



The internet at 40

Pioneers: Shawn Fanning

In 1999, a disaffected, clever young teenager named Shawn Fanning pioneered an internet application that would rock the music industry to its foundations – a search engine called Napster. Professor John Naughton of the Open University takes up the story.

Fanning was a music buff, fascinated, passionate about music. Like many of us he knew that even then - this was the '90's - there was a lot of music out there because compression technology for mp3's which would shrink the size of music files had been in use for some time. On the internet there was actually a lot of music, a lot of tracks which had been uploaded by enthusiasts and so on, and Fanning knew that, but he also realised that it was infuriatingly difficult to get hold of them, and also infuriatingly difficult to arrange some system by which these files could be shared. And so eventually he sat down in his bedroom, I guess, and he wrote, in six months, some software which would tackle the problem, he wrote a small program called a client, which you downloaded onto your machine, and he wrote a server program which would run on a big computer with good internet connections, on the network itself, and he called this system Napster.

What Napster did was, if you had music on your computer and you downloaded the Napster client, this small little program, then what would happen is that when you next logged onto the net the little program, the Napster client would, as it were, call up the mother ship, the Napster server and it would say, hey, here I am, here's my current address, and on my owner's hard drive are these files in a shared folder which he or she is willing to share, and that was the first thing. So the server then logged this information, here's this person online, this is the current internet address and here are the files they would share, and that all goes into the database, and then somebody else logs on and they type into the Napster search engine, I'm looking for '*Can't Get No Satisfaction*' by the Rolling Stones, and the Napster server would look and say well, at the moment there are five people logged on and each of them has that in their shared folder – would you like to collect it? Like a dating service, it would put the requesting computer in touch with one of the computers which shared it, and then the fellow got shared. It was as simple as pie, and it worked like a dream, and in no time at all Napster went from zero to 80 million users, more or less.

Now this was a terrible surprise to the music industry, and the reasons for that are very complex, and you probably need to be a psychiatrist to understand them, but what you need to remember is that music was digital from the early 1980's, the first CD player was marketed in Britain I think in 1982, from 1982 at any rate, music was digital. The record companies owned studios, artists created tracks and those tracks were encoded in bits, ones and zeros, and that at the other end consumers had CD players which took those bits and converted them back into sound, and the problem the industry has is how do we get our bits from the studio to the player at home. And the answer they came up with at the time, in the early '80's, was we're going to make plastic discs and we're going to burn these bit streams onto those discs and then we're going to put a label on them, and put the discs into a box that breaks, and then we're going to put the boxes into larger boxes, and then they're going to go into crates, and then go on a truck, and they go to a warehouse, and then they go from the warehouse to the retailer, and the retailer takes the discs out of the boxes, and eventually the disc containing the bits gets to the consumer's player and he or she puts it into the player, and the player reads the bits and converts them back to the music, that's the way they did it, that's the way they got bits from one place to the next. And that was fine at the time; there was no other solution to it.

The problem was that eventually the internet came into being; and the thing about the internet is that it's a global machine which is designed to take bits from one place to the next, and to do so without very much cost. So the music industry actually was presented with a technology that could have been its dream, it could have stripped most of its costs out, at least fifty percent of the costs of a CD go to distribution, at a stroke. But for some reason, and this is where I say I think you need a psychiatrist to understand it to some extent, the music industry ignored it. Now the other thing that was significant here is that once you went into the business of making CD's, you're into the business of physical production, it's called shipping atoms, to ship bits, and physical production has all kinds of economies of scale and diseconomies of scale, it's expensive. And what that meant was that it no longer became economic for the industry to supply single tracks. If you wanted a single track you had to buy it in an album basically, because the economics of the business worked, the physical business worked with albums, collections of tracks, but it didn't work for single tracks because it was just too expensive. And that's what they did, the industry supplied albums basically, it supplied CD's which had twelve songs on them or whatever. But the market, the demand for single tracks never went away, but the industry couldn't meet it because of its economic structure and the rest of it, but when Shawn Fanning invented Napster the internet could deliver tracks and it did, and that's why there was a brief period during the heyday of Napster when, I think, almost everything that had ever been recorded was available somewhere on the net, and Napster could find it and get it for you. Somebody christened Napster the 'celestial jukebox' and it was a pretty good term, a pretty good description.

Now eventually the record industry, of course, used its lawyers and its legal muscle to get Napster shut down. But it was Pyrrhic victory because by that stage the genie was out of the bottle and, in particular, teenagers had got hold of the idea that you can find anything, any music track you want on the net, and you can have it for free, and that has nearly destroyed the music industry. Now the great paradox of all of this is that in the end if the music industry in its old form is going to be saved, it'll be saved not by a music company, but by a computer company because it was Apple who had the idea that if we could provide a simple way of doing legal downloads, music downloads, then that might, in the end, eliminate or at least reduce piracy and illegal, illicit copyright-infringing file sharing. So you've got this strange irony that an industry which disdained internet technology may, if it's going to be saved at all, it'll be saved by a computer company which saw the opportunity and harnessed it.