

CES 2012: In Perspective

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Introduction

This is not so much a report as a set of observations and asides inspired by the 2012 [Consumer Electronics Show](#) and the associated IEEE Consumer Electronics Conference ([ICCE](#)).

You can also look at my [2011 CES report](#).

CES

As much as I think of myself as a computer geek, in many ways my background is consumer electronics going back to my childhood when my father manufactured equipment for the TV repair industry. In 1979 I did booth duty helping him at CES. CES has replaced [Comdex](#) as the watering hole for the retail computer industry as software has eaten everything also (as per an observation made by an ICCE panelist).

CES used to be a bigger tent. The Gamers decamped for [E3](#) and the content businesses (VHS tapes, adult entertainment industry) also have their more specialized events.

This past September I attended ICCE in Berlin at [IFA](#). IFA is similar to CES in many ways but there was a far larger presence of appliance manufacturers including a fair number of Roomba competitors. I expect this will happen at CES as appliances become “smarter” but more about that below.

Connectivity

Or rather the lack of it as there was no effective Wi-Fi coverage and my T-Mobile phone had difficulty connecting. The CEA and the IEEE should be very embarrassed at being stuck in the world as it was before the Internet.

Perhaps this disconnect stems from my larger sense of the lack of excitement about new products. Today most “Internet” innovations seem to be in the area of social apps or more entertainment. What is glaringly missing is sense of a

connection with the physical world and the kind of open interfaces I [wrote](#) about in 1997. One reason is a simple lack of awareness that the Internet is about an idea rather than just the “Interweb” (a pejorative used to emphasize the confusion between the web and the Internet) and the lack of frameworks or standards for cooperation.

I Cannot Agree!

I saw this in the healthcare area (the areas are attempts to group related companies). The ANT+ protocol (which I wrote about last year) can connect adjacent devices and relay the messages via Wi-Fi. But you can’t “just connect” to distant devices because somewhere along the path you are likely to encounter the need to negotiate with a telecom provider.

Even if you have “free Wi-Fi” you typically have to click on an “agree” screen. (Hence the title of this section). It’s a pernicious problem because such messages are utterly unrelated to the relationship between the two devices and can occur anywhere in the path.

Imagine trying to print a document at home and the USB provider requires you to read a web page that you don’t even or can’t even imagine exists because you are thinking about just your PC and the printer and not about some palm along the path that needs to be greased.

It’s not a matter of whether or not I want to pay, but that I cannot know what might lurk along the path.

I got a reality check in asking what the product was at one of the connected devices booths. The answer was simple and honest – paper strips. As much as we should see the devices as valuable the ROI comes from having a consumable. I’ve seen this phenomenon a number of times and it’s a reminder that many of the best things in life are accidental byproducts. After all, you may value a TV show but you pay for it by enduring advertisements.

Over the top and through the brokers.

In a little-noticed corner of the Samsung booth Comcast, Verizon and others were demonstrating basic cable channels going “over the top”, that is, over the Internet.

They will soon be providing their content using apps on various platforms rather than going through the set top box. I’m surprised that this hasn’t received far more attention because this is an obvious prelude to each of the carriers selling to anyone and not just those who own a cable from the particular provider.

Verizon is already targeting the Netflix market and that doesn’t make sense if they are limiting themselves to only their own subscribers. This is another step towards the term “cable” being associated with brokering content. You
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could simply subscribe to an HBO/Showtime/Epix package via Comcast or Verizon or, Time-Warner Cable. In the future Time-Warner itself can be a broker or it might find itself competing with AOL or Ticketmaster.

Some companies like Comcast, which owns NBC, and Time-Warner (HBO, Showtime) originate content and make money even if others are the retail suppliers to the end users. What does this mean for companies like Verizon who are just reselling others’ content?

As an aside, when I got home, I found that the Verizon software for my set top box had been updated and now the “multi-room” DVR even though I don’t use the Verizon router (their BHR or Broadband Home Router). This is a marked improvement and I see it as an indicator that they are getting a better sense of how to work outside their comfort zone.

Silicon Dust was showing their cable card box which transfers encrypted video to a compliant platform such as Microsoft’s Media Center.

As I write this I’m watching a “TV” show on my Google TV box using my Amazon Prime subscription to get access to content. I can also use Netflix or Hulu Plus or, soon, my Verizon relationship. These aren’t as neatly packaged as my cable access but tuning through a myriad of “channels” isn’t a great experience either.

But there are apps for that. On the GTV I can choose a show and see a list of episodes and where they are available. That’s probably true on other platforms such as Boxee, Xbox etc. though it’s surprising that Microsoft has not been pushing their Media Center app in the living room.

Now if we only add standards for coordinating this. In the short that’s good news for the existing providers because their business will last a little longer but longer term ...

More on “standards” below.

Wait wait, one more point. A related issue to OTT is the licensing problem. With cable you don’t worry about ownership because you just lease the use of the content. But when you buy a movie on Amazon, for example, is it owned by the family or an individual? Lots of issue to be worked out as we change our implicit assumptions.

IPTV World Wide

With so much of the policy attention focused on domestic “cable” it’s easy to forget that there is a world full of content and companies like <http://www.IpWordTV.Com> are already brokering that content.

It's also a reminder that today we rely on determining the viewer location for deciding content policy. In the future we're going to use protocols in which the network is going to know little about what happens outside the network or where the content is sourced or interpreted (AKA "consumed").

Cars try to connect

A number of car companies, especially in Europe, are trying to build connectivity in the car using the cellular network. In one case the navigation system would try to use your cell phone account and automatically adjust depending upon what country you were in and what plan you were on when in Europe using a GSM phone.

This seems awfully complicated and ultimately untenable. It might be made to work for some applications like navigation but can't scale for making it simple to share information and take advantage of opportunities.

Wi-Fi Direct

I want to learn more about Wi-Fi direct. In its simplest take it allows two devices to make direct connection without depending on an access point using a simplified form of ad-hoc model. This is very useful.

But I haven't seen any effort to take this to the next step to allow these points to provide a relay or mesh connection to create a larger world of connectivity. If a device can maintain multiple such direct relationships at once this could be a very interesting project.

The other quick note about Wi-Fi seems to be Bluetooth 4.0 which seems to use Wi-Fi radios for very low power connections. But this would mean that Wi-Fi has power management.

These hint at very exciting developments but I haven't seen the excitement they should be generating. Perhaps one reason is that today's Internet protocols are still networking protocols suitable for services from providers.

If we have new protocols that support applications rather than networks we can start from the edge and composite paths between two points and achieve connectivity using whatever opportunities are available.

Perhaps the reason we are seeing little activity is that such opportunistic connection would make it far too difficult to assure that all bits pass billing points and would quickly undermine the business model of telecommunications.

Be my Guest

One nice trend is adding guest access to Wi-Fi access points. [EnGenius](#) was one example. I have the capability in my [Draytek](#) at home. Too bad these aren't easier to con-

figure. For now it's a special feature but it should be the norm.

One reason that people are reluctant to share access (despite the huge cost savings) is the fear that a Bit Torrent user will slow down the connection. This is a real concern but the cause is not bad user behavior but "buffer bloat" in which the network path is configured to have too much buffering thus making the behavior perverse. Fortunately there are ways around this. See more at <http://www.BufferBloat.net>.

MOCA

Moca is Multi-media over CoAx. It's one of the organizations pushing its particular medium for bits. Too bad these organizations appear to be advocating their choice against others as opposed to promoting various choices among many.

As a result we get the strange phenomenon where Verizon has to have installers run new RG-6 if old wire isn't available. It's easy to understand the desire to take advantage of existing wires but a waste not to take advantage of existing gigabit Ethernet.

One reason Verizon is stuck is that it's stuck in the world of faux-broadcast TV over "cable" having invested billions in a brand new cable plant just as the market shifts to going over the top (IP).

This year Dlink (and others) were pushing their MOCA bridges, in addition to power line and other transports. So when I got home I experimented only to be reminded that the MOCA world is confused. If I put a MOCA bridge (such as from Actiontec) between my Coax and the set top box the STB no longer gets the data channel and cannot see the other boxes nor get program guide updates!

The set top box itself does have an Ethernet jack that goes unused because the business model still seems to be stuck in the past rather than recognizing that bits are bits and facilitating their flow is a powerful idea.

I should be able to plug my Google TV box directly into my Set Top Box's Ethernet jack. But maybe Verizon is right in choosing where to put its efforts. It's planning to provide a GTV app soon anyway and better to work to put all the content over IP and eliminate the need for the STB. The question is just when, not whether.

Hacking the World

As someone said the world is being eaten by software.

Fear

Cory Doctorow talks about the effort to prevent people from writing their own software. We see platforms like the Apple iPad which provides only guarded access to the hardware.

The Automobile

The automobile is a particularly dangerous platform when you think of it as a few tons of metal hurtling down the street barely in control. Certainly sounds scary.

No wonder we have a lot of concerns about distracted driving and attempts to ban people from talking to others in the car – at least over a phone. Yet it's hard to prevent humans from doing what they need to do hence an exception for a GPS unit in the car. But GPS is really just a function and a GPS unit is no different from a smartphone except for the application it is running. In fact many GPS units have cellular radios to get updates.

If we can mount a GPS unit on the car dashboard wouldn't it be safer to use the screen that is already built in the car?

I've been following the evolution of car computing since I was in the AutoPC group at Microsoft and the cars are indeed becoming programmable though, as with "smart TV's there are still battles over what platforms.

But the screen in the car is valuable real estate that could make navigation safer if it could be used by user-provided applications. For that matter we could also open up APIs for other function such as setting the seat position.

But this is going to be a slow process because of the dreaded scourge of change – the lawyers who can only see peril and no compensating benefits. They are afraid of allowing any unapproved use of even something as innocuous as the screen already in the car. And politicians are too.

What is needed is more creative ways to provide access to real estate such as the screen in the car without involving the car manufacturers in anything other than an arms-length relationship. Today's car mounts for cell phones are not up to the task but there is a huge opportunity for innovative products here. Contact me if you want to...

iOnRoad



This is a relatively simple application (and, currently, free!) that you can mount on the dashboard. It uses images processing to warn you when you are too close to other traffic. Obviously it can do a lot more such reading the number on a bumper sticker so you can call the company that wants to know about their driver. On the other hand what if you could read the license plates of all the cars around you? That could be scary.

Contrast this simple application to what car companies have spent on radar systems over decades and are now finally deploying. Yet those systems can't even do something as simple as reading a phone number or a QR code on another vehicle nor participate in cooperating systems.

It also shows the need to move beyond one app running a time with a dedicated screen. The functions can be decoupled and remixed and you might want distance information to be displayed on a screen while part of the screen is used for navigation.

At this point, from my limited experience, iOnRoad is still a demonstration of potential. Unlike hardware built into a car a software app can evolve very quickly. It's a reminder of the latent potential for all those sensors and other capabilities already in our devices.

Yet, as rich as the current devices are they only hint at what is possible. What if the camera could also detect infrared? As this app demonstrates the camera is for more than just snapshots.

More interesting is connecting the app so it can use information and sensors built into the car. What if the existing detectors in the car could share information with an app? My car detects the actual temperature but iOnRoad shows the one reported by the weather services. Why can't it connect to my car's sensor? Why not use one of my old "phones" (general purpose device) as a backup camera?

This is the real message of the Internet – the idea that we can realize relationships between arbitrary end points and the idea that we can create meta-device by cooperating.

We need to get beyond the idea of GPS only being available when you have a line of sight connection to a satellite. The techniques used by companies like Skyhook Wireless provide alternative heuristics to determine location information but we also need a protocol so you can ask neighboring devices for location information. One could then put a cell phone in a suitcase to track it without depending on the airline.¹

GM's On*Star service was also showing. Formerly built into GM cars the service is available in a standalone unit which isn't fully integrated into the cars. How soon before the service can be sold on generic devices and have the full capabilities available to cars with On*Star embedded by using open APIs?

Programmable SD Cards!

I've got an [Eye-Fi](#) card which is an SD card with a modest amount of computing capability and a Wi-Fi ship. The Wi-Fi capability allows for geo-location (using Skyhook) as well as wireless transfer of the photos. It can also relay the photos through cell phones. This is a good example of the kind of ad-hoc routing that should become the norm.

This capability is about to become mainstream. At the [SD consortium](#) booth Toshiba was showing a similar chip with computing and Wi-Fi Direct (SD/WD). At this point the companies are viewing the chip narrowly in terms of providing applications.

This is typical silo thinking. I saw this also at the [PQI](#) booth which was showing an SD mount for Micro-SD cards. The mount adds computing and Wi-Fi capabilities for photos. The executive at the booth seemed to be very interested about the idea of doing more than just the one app and, perhaps, we'll see that.

I also spoke to one of the representatives at the SD booth who understood what I was saying and told me that the exact openness of the computing wasn't determined yet but fully open is indeed an option.

We should encourage this capability. Imagine having a full computing capability in an SD form factor. What can you add intelligence to? Again, contact me if ...

Just saw an [article](#) saying that Eye-Fi plans a patent fight with the SD Association and the technology was locked away for any purpose but photo sharing. In reading that article I also am concerned about a reference to W and D versions of the card with one supporting "Web" and the other "home network". This is a worrisome in that it misses the sense of the Internet as connectivity and starts to embed accidental properties of today's implementations very deeply.

As a reality check I'm experimenting with using an SDHC card as an additional drive and a class 10 card gives me 12MBps (bytes per second) performance reading (it's slow writing). Now that I can buy a 64GB Class 6 SDXC (the next standard) card at a reasonable price I'm going to experiment with that. Such cards are significant on a machine with a 128GB SSD drive.

Watch the wrist

I've been interested in wrist-based computing since I wrote a memo titled *Seize the Wrist* back in 1993. I was disappointed that Microsoft locked the SPOT watch into a silo and never shipped the SDK. I also tried the TI EZ-Chronos watch which is indeed open but aimed at hardware developers rather than being a software platform itself.

This year a number of Android watches have appeared at about \$300 or 300€.

Motorola was showing their [Moto-ACTV™](#) watch.ⁱⁱ While it seems very capable, so far it isn't open for developers. One excuse I was given is that the military uses them and doesn't allow any device with memory onto bases. At some point they have to come to terms with the software-defined world. (They also had problems with the [Furby](#) but that's another story). I hope that at some point the device is open for development.



I own a [WIMM](#) watch which is open though the battery life is limited. It is relatively simple to develop applications for it though the requirements on power management do impose limits.

I had read about the [Im Watch](#). It seemed more about style than function but I had a chance to talk to them at the booth and was impressed. It uses a slower processor than WIMM in order to get a longer battery life and emphasizes more of the phone function.



Unlike the relative commonality of platforms on smartphones these use Android in very different ways. But that's necessary at the early stage in development of a new market. Avoiding fragmentation would be condescending and kill a nascent market in the process of discovery.

What would help are protocols to enable these devices to act as components to create larger meta-devices. I'll revisit this issue when I comment on standards.

Gadgets and Platforms

Televisions

Televisions are still front and center dominating the huge multimillion dollars booths that dominate the central hall. Sure there were the higher resolution TVs including one that had 8K pixels across and looked nice. Sony was showing off a new technology – the CLED or Crystal LED which looked very good indeed.

I'll get to the question of "what is a TV" in the ICCE section.

There were more passive 3D screens this year but my appreciation was spoiled by my awareness that most of this were distinctly lower resolution than TV that requires active glasses. But those glasses are only coming down in price slowly and the companies seem determined to slow market adoption by not cooperating on the technical standards. So 3D dawdles along.

The fight over the smart TV smarts continues. While I didn't check out all the possibilities this year I did notice that Samsung seems to have standardized on an HTML5-based platform though I still need to learn more details. At a first approximation the browser is a platform competing with dedicated boxes.

While Samsung did have a cute demo they can't depend on a developer community that cares about their TVs above others. They will need to face up to not being special.

Tablets

Tablets see old hat and all iPad. But there are interesting developments.

One that caught my eye was a tablet from [Ingenic](#) running Ice Cream Sandwich (Android 4). While there have been lots of knock-off Androids this one seems far more real yet sells for \$99 in China. It sports a chip that integrates many of the functions from graphics to GPS around a MIPS process (rather than the usual ARM). This offers some licensing advantages.

Windows 8s

Windows 8 is at an important and crucial juncture. There are actually two Windows 8s – Classic and WinRT. There's also Windows Phone.

My own interpretation is that WinRT is a reboot of Windows with minimal legacy burden. WinRT should be able to run on a minimal platform such as phone or a \$99 MIPS machine. This makes it very exciting. Even more so in that WinRT apps can run on a full Windows machine with the metro interface.

I find this personally exciting because I want to take advantage of the full capabilities of Windows without having to carry a separate device for each purpose.

This is why I've been looking at Windows tablets. Samsung has been pushing hard and learning a lot from Apple (to the displeasure of Apple) and produced a very light laptop. They also have a tablet to the same specs. It is a bit larger than the original iPad and about the same weight but with full Windows capabilities though shorter battery life.

I couldn't resist so I bought one after I came home from the show. I'll write about it separately after I've had more experience. While Windows 7 is not full finger read, it is very usable and I like the option of a stylus so I can do writing and drawing more naturally than finger-painting.

While I look forward to Windows 8 having more native support for each I do have mixed feelings about the Metro full screen interface. I did learn more at the Microsoft booth and am pleased that the full screen is not a requirement but I expect (lazy) app developers to think they own my screen.

I don't like being limited to one app per screen nor one screen per app and I hope the industry grows behind worries about fragmentation and instead embraces a rich world.

But for that to happen ... well, I'll write about standards below.

As an aside the tablet came with a 128GB SSD but I tried a 32GB Micro-SDHC in the Micro SD slot and at 12MBps it is usable. I'm going to experiment more with using it as a disk drive and will also try a 64GB MicroSDXC soon though with a bit lower performance. But why can't I just buy a 1TB 2.5" drive and keep it in my pocket and use a short range Gbps wireless connection? No need to limit myself to Wi-Fi speeds when talking to myself is there?

Well, the FCC disagrees but they are wrong and the sooner people protest the better off we will be!

Phones

As I said, I expect that Windows Phone 8 will really be WinRT but it may not be till Windows 9.

I recently did a reality check at a nearby store and was (pleasantly) surprised to find that the Windows Phones are selling well. I do want to see more competition in the market. But that's a separate discussion.

Samsung spent a lot of money pushing their Samsung Note and I finally played with one. Nice form factor and it can act as a phone. But in today's market it doesn't matter how good your product is, it matters whether a carrier will

make money off of it and that's a real problem thanks to the FCC. Too bad T-Mobile isn't carrying it yet.

Note that it (the Note) has a stylus as an option!

But why can't I buy a Note except from ATT?

There is something fundamentally wrong in giving plumbers (network operators) the ability to decide what products I can buy and what I can do with them.

These very same carriers have attempted to repeatedly to be suppliers of notebook computers and have failed again and again and again. They only succeed when they collude to restrain our ability to choose products. They never succeed when they are foolish enough to let a market provide alternatives. So why do we lash our economy to their sinking ships?

I'm surprised that such practices are even legal – IANAL but it smacks of restraint of trade and reeks of monopolistic powers that come from having companies divvying up customers instead of competing for them.

To add injury to injury, the purposely and intentionally limit [capacity](#) to prevent competition.

I didn't look much at phones and if there were any surprises I missed them. I did notice though that the Samsung charging stations had AC outlets and seem to have missed the USB/Micro-USB convergence as the universal power source (problematic though it may be).

Appliances and Dumb Homes

I didn't get a chance to look at all booths but there appeared to be less "home automation" and what there was was same-old.

I did notice a little more presence of appliances this year though there were some last year, yet it's still far from what I saw at [IFA](#). Of course there are the usual refrigerators with screen. The big feature is that those suffering from OCD can enter the expiration date of their food. We have a feature in search of a problem.

A more open platform would allow us to explore more possibilities but, for the most part, the smarts are confined within the appliance itself. The Samsung washing machine does show signs of an open interface but few details are available beyond the idea that it can tell you when the wash is ready. Sadly, in trying to research this some more all I found were articles dating back to last year's CES. The telling [quote](#) is "Politeski said Samsung, for now, has avoided these types of text-you applications because, in market surveys, consumers said they're already suffering from information overload."

Very little has changed since I gave a [talk](#) in 1997 arguing for open interfaces. Once again we have a problem with companies trying to sell us solutions rather than enabling us to create our own.

It's not simply that they want to control the value; there is typically no mechanism for empowering technologies which brings us back to standards...

Even when I have a smart TV controller or box how many sport interfaces to let me control them? This is also a market problem – if I write an application to provide an open interface to my Google TV device is there a market for it?

3-D Printers

Makerbot was back this year with improvements (and a



higher price). One competitor was showing a similarly priced device a little slicker though with only one color.

What made it interesting is that it's made by a company that also sells million dollars 3D "printers" and can offer services to make devices like the mesh glove in this picture.

Otherwise not that much has changed since last year (a theme throughout the show).

Meter raiding et al

I use the term "raiding" because, to a large extent, the smart grid effort has been about making money rather than improving our lives.

This was clear at the Verizon booth where they were showing a meter that used the cellular, LTE, service to provide meter readings.

I asked why not use the available Internet connection if there was one. The answer was disingenuous along the line that meter bits are very special. I was told that in order to make the readings secure that they meters needed to be on the Internet with their own addresses.

Not only is this nonsense which raises the cost of energy by generating billable events while not adding real security. It also means that the meter readings are not available to the user or home (or apartment) owner.

So why do we accept these stories? Because giving the customer an even break just doesn't make sense to the bottom line. I'm a strong fan of markets but something is very wrong here because this prevents the creation of a market in solutions.

It's worth noting that in the 1990's the carriers were pushing their residential gateway. You would read all meters and manage other utilities via the carriers' gateway and they would create a billable event for each reading.

With home networks DIY and a barrier (NAT) between home networks and telecom the carriers were no longer able to impose their policies on us. Instead, thanks to the edge-to-edge nature of the Internet all of these relationships could bypass the carriers.

Yet the power industry still doesn't understand connectivity and accepts the idea that they have to pay someone to carry their messages. This creates unnecessary costs and adds significantly to our energy bills.

An LTE aside

BTW, the Verizon booth also showed LTE being used to distribute video to rural communities. I presume that those users aren't paying the same sky-high rates that urban users are. Bits are bits and Verizon can resell the same product with wildly different stories.

Watching ads for LTE (and other high speed cellular services) primarily from Verizon and ATT is painful. They basically say that you can get short messages far faster because of megabit speeds. This is just stupid. The actual speed of the bits is the same – you can just get more of them at once but if all you need is 100 bits then the speed makes no difference.

I presume the ad agencies are just in storytelling mode and either the people they work for at the carriers are ignorant or just desperate to tell stories that justify the billions of dollars they've invested in redundant paths. See [Not Super](#) for more on this.

Eye Candy

And many of the products presented are designed as eye candy. A lot of the focus in health care and smart grid products is about pretty graphs so you can ... well, obviously they are useful because they are pretty. Am I too cynical?

One again instead of having open standards we find companies are stuck trying to justify features as highly profitable products. This is why it's so important to have a consumable like a test strip to generate revenue. But it's hard to develop an industry if there is no chance for synergy.

USB-3

Not too much to say here. USB 3 is the multi-gigabit version of the Universal Serial Bus that shared the name with the original 10 Mbps version but apparently little more. I added USB-3 to my home PC but it required a separate connector internally for the USB 2 and USB 3 interfaces.

As I've said many times the big value in USB is that it can act as a power supply – even if that protocol hasn't been fully thought out. And indeed one example was a video display with a single connector for both power and signal. Cute.

I'll say more when my home USB 3 works reliably. Too bad we can't just standardize on a common packet protocol instead of having one that depends on wires to define relationships.

Cars

There were a few car companies showing off their stuff. Now that cars have so much electronics and the dashboard is such a display the cars themselves are consumer electronic products. Cars have always been at CES but usually to show off audio systems.

Sort of like the days when porn was part of CES because it was sold on video tape. Though there are some devices at the show. But then how different is car lust from other kinds?

While cars are becoming smarter and the auto companies want to make the connected zones like our living room it will be hard to achieve that as long as we have to tunnel our way past the twisting and winding constrictions of the telecommunications business model. We also need to assure protocols that support stable relationships not only between fixed end points but among abstract ones like "cars near me". In the meantime we'll see some interesting hacks and silos like On*Star.

Against this is the fear of liability if the auto company can be sued for what the passengers do.

Payments

There was one payment system ([PayAnywhere](#)) competing with Square with their own credit card swipe phones. Turns out it was a subsidiary of a bank. Banks really do need to be getting into the game. The bank can also afford to spend



more on engineering the device.

Too bad they are one of the companies whose direct marketing uses spam lists.

ShowStoppers

ShowStoppers is a small invitation-only event typically held on the first night of CES. It's a chance to spend time with a few of the companies as well as catch up with friends and enjoy too much food.

A few comments looking at the [list](#) of presenters:

[Brother](#) was showing their computerized sewing machine. Interesting but I'm far more interested a version that can act as a computer peripheral. They do have a model with a USB connection but their site only mentioned using the connection for updates and patterns.

[Corel](#) was showing off some 3D editing. Since I take so many 3D pictures (one reason is to photograph my wife's fiber art) I have a personal interest in this.

One unusual display was from the Los Angeles Police (or Sheriff's?) department showing a "[cop car of the future](#)". Lots of nifty stuff but I did appreciate the degree of control over how the capabilities were used because there is a lot of potential for abuse. This is one area where monitoring is important.

[FXI](#) is listed but I don't remember seeing it or maybe forget. The tiny Android system looks interesting though the site is more about potential than actual applications and no mention of price.

[HP](#) was showing off their [tablet PC](#). Lighter than the Samsung I bought but less capable. Still, at \$600 or so worth considering.

[magicJack](#) is back. One thing I like is that it still has the feeling of a family run company. Their new product can plug directly into any Ethernet jack or, soon, connect via Wi-Fi. This is much better than the current products which depend on an always-on PC. But soon they will find out that much of the "free" Wi-Fi is locked down and requires a human reading a screen in order to connect.

magicJack spends a lot on advertising and maybe that will keep them ahead of a very crowded field of alternative "phone companies". How long will people continue to pay for something as trivial as voice or text conversation?

They should join me in getting rid of the scourge of "agree" screens and assist in putting lawyers back into a box so

they can't harm us by treating bits as dangerous because they allow us to communicate without prior restraint.

I've seen many advertisements for [NeatDesk](#) which scans and organizes documents but I wanted to understand more because I've been doing my own document processing since 1974. On the Mac the documents are indeed stored in the file system but on the PC they are in a database. Fortunately there is an API that I'd be able to use to access the data but only if I have an online subscription. The product would've been compelling twenty years ago but now it's just interesting since I get so much of my data online. Still, it is worth thinking about.

[PixelOptics](#) was again showing their electronic glasses – it switches between two positions as an alternative to bifocals. It is pricy at \$1200 but still a cute idea though not for me (which reminds me that I do need to get new lenses).

There were lots of other exhibits at ShowStoppers, many interesting, but there are plenty of other places to read about them.

ICCE

The International Conference on Consumer Electronics is held in conjunction with CES.

Samueli's Talk

I cover this [separately](#) where I contrast the hardware-centric view of history with my software/application centric view as part of understanding the market forces that drive Moore's Law style hypergrowth.

IPV6

John Brzozowski of Comcast gave a good presentation on IPv6 and Comcast's efforts to deploy. They even handed out V6 capable DOCSIS 3 cable modems and routers (which I plan to install on the Comcast connection I use for research).

As a member of [BITAG](#) I've been watching some of the carriers' efforts to deal with the shortage of IPv4 addresses and transition to V6. It is not a pretty sight because of all the devices involved and the need to do all this without breaking the existing networking capabilities.

We actually ran out of IPv4 addresses when we had to start using NATs to share addresses and now even that trick is running into limits as the number of LANs plus cell phones and other devices creates a demand for more than four billion unique addresses.

As I've [written](#), at this point V6, while necessary, doesn't address the real issue which is connectivity that supports

persistent peer relationships between devices, people, places and whatever.

Software is eating the world

One of the keynotes focused on the manufacture of LCD screens. It was very interesting but I noticed a tendency to refer to the screens as TVs and, indeed, historically that was the purpose of the screens.

Today we have just LCD screens whose purpose is determined by software but the industry is still making televisions – screens that are 1920×1080.

Of course the theme I'm stressing is that we are shifting from a world in which a device's function is defined by the manufacturer to one in which its function is defined by software and the context within which it is used.

On a larger scale it means we need policies that give all of us the ability to add value rather than limiting the value to one supplier. But this makes it difficult to fund manufacturing.

There is the related area of risk. I had a side conversation about risk. Safety is important but our processes tend towards risk avoidance without taking into account the corresponding benefit. We see this in automobiles where we can't give people access to the car facilities such as the screen lest there be a lawsuit. I [wrote](#) a short comment on this for Risks Digest.

Asides

Cash is so annoying

It used to be annoying to be on a grocery line as someone went through the process of writing a check. When buying food I had the same feeling being behind someone using cash and waiting for change.

While NFC (Near Field Communications) might be exciting for payments, the simple credit card is still a simple way to perform small transactions quickly. With a bounded risk there is no need to waste time on authentication.

Too bad it makes it easy to be tracked. It would be nice though, if my own detailed data could pass through end-to-end encrypted so it could be available to me without others peeking.

Synchronous TV

Because Boston is a JetBlue hub I often find myself on their planes which feature Direct TV. I don't usually watch it because synchronous TV is so annoying. Why can't I stop the stream and where is the metadata (information)

about what is being shown? It wouldn't take much to store the entire day's video content on the plane so there would be no need to rely on a broadcast stream that is often interrupted.

The effort that goes into providing TV would be better spent assuring Internet connectivity which could be used for the few live broadcasts without the limitations of channels. It's an idea far more applicable than just when I'm trapped in a modern isolation chamber.

Business Cards

As usual I come up with a stack of business cards to scan in. While having a scanner helps it only goes so far. I don't have all the information I would've liked to have recorded with the card and a number are missing.

If only we had a better way of sharing the information ... well, that goes into standards again.

Standards and all that

Finally we get to standards. I may refine this into a stand-alone memo after I get feedback.

What struck me at the show is all the different consortia working on standards in service of their members who are creating products.

What is missing is a way to create enabling technologies. In the early days of the Internet there was a different spirit of common discovery that stemmed from new world of software during a period of tool building.

We see some of this in the open source movement today because the participants were funded as researchers or they benefited by having common (software) tools and protocols so they can cooperate.

The protocols were not locked away behind complicated licensing agreements because that would have prevented them from serving the common interests of the participants.

That was easy as long as the bills were being paid by entities such as universities or governments. When I was at Microsoft I was able to finesse the issue because Microsoft would benefit by the availability of the protocols. It wasn't necessarily a good career move.

We were lucky when IBM had to make its hardware available to third party software developers but we can't depend upon luck, especially as investors have become very good at locking down the value derived from their investments and efforts.

With all the talk about innovation we forget that we need to provide the raw materials for innovation – opportunity and ways to a whole that is far more than the parts.

How do we fund enabling standards that benefit the larger society proactively? I don't have easy answers because efforts like Project [GENI](#) find it difficult to escape the past. Given all the scrutiny they receive they find themselves measured against more of the same rather than the unknowable future.

We need to understand that antitrust laws were a way to address trusts that controlled entire industries and prevented normal market processes from working. Today locking down value does. One recent example is Apple's iBook which seems to leverage Apple's control of the market for software for its devices to control the larger marketplace.

We also need to recognize the importance of even simple things like sharing data elements such as calendar and appointments. Today's approaches work impressively badly.

The other major point is the importance of individuals. With standards as platforms individuals can get enormous opportunity for transformative innovations.

As I wrote in a [recent](#) essay we're living on the markets enabled by decoupling hardware from software and applications from the transport (The Internet).

These issues should be at the forefront of the CEA innovation agenda rather than focusing. We need a sophisticated understanding of markets rather than a simplistic anti-regulation agenda.

For now I'm focusing on applying these ideas to liberating our wires and radios from a telecommunications industry which locks them away so they can be rented back to us at a profit. But it's only one manifestation of this far larger set of issues.

ⁱ Too bad someone might go and patent this obvious idea. Our patent system is not ready for the rapid innovation of a software-based world.

ⁱⁱ I am using terms like "watch" and "smartphone" because they are familiar though the terms don't do justice to the full possibilities of these devices.