



# The merger of HomeGrid and HomePNA – a great step forward in converged home networking

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## about **HomeGrid Forum**

HomeGrid Forum (HGF) merged with the HomePNA Alliance in May 2013, forming an industry alliance of over 70 members including some of the world's largest Service Providers, system manufacturers, and silicon companies. HGF promotes development and deployment of a single, unified, multi-sourced home networking technology, G.hn, over coax, phone wires, powerline, and plastic optic fiber while continuing to support the existing base of HomePNA deployments. HGF provides silicon and system certification through its compliance and interoperability testing programs to ensure that retail customers and service providers can have confidence in all G.hn and HomePNA products.

HGF members collectively provide an eco-system covering all aspects of the technology from Retailers to Service Providers, utilities to Smart Grid think tanks, system developers to test houses and silicon companies. Our goals include promoting the benefits of G.hn; enhancing G.hn technology to meet evolving industry requirements; ensuring interoperability, performance based on our certification program; and supporting the needs of Service Providers deploying G.hn and HomePNA technologies.

**For more information on HomeGrid Forum, please visit our website at**  
<http://www.homegridforum.org>



**HomeGrid Forum Certified G.hn Products**

The mark of Certified Compliance, Interoperability, and Performance



**HomeGrid Certified HomePNA Products**

The mark of Certified Compliance, Interoperability, and Performance

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# 1 Introduction

Home networking has come a long way over the last decade. Whereas Ethernet cabling was once the only way of interconnecting high-speed devices, a variety of networking options is available today which do not require purpose-installed cabling. These range from the various wireless LAN (Wi-Fi) technologies, to robust high performance networks that re-use some existing home wiring.

These ‘existing-wire’ networks offer a low cost, reliable solution for Service Providers helping them to distribute new services such as HD IPTV. Millions of such networks have now been deployed worldwide. One of these technologies, HomePNA, standardized by the UN’s ITU-T<sup>1</sup>, operates over both phone wiring and coaxial cable and has been a popular networking choice among Service Providers. More than 40 million HomePNA nodes have now been deployed, across all four major continents. This strong demand has led to a wide range of products becoming available - there are more than 85 HomePNA certified products on the market today.

Technology advances over the last four years have culminated in G.hn (“Gigabit Home Networks”), a new technology again defined by the ITU-T. G.hn not only provides greatly improved performance over an expanded range of wire types, it also has the advantage of being able to coexist with HomePNA and certain other technologies on the same wires. This facilitates a smooth migration path from legacy technologies to G.hn.

G.hn networks achieve optimum performance over all existing wire types in the home (powerlines, phone wiring, coax,) and also over newly installed wires (Cat 5 LAN cable and plastic optical fiber (POF)). This is achieved using the same silicon, thereby bringing greater economies of scale. G.hn systems are just starting to become available for consumers and Service Providers. As G.hn achieves mass-market, it will displace numerous legacy technologies. While wireless attachment will remain popular, especially for portable devices such as tablets and laptops, G.hn provides a robust, high-speed backbone for the increasingly common wired-wireless hybrid home network.

Up to now G.hn and HomePNA technology have been represented by two separate industry bodies: HomeGrid Forum and the HomePNA Alliance respectively. Leading members of HomeGrid Forum (HGF) and HomePNA Alliance recognized that technology momentum and market demands had advanced, and that the future of wired home networking now lay with G.hn. It was realized that the two organizations had the same main areas of focus, and common values, the main focus being to provide Service Providers with high performance, robust home networks that would operate over existing wires. This has been achieved via rigorous certification programs, and leading markets through technology innovation. After

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<sup>1</sup> The International Telecommunication Union telecom network (ITU-T) standards arm of the United Nations is one of the world’s premier standards development organizations. Standards developed in ITU are the result of in-depth analysis and peer reviewed work that focuses on best of breed technology definitions that extend the state of the art.

months of in-depth review and preparation, HomePNA and HomeGrid Forum agreed to merge, finalizing the merger in May 2013.

The merged organization, under the HomeGrid Forum name and banner, will use both the HomePNA and HomeGrid Forum G.hn certification logos for the relevant certified products. The merged HomeGrid Forum has more than 70 members, includes 28 Service Providers and some of the largest OEMs, ODMs, and retailers in the world.

Industry reaction to the merger has been very positive. The ITU and Broadband Forum commented as follows:

Malcolm Johnson, Director, Telecommunication Standardization Bureau, ITU, said: "ITU has greatly appreciated collaborating with the HomeGrid Forum in promoting the G.hn suite of standards that will enable a new generation of interoperable 'smart home' networking systems and applications. This merger is a very positive development that I am confident will help us drive forward the global adoption of G.hn devices in the market."

Robin Mersh, CEO of the Broadband Forum, said: "Like our own organization, the HomeGrid Forum and the HomePNA Alliance have both been strong advocates of clearly defined standards that enable service providers, manufacturers and users to have confidence in the products they are deploying and installing. The Broadband Forum welcomes this merger as it creates greater clarity in the home networking market."

For more information on the merger, please go to <http://www.homepna.org> or <http://www.homegridforum.org/merger>.

### **1.1 HomePNA Alliance prior to the Merger**

The HomePNA Alliance was formed to promote HomePNA technology, which can operate over both coax cable and phone wires, and provides advanced features such as Quality of Service (QoS), remote management, and diagnostics. HomePNA networks deliver services with a high quality end-user experience. In order to ensure consistent functionality, good performance and interoperability between different vendors' systems, the HomePNA Alliance developed and standardized a set of HomePNA test specifications now used to certify the products it promotes globally. Over 85 products have been HomePNA certified to date, including set-top boxes, residential gateways, Ethernet bridges, and ONTs (see [http://www.homepna.org/products/member\\_products/](http://www.homepna.org/products/member_products/)). Further, the HomePNA Alliance has fostered a user community where members exchange their experiences with home network planning, installation, and operating practices, thereby leading to a general raising of standards in all these areas.

### **1.2 HomeGrid Forum prior to the Merger**

The HomeGrid Forum has been promoting the development, standardization, and deployment of G.hn home networking technology since its inception in 2007. HomeGrid Forum has supported G.hn development through initial silicon and system level plugfests, and the writing of its own test specifications. It contributed

to the G.hn standards development through member contributions to the ITU-T, and will continue to do this, as and when the standards are enhanced. These activities have helped to create a robust supply chain ranging from silicon suppliers with compliant chipsets to system companies with varied but interoperable designs. With certified systems appearing mid 2013, G.hn-powered networks will be deployed in the second half of this year.

The HomeGrid Forum devised and administers a logo-certification program that tests the compliance and interoperability of G.hn silicon and products, enabling consumers and Service Providers to have a high level of confidence in the HGF certified brand. Certified G.hn chipsets are available today and, with five G.hn semiconductor companies and several system design announcements, a strong multi-source market exists as commercial deployments begin.

## **2 Benefits of the Merger**

The merger provides benefits for both the market and the members of the two previous organizations, combining HomePNA's extensive deployment experience and customer base with HomeGrid Forum's G.hn expertise and broad networking knowledge. Both of these technologies are fully supported by HGF with near term focus on HomePNA, while at the same time facilitating market migration to G.hn. The major benefits to the merger are:

- Greater resources supporting both technologies
- Efficient pooling of resources for matters effecting both technologies
- HGF Marketing capabilities will increase the awareness of the market regarding HomePNA technology as a viable option for today
- Deployment and service knowledge from HomePNA will help HGF in supporting G.hn rollouts
- A convergence road map and planning assistance for Service Providers will be provided

The expanded HomeGrid Forum will maintain both the HomePNA and HomeGrid Forum's existing logo testing and certification programs, promoting continued customer confidence and satisfaction.

## **3 The Convergence Story**

The merged organization is working toward a common goal, namely market convergence on a single, unifying technology for all wired home networks that coexists with current technologies, while providing enhanced home network capabilities.

At the same time, there is the commitment to fully support the HomePNA user base in prolonging their existing investments while helping them to migrate over time to hybrid networks that add G.hn, and eventually completely move over to G.hn for the wired home backbone.

## **4 A Brief Introduction to G.hn**

G.hn is based on the concept of one chipset able to operate over any wires in the home, thus extending the multi-wire concept pioneered by HomePNA technology. G.hn takes this to the next level by the addition of support for transmission over in-home powerlines and plastic optical fiber. This makes G.hn the most versatile home networking technology available. Further, G.hn offers the highest levels of network efficiency with full quality of service support, along with best-in-class performance, coverage and robustness.

In the past, Service Providers had to rely on coax and/or twisted pair copper to provide whole home IPTV and PVR services; previous powerline and wireless solutions were not sufficient for the most demanding applications. G.hn has changed this. It uses advanced signal processing techniques and algorithms to dramatically improve performance over any wires, even allowing powerlines to be used for reliable high speed home networking and best quality HD IPTV streaming.

See the HGF web site:

<http://www.homegridforum.org/content/pages.php?pg=certification/> for more information on G.hn.

## **5 What has happened to the HomePNA Alliance management?**

At the top level, the two Boards have simply merged. As with any merger, while there is the need to remove any duplicated functions, it is also essential to ensure that the processes of the new organization meet the needs of all its members, whichever body they previously belonged to, and of course continue to meet the needs of the market. It is expected that support services will improve.

The organizational structure of the new HomeGrid Forum has been extended to include a technical committee focused on HomePNA technology, while several ongoing HGF technical efforts, such as extending the IEEE 1905.1 standard to include G.hn, have been modified to include HomePNA as well.

The structure of the expanded HGF will be sent out to members shortly, with an organization chart, the list of contact numbers and email addresses, and a brief introduction to HGF internet services.

## **6 Conclusion**

The merger of HomePNA and HomeGrid Forum is a major step forward for the industry. There will be a clear migration path established from HomePNA technology to G.hn, the wireline network technology for the future, but done at a pace that suits the market, in particular the Service Providers. In the interim, former HomePNA members and the market can be assured that their technology investment will be protected.