

A Software-(re)Defined World.

This is my [Keynote](#) from [ICCE](#) in Taiwan June 6, 2015 in which I explain that the Internet is a consequence of a world being redefined by software.

This disruptive change has implications for the IEEE and society as a whole. We now create value using software rather than electronics. The Internet is not provided but rather created from the edge using the software in our devices.

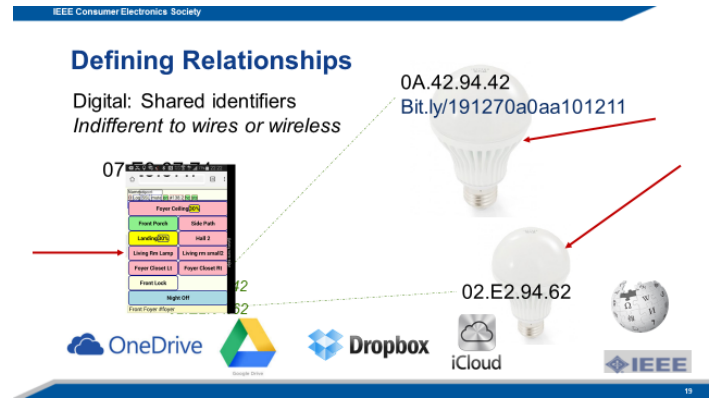


You can see the accompanying PowerPoint presentation [here](#).

The key point is that Internet is a byproduct of the ability to create solutions using software in our programmable devices. We can communicate by exchanging packets without relying on a “provider” to assure the message gets through. Instead we use our software to assemble packets outside the network. We can use a protocol like TCP to create a reliable stream or UDP if we are more flexible.

Rather than focus on the network we focus on the relationships between the end points. What is magical about the Internet is that we can establish a relationship between two end points merely by sharing an identifier.

In the talk I explain how much I learned by “doing” with home control as an application I use every day. I emphasize the term “home control” in contrast to “home automation” which implies a home smarter than the people who live there.



This slide pulls together the key ideas. I define a relationship between a control point (a software-defined “light switch”) and the sources of light (bulbs). There is no wire connecting the two end points. They each get their own power. All that is necessary is to assign the two end points of the relationship a shared identifier.

As if by magic a message goes from one end point to another. Of course it is not magic at all – just good architecture that allows me to focus on the application at end independent of how the message actually gets from point A to point B. Or, sometimes does not. The implementation is resilient thus allowing us to take advantage of opportunities without being completely dependent upon providers.

The list of sites at the bottom demonstrate another important point – we don’t exchange send data but instead just pass references as when we give the name (a URL) of a Wikipedia story rather than sending a copy.

I use the term Ambient Connectivity for the architectural assumption that we can just reach out and (try to) connect without having to negotiate with providers or gatekeepers. I use the term Borderless Connectivity for the ability to communicate without third parties in the path thus avoiding making failure the default as per current policies.

This leads to new policies are I write in my columns (see [Further Readings](#)) and, in more specific for policy suggestions – [Internet Native Policies](#).

