Seizing the wrist and re-understanding the Internet

Note that this original appears as a post on Dave Faber's IP list but the typography was so bad I'm posting it reformatted. It was written in response to a comment about the Pebble watch.

Of course I joined the crowd and signed up for a Pebble. Kickstarter seems to be as much pre-sales channel as a fund raiser but that's OK as long as it isn't abused. I'll find out in September. Back in 1993, when I was in a group at Microsoft working with Timex, I wrote a memo titled "The Wrist: Information at Your Fingertips" as that was important real estate. Just as I've had a smart phone since the mid-90's I've also been trying to use devices for which telling me the time is a function and not the only purpose. These devices differ sharply from the smartphone in that you really own them (though Microsoft did try aaS (as-a-service pronounced like a-s-s) for their SPOT watch.

Each has their own trade-offs. WIMM, for example, is a small Android device that can be mounted as a watch. The Pebble appears to use e-ink for battery life (like my TI EZ-Chronos). The iPod Nano would also be in this category if there were an SDK and it had transceivers.

In the same vein I've been experimenting with home control and today I use protocols rather than wires to define the relationship between the lights and some other devices in my house. I've been limited in what I can do because, for the most part, I'm using what is available in the market today. My goal is to learn rather than have a trophy home. In fact, unless you notice that the switches might light up you wouldn't know anything was too far out of the ordinary.

These devices represent a very different "Internet" than the YouTube/Web Internet. They are local autonomous devices that are not owned by a provider. If two of us have these devices they should be able to communicate directly. To conserve battery life we would likely want to relay our connection through a bigger device such as a cell phone (in our pocket). In fact that can be made to work but each case has to be treated as a navigation through twisting winding passages. Bluetooth can act as a wire that gets you one segment. If you don't have a direct Wi-Fi connection then IP addresses won't work for you. Sure there is Wi-Fi direct but what if we're just out of range and need to relay through that cell phone.

The hardware already exists but the protocols don't because we still have a network-centric view of the Internet and treat each application-oriented protocol as a special case of P2P. I've been thinking about this a lot after reading the ISOC history of the Internet and wondering why Kleinrock is honored as the father of the Internet. I don't question his contribution but it did make me think about what the Internet is and why.

I got some insight in reading The Dream Machine by Mitch Waldrop (I've asked him to make it available as an eBook – others should too). I'm embarrassed that I hadn't read it when it came out. For many on this list it will bring back memories. I realized that I entered the field at a crucial point where I could focus on creating applications for users while also being able to treat timesharing systems as personal computers thanks to also being a systems guy. Instead of seeing LANs as networks to be interconnected I saw them as coaxial cables we used to exchange packets and the Internet as a way extend the reach.

We need to remember that the whole point of connectivity is to support applications. If all the Internet did is interconnect network elements it is pointless yet that is the focus of today's protocols. We need protocols that start with relationships between end points such as these devices and abstract end points such as applications. We then need to view finding the path between the two points as an engineering problem from the edge rather than viewing the network itself as a layer we build upon.

We also need protocols for sharing data and having mechanisms for managing access. I say mechanisms to distinguish them from policies. I consider who has access as a policy whereas presenting a token (a capability) would be more of a mechanism.

A device on the wrist, AKA a watch (like using the word dial for the buttons on a phone), can act to make us aware of what is beyond today's Internet. Most people will accept the limitations as a given but I hope a few start to wonder why it has to be so difficult to do something as simple as exchanging information between the two devices without having to navigate each twisting and winding path as a new challenge again and again.

For those who want to drill down you can read more:

- http://rmf.vc/DIYToInternet -- thinking of the Internet as interconnecting our DIY efforts (as in the coax/Ethernet example above) based on the talk I gave to ISOC In March 2012.
- http://rmf.vc/AmbientConnectivity -- a framing in which we can assume connectivity
- http://rmf.vc/PurposeVsDiscovery -- from IP list about inverting our dependency model
- http://rmf.vc/MakerDisconnected -- connected devices ... Almost
- http://rmf.vc/IPGENI -- about the government's inward-looking approach