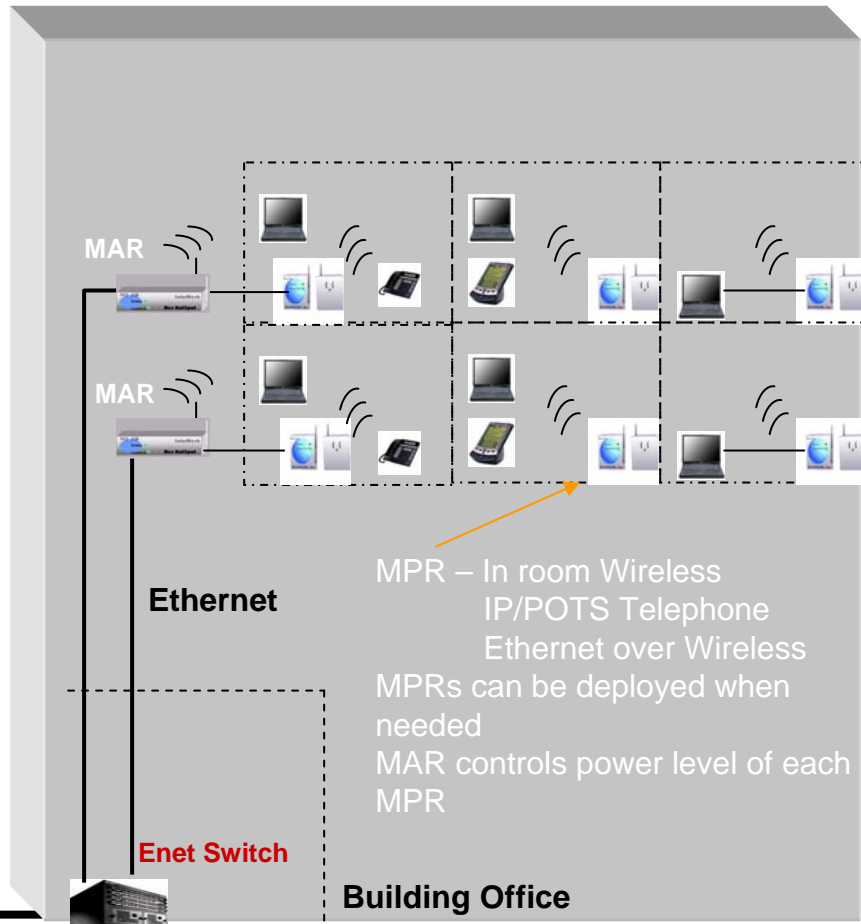
## Terminal 1



- Using Wireless Mesh and IPv6 allows secure local access to resources
- Dual stack or gateway approach to access IPv4 services

# Deploying Mesh in a High-Density Living Environment

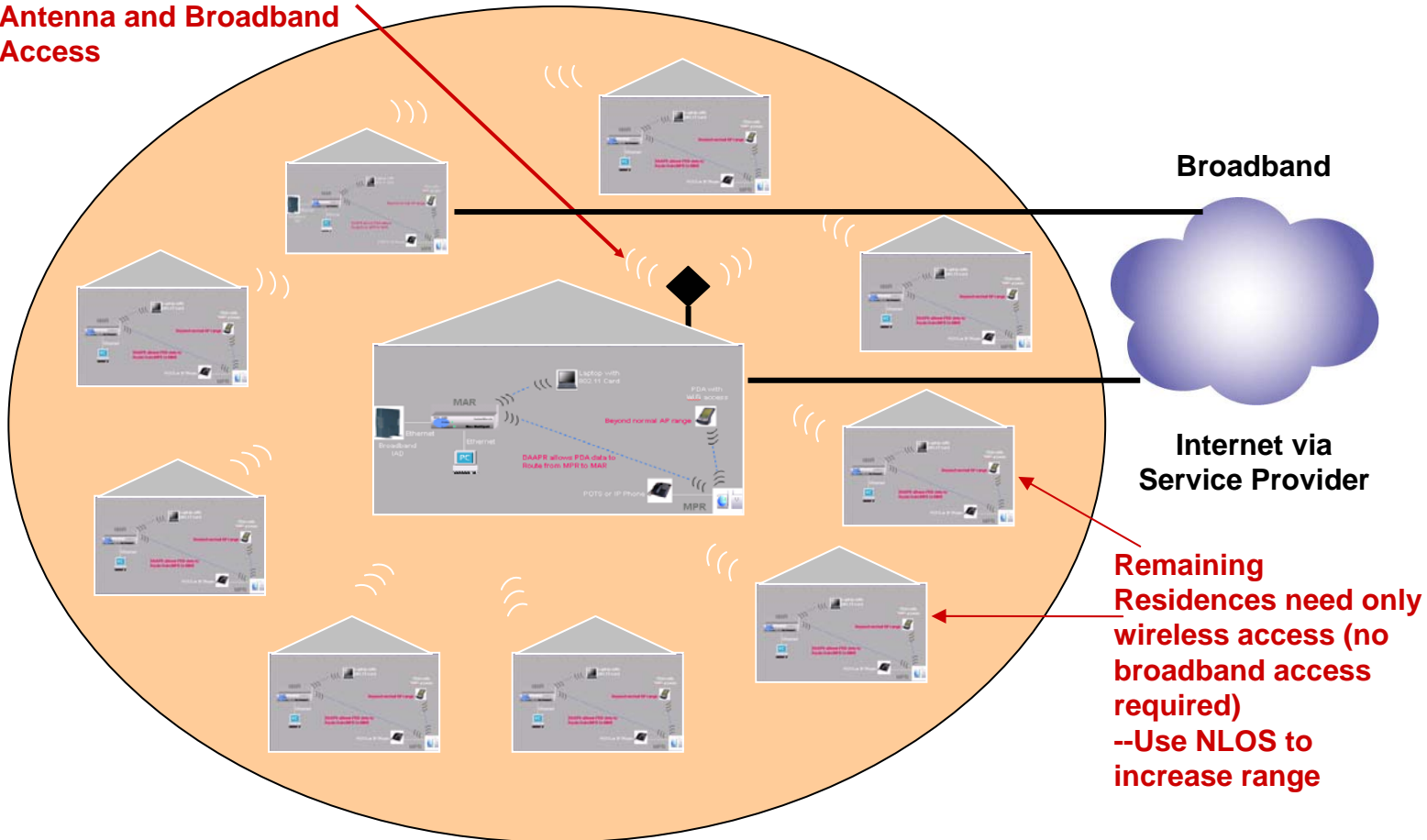
## Hi-Rise Apartment



- Extension of Home Networking to Multi-Dwelling Units
- IPv6 enabled devices and services locally within the MDU
- Gateway to IPv4 Internet and outside services provided at MDU or by SP
- Both peer-to-peer and Internet access
- Would support multiple services, including voice, data, and video
- Ideal for delivering local and remote video content

# Neighborhood Mesh Wireless

Residence with External Antenna and Broadband Access



- Residence or public hotspot uses external antenna to deliver neighbor wireless mesh
- Broadband connectivity/truck-roll problem eliminated for all but a few residences
- Support for multiple residence wireless connectivity
- With IPv6, easy local peer-peer and services access with IPv4 Internet access and peer-peer IPv6 tunneled over IPv4 Internet

# IPv6 as Peer-to-Peer Device Enabler

- Wireless peer-to-peer networking is coming
- Internet access is still needed, but with the plethora of new devices, broader support for secure local dynamic mobile communications is required
- IPv6 provides the secure local dynamic mobile support needed for device and client access in the home and in public hotspots
- IPv6 will be baked into smaller and smaller devices and IPv6 networking will allow these devices to form private LANs over the wireless airwaves without complex configuration from a central authority (ie SP)
- The current IPv4 network will still offer Internet access, but will eventually move to support native IPv6
- IPv6 will help wireless, peer-to-peer device manufacturers finally have the infrastructure in place to quickly rollout applications that today cannot be supported with complex configuration support from a central authority

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