



Not all's well in the world of satellite broadcasting. Accusations of smartcard forgery abound.

Photo: AP

studies in the early 1990s, while he was in prison in Israel for terrorism offences after he was part of a failed conspiracy to blow up the Dome on the Rock mosque in Jerusalem.

Kommerling, who wrote the classic text on reverse engineering with his friend Markus Kuhn, trained Tsuria's Israeli technicians in their techniques. By mid-1997 the NDS technicians were working on both the EchoStar Nagra card, and the Mediaguard card made by French group Canal Plus Technologies. NDS says reverse-engineering rival products is common commercial practice.

In his court affidavit, Mullen says Kommerling contacted him again in February 1998 about the EchoStar hack and on March 13 he met Kommerling's associate, John Luyando, at the Hilton Hotel in Windsor, Ontario. Luyando offered to sell the EchoStar source codes for \$US1 million but the deal fell through over price. He says shortly afterwards he learned the EchoStar hack was being sold through Tarnovsky.

Reg Scullion, another Canadian pirate, in an affidavit filed by EchoStar, says he was contacted in mid-1998 by Al Menard, the operator of pirate website dr7.com, who told him he was putting together a network of dealers to sell hacked EchoStar cards with the assistance and protection of NDS.

EchoStar says Scullion made a note of this phone call that he taped to the side of his fridge, where it was seen and photographed by a DirecTV agent when Canadian police raided Scullion's house in May 1999. (NDS says Scullion's affidavit is inadmissible because he died last February and could not be deposed. His testimony could not be relied upon because he described himself as an "arch enemy" of Tarnovsky after an earlier disagreement.)

There was little love lost between News Corp and EchoStar. In November 1998 Ergen was finalising a humiliating \$1.3 billion settlement agreement with Murdoch over the failure of the merger talks the year before and the forced sale of US broadcasting spectrum and two satellites.

To rub salt in the wound, DirecTV had become so alarmed at its losses from piracy it had paid EchoStar's conditional access provider, NagraStar, to report on how to switch over its cards from NDS.

NagraStar executives believed their cards' security had never been breached. But when they visited DirecTV's offices on November 3, 1998, to discuss the card change-over, they were shocked to be told that their cards had

been hacked; DirecTV executives were able to provide confidential details about how the smartcards worked.

Later that month, EchoStar says, Tarnovsky began posting portions of the NagraStar code on pirate sites under the pseudonym of the Swiss Cheese Group.

On EchoStar's version of events, NDS's undercover efforts read like a thriller. But an even stranger story was unfolding in Europe, beginning with the discovery of the body of a young German hacker, Boris F, hanging in a Berlin park on October 22, 1998, four days after he disappeared on a short walk from his parents' house. Four years later German authorities concluded that Boris committed suicide, but his parents and the Chaos Computer Club in Germany remain unconvinced — his feet were on the ground, the belt he was hanging from was too large to be his, and his stomach still contained what they say were the identifiable remains of a meal his mother had cooked for him four days before.

Boris had been mentored by Kommerling and Kuhn.

When queried about correspondence from NDS found in Boris's possessions, an NDS spokesman initially said NDS had offered him a job as a consultant, which he declined. Adams later told a journalist that NDS had offered Boris a university scholarship in Israel.

Working with an unidentified associate, Boris had obtained the source code and a partial hack for Irdeto cards, which were then used by Premiere in Germany. There is speculation that the code, perhaps

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inadvertently, was sold to two parties.

Among the NDS emails quoted in EchoStar's lawsuit (which NDS lawyers say may be forged) is a memo in late 1998 from NDS employee John Luyando to Reuven Hasak about Kommerling's recent visit to Jerusalem:

"On Monday morning, Yossi [Tsuria] and I had breakfast with Alex [Kommerling] at the hotel. Yossi was relaxed and talkative, and the atmosphere was very open and, in my opinion, was a good discussion. The discussion was around Boris and the implications of criminal elements entering this [NDS] arena. The two seem to agree that this was no suicide. They also said that it does not seem possible that a commercial company would take such drastic steps just to save its product. (Yossi said: 'There's a limit to how far I will stretch my neck out for Rupert Murdoch.')

EchoStar says other NDS internal memos in November 1998 "express concern over their future budget to employ its hacker-employees due to a cost-cutting reform and suggesting another hack of its technology to retain the need for their budget".

In more internal correspondence in December, EchoStar says NDS executives described a move to set up a company called ADSR with Kommerling to give him "a business face that will explain to others what he is doing" and asked for sample smartcards from each area that Irdeto worked in, to make Kommerling's hack of the Irdeto system "effective and untraceable".

Europe's pay TV industry was in flux. In early March 1999, Rupert Murdoch met Canal Plus chief Pierre Lescurie to discuss merging BSKyB with Canal Plus's Italian pay TV service, Telepiù. But the talk ended over the French insistence on retaining control of the merger. Lescurie memorably said: "We will have the leadership, or nothing."

Later that month, Telepiù was hit by a wave of piracy. On March 26, 1999, the source code for Canal Plus smartcards was posted on Al Menard's dr7.com website. The source codes opened the door to pirate not only Telepiù's programming, but also Canal Plus clients using the same system, including Sogecable in Spain, the Astro system in Malaysia and the struggling ITV Digital in Britain.

It was later revealed that NDS was providing financial support for a British website, thoi.com, which carried software to pirate ITV Digital cards. NDS said it was unaware of this. It claimed the Canal Plus cards had been hacked well before they were posted on dr7.com, that they had not come from Tarnovsky, and if they had, he was acting as a rogue employee.

Meanwhile Swiss hacker Jan Saggieri had noticed that one of the Canal Plus files posted on dr7.com on March 26 was corrupted. In an affidavit filed in the Canal Plus case, Saggieri says he emailed Tarnovsky, whom he knew from his days in Europe in the early 1990s, to ask for a new version of the Canal Plus file. Tarnovsky agreed, but sent the wrong file. The 8K binary file he emailed Saggieri was not Canal Plus's source code. It was EchoStar's.

On June 18, 1999, Adams wrote to Hasak about the recent recruitment of more hackers: "The one hostage that we carry into all these deliberations is the weaknesses in our technology [access cards]... So given that the technology can be hacked very quickly what do we do. Do we abandon recruitment [of other satellite pirates and hackers] and leave everything to ECMs, in which case we will lose our customers [DirecTV] in a short space of time. Or, do we continue to recruit [hackers]. This gives us time to get the technology correct... What we need is support. In the main that is money, money, money.

"... JOD was heavily involved in the DTV negotiations. He thinks we will lose them soon. We will lose them quicker if P3 is hacked. This must be a major concern."

EchoStar claims that by early 1999 NDS, through Al Menard, was operating a network of dealers selling pirated EchoStar smartcards,

produced by a reprogrammer developed by Tarnovsky which he called "Stinger". EchoStar says Tarnovsky continued to service the network for the next two years, though NDS says there is no evidence for this. On May 5, 2000, EchoStar quotes an NDS memo about Tarnovsky titled Report Week 18: "You will note that suspicion has fallen on MIKE [Tarnovsky]... There are a series of threatening statements inasmuch that MIKE is behind DR7 [Allen Menard and the website dr7.com] and therefore MIKE hacked ECHOSTAR etc, etc."

Several months later narcotics police in Hays County, Texas, were alerted to a series of suspicious parcels delivered to a postbox Tarnovsky had rented, pretending to be a student at Southwest Texas State University, with instructions to forward all mail to his home in California. EchoStar says Tarnovsky had been receiving parcels on almost a daily basis from Al Menard and others containing CD players or various kinds of electrical equipment. A police sniffer dog reacted to the smell of drugs in the parcels and several were opened, to reveal each contained approximately \$20,000 in cash. NDS says there is no evidence the money was linked to satellite piracy.

EchoStar says that on December 14, 2000, US Customs told the Hays County narcotics task force that they were investigating Tarnovsky, who "worked for NDS in California and was believed to be counterfeiting or pirating satellite TV access cards".

EchoStar says on December 21 and 24 Tarnovsky released the full EchoStar ROM code on piratesden.com, writing: "tHeRe WiLl bE nO bOxEs aNyMoRe! tHeRe WiLl bE nO mOrE fIghTInG aMoNgSt uS. LeArN fRoM ThIs aNd prosper." NDS says there is no evidence the post was by Tarnovsky.

EchoStar says the way was now open for pirates to hack its programming. NDS denies that Tarnovsky made the posts and argues that ECMs conducted by NagraStar shortly afterwards negated any further damage.

On January 9, 2001, when US Customs officers visited Tarnovsky's home in California for a "knock and talk", Norris told them Tarnovsky had been an NDS employee for years, that any electronic equipment in his home was for anti-piracy work, and that he should not be questioned without an NDS lawyer present or his house searched without a warrant.

By early 2001 EchoStar's security staff were pursuing Canadian piracy dealers over their relationship with Tarnovsky and NDS. Gilles Kaehlin, a former French counter-espionage officer heading Canal Plus security, was also closing in on Tarnovsky over the Canal Plus hack. In a lawsuit Canal Plus filed against NDS in March 2001, it claimed Tarnovsky contacted Kaehlin and arranged a meeting in London where he said he was tired of working for NDS and was interested in working for Canal Plus.

In later meetings, Kaehlin says in an affidavit in the case, Tarnovsky told him it would be "extremely difficult to leave NDS because he was afraid of certain NDS employees but didn't want to say more". Kaehlin claimed Tarnovsky had used a form of non-verbal communication to confirm that NDS was responsible for the publication on dr7.com of the Canal Plus code, which had been sent to him by Reuven Hasak via Norris by email for it to be published on the net.

In a last meeting in December 2001 Tarnovsky told him he would testify if asked but would not be a whistleblower because he was frightened. In January 2002, after Canal Plus outlined its findings to NDS, Kaehlin says Tarnovsky emailed him that he wished no further contact.

Canal Plus lodged its lawsuit on March 11. But its parent, Vivendi, had gone into a disastrous spiral and was forced to sell assets. By June 11, Vivendi had agreed that if News Corp bought Telepiù, Canal Plus would drop its case. This show would never play.

Adams had quietly resigned from NDS the month before. He'd had a little problem with his car.