

PAY TV PIRACY

Financial Review Special Investigation

How NDS made the price right

From page 1

the controversy surrounding the Israel-based technology company, which was sold to Cisco for \$5 billion last week.

NDS provides security for pay TV broadcasters, using an encryption process called conditional access based on a smartcard that is inserted into the customer's set-top box of pay TV providers such as BSKyB or Foxtel.

The pay TV pirates hack the smart card encryption codes and make their own versions of the cards, which they sell on the black market. People buying the pirate cards can then watch satellite TV without paying the provider.

NDS and other such companies had their own security teams to thwart and prosecute the pirates. Some employed the services of hackers to deconstruct black-market smart cards and act as informants.

NDS, which provided DirecTV's conditional access system, had in October 1999 secretly developed an electronic countermeasure that its engineers believed would kill off most of the pirate cards.

It was 15 months before NDS, which was being paid more than \$90 million a year to provide security for the DirecTV system, moved to kill off the pirate cards in January 2001, when the DirecTV sale negotiations were well down the track. By that time relations between DirecTV, NDS and News were at breaking point as DirecTV was demanding that an American hacker who worked for NDS should be banned from any contact with DirecTV cards.

DirecTV sued NDS twice over its use of hackers. The lawsuits were finally dropped, with court files sealed only after News finally got control of DirecTV in early 2004.

Back in 1997, three days after the launch of DirecTV, hackers auctioned off stolen code for the new

BSkyB card, on which the DirecTV card was based, in the Dorchester Hotel in London.

With the DirecTV NDS card hacked, piracy of DirecTV became deeply entrenched in North America as dealers in Canada and the Cayman Islands supplied pirate cards.

In July 1997, DirecTV switched to a replacement card produced by NDS, called the P2. But in a daring counterattack, Canadian pirates smuggled two Bulgarian hackers, Plamen Donev and Vesselin Nedeltchev (Vesco) into the US, where they hacked the new card.

Donev produced a "glitcher" device that transformed the way pirates could attack pay TV access cards, and by mid-1999 DirecTV had 6.8 million subscribers but there were up to 1 million pirate cards in circulation, as the number of different hacks for the P2 on the pirate market multiplied.

NDS and DirecTV fought back with electronic countermeasures that changed the codes for their cards, and were targeted to kill known pirate cards.

Operational Security, a secretive unit attached to NDS headed by Reuven Hasak, a former deputy chief of the Israeli domestic security service, Shin Bet, managed to recruit Donev in early 1999.

Hasak's team gave Donev a codename, Pluto, but they weren't sure what to do with him. Meanwhile they were struggling with constant glitching attacks on NDS cards by pirates.

"Because Pluto has created this device he could be of use in finding ways to counter it — both in the immediate time frame, and in the long-term," NDS engineer Yehonatan Shiloh suggested to Hasak in June 1999.

Operational Security gave Donev copies of 61 different pirate cards for

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Pay TV piracy hits News

Secret emails reveal scandal

Exclusive

Neil Chenoweth

A secret unit within Rupert Murdoch's News Corporation promoted a wave of high-tech piracy in Australia that damaged Austar, Optus and Foxtel as News was trying to take control of the pay TV industry. The piracy cost the pay TV companies millions of dollars a year. Foxtel, of which News Ltd holds 25 per cent, is in the process of acquiring satellite broadcaster Austar for \$1.9 billion, cementing its dominance of pay TV. Austar shareholders will vote on the deal on Friday.

A four-year investigation by The Australian Financial Review reveals a global trail of dirty tricks targeting competitors by Operational Security, a group of ex-police and intelligence officers within News Corp.

Their actions devastated News's competitors, helping it acquire rivals at reduced prices — including DirecTV in the US and Telepiù in Italy.



Engineer David Cottle in Sydney this week. Inset, from top: Ray Adams, Reuven Hasak.

Hacker who got stung

Neil Chenoweth and Angus Grigg

For the undercover watchers in Rupert Murdoch's private security force, David Cottle was the "king", the "coordinator" of all hacking activities in Australia.

He called himself "Blood 007" online and hosted web forums about hacking pay TV smartcards — he certainly didn't think his telephone records could be hacked. "Cottle is the pirate in Oz," wrote Wigall Gutman, the Asia-Pacific head of Operational Security at News Corp's NDS unit. Cottle denied being part of a global hacking team when The Australian Financial Review located him in north-western Sydney on Monday.

"Good luck to them proving it because I was never involved," he said. But the 47-year-old father, who was employed by Fox Sports to

The Australian Financial Review yesterday provided access to thousands of emails from an archive of 14,400 once held by former Metropolitan Police commander Ray Adams, the European security chief for News Corporation subsidiary NDS from 1996 to 2002. To download the emails, and catch up on the story so far, visit our website at www.afr.com

the DirecTV P2 card. After some delays, by October 1999, Donev had analysed the 61 cards and narrowed them down to 22 different hacks.

"I have a solution for 18 of the groups," Donev wrote to NDS engineer Asher Arbit on October 20. "They are all similar... they don't have any DDT blockers [barriers to stop the NDS countermeasures known as Digital Dirty Tricks], so we can kill all of them permanently."

He was confident of finding a solution for three of the remaining four groups. He was still working on an idea to knock the last group out.

By October 23, Donev had managed the seemingly impossible, the task that had defeated some of NDS's finest engineers. "Hi Asher, here is the solution for most of the hacks." He rattled off dozens of lines of coding targeting a location on the smartcard known as 8000h, for the electronic countermeasure.

"There are 20 different packets sent to each of the cards. Every card should receive the packet twice. The first time it prepares the card for the ECM (if the signature match), the second is the actual killing. It is permanent!

"I have tried to reprogram a card after this ECM [entitlement control message] and I did not succeed. I am sure, you would not need an explanation how does it work..."

Arbit wrote back to thank him. Then followed a long silence.

After a month-long review, Arbit emailed Operational Security's European chief, Ray Adams, and Hasak on November 21, that Donev's solution was "original, new and of great value".

"He has provided a very effective way of killing cards, which will be almost impossible for the pirates to reverse," Arbit said.

NDS engineers had some thoughts on how to improve on the idea, but they would not be implemented.

"Due to the politics of the DIRECTV situation, [NDS operations manager] Raffi Kesten has prohibited any future kills. Therefore, this idea will probably never be implemented.

"So we should compliment Pluto and at the same time tell him that this idea will probably never be used."

DirecTV, meanwhile, because of intellectual property issues, did not have the legal right to launch any

Australian police join News Corp

From page 1

because NDS feared he was working for one of its rivals.

"Getting his itemised telephone billing would tell us who he is in contact with abroad. Do you have the resources to do that?" Mr Adams asked an NDS executive in January 2000.

Eight months later, the NDS executive told Mr Adams: "We know EVERYTHING about him (every single detail). The one thing we cannot seem to get is a printout of his phonecall billings, as this is illegal to do in Oz."

A spokeswoman for Communications Minister Stephen Conroy said yesterday: "These are serious allegations, and any allegations of criminal activity should be referred to the Australian Federal Police for investigation."

News Corp has categorically denied any involvement in promoting piracy.

"The AFR story is full of factual inaccuracies, flawed references, fanciful conclusions and baseless accu-

sations which have been disproved in overseas courts," a statement issued by News Limited corporate affairs in Sydney said yesterday.

"The United States Department of Justice, a federal court jury and a federal appellate court have all rejected allegations that NDS was either responsible for TV piracy or for distributing codes to facilitate piracy. Moreover, the United States Court ordered NDS's accuser to pay \$19m to cover NDS's legal fees and costs," the statement said.

"News Limited and Foxtel have spent considerable resources fighting piracy in Australia. It is ironic and deeply frustrating that we should be drawn into a story concerning the facilitation of piracy."

The editor-in-chief of the *Financial Review*, Michael Stutchbury, said the newspaper "welcomes any further independent investigation of the serious matters brought to light."

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Michael Stutchbury, AFR editor-in-chief

subsidiary NDS," Mr Stutchbury said. "News Limited today responded by suggesting that 'the notion that alleged NDS actions in Australia were done to undermine Austar so that Foxtel could bid for it 13 years later are so far-fetched as to be laughable'.

However, our report in no way suggested that NDS-related piracy in the late 1990s and early 2000s was done with the purpose of helping

Foxtel to buy Austar now: that would be laughable.

"News Limited further also states that US courts have rejected allegations that NDS was responsible for piracy. However, Chenoweth's report drew on masses of email material that was not presented to the court cases concerned. Legal correspondence today confirms the authenticity of these emails.

electronic countermeasures against pirates. Only NDS could do that — which meant that Kesten's decision left DirecTV defenceless despite paying NDS more than \$90 million a year for security.

Arbit did not say what the politics were. At the time, NDS was pressing DirecTV to switch over completely to its new P3 card. But General Motors was also a likely seller of its DirecTV stake.

Zvi Shekdy, an NDS engineer who had been copied onto Arbit's message, emailed Hasak: "Reuven: Who, if and when we have to tell him?" Hasak replied: "Zvi, the first part of its should come from you and cc Ray and me... The second part NOT TO BE MENTIONED!!!!!!"

The decision not to use Donev's work to kill the pirate cards would remain a close secret.

Finally, 15 months later, on what pirates called Black Sunday, January 21, 2001, NDS used Donev's technique to knock out pirate cards.

NDS chief security officer Dani Ratner wrote to Donev to thank him.

"I am sure that you are aware of our operation that practically killed (as we believe) hundreds of thousands of pirate cards.

"Guess how we actually killed them? Yes you are right!!!! We used your ideas — your way to screw location 8000h." Ratner said all the gang that knew about Donev's role "praises your support and thank you for the wonderful idea that make all of us happy and the pirate cardholders frustrated".

Two weeks later, on February 6, 2001, Rupert Murdoch flew to Detroit to address the General Motors board, which approved due diligence for the Sky Global-Hughes deal. On February 20, the chairman of Hughes Communications, Michael Hughes, walked out of a meeting with Murdoch.

In October 2001 GM decided to sell the Hughes stake instead to rival broadcaster EchoStar, after Murdoch dropped his cash offer by \$1 billion.

The EchoStar deal was knocked back on anti-trust issues in 2002, after lobbying in Washington by News, leaving GM to divest its Hughes stake to the only remaining substantive bidder, Murdoch.

News Corp has consistently denied any role in fostering pay TV piracy.

"Anyone who reads Chenoweth's extraordinary report will be struck by the complexity and murkiness of the relationships, actions and motives involved in the NDS story."

Foxtel released a statement yesterday saying it was "focused on building subscription television choice for consumers and we use many external service suppliers".

"NDS is one of them. Foxtel notes that there are no allegations of wrongdoing by Foxtel," it said.

Pay TV is regulated in Australia by the Australian Communications and Media Authority.

ACMA declined to say yesterday whether it was investigating the claims, but it is believed there may be informal discussions taking place seeking more information.

The Broadcasting Services Act covering the suitability of a licensee to hold subscription television broadcasting licences says ACMA may find a company unsuitable to hold a licence on a number of grounds, including whether its record "in situations requiring trust and candour"