

## Content Insider #69

### Shrinking Storage...Keeping Data Safe, Close At Hand

*"Distrust and caution are the parents of security,"*  
– Benjamin Franklin

In observance of the hard drive's 50<sup>th</sup> anniversary, we cajoled our kids into visiting the computer museum in San Jose. Seemed like an interesting way to get them to understand the technology that has impregnated their lives.

We unplugged our son's MP3 player white earbuds.

Made him leave his PSP at home.

Turned off our daughter's cellphone...no IMing.

Other than the sheer size, they were totally unimpressed with the world's first hard drive -- the IBM RAMAC (Random Access Memory for Accounting and Control) drive.



Our son reached into his pocket and pulled out his Verbatim 4GB USB flash drive and 8GB USB HD and asked, "So

what did they do with the 5MB refrigerator?"

It's tough to explain to a kid who knows **everything** that OSs and apps were smaller then.

After all, he vaguely recalls that photos were prints...videos were in the theater...phones were attached to the wall by wire...people wrote/mailed letters!

Damn...we like progress.

Instant everything. And he wants it all with him...all the time.



We remember luggables.

Then portables/subportables.

Now pocket devices.

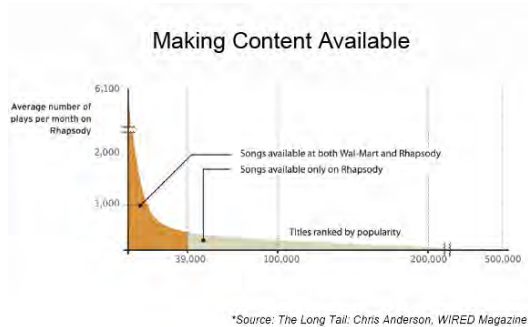
Next?

Who knows.

But no matter how small the device gets our storage requirements grow...in leaps, bounds...in megabytes, gigabytes.

The flash folks swear they are going to drive the hard drive into extinction. Just consider the features -- rugged, zero noise, broad operating environment, almost zero power requirements, darned good price/capacity ratio.

They just might **if** people followed Chris Anderson's long tail concept.



Once you get away from the top hits (music, video, whatever) demand and storage requirements should thin out.

Silly consumers.

Flash manufacturers claim there's no need for portable music storage beyond 4-5GB.

They point out you really only need 32GB on your computer.

15GB for Vista...17GB for all your ready-to-use stuff.

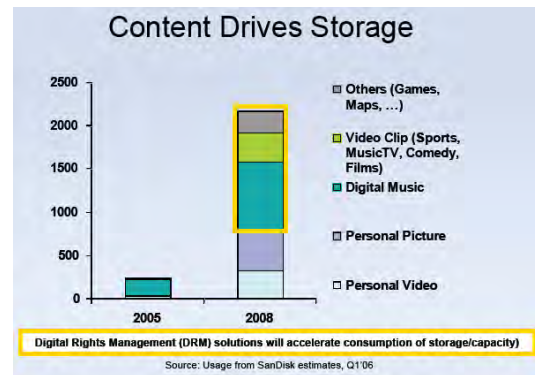
The rest?

Delete it...overwrite it...send it somewhere to retire.

Yeah but...

These people are engineers...flash engineers at that.

They forget – or blow off – the fact that people don't carry just songs with them anymore.



They “lug” along their video games...their photos...their videos...their music. Then they pack in other people's photos...other people's videos...TV programs...soccer and other games.

And they need their business presentations/papers, schoolwork, web downloads, email contacts/directories.

Add Tellywood's DRM (Digital Rights Management) ball and chains. Suddenly, you're talking serious storage.

**Holy C\*\*\*\*!**

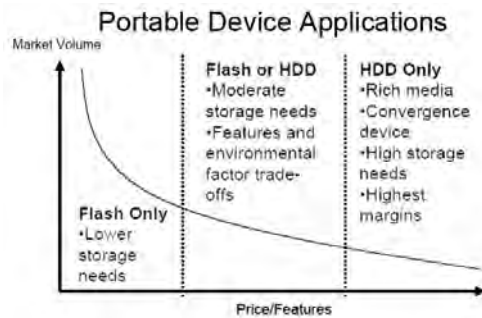
The more storage the industry gives us the more we want.

According to IDC, we create, grab, use, store 50-100% more information every year.

Over your lifetime you'll accumulate a whopping one petabyte (**that's HUGE!!**) of content – messages, web pages, photos, videos, music, documents, stuff.

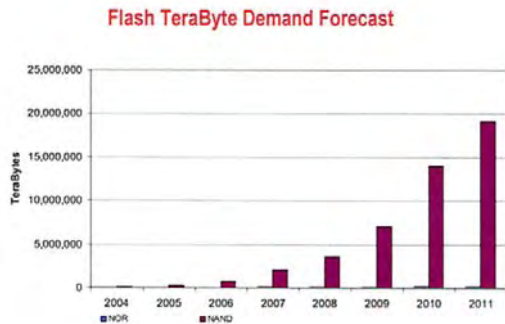
No wonder Seagate and Hitachi announced they'll begin shipping small 2 and 2.5TB HDs.

Both flash and HD have great futures – as long as they keep delivering more capacity **without** any increase in cost.



What we're starting to see are storage tiers – applications where flash is best, uses where HD is superior.

The chip may be the new storage kid on the block but it is in such hot demand.



In fact, NAND flash – used in cameras, phones, MP3 players, flash cards and USB drives – should hit \$16.2 billion this year up 45% over last year.

We're surprised that MP3 manufacturers haven't taken a leaf from the phone and camera playbook. You know sell cheap devices with a token of storage – 256MB of memory plus a flash or USB drive slot.

People are suckers for the low price. Then rack up profits with the consumables!

Worked for the Zip drive.

Works for printers.

Knock \$50 off up front and sell 1-4GB storage for \$75 - \$200 each.

Spin it right – “Now! You can separate your music genre to fit your mood,” “Keep your party photos separate from the family outing photos,” “Hide your really private stuff from your what the heck stuff.”

It is already being done...kinda.

According to InfoTrends more than 30% of the digital camera users never download photos from the card to their PC, to CD, to the TV.

They simply show folks their photos on the camera.

When one device is full...they buy another.

Thank you Joe & Jane Consumer.

The flash developers don't think small either.

They see the “logic” for a new flash solid state disk (SSD).

It isn't cheap but for military notebook computers, rough/tough operating environments and really clumsy users they make a lot of sense.

And since nothing spins, they are also very power conservative.

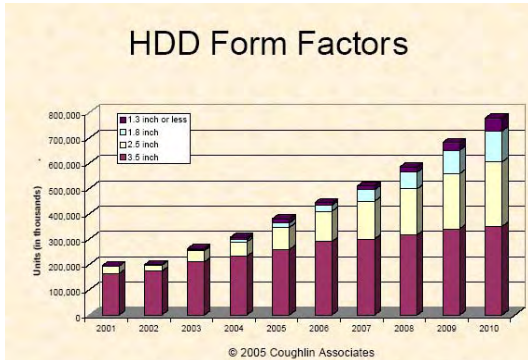
Of course you won't find SSDs in any \$500 - \$800 computer. Or in 30GB video iPods!

The capacity ground still belongs to HDs.

While IT folks still account for the largest percentage of HD sales (about 80% ac-

According to IDC, the shrunken HDs are the ones that get all the glamour.

The market for the 2.5-in down to 0.85-in HDs is growing rapidly (Figure 6).

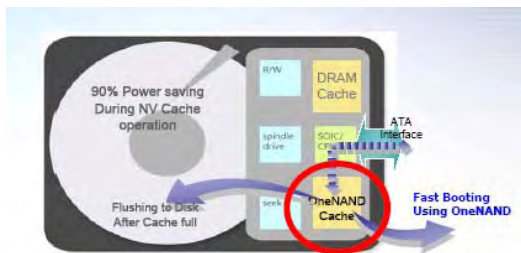


So are the capacities.

Just when 4GB USB flash became price competitive with USB HDs, companies moved up market to 8GB. Next 10 – 12GB.

With Microsoft's Vista almost ready to be released on the world (we're at RC 6.4.16 right?) they and Intel are talking up a new breed of drive.

Call it Piton, Hybrid HD/Robson or ReadyDrive; it marries flash and HD.



The pitch is that the new hybrid will reduce HD power consumption by reducing the number of times the drive has to spin up to search for data.

It will also increase the MTBF (mean time between failures) for the drive.

True.

Of course without this creative marriage it would take 15 minutes to load Vista.

That's like...forever.

But with all the cheap and portable capacity, we're facing an even bigger challenge ... your personal data storage/protection.

Flash people like to point out that another key reason business systems only need 32GB (of flash storage) is that IT should store all user data on the network in a central location.

Yeah...like we trust corporate and government data security!

That gives working slob a warm, fuzzy, safe feeling.

Likewise offsite backup storage with Google or Apple or Microsoft or the other online storage/recovery services don't fit into our content storage and protection scheme.

Scott McNealy (chairman of Sun Microsystems) was right when he said "you have zero privacy anymore. Get over it!"

But we aren't going to simply bend over and let them take their best shot!

That's why we like – and use – multiple USB flash and HDs...and a portable HD...and CD/DVD offline storage.

Every one of these bit buckets has password and encryption just for added security.

Granted it isn't as 'scientific' as Tollywood's DRM but we feel pretty comfortable using 128-bit AES (Advanced Encryption Standard) protection with our

storage devices...including our notebook computer.

It's good enough for Top Secret document protection and just look how secure government data is !

We aren't protection paranoid.

We just want to make it a little difficult for them to get our stuff...photos, videos, data, emails/addresses, passwords, access codes, presentations, personal/business information.

Having all of that content on your notebook HD is very convenient – ok cumbersome but convenient. At the same time, without a couple of security hurdles it is terrifically exposed.

Or you can put it on multiple USB flash/HDs as well as portable storage (HD, CD, DVD).

These storage devices are a lot easier to take with you, get through airport security and carry into a classroom or customer's office than the RAMAC refrigerator.

They are easy to carry...easy to use...easy to lose.

We've looked at the biometric units and they appear to be getting better.

We've read about the behavior-based trust solutions that bases security and access based on individual usage characteristics. When it becomes more mature we're all ready for it.

For right now, we'll put up with the inconvenience of using good-enough password and encryption protection for our storage devices.

Sure beats the H\*\*\* out of Tellywood's DRM (Digital Rights Management).

Took our kid an hour to get past that.

If the security folks could get Tellywood to buy into content protection that could be assigned to a user rather than a disc they might sell more stuff.

But they probably didn't experience fair use when they were growing up.

Andy Marken

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**Andy Marken** is president of Marken Communications and has been involved in the marketing of storage technology for more than 15 years. His experience includes work with Panasonic, Verbatim, Matsushita, Plasmon, Nikon, Mitsubishi Chemical and a number of hard drive manufacturers. Andy can be reached at [andy@markencom.com](mailto:andy@markencom.com).