

# IoT: Successful Future Connectivity

By Dr. Leonard Dauphinee, President of the HomeGrid Forum



**Dr. Len Dauphinee joined the HomeGrid Forum (HGF) Board of Directors and was elected President in August 2017. With a strong background in systems engineering, being a prolific inventor and having worked in both hardware and software development, Len is poised to lead HomeGrid Forum on a path towards even greater recognition of G.hn as the global home networking technology of choice.**

**The Forum is an industry alliance begun in 2008 and the first HGF certified product was deployed in 2013. HGF brings together the world's best in technology innovators, silicon vendors, system manufacturers and service providers to promote G.hn technology. G.hn is the globally recognized gigabit home networking technology based on ITU-T standards. G.hn provides a single service delivery platform for your entertainment, your workspace – all your digital lifestyle needs – across any wire, simply and reliably.**

**As Vice President and Chief Technology Officer, Len is responsible for the technology roadmap of MaxLinear's Broadband business. Len joined MaxLinear in 2012 as Vice President of Systems Engineering. He received a Ph.D.**

**in Electronics from Carleton University and is a named inventor on over 60 issued or filed U.S. patents.**

**W**ith the rapid rise of smart home management systems and voice recognition products, the Internet of Things (IoT) has the potential of improving our home life, our industrial performance, and our cities where we can monitor and control any electronic device or sensor. The challenge of IoT is to connect all these devices easily, efficiently, and securely.

In the home, consumers are annoyed by “dead zones” where their Wi-Fi simply does not work. Multiple access points are needed, but these need to be interconnected.

As Smart Homes become a reality, the focus is shifting towards the home mesh - how can we increase efficiency? How can we connect smart devices and systems that are of benefit to everyone? How do we ensure consumers and businesses alike benefit? There are many questions being asked, but, perhaps there is a lack of questions around the existing infrastructure to support these smart initiatives. How can any of them be realized without first ensuring an advanced technology that can maximize existing infrastructure to support the ever-increasing demand for reliable, secure, and high-performance connectivity? With so many wireless connected devices in homes today, the need for ubiquitous connectivity has never been greater.

## **Wireless Euphoria**

As the IoT space within the consumer sector becomes increasingly crowded, backbones become key. G.hn technology provides connectivity over any existing wire and so can become the universal IoT backbone. G.hn technology can be deployed today without any additional changes or upgrades to the infrastructure - just connect G.hn devices to the existing wires and you are done.



G.hn can extend Wi-Fi coverage and performance throughout homes, businesses, and MDU's, to support the ultimate broadband experience. G.hn creates a true hybrid network over any available medium – something that is increasingly important as the industry shifts towards next generation home networking, and the rise of home mesh networking. G.hn extends connectivity further than any other technology on the market and is the fastest path to a wireless euphoria.

HomeGrid Forum's efforts are to ensure the fastest, simplest, and most secure means of connecting the ever-increasing number of devices being installed by consumers. Whether the device is wired or wireless, G.hn provides either seamless wired connectivity or the backbone for wireless access points to be located where they best meet the consumer's needs.

### Standards

As we move towards the IoT enabled, Industrial IoT (IIoT), and 5G worlds, the potential to access unlimited, wireless connectivity is being realised. The role of standards, and standards organisations, are becoming increasingly important.

There are various reasons why standards are essential for the technology and telecommunications industries; they ensure and maintain reliable industry requirements, which are of benefit to consumers, businesses, and manufacturers alike.

In addition, standards help to ensure interoperability. This is important now, and will be crucial in the future, as technologies increasingly interact. This shift towards an ecosystem composed of multi-vendor interoperable technologies will solve the problem of expensive upgrades.

G.hn is a standardised networking technology developed by the ITU-T through input and rigorous review from a global technical community.

### Security

As the marketplace becomes flooded with new devices, technologies, and manufacturers, the security and privacy of all users must be ensured. Recent global events have shown that cybersecurity threats are real, can happen in any geographical region, and can have serious financial repercussions. Certification programs that guarantee implementation of the most current security standards are necessary to achieve this goal.

Intelligent algorithms, used to authenticate which devices are allowed to participate in the network, are important in providing a good user experience when establishing a secure network. Once devices are authenticated, establishing 'per-link' encryption ensures the confidentiality of communications on each link of the network.

IoT is a symbol of future connectivity, but it cannot be successful without the right security solutions, which must be included during the development stage, instead of added as an after-thought. G.hn provides a robust network backbone capable of supporting the IoT with built-in security. HomeGrid Forum certification of G.hn products ensures that modern security mechanisms to protect IoT devices have been implemented.

Through its certification program, introduced in 2015, HomeGrid Forum has already certified 30 devices from 12 different vendors. The rise in demand for certification has increased over time, and will continue, as stakeholders around the globe acknowledge the critical importance of certification as the only way to ensure interoperability, security and simple network management.

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