



HOMEPLUG EXECUTIVE SEMINAR SETTING STANDARDS IN MOTION

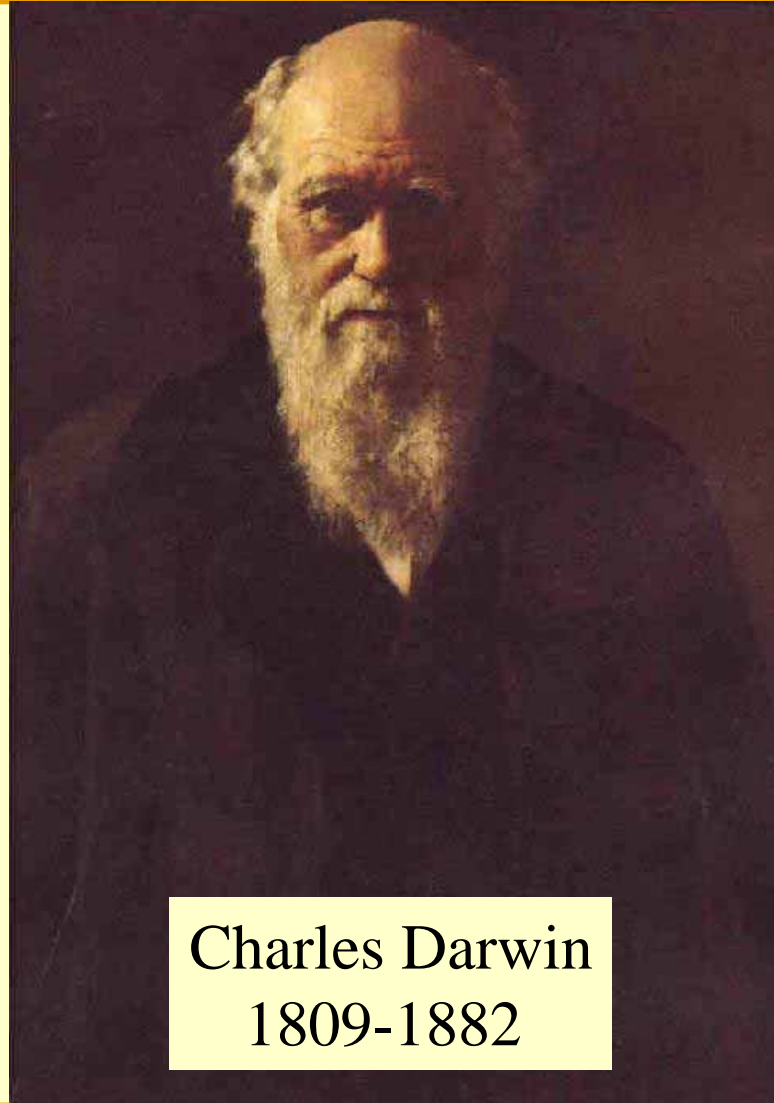
SETTING STANDARDS IN MOTION

“The Ingredients for Global Standards and Ubiquity”

Matt Theall
President, HomePlug Alliance



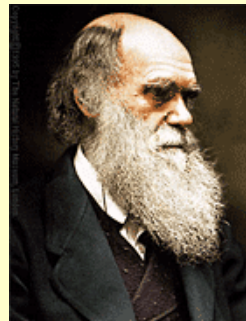
Standards or Darwinism?



Charles Darwin
1809-1882

Standards or Darwinism?

**Life is a competitive struggle to survive,
often in the face of limited resources.
Living things must compete for food and space.***



**Collaboration assures the survival of the species,
while leaving room for competition among individuals**

* "On the Origin of Species by Means of Natural Selection", Charles Darwin, 1859

Proprietary Technologies Limit Growth

- **Proprietary Technologies**
 - Typically exhibit good performance in one dimension
 - Confirm the feasibility (or the lack of it)
 - Develop subject matter expertise
- **How Do You Recognize a Proprietary Technology?**
 - Single Source of Silicon
 - IP Controlled by One Company
 - Typically Demonstrate a Slow Rate of Innovation
 - Cost Reduction Velocity is Reduced

Standards Ingredients: Collaboration Based on Open Specifications

- **RaND Terms**
 - Reasonable and Non-Discriminatory Sharing of IP
- **Open Specifications Foster Competition**
 - Lower Price among the ecosystem players
 - Higher Performance through Innovation
 - Reduced TTM

Standards Ingredients: Industry Collaboration

- **Market Leaders Drive Total Market Size**
 - Global Reach
 - Remove cultural barriers
 - Create a natural ecosystem harmony
 - Jump starts rate-of-adoption
- **Multiple Sources of Supply**
 - Drives cost through market efficiencies
 - Removes single-source risk
 - Engenders process innovation
- **Innovative Small Companies**
 - Promotes market agility
 - Focuses the market on technology and performance improvements
- **Competition Based on Value Add of Solutions**
 - Assures multiple, healthy ecosystems develop
 - Provides for market segmentation and assures winners in all

Standards Ingredients: Compliance Programs

- **Compliance Checklist**
 - Assures a robust technology is experienced
- **Common Test Code**
 - Homogenizes all applications
- **Standardized Platforms**
 - Develops a consistent consumer experience
- **Test Specifications**
 - Exercises the technology in a more robust fashion
- **A Variety of System Profiles**
 - Seeks to create differentiation at market app level
- **Industry Plugfests**
 - Insures interoperability among multiple vendors

Standards Ingredients: Cross Industry Solution Enablement

- **Core Technology Must Coexist or Interoperate in Multiple Market Segments**
- **Allows Broad Deployment of Technology**
- **Allows Vast Ecosystem to Develop**

Standards Ingredients: Product Interoperability

- **Products Able to Interoperate with one Another**
- **Allows Management of Bandwidth**
- **Ensures Quality of Service (QoS)**
- **Ensures Performance Across Technology Tiers**
- **Assures Product Innovation and Cost Efficiencies**

Standards Ingredients: Existing Product Compatibility

- **Must Be Compatible with Standards-based Products Already in the Market**
- **Harmful Interference Cannot be Allowed**
- **Coexistence Cannot Result in Performance Degradation Across Multiple Technologies**

The Ingredients For Global Standards and Ubiquity

- 1. Based on Open Standards**
- 2. Collaborative Industry Effort**
- 3. Well Established Compliance Program**
- 4. Core Technology Applicable to Multiple Market Segments**
- 5. Compatible with Products Already in the Market**

Applying the “Ingredients” to Powerline Communications (PLC)

Open Standards Based

- **Membership Open to Everyone**
- **RaND Terms**
- **Close Engagement with ITU, ETSI, IEEE, etc.**

**HomePlug is the Only PLC Standard
That Meets All These Requirements**

Collaborative Industry Effort

- **Driven By Multi-National BOD**
- **Significant Number of Members Contributing**
- **Global Member Participation**
 - EMEA, USA, APAC, Japan
- **Globally Deployed Technology**
 - Europe, Americas, Asia, Africa...
 - In Different Types of Houses
 - Stone, Concrete, Wood, Steel...
 - With Different Types of Electricity
 - 110V, 220V, 2-Phase, 3-Phase...

HomePlug is the Most Broadly Supported Collaborative Effort

Robust Compliance & Interoperability Program

- **Extensive C&I Program**
- **Compliance Verification**
 - Plugfests
 - Detailed Check against Compliance Checklists
 - Field Testing to Confirm Compliance
 - Lab Testing to Confirm Compliance
- **Logo Awarded to Certified Products**

**HomePlug Offers the Only Multi-Vendor
PLC C&I Certification Program**

Applicable to Multiple Market Segments

- **Three Primary Markets for Powerline Today**
 - In-home Networking
 - Broadband Over Powerline (BPL)
 - Command and Control (C&C)

**HomePlug is the Only Technology Focused
On In-home, BPL and C&C Markets**

Compatible With Products Already in the Market

- **Compatibility with the 8M Units Required**
 - HomePlug AV Compatible With HP1.0
 - HomePlug BPL Compatible With HP1.0
 - HomePlug C&C Compatible with HP1.0
 - HomePlug AV, BPL and C&C Compatible with Each Other

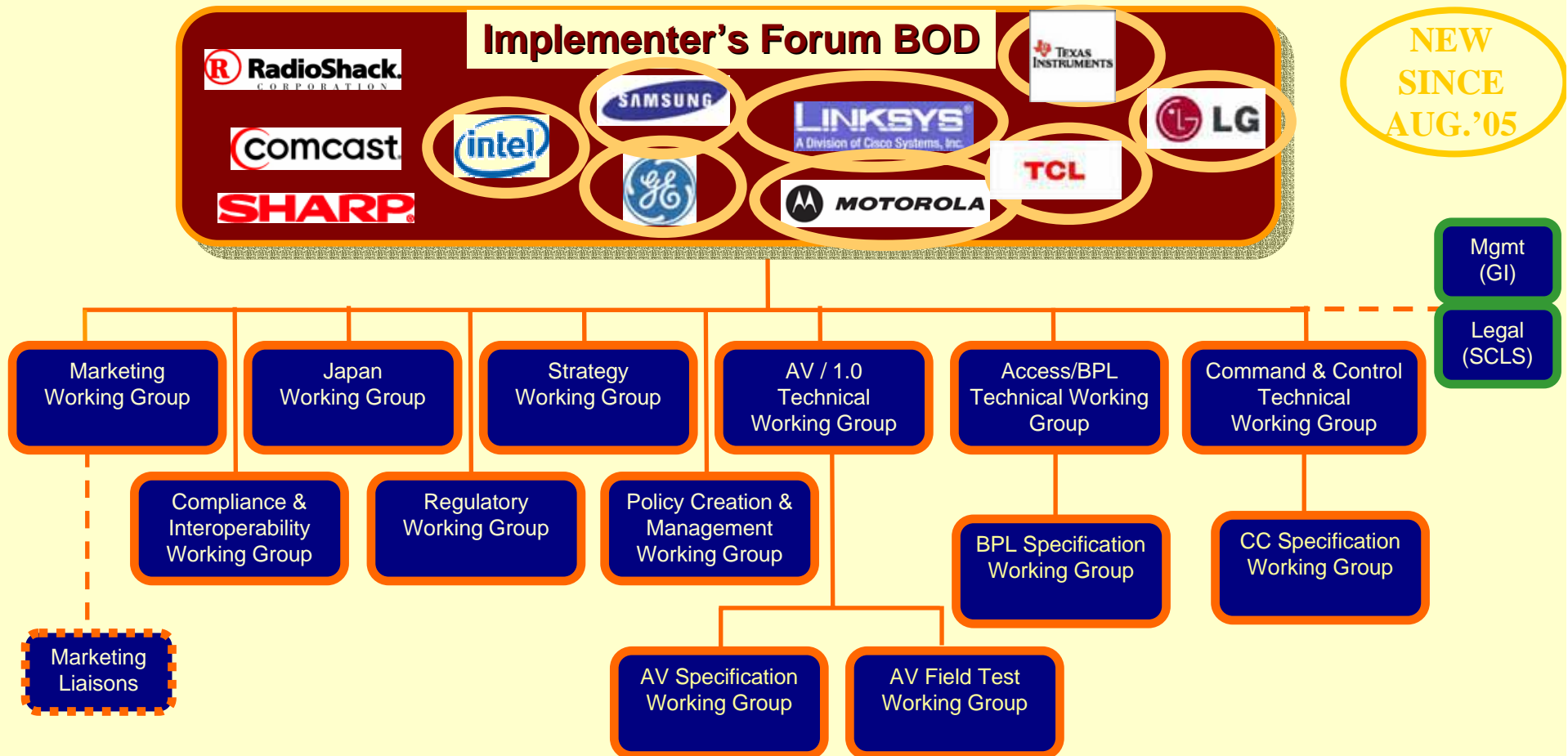
**HomePlug is By Far the Most
Broadly Deployed PLC technology**

HomePlug Meets All Ubiquity Requirements

- ✓ **Open Standard**
- ✓ **Collaborative Industry Effort**
- ✓ **Extensive Compliance and Interoperability Program**
- ✓ **Core Technology Used for Multiple Applications**
 - ✓ Broadband over Powerlines
 - ✓ In-home Networking
 - ✓ Command and Control
- ✓ **Compatible with Millions of HomePlug Devices Already in Market**

HomePlug Organization

HomePlug Organization



HomePlug Enabled Companies



Home Networking Using HomePlug

- **HomePlug 1.0 and Turbo**

- Silicon Since 2000. First Products Since 2002
 - 14 Mbps PHY
 - Multiple silicon vendors: Arkados, Conexant, Intellon, Maxim, Afa Tech
 - Millions of products now in the market worldwide. Millions More in '07
- Largest BPL Deployment Ever Happening Now Using HomePlug
 - TXU – 2 Million Homes Being Deployed Based on HomePlug

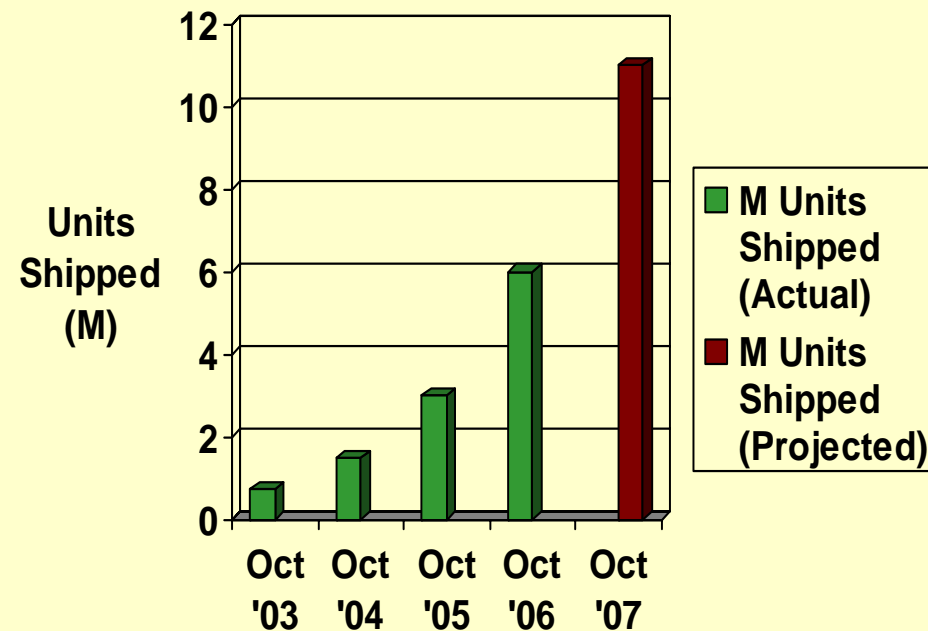
- **Next Gen HomePlug AV Products Now Shipping**

- 200 Mbps PHY
- Based on best in class technology components
- Ethernet adapters shipping in volume now
- Native integration in products starting in 2H'07



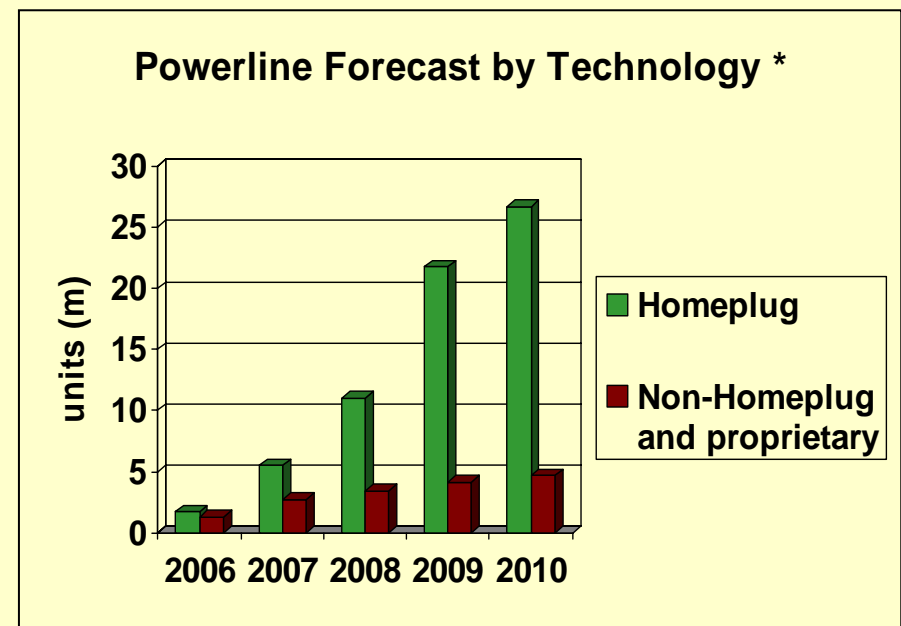
Homeplug: The De Facto Industry Standard

- **Only Alliance Covering All Market Segments**
 - In-home networking, BPL, command and control



HomePlug Volumes

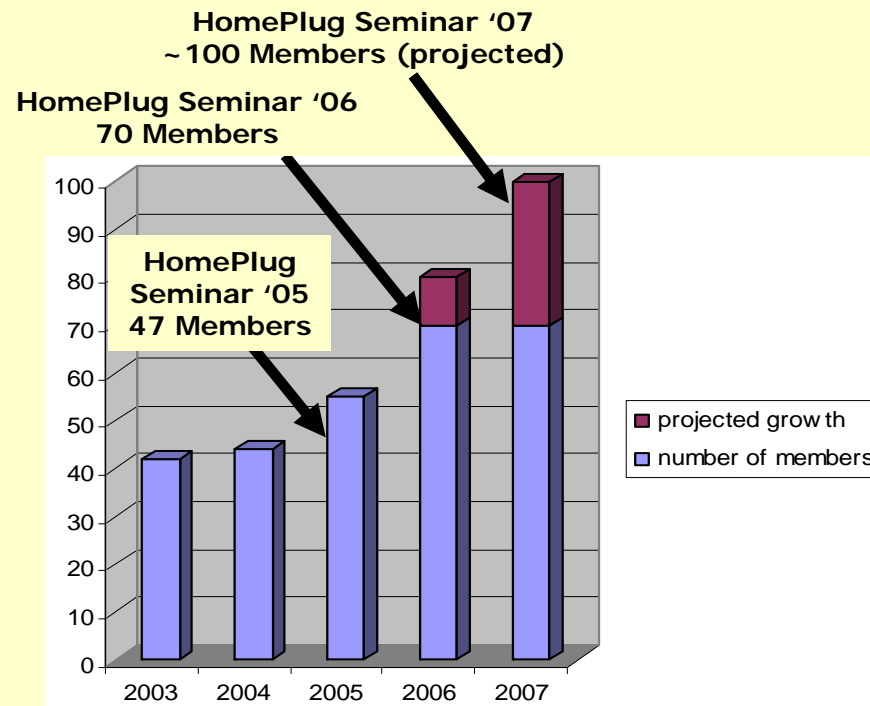
Continue to Double Every Year



Analyst Forecast - HomePlug 2010
market share = 85%

HomePlug Alliance Membership Growth

HomePlug Alliance Membership Growth



Membership Growth

- Explosive Growth Continues

Driving Factors for Growth

- Open Standard
- Compliance Program
- Interoperability
- Coexists with Millions of HomePlug Devices Now in Market
- Technology Use in Multiple Applications
 - HomePlug AV
 - HomePlug BPL
 - HomePlug C&C

Summary

- **Many Ingredients Are Required for Ubiquity**
 - Meeting Only One Requirement Isn't Enough
- **HomePlug Meets All the Requirements for Ubiquity**
- **HomePlug is the Powerline Global Standard**
 - Tier 1, Multi-national Board of Directors
 - Largest Ecosystem By Far
 - Most PLC Products Shipped By Far
 - Best-of-Breed Technology
 - Global Multi-Vendor Contribution Process
 - Multiple Silicon Suppliers

Thank You!