

March 26, 2009

FROM THE DESK OF DAVID POGUE

## Should You Worry About Data Rot?

By DAVID POGUE

Last week, I shared with you an interview transcript from one of my CBS Sunday Morning stories. It reminded me of another great interview I've been meaning to share.

This one was for my "Sunday Morning" story about data rot, which aired a few weeks ago (<http://bit.ly/oFrX>). Meet Dag Spicer, curator of the Computer History Museum in Silicon Valley. It's an amazing place, as you'll see in this edited transcript of our tour and chat.

David Pogue: What is data rot?

Dag Spicer: Data rot refers mainly to problems with the medium on which information is stored. Over time, things like temperature, humidity, exposure to light, being stored not-very-good locations like moldy basements, make this information very difficult to read.

The second aspect of data rot is actually finding the machines to read them. And that is a real problem. If you think of the 8-track tape player, for example, basically the only way you can find 8-track cartridges is in a flea market or a garage sale.

The problem, strangely enough, is not so bad on the older stuff, but quite bad on the more recent stuff. So we can read tapes here at the museum that are 50 years old. You know, we bake the tapes first, and we extract--

DP: You bake the tapes?

DS: Yeah, we put them in an oven and we dry them out, because after time, the tape just sticks. It becomes one giant reel of goo, and you can't just peel it apart, because then you start peeling data off the tape. So there's a little wizardry involved in reading this stuff.

Even VHS tapes are holding out better; at least they keep playing if there's a problem with the tape. The real problem lies in newer formats. With a CD or a DVD, if there's an error, often it's non-recoverable, and you've just lost all your information.

DP: Most people would be shocked to hear that. A lot of people these days are paying to have their old audio and video recordings transferred to CD and DVD, and thinking, "now I'm done."



DS: Right. Thinking you're done because you've moved your photos onto a DVD is not a good policy to take; it's a mistake. And the reason is that the lifespan of DVDs varies from 5 to 100 years, according to testing. And if you leave it on your hard disk, well, hard disks only last five years, generally.

So every five or ten years, you should move it onto a different format, like from VHS tape to DVD. And that's fine, but then DVD is already obsolete, there's Blu-ray, and so what's going to happen in another 10 years?

Making lots of backups is good advice, and on different formats, different places; consider paper as an archival medium. Some paper we have has lasted thousands of years. If Moses had gotten the Ten Commandments on a floppy disk, it would never have made it to today.

DP: What about Internet backup services?

DS: Oh, the Internet--is that still around? [CHUCKLES]

Keeping it on the Web is also not a really great strategy. A very large photo site just went out of business, and they gave people, I think, a month's notice to say, "We've run out of money, get your photos off the site and put them somewhere." Web sites are fine for sharing, but in terms of preserving your data, I wouldn't recommend it.

DP: So let's say people don't do this 10-year migration. What's the worst case?

DS: The damage depends on the importance of the information in the first place. Personally, I find family stuff to be the single most important stuff that I care about. It is your memory. And when you lose your memory, you lose your personality, you lose who you are. And that's why it's very troublesome that we're taking all these wonderful pictures and movies, but not thinking about how long they're going to last.

DP: Well, who should be? I mean, should this be a government project? Should there be some company stockpiling machines in the salt mines? Whose job is this?

DS: It's really nobody's job, sadly. Technology is often just thrown over the wall, and the long-term consequences are not thought through. The computer industry is one of planned obsolescence. And if you don't upgrade, you start to fall behind the envelope. You know, your kids send you a video and you can't watch it, because you don't have an upgraded operating system, or your computer is too slow. There are all these pressures to get you to replace your computer every three to five years.

DP: Can you give me a couple examples of some of the offbeat technologies that people at one point embraced and thought was the latest and greatest?

DS: Well, sure. One of them, an early form of storage, was based on the idea of recirculating your information. It was actually a giant tank of mercury.

Thomas Edison built a system, a Dictaphone, that used a wax cylinder to record your voice. And when you wanted to erase it, you treated it like a lathe; you would get this sharp metal rod and scrape off the wax until it was smooth again, and then you could re-use it. (LAUGHTER) And, you know, strangely enough, we can still read those. They're 100 years old.

DP: I'm chuckling at the silliness of it, but I'm the fool, because 50 years from, now we're going to say, "We had these silver disks called CDs. And you— you'd put them into a slot." And our grandkids will be laughing.

DS: The only way I disagree with you is that it won't take 50 years.

DP: Hasn't anyone tried to create a truly permanent storage medium?

DS: One of the technologies for really long-term preservation was developed at Lawrence Livermore National Laboratory. It was, I think, a titanium disk about the size of a long-playing record, and it was supposed to last 10,000 years. But then they realized that there were some assumptions that weren't right, and that it would not last 1,000 years, it might only last 20.

Otherwise, as far as I know, no one is working on this problem. It's really in no one's interest, no manufacturer's interest; they want to keep selling you more hard drives every two to five years, or more blank CDs, and what have you.

And that's why it's almost like your retirement, it's something you have to take responsibility for yourself. No one is going to do it for you.

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