



HomePlug Powerline Alliance

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Agenda



- Introduction to HomePlug Powerline Alliance
- Home Networking Trends and Applications
- HomePlug 1.0
- Current Successes
- Current Products & Players
- HomePlug AV
- HomePlug Roadmap

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Introduction to HomePlug Powerline Association

HomePlug Powerline Alliance



- Established to set global standard for using powerline for Home Networking
- Accelerate demand for products and services
- 50+ Alliance Members, Sponsor Members Include:



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Home Networking Trends and Applications



Key Home Networking Attributes



- **Designed for the Home/Entertainment Uses**
- **Easy to use**
 - Limited configuration/installation
- **Security/Privacy**
- **High Performance, Multiple Simultaneous Activities**
 - e.g. Allow Internet sharing + Audio distribution + File Transfer
- **Coverage through entire home**
- **Aggressive Product Price Points**

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LAN Technologies



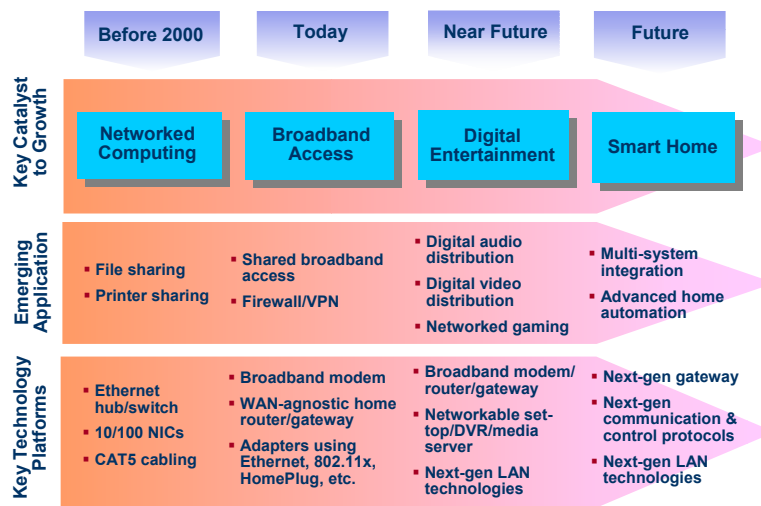
	Speed	Applications	Convenience	Price
Ethernet	★★★★	★	★	★★★★★
Wireless-802.11b	★★★★	★★★★	★★★★★	★★★★
Wireless-802.11g	★★★★★	★★★★	★★★★★	★
Phoneline-HPNA 1.0	★	★	★★	★★★★
Powerline-HomePlug 1.0	★★★★	★★★★★	★★★★★	★★★★

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Market Trends



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HomePlug 1.0



HomePlug 1.0 Features



- 14 Mbps Throughput
- Easy integration with all manufacturers compliant with HomePlug 1.0
- 56-bit DES encryption for superior security and privacy
- LAN connectivity anywhere a power outlet exists

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HomePlug 1.0 Specification



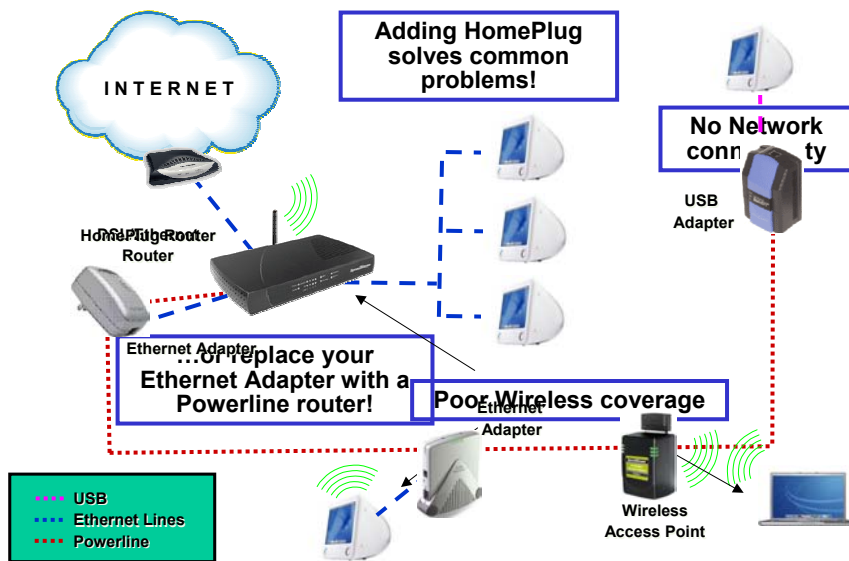
- Ethernet-class Home Powerline Networking with Provisioning for Low Jitter and Low Latency Applications
- PHY-layer
 - Orthogonal Frequency Division Multiplexing (OFDM)
 - 76 carriers, in 4.5 MHz to 21 MHz band
 - Rate-adaptive to 14 Mb/s raw bit-rate using DQPSK, all carriers
 - Multiple Modulation Types – DBPSK, DQPSK, ROBO
 - Forward Error Correction – Convolutional and Reed Solomon
 - In-band jammer immunity
- MAC-layer
 - Carrier Sense Multiple Access with Collision Avoidance – CSMA/CA
 - QoS priority classes, contention resolution and latency control
 - Unicast, Multi-Cast, Broadcast transmissions
 - Support for more than 128 nodes
 - 56-bit DES encryption for privacy

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Networking Example



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HomePlug and Wireless



HomePlug

Strengths

- **Simplicity**
- **Whole Home Coverage**
- Superior Security
- Quality of Service

Limitation

- No mobility

Wireless

Strengths

- **Mobility**
- Multiple RF Channels Available
- Market Penetration
- Throughput (802.11a/g)

Limitations

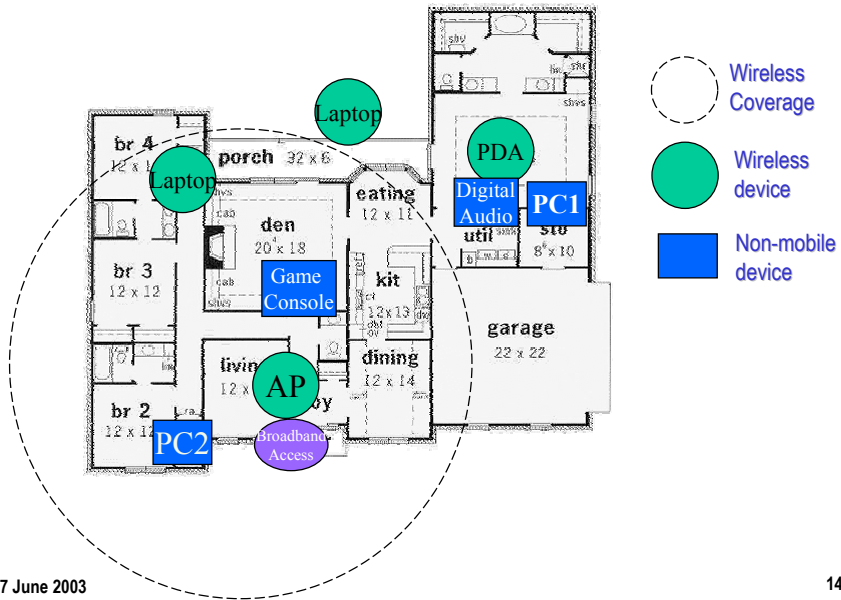
- Coverage drop-off
- No Quality of Service differentiation
- Lack of Security

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Wireless ONLY Home

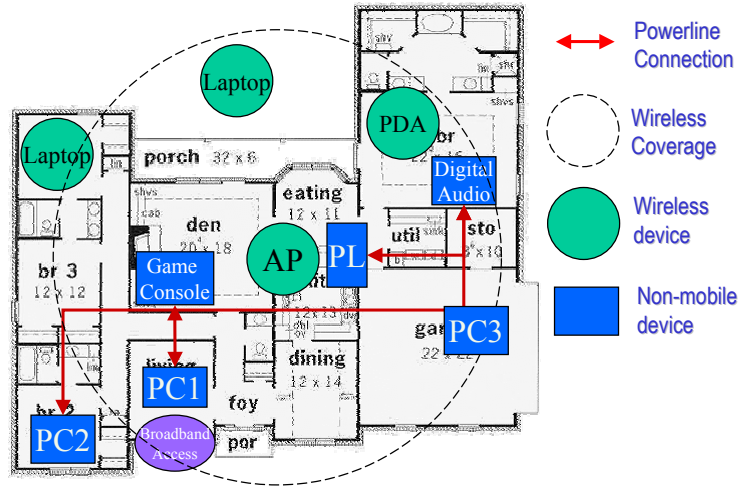


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HomePlug + Wireless = Solution

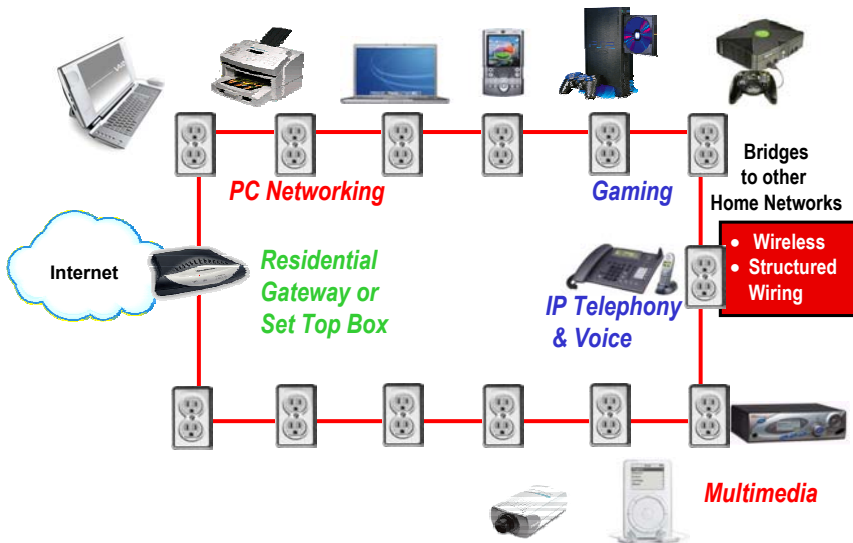


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HomePlug 1.0



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Current Successes



Press Coverage



- New York Times
- Forbes
- Wall Street Journal
- CNET
- Information Week
- Business Week
- PC World
- PC Magazine
- Scientific American
- CNN Headline News
- BroadBand Home
- ZDNet
- Practically Networked
- Tom's Hardware Guide
- Network World

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Certification Program



- Certification program rolled out in November 2001
- Certification program will verify that products from different manufacturers will interoperate
- Products that are verified as certified will receive the HomePlug Certification Mark



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Current Products & Players



Certified Product



Silicon/Reference Design

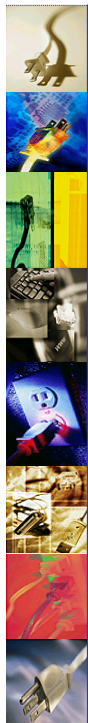


Product



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HomePlug Products



- First Generation – USB Adapters, Ethernet Bridge, Router

- Second Generation

- Reduced Cost, Power Consumption, and Size
- Audio
- Wall Adapter
- Combination HomePlug/802.11 Access Point



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Participating Retailers



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HomePlug AV



Objectives of HomePlug AV



- To be the network of choice for distribution of data and multi-stream entertainment including HDTV, SDTV, and true audiophile audio throughout the home
- To provide the best connectivity at the highest QoS of the home networking technologies competing for these applications
- To provide this capability at a cost that is competitive with or better than any competing technology
- These objectives are a starting point
- We will be soliciting input from all HomePlug members

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HomePlug AV's Targeted Applications



- **Simultaneously distribute multiple high quality Consumer AV signals including**
 - STBs (cable or satellite Set Top Boxes), PVRs (TIVO etc.)
 - DVD players (Digital Video Disks)
 - HDTVs (High Definition), as well as Standard TV
 - High Resolution Monitors
 - Audiophile quality speakers, CD players, etc.
- **HomePlug V1 applications**
 - PC Networking, Telephony, Gaming, MP3/CD Audio and Security

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Why use HomePlug AV?



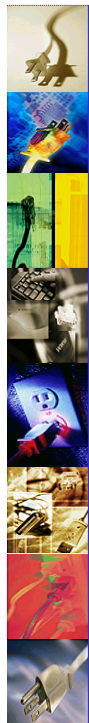
- **Performance**
 - Larger & more reliable coverage than wireless
 - More points of access than phone or cable
- **Inexpensive**
 - Lower inherent costs than wireless
 - Less expense than running new wires for Cable or Ethernet
- **Easy to use**
 - One plug can do it all - power and communication
 - Designed for home AV applications - designed in, not added on
 - Easy to set up

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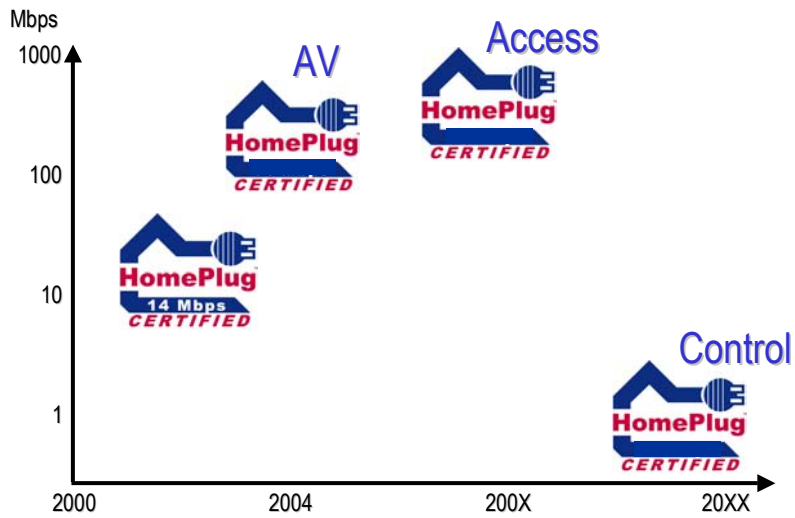
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HomePlug Roadmap



HomePlug Roadmap



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Thank You

Peter Kempf
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