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Futurama

Those that attended the 1939 World's Fair got a glimpse into the future when they walked into GM's Futurama exhibit—it was *the* thing to see at the fair. It showed a vision of the future that included



skyscrapers, super-highways, driving 100 miles per hour, and automation. It captivated people. The world's fairs, like science fiction, have always been a source of vision into what our new world would look like a dozen years or more in the future.

Lately, we've been seeing post-bubble predictions of the future in normally good newspapers and trade publications. Almost all of them easily fit into one of two categories—

- narrow predictions of next year's products based on industry speculation, or
- far-fetched ideas, completely devoid of technological progression, that rely on miracle breakthroughs to which no engineer would ever give merit. (The "cell-phone-implanted-in-your-brain" one stands out in particular).

So, can Iteon do better? Let's give it a go. Iteon presents our vision of the future, and we explain how we get there.

The scene is 2017, a dozen years from today. A young woman, wearing fashionable sunglasses and holding a credit card sized object, sits down in a café on her way to go grocery shopping. No pockets or purse (pockets and purses were soooo turn of the century). She writes and sends an email without moving her fingers. She makes a phone call without



speaking loud enough for anyone to hear. She surfs the web looking for a recipe for gumbo. She wants to hear some oldies, so she looks through her collection for some Madeline Peyroux. When she doesn't find it, she downloads

it between sips of her double-decaf-grande-nonfat-no-foam-latte (some things never change).

Just then she alone hears a voice (a calendar alarm, actually) telling her she needs to get to the bank to wire transfer the money for the capital call!). She sees the address and location of the closest branch as Google Maps flash before her. She takes off her sunglasses, takes a last sip of her latte, and she runs out of the café. Her bank account is debited for the half-finished latte as she leaves. Just before she gets to her car, the doors open, the hybrid engine starts, the A/C turns on, and the Madeline Peyroux starts playing in the car. The waiter calls after her holding her sunglasses. She turns. She slips and falls. Her device flies from her hand and lands in a puddle in the street. She sees and barely hears one of these new hydrogen cars passing by as it runs over her device. As she is getting up, she's thinking that her life is ruined (more accurately, it is her admin's life that is ruined). She'll actually have to *remember* what she needs for the gumbo, figure out where everything is in the store, and pay with, yuck, cash. She picks her device up, and wow—still working! She walks back in to get the sunglasses she left behind, and decides to do the wire transfer over the Internet while she finishes her latte instead.



So is this possible, or merely the device fantasies of a bunch of computer nerds? Just a credit-card-sized device and sunglasses that do everything?

Everything in this little story could be made today, believe it or not. Not everything is cheap, commercially available, or as small as described, but the technology exists today. Assuming that we continue to make the progress in chip density and efficiency predicted by Moore's law, and advances in battery size and efficiency continue, these products could easily be commercially available in a dozen years, assuming that there is a visionary to bring the future to the people.

Here's the technology:

1. A truly all-in-one credit-card-sized device. Right now, we can already fit 16GB of solid state NVRAM, an antenna, and a low power processor onto a device slightly thicker than three normal credit cards. The advancements will need to come in making more dense NVRAM (already being designed at Sony, Hitachi, and elsewhere), processors that will run on less power (Intel is working on this, as are AMD and others), and a lighter battery (again Sony). If you look at a Motorola Razr phone, you'll realize that we're not that far away. If Moore's law holds, in about 2012, we will be able to fit a 200GB iPod, a cell phone, a Palm-type organizer

(like the Treo650), a GPS, a radio, antennas, all your credit cards, a high resolution camera/camcorder (like the 5 megapixel ones available on Korean phones now), and your shopping list, all in one device, the size of a credit card. This will give the mechanical engineers and visionaries almost five years to make one that everyone will want—it will also give enough time for the prices to drop to a level that our heroine can easily afford. The case that protected the device—titanium. We at Iteon use the same hard stuff to play very mediocre golf.

2. A pair of glasses that handles all input and output (both visual and audible).

Our technophile from the future was wearing a pair of sunglasses that projected a display onto the lenses, piped sound directly to her ear using a laser-like sound technology, and had a mic that keyed off vibrations in her jaw and ear so she didn't actually have to speak above a whisper. It also had true voice recognition software (not the thing on your computer that you tried in 2002 that didn't work). In addition, there is a mouse that is cornea driven—the wearer chooses items on the screen simply by focusing their eyes on a location on the display. Here's how they're done:

- The display in sunglasses exists today. The resolution isn't great in the products you can buy in 2005, but it does exist.
- The laser-directed sound device was recently patented, and has been demonstrated around the country. It relies on a "beam" of sound which is directed at a single spot, i.e. your skin. This spot then becomes the diaphragm to transmit the sound to your eardrum. This technology is particularly interesting because it cannot be heard by others no matter what the volume—the same way you hear your heartbeat.
- Voice recognition exists today, and is surprisingly good (much better than just a few years ago), and is getting better. Ask a blind person—although a bit slow, it really works.
- With respect to using your eyes as a mouse—the basis of the technology exists today. Think about the cool autofocus binoculars you wish you had. They measure very fine distances as your cornea moves, to determine the amount of focus required. Someone will need to apply the technology to lateral movements of your eyes, but there is nothing that would keep this technology from being implemented in glasses.
- Microphones can (like speakers) be directed very precisely, and can focus under the skin on your jaw, and simply listen to the vibrations of your jaw. By mapping your voice, a computer (which is in the device) could easily take the vibrations created by in your jaw and, rather than amplify them, replace them with your own voice. Not a tinny auto-attendant voice, but your own voice that it has collected while listening to you talk in regular situations. This fuzzy logic of hearing words and intonations and mapping them to the vibrations in

your jaw can already be done in theory—it is just that no one has had a commercial reason to develop it.

3. Connecting it all. There are many standards for wireless communication right now:

- Bluetooth (low speed, lousy range)
- 802.11 (the standard that everything seems to be converging on and developing from)
- GRPS and CDMA-1xRTT (both capable of handling Internet-based traffic, but may be doomed because they are backed by carriers that want to charge per minute)

The main limitations right now are cell density and standards convergence. While it is possible that everything may go to one standard, it is just as likely that devices in the future will have antennas and radio processors that will be able to listen to many types of conversations at once.

4. Shopping carts that already know what you're going to buy.

This one already exists. A chain of grocery stores in the Northeast has chosen three stores to pilot this smart shopping already, and is planning on expanding to more.

You put your Club Card (like your Safeway or Albertson's card) into the cart near the small touchscreen. It pulls up the shopping list you entered at home, and organizes it by aisle. Every time you put something into a bag in your cart (no bagging at the end



either) from your list, it checks it off. If you choose corn flakes, it puts an ad for milk or yogurt on the screen, just below your running total. It reminds you what you bought last time and shows you current discounts on items you will probably buy anyway (based on previous purchases). At the end, you hit check out, sign the screen, and leave—no line, no clerk. It knows your payment method, and knows everything in the cart from scanners in the cart.

The futurama in this is that soon the magic carts will use RF tags and radios on the produce scales (no need for IR scanners), which will be much more accurate and will not require scanning. Also these carts will soon be smart enough and know

enough about your buying habits to tell you when things you bought last will expire (milk, bread, tomatoes, etc.), whether you already have something you are buying that you didn't likely use (4 cases of Pepsi), or if the item has trans-fats (something you are trying to avoid). No need to look at recipes until you start cooking—when you click a recipe, it checks to see if you have the items in your fridge or pantry, then puts the remaining items right onto your list. The kicker is that the experience will be best if you shop exclusively at one market, because you can train the system just by shopping!

There were more technology advances in our heroine's story, but making an iPod wirelessly connect to your BMW

is very 2005. Likewise, hybrids with keyless entry and doing a wire-transfer over the Internet may not be commonplace in Cleveland, but they sure are in San Francisco. With a little luck, in a few years we won't want that implanted cell phone—but at the same time, we won't be able to leave home without our devices as they'll truly do everything.

New Model Updates

MP3 Players, Phones

Since the last edition, a crop of new devices have made their splash, and a few devices have become the de facto winners in their respective fields.

iPod Mini

The **iPod Mini** from Apple took off in the first half of this year. It is intuitive, lightweight, makes a fashion statement, and holds, now, 6GB. Technically, the devices have worked well. Prices are about \$350 for the newer 6GB unit.



Creative Zen 60GB and iPod 60GB

Creative Labs 60GB **Nomad Zen Xtra** wins on technology, ease of use, price (\$350), and features. Apple 60GB iPod wins on style and marketing—even at \$450, it is still a must have for many.

Treo 650

The Treo 600 was an excellent device. The 650 is better, but not without room for improvement. It is much more stable (one crash a week with the latest firmware), the touch screen is night-and-day better, there is a removable battery, it has much better sound quality, bluetooth, and a better camera and video camera. Also, not lost on those of us at Iteon who love music, Real Player comes integrated and with a 1GB card (now \$89), you've got a very nice MP3 player.



Not everything is better, though. Two big pains: First, Palm removed some of the keys to make the keys bigger and farther apart, but in doing so added too many features to the two main keys, Call and the Center chooser. The net result is that you end up calling people (voicemail, last call, speed dial) by mistake. Also, when you do call, there is a very annoying second or two, where the screen does not switch to show you that you are attempting a call. During this delay (which is not always the same) you often hit dial again on the touch pad, which is exactly where the hang up button will be, and the instant the call goes through, your extra button pressing hangs up the line.

Overall, this phone is much better than the 600, but again, there is still room for improvement.

Razr

The big surprise around Christmas was the Motorola Razr. It currently runs about \$250



with a contract, and is as thick as three or four credit cards. It works well as a cell, has a nice display, and allows bluetooth. It is very light.

If you're expecting PDA like functionality, this isn't the phone for you. It has some limited features, but they are very limited. Nonetheless, as a light-weight phone and fashion accessory, it is pretty hard to beat.

Email Woes and Bad Actors

Recently SBC, Verizon, Earthlink, and AOL have all done things to make cause email to not work. Sometimes their moves have been to fight spam, but other times they are just doing a poor job, or worse, doing bad things on purpose to make more money. Here's a quick list of the worst offenses:

1. **SBC** will not set up reverse DNS for DSL customers. This means that many mail servers will not accept mail at all from SBC DSL customers. While SBC is not completely wrong in this matter (those that won't accept non-reversible mail are not the brightest either), by some estimates this issue is causing almost 1% of all mail being sent from small businesses right now to not get through.



2. In an effort to shunt spam, **SBC** is shutting off outbound mail servers without giving their clients any advance warning. These servers have been available for 15 years, and this action is causing many customers to lose outbound mail capability until alternate arrangements can be made.

3. **Verizon** has crippled new phones so that they may not use bluetooth to transfer to and from their computers (primarily so that they can make more money on their picture transfer service). There are multiple class action lawsuits pending right now on this issue.



4. **Verizon** has caused POP to not work, so Treo and other Verizon device mail users must choose between Good and Verizon's crummy mail sync client. No one can confirm whether this is an effort to make more money or simply Verizon incompetence.

5. **Earthlink** is ignoring mail and DNS standards, which is causing mail to Earthlink to not get through. There is a workaround to this, though (please call Iteon to set it up).

6. **AOL** has had very big mail issues this last month. They were caught without capacity, and as 5% of all email goes to or from AOL (by their estimates), this has had huge ramifications. Some inbound mail has been delayed up to a week before being delivered. Granted, AOL is also the bigger generator and receiver of spam in the world, but that is a topic for another day.

Please give us a call if you're having mail difficulties. We can usually solve the problems.

Buying A Laptop

Buying a laptop used to be pretty simple. You pretty much chose your vendor (IBM, Dell, or Compaq), then you choose the model. There were only a few models of each, and usually the price made the decision easy.

Now, there are a whole slew of other manufacturers including Sony, Fujitsu, and Toshiba. HP's merger with Compaq has left one vendor with two product lines that seem to have inherited the worst from each other. Also, there are a lot of vendors selling the same laptop for sometimes wildly different prices, and a gaggle of models with more options than any buyer of any product should have to sort through.

So which to choose? We'd recommend having Iteon help you choose—we can usually save you a lot of money, and get just the right model. But if you're in a pinch, here is a little laptop common sense that will help you make some of the choices.

1. Decide whether you want a large screen and a heavy computer, or a smaller screen and a lighter computer. It may seem like you can have it both ways, but really you can't.
2. Decide on your price range. Good laptops range in price from about \$1200 to \$3000 and up. Knowing your range will help you make a lot of key decisions.
3. In addition to screen size, the faster the processor, the heavier the computer. Also, the lighter the computer, the more you should expect to pay. Within each model (weight), though, a faster processor can add significantly to the cost.
4. Which brand? Dell is Iteon's laptop of choice for a variety of reasons, but mainly for reliability, price, and durability. IBM is also a solid choice for reliability, but they are often considerably more expensive and require a great deal of operating system cleanup—not a good value.
5. Avoid HP/Compaq—their laptop lines are not well these days, and Compaq's support has suffered from the merger.
6. Toshiba, Fujitsu, and Sony all make great consumer electronics, and their laptops are loaded with features (like huge screens, media drives, pre-loaded software). They are however expensive, prone to break if carried a lot, and pack less power per dollar. They are cool looking, but be prepared for problems from normal use.
7. Get the largest hard drive possible, and at least 512MB of RAM.
8. If you are ever going to use the computer at the office, get XP Pro (XP Pro is required to join a domain). If not XP Home can save you a hundred dollars.

9. Office 2003 is often bundled cheaply, and installation is free. Consider buying it with the laptop.
10. Try to time your purchase. Watching prices and sales and waiting a few days or a couple of weeks (especially on the Dell web site) can often save you many hundreds of dollars.

Iteon always recommends Dell, especially if you will be traveling and bringing the computer to the office. The Dell warranties are the best for the price, if a warranty makes sense for you. If you leave the choice to us, it will almost always be Dell.

Price Watch

Pricing Alert on Good. While Good's prices have not dropped (still \$330 per user, which is far lower than Blackberry), they have come out with a new version of the server that will run on the same box as the Exchange Server. This can save nearly \$3,000, if you don't need to buy that server for any other reason. Now may be the time to make that leap to Good. It really is good.

Pricing Cycle. Pricing on desktops from Dell, some laptops from Dell, and 17" flat panel screens are very low right now. Also white box server prices are low as well. We expect all of these prices to stay low for another month or two, but then prices will start rising (except the 17" flat panels, which will likely stabilize) as Intel and others release new products/models. Other notes:

- This is the time to buy desktops from Dell as workstations and high-end computers with 17" flat panels are under \$900. Expect prices on 19" flat panels to begin dropping in 2-3 months.
- Microsoft recently dropped prices on Win2003 Small Business Server. Coupled with low white box server prices, this is a good time to upgrade to Exchange 2003.
- Expect prices on large (120-300GB) hard drives to start dropping about mid-summer.

Iteon Consulting News

You may see some more new faces around. Rick McClain and Greg Kruger have recently joined us bringing over 40 years of experience between the two of them. You'll probably find that Rick, in addition to being a great engineer, just does not get ruffled—he's got two teenage daughters, so work is the calmest thing in his life right now. If you get the chance, you should ask Greg about his experience with Princess Cruise Lines, calling on a different port each day. Both of these guys are great and we really like them. We hope you do, too!

Again, we appreciate your business and support. Thanks!