

UPnP Forum: Continuing to Nurture the Blossoming IoT

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The Internet of Things is blossoming exponentially, and has been since its official birth in 2008 when the number of people connected to the Internet was dramatically eclipsed by connected “things or objects”. A Cisco Internet Business Solutions Group report recorded that the growth of devices connected to the Internet totaled 12.5 billion in 2010, while the world’s human population increased to 6.8 billion, making the number of connected devices per person 1.84 for the first time ever in history. Inevitably, the vast number of devices connected to the Internet created never

before seen challenges for businesses, Governments and everyday users of connected devices such as being able to configure devices from different vendors to be able to communicate with each other and how to combat previously unknown security threats. However, it also sparked a landslide of innovative solutions and standards to tackle these ever growing issues.

The ultimate media experience

One of the main challenges has always been the problem of interoperability between devices. Previously, vendors introduced new devices with little or no care for whether they could connect with other devices on the market. However, consumers have always sought to buy the best deal and product for their purpose and so rarely buy all of their connected devices from the same vendor; and yet they expect all of their devices to work together seamlessly. A recent report from Strategy Analytics found that, instead of committing to only one connected media device ecosystem, many consumers are turning to multiple devices to be able to have the ‘ultimate media experience.’ So a question was set to the market: how can we work towards interworking between different platforms, communications technologies and applications both within the home and outside it to ensure 100% interoperability?

Yet the problem of interoperability is a two-fold one. Not only is full interoperability required to ensure that devices from different vendors can connect and interact

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- ▶ seamlessly, ensuring customer satisfaction and IoT success, interoperability is also required between industry standard organizations. Without industry standards groups working together to create harmony and full interoperability within the industry, the IoT is unlikely to ever reach its full potential and interoperability will remain a persistent and permanent obstacle. A slow up-take of cooperation between standards groups and vendors can seriously hamper the success of creating 100% interoperability.

Logical connectivity

The UPnP Forum recognizes the need to shift industry focus from interoperability between devices to interoperability and interworking between organizations in order to ensure that 100% interoperability between devices is an achievable prospect. There are several companies and consortia offering different standards and these different platforms are not always compatible, creating a challenge for moving forward. The IoT can truly blossom when a strategy for interworking between different standards, platforms and communications technologies is put into place.

Having been in the industry long before IoT was coined as the 'it' term, UPnP Forum has introduced a number of initiatives to help kick-start this necessary work. In terms of combating physical interoperability, UPnP Forum has a bridging platform whereby they can connect to other ecosystems such as Bluetooth, ZigBee and ZWave, which allows for physical connectivity between devices.

Most importantly though, and more recently, the UPnP Forum is tackling the issue of logical connectivity between organizations and companies with their new data modeling tool. UPnP Forum has created a tool to be shared with other organizations to help combat the two-fold

problem of interoperability on both levels, thus reducing fragmentation in the marketplace. The work provides a seamless standardization process which can be used by any organization or company that wishes to incorporate device discovery and control capability into any of their devices. By working in conjunction with the Open Internet Consortium (OIC) and DLNA, and other organizations through liaison agreements, the UPnP Forum is actively working towards overcoming the two-fold problem of interoperability. A great example of the possibilities of this new tool is that one organization could define a light bulb with a dimming value between 0 and 100% and another organization could take that same type of light bulb but instead define the dimming value between 0 and 32,768. UPnP Forum's new data modeling tool will normalize those definitions into a single data definition and allow those devices to then interoperate on a logical level.

The Internet of Things has been growing exponentially since it first began and it looks set to continue to expand in ways we can only now begin to imagine. However, if IoT is to evolve in a way that brings about the most benefit to vendors, operators, businesses, Governments and consumers in connected homes, the issue of interoperability needs to be addressed and solved; both on the fundamentally physical level of interoperability between devices but also, and perhaps more importantly, on the logical level of interoperability between industry standard organizations. UPnP Forum is making great progress in bringing about cooperation and interworking with the new data modeling tool, helping to nurture the ever blossoming IoT.

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