



The bottom line is that a PC manufacturer can take an identical product and sell it for a lot less than a consumer electronics company.

The interaction among devices may be where computer makers have their greatest advantage in the TV market. PC companies tend to innovate at a much higher rate than consumer electronics firms - that's the nature of their business. Watch them shake things up, offering integrated wireless technology and network support.

Opening salvos

Of course, the game is far from up. The likes of Sony, Sharp and Toshiba are hardly going to sit back while their PC rivals march into the living room. This is just the first salvo in what will be a long, drawn-out and protracted war. Last October Toshiba started selling TVs in Japan with ethernet connections for downloading firmware updates. The first update will add an internet browser so people can surf the web using their TV.

And there are new entrants to the flat-screen display market in the UK. Built to Sky's own specification, the Sky Home Entertainment System features a 42in plasma screen and 300W Sky home cinema system with Dolby Digital 5.1. It's yours - if you're a Sky customer - for £3,750. Meanwhile Freeview set-top box manufacturer Humax has just started selling 17in and 30in LCD TVs complete with built-in digital terrestrial set-top boxes.

As all these newcomers don their boxing gloves, witness ever-shortening upgrade cycles for display technology. I'm afraid that widescreen CRT TV you bought complete with DVD player for £799 18 months ago simply won't cut it anymore. ☒

Dell's bid for the living room

Fancy swapping that beige-and-boring CRT monitor for a slimline LCD TV or a whopping great gas plasma display? Maybe you should wait for Dell TVs to reach the UK. Guy Dixon investigates

There can be no better example of an escalation in the battle for the hearts and wallets of home technology users than Dell's move into LCD TVs. Although the world's leading PC manufacturer remains coy about a precise launch date in the UK following last Autumn's US debut, rest assured that you'll soon be able to buy extremely competitively priced LCD TVs from the computer giant, along with MP3 players. Prices start at \$699 (around £420).

Where Dell goes other PC manufacturers are sure to follow. In the US Gateway has already established itself as the leading supplier of large gas-plasma displays, grabbing 28 percent of marketshare and putting it ahead of Sony and Sharp less than a year after launching. HP has also strongly hinted that it's eyeing up the TV arena.

For the high jump

The move from PC to TV is less of a jump today than it would have been a few years ago - the two devices are moving ever closer together. As PC manufacturers push computers towards home entertainment (witness Windows Media Center and entertainment PCs from a host of PC firms), so TVs gain more features typically found in PCs such as DVD recorders, PVR (personal video recorder) hard disks and internet connectivity.

PC makers typically have much more efficient operations than most consumer electronics companies. The nature of how high-street electronics have been sold to date is very different to the PC market. The consumer electronics industry is used to profit margins of 30 to 40 percent. The PC industry, by contrast, thrives on 10 to 12 percent margins.



Confessions of a TV downloader

First it was music downloads but she managed to kick the habit. Now it's even worse - it's American soap operas. Nora Diniro gives us an insight into the life of a serial TV downloader

I know what happened to President Palmer after the end of the last season of *24*. I know how Rachel and Joey are getting on as a couple in *Friends*. I could tell you the latest goings-on in countless TV imports, from *Will and Grace* and *Frasier* to *Six Feet Under* and *Sex and the City*.

How? I'm watching the TV shows at the same time as America. No more waiting, hoping that the next series will be picked up by a TV channel over here. And no more scheduling nightmares.

Tempting TV

Television you want to watch when you want it. That's the digital dream, right? The only slight problem is that it's all completely illegal.

Downloading TV may seem somehow less illegal than music or movies - I mean, it's free anyway, right? - but it's not. It may also seem hardly worth it as it will after all be shown here. Eventually. But once you've started it's hard to stop.

I was an avid fan of the first series of Fox's real-time drama *24*, obediently waiting for Sundays to come so I could get my weekly hit. I watched the first 20 episodes according to the BBC schedule

- then someone told me that the last four episodes were available for download. Right now. No more waiting. Hmm.

Spin on six months and reports about the new series of *24* appear. Not enough to tell you what happens but enough to whet your appetite. Downloading four episodes, while not

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easy peasy, was achievable and carried little risk. If it all fell through I could just rejoin the viewers on BBC2. But a whole series? What if I miss one? It will be at least six months until it's shown on

TV here. That's one hell of a time to go cold turkey. Double hmm.

Risky business

It was a gamble but distribution mechanisms had advanced and, as a result, obtaining a weekly fix proved easy. And while I'm at it, I thought, I might as well download *Friends* at the same time. And so it continues.

Legal aspects aside, there are advantages and disadvantages to this. On the plus side you get to watch American TV without having to wait at least six months (and sometimes years). It doesn't take that long to download if you know where to look and once you've downloaded it you can watch it when you like.

On the down side you have to rely on people you don't know continuing to put the shows up for download. You also have to put up with schedule breaks with no new episodes for a couple of weeks, so the networks can make the seasons last longer.

US networks are cottoning on to these illegal activities. Just like music, TV downloads are only set to increase. Burying your head in the sand doesn't work - just ask the record labels. But where do we go from here? ☒

Next-generation station

If the Walkman defined the 1980s and the PlayStation rocked a nation of 20-something clubbers in the 1990s, the PSX is Sony's answer for the third millennium. Guy Dixon investigates



When the PSX arrives in the UK some time this year, it is likely to be a TV tuner, hard disk, DVD digital video recorder, PlayStation2 and broadband internet access device rolled into one. It's the first in a series of Sony products to draw on the power and sophistication of its console processors to offer features more usually associated with PCs, hi-fi and set-top boxes.

Falling profits

This is more than a whimsical stab in the dark from Sony. Though the Walkman creator has established an almost unassailable lead in the games market with the PlayStation2, of late Sony has suffered falling profits and a lack of hit products.

At its heart the PSX is a games machine primed with the same EE+GS processor chip found in the latest models of PlayStation2. This means you'll still be able to blast baddies or tear around the racetrack with the same level of gaming performance you would expect from a standalone PS2.

But the PSX's target audience is a different breed from the usual gaming tribe. It's positioned as a post-VHS home appliance - applicable to virtually any family member.

Any age, any gender

The emphasis is on high speed and ease of use. So in addition to harnessing the latest PS2 processing power, the PSX should benefit from a speedy yet simple menu system.

This means it could potentially rival the Sky+ set-top PVR (personal video recorder) for ease of use. Whack a broadband connection on top, online access to pay-for music, games and video content and suddenly Microsoft's Windows Media Center and BSkyB's Sky+ have got another major rival on their hands.

Two PSX models have already gone on sale in Japan priced at around £420 and £600, although Sony was forced to drop key features (such as the ability to play back recordable DVD) in order to make the Christmas period. The DESR-5000 has a 160GB drive while the DESR-7000 houses a 250GB disk and both can record on optical disc - either DVD-R, DVD-RW or DVD+RW. A 12-speed recording rate is possible when copying previously recorded video from the hard disk to a DVD-R optical disc.

Want more features? It is widely expected that the PSX will be able to load pictures in Jpeg, TIF or GIF via either a Memory Stick slot or USB

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connection to a Sony-brand digital-still camera. The UK version should also support MP3 and offer an ethernet socket for connection to a network.

High hopes, high stakes

Critics have raised many an eyebrow over how big a splash the PSX will make. There's a lot of noise out there with massive companies staking their future on making sure they own the 21st-century living room before the PSX even makes its UK debut.

But as a journalist who bet against the success of the original PlayStation back in 1995 when it challenged the then mighty Sega for the 32bit console crown, I'm not going to be so foolhardy this time around. ☒



Content over protocol

Never an issue with analogue content, digital music piracy continues to cause arguments between consumers and content producers. But there's a possible peacemaker on the horizon. As Will Head finds out, the catchily named DTCP-IP standard aims to settle the disagreements once and for all

Content producers' love affair with the digital age has soured of late. They may have originally welcomed the opportunity to sell us our favourite music and movies in digital format but this seems to have been offset by ever-growing concerns about digital piracy.

Although copying was officially a no-no in the analogue era because the quality degraded with each reproduction, producers weren't overly concerned. Ever decreasing production values with each generation meant that content wouldn't stray too far from the source. A digital copy, on the other hand, is an exact replica of the original. Couple this with the peer-to-peer distribution mechanisms and the internet and you can see why content producers are worried.

Easy for you to say

DTCP-IP (digital transmission content protection over internet protocol) may not be a particularly snappy title, but it has huge implications for digital content distribution and how we'll use music and films in the future. The protocol offers a compromise between piracy concerns from content providers and ease of use for consumers. Without a system that satisfies both, the digital home will never become a reality.

It's fairly easy to setup a secure system on a single computer. But if

you want to keep all your content in one place and access it from any device then DRM (digital rights management) gets in the way. DTCP-IP allows content to remain secure on its way to the playback device.

With DTCP-IP, transferring music to your car would simply be a matter of parking up in the garage and wirelessly downloading the tracks to your vehicle's player. So long as the server trusts that the player in the car belongs to you, no other enforcement is necessary

The system works on the basis of trust. The server negotiates with the client and, once it establishes that it's a trusted device it can communicate with, sends the data in encrypted form. Because server and client understand one another, the client can decrypt and display the data. And as the system is

entirely secure, there's no need for draconian copy-protection measures. We can simply go back to enjoying the ease of use you get with an analogue system.

Keep it in the system

The aim of DTCP-IP is to keep the content you've paid for inside the system you own, rather than lock it down to a single device at a time like current DRM systems.

With analogue content it's fairly easy to move it around the various devices you have - like copying a CD on to tape to play in the car. While this technically violates copyright, it's an accepted practice providing you own the original CD.

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DTCP-IP provides a secure network environment within which the content protects itself. To the user it's completely transparent, providing they don't try to move it off their own network. And for the content provider it offers a secure environment into which they can supply digital content with as much, if not more, protection than in the analogue realm. ☒



Like TV only better

As Microsoft's Media Center and Sky+ prepare to woo a nation of couch potatoes, one journalist has seen it all before with Tivo - in his mind, the best option around. But before you head down to the high street, Tivo's already gone to the technology heaven in the sky. Will Head reflects on what might have been

It's time to let you in on a little secret. I've seen the future and it's not orange. It's silver, about the size of a VCR and it's sitting in my lounge. You could have had it too - except you were too cheap to pay for it.

But there's no point kicking up a fuss now or sulking in the corner. If all the signs are to be believed, it looks as though you're too late. It was right there sitting in front of you - you could have nipped down to Dixons and picked one up right there and then. Bosh, job done.

It had all the hallmarks for success - simple to use, a unique idea and a completely new and better way to approach something you take for granted. But no, it's too late. You blew it. I hope you're happy with yourself.

We did tell you...

I'm talking about Tivo - you know, that thing with the cute bouncy guy that pauses live TV. Now, to be fair, some of the blame lies with Tivo itself but I still love it and I've learned to forgive.

Tivo made mistakes with what little marketing it did do - pause live TV! Who gives a damn, granted. Tivo should have concentrated on the other aspects, which I'll come on to later. But even without a successful marketing campaign by Tivo, it's not like we didn't do our best to tell you

to go out and try one of these things. I challenge you to find a journalist who, when push came to shove, wouldn't run past the dog and rescue their Tivo if the house was on fire (obviously going back for Fido later).

And it's not like it was that expensive. Any new consumer item is going to cost above average, but it seems that you thought Tivo was trying to pull a fast one with the subscription for TV listings thing.

Now, if you could just put down your mobile phone and step away from your games console for a moment, I'll explain. Tivo did you a favour in subsidising the hardware and not bundling the subscription charge into the full price of the unit. You see, when retailers work out their prices they work them out as a percentage of the price of the unit. If Tivo had put the subscription charge in there then you'd have had to pay for the sub with the seller's margin on top.

And at least Tivo offered a lifetime subscription. It doesn't look like that's coming anytime soon to Sky+'s next-best-but-nowhere-near-as-good offering. Admittedly, Sky has recently offered to waive the £10 a month charge - providing you subscribe to at least one premium channel. Checking out the horrendously complex pricing



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structure, it looks as though the cheapest subscription package that qualifies for free Sky+ is the £31 Sky Sports World & Family pack. Good if you like movies and sport, not so good if you just want a PVR (personal video recorder). And all of you non-Sky digital customers, you'll have to cough up £199 for the box and £100 installation plus a £10 monthly subscription.

So what's so great about Tivo then? Well, stand up everyone that can use their video to record programs that are shown at a later time than advertised. Sit down if you put in a four-hour tape on long play, hit Record and leave it running in the hope it'll be on there somewhere.

And if you get the kids to do it, you can sit down as well. Of those of you still standing, take a seat if you've forgotten on at least one occasion to set the video to record part of a series and subsequently missed an episode. Or recorded the wrong channel. Hmm, it's getting a bit lonely up here.

Just ask Tivo

Tivo, on the other hand, doesn't concern itself with times and channels. It deals in programmes. 'Tivo, I would like you to tape every episode of *EastEnders* from now on until I say stop.' 'Certainly sir, not a problem.' 'Oh, but next Monday's *EastEnders* clashes with *Give Me A Makeover And Sort Out My Mental Kids While You're At It*. Can you record the repeat on BBC3 instead?' 'Already taken care of, sir.'

Another thing Tivo teaches you is that if you've taped something and not watched it in a week you're probably never going to watch it.

Hands up anyone who's got more than two unlabelled tapes next to their video, all with stuff recorded on them, but still buys more blank tapes just in case. By default, when Tivo runs out of space it deletes the oldest programmes to make way for the new (you can tell it to keep specific shows). This takes a while to get used to, but think of it more of a window of opportunity to catch that programme when it's convenient to you, rather than an everlasting archive.

To live with Tivo is to love it and I definitely couldn't go back to videotapes and set-it-and-hope video programming. But for technology like this to take off it needs consumer support

Not more, just better

Last bit of audience participation, I promise. Who's sat there, gone through hundreds of channels, found nothing interesting on and ended up watching crap? In Tivo world, you've got a dedicated channel guaranteed to be jam-packed with your favourites. You don't necessarily watch more TV, just better TV.

To live with Tivo is to love it and I definitely couldn't go back to videotapes and set-it-and-hope video programming. But for technology like this to take off it needs consumer support. So the next time something comes along - give it a chance. Or we're all going to be stuck with our VCRs come 2010. ☒

