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SCO have filed a suit against IBM, alleging misuse of proprietary UNIX secrets in their Linux contributions. What does it mean for Linux and open source? What does it mean for UnitedLinux? Can IBM fend off this attack and permanently sever ties between proprietary UNIX and Linux? *Linux Format* investigates...

On March 7th this year, SCO Group, the current owner of the UNIX operating system, filed a legal action against IBM for more than \$1 billion, alleging that IBM "misappropriated" parts of SCO's proprietary UNIX technology and gave it to the Linux development community. SCO, formally Caldera International, have further alleged that IBM engaged in unfair competition, breach of contract, and interference with SCO's business.

"It is clear from our stand point that we have an extremely compelling case



against IBM. SCO has more than 30,000 contracts with UNIX licensees and upholding these contracts is as important today as the day they were signed", said Darl McBride, president and CEO of SCO.

The initial announcement sparked a flurry of comment, and certainly

generated an amount of anti-Linux FUD (Fear, Uncertainty and Doubt). Many were concerned that the action, while initially filed against IBM, could be applied to many Linux vendors and projects, though in subsequent comments to the community, SCO have outlined that this is not the case. So what is the beef with IBM...?

Anatomy of the suit

The basic breakdown of the suit is a series of claims that IBM gained UNIX technology through licences and partnerships with SCO, and then unlawfully released or made available this technology in the form of code for Linux.

While specific claims in the lawsuit have received mixed responses from the development and enterprise communities, it seems that few people believe that IBM are worried by the case, mostly because of the wording, which many who have studied it say contains somewhat vague and uncertain language.

The 30-page filing contains four core parts: "Misappropriate of Trade Secrets", "Unfair Competition", "Interference with Contract", and "Breach of Contract". However, the most interesting parts lie in the section "Background Facts", where SCO puts forth 103 paragraphs of statements regarding the basis of the case.

In order to better understand the suit, it's important first to understand the history of UNIX. Originally owned by Bell Labs/AT&T, UNIX was later

owned by an AT&T subsidiary, USL, which was then bought by Novell, which was in turn acquired by Caldera. This Bell Labs UNIX is the ancestral codebase of modern UNIX systems such as Solaris, HP-UX, and IBM's AIX, and the term UNIX includes all those operating systems, as well as SCO's UNIXWare.

Sun, HP, and IBM all own perpetual licences to the UNIX source code purchased from SCO or its predecessors in interest, and all three modified that code to work on their own systems.

Starting with paragraph 1, SCO state that "UNIX and SCO/UNIX are widely used in the corporate, or 'enterprise,' computing environment." SCO continue alleging their market dominance in paragraph 23, "Except for SCO, none of the primary UNIX vendors ever developed a UNIX 'flavor' to operate on an Intel-based processor chip set."

These particular paragraphs have been a sticking point for many reading it, because paragraph one is written in such a manner as to imply that SCO UNIX is widely used in the corporate computing environment, whereas it simply says that *UNIX* is widely used – and the large majority of those UNIX systems are not provided by SCO.

Indeed, for their own part, SCO's Securities and Exchange Commission (SEC) filing for this year states "Our business is focused on serving the needs of small businesses, including replicated site franchisees of Fortune

cover feature



Sam Palmisano, President of IBM, revealed his company's ambitious Linux strategy at LinuxWorld NYC, January 2001

lawsuit!

1000 companies" – not what most people would describe as an enterprise computing environment.

The claim in paragraph 23 that no other "primary" vendors ever developed UNIX to work on Intel has been said to be even more spurious, partially because there is historical proof on Usenet that Sun had Solaris working on 386s as early as 1993 and that IBM announced a project to port AIX UNIX to the 386 back in April 1987. Users of FreeBSD were particularly surprised, given that many users have been running FreeBSD, which derived from BSD Unix, on Intel hardware since early 1993.

Some have said, though, that the most damning evidence against paragraph 23 is a post made to the newsgroup comp.sys.intel by Tim Ruckle of SCO on September 25th 1991, in which he said "For the benefit of the entire user base, as well as the industry as a whole, SCO encourages all UNIX System vendors for Intel processors to join SCO, USL, Intel, ISC and OSF in supporting the IBCS-2 standard for x86 applications."

Paragraphs 82 to 86 change the tone of the suit from laying down SCO's version of the state of UNIX software to alleging that the development of Linux was not likely to

get where it is today without IBM's involvement, or more specifically, without the misuse of UNIX intellectual property.

Paragraph 82 states "Virtually none of these software developers and hobbyists had access to enterprise-scale equipment and testing facilities for Linux development"

The primary rebuttal from the community on this front is that Linux shipped an SMP (Symmetric Multi-Processor) capable release as early as version 2.0, and it was stabilised by 2.0.36. SMP is a core feature of so-called enterprise scale equipment, however the key point of interest here is that the hardware to develop SMP was donated to Alan Cox back in 1995 – by none other than Caldera!

Paragraph 83 fires a broadside with: "As long as the Linux development process remained *uncoordinated and random*, it posed little or no threat to SCO, or to other UNIX vendors". Given that IBM didn't join the Linux scene until around 1999, many are perhaps quite rightly upset at having eight years of community development written off as "uncoordinated and random". By 1999, Linux development was already streamlined towards productivity, and Linux itself was making drastic inroads into the

"SCO is the thief who puts a gun to his own head and says give me your money or I'll shoot... The claims I've heard are specious, and not enforceable in court. Why, then, is SCO doing this? They want to be purchased."

– BRUCE PERENS



middle-range server market.

While few can doubt that IBM have brought a certain degree of respectability to Linux, and also, of course, that they have submitted a variety of excellent patches to the community, IBM have certainly not changed the way Linux is developed – as a group of the IBM kernel hackers said in a Slashdot interview, "Linus himself is wonderful about accepting patches on technical merit alone. He doesn't 'grade' them differently if they come from ibm.com or mit.edu. We submit patches the exact same way that everyone else does: append the patch, mail to Linus and CC linux-kernel. If it's good, it gets in. If it sucks, you get flamed."

However, if the previous statements were decried as being dubious, paragraph 84 had even more to offer: "Prior to IBM's involvement, *Linux was the software equivalent of a bicycle. UNIX was the software equivalent of a luxury car*. To make Linux of necessary quality for use by enterprise customers, it must be re-designed so that Linux also becomes the software equivalent of a luxury car. *This re-design is not technologically feasible or even possible at the enterprise level* without (1) a high degree of design coordination, (2) access to expensive

and sophisticated design and testing equipment; (3) access to UNIX code, methods and concepts; (4) UNIX architectural experience; and (5) a very significant financial investment"

As we have already seen, the Linux development has had a high degree of co-ordination for a long time now, owing largely to its streamlined, distributed development process. Furthermore, we have seen that Caldera donated hardware to Linux developers in order to speed along production of an enterprise-level kernel. With regards to the requirement of "a very significant financial investment", surely the opposite is true – open-source development seems to do rather well for itself despite operating on a shoestring budget.

It is, however, item 3 in the list that strikes some as peculiar, because SCO/Caldera make available online "for UNIX enthusiasts" the copies of the source code for 5th, 6th, and 7th Edition UNIX, although to be fair these are covered by a licence restricting their use. However, BSD is one of the most popular UNIX systems available, and it is of course entirely Open Source. Ultimately, it could prove difficult for anyone to conclusively prove what code is really owned by whom.



The key claims

The alleged wrongs SCO wants put right

- IBM misappropriated SCO's trade secrets and confidential information.
- IBM engaged intentionally and foreseeably calculated to undermine and destroy the economic value of the UNIX source code "anywhere and everywhere in the world".
- IBM contributed trade secret protected software code for incorporation into one or more Linux or other free UNIX-like software releases.
- IBM induced and encouraged others to violate confidentiality provisions and to misappropriate trade secrets and confidential information.
- IBM subjected SCO's UNIX trade secrets to unrestricted disclosure, unauthorised transfer and disposition, unauthorised use, and has otherwise encouraged others in the Linux development community to do the same.
- IBM's misappropriation was willful, malicious, and in reckless disregard
- SCO stands at imminent risk of being deprived of its entire stream of all UNIX licensing revenue in the foreseeably near future.



IBM have been coincidentally been investing \$1billion a year in their Linux strategy.

« However, as SCO have stated that paragraph 84 is a fact, they build upon that fact in paragraph 85, saying: "For example, Linux is currently capable of coordinating the simultaneous performance of 4 computer processors. *UNIX, on the other hand, commonly links 16 processors and can successfully link up to 32 processors for simultaneous*

*operation...*The ability to accomplish this task successfully has taken AT&T, Novell and SCO at least 20 years, with access to expensive equipment for design and testing, well-trained UNIX engineers and a wealth of experience in UNIX methods and concepts."

This particular paragraph will prove particularly interesting once the case

gets to court, for two reasons. Firstly, Linux is well-known to run on systems with many more than four CPUs. For example, according to the Linux Documentation Project, UltraLinux (Linux ported to UltraSPARC) runs on 14-CPU SPARC-based machines, all the way up to 24-CPU Starfire E10000s. Additionally, Peter Rival (of Compaq/DEC at the time) uploaded the boot messages of a 31-CPU AlphaServer booting up Red Hat Linux with no problems. By this point, he was actively working on Linux support for the Alpha system.

Secondly, SCO's own release of UNIX, SCO OpenServer, cites "Support for systems with up to 4 CPUs", so it's almost like SCO have got this claim entirely backwards!

Paragraph 86 pretty much sums up SCO's position: "*It is not possible for Linux to rapidly reach UNIX performance standards for complete enterprise functionality without the misappropriation of UNIX code, methods or concepts to achieve such performance, and coordination by a larger developer, such as IBM.*" (emphasis added)

As seen above, it has been argued by many that it was indeed possible for Linux to advance as fast as it has done, mostly because community support – and increasingly

commercial support, but not necessarily from IBM – has been behind kernel development.

The Suit Against IBM

To this point, the suit was aimed pretty squarely at attempting to prove that Linux is not ready for enterprise use. However, there are five paragraphs towards the end of the suit that are aimed at proving IBM was directly behind Linux's speedy development cycle, and that they wanted to help Linux in order to destroy SCO's UNIX business.

At first, many Linux users didn't bother commenting on these parts of the suit, particularly because of their

UnitedLinux

Keep your friends close and your enemies closer...

SCO are one of the founding members of UnitedLinux, along with Conectiva, SuSE, and Turbolinux. As SCO have been so roundly criticised over this lawsuit, will this affect the UnitedLinux partnership?

SuSE are, paradoxically enough, also close partners with IBM, which seems to leave them CAUGHT in between two warring parties. Sources from inside SuSE have said that there have been high-level discussions taking place recently to try to resolve the potential conflict of interest here – it will be interesting to see where those high-level discussions lead.

In the meantime, SuSE's official statement is as follows:

"We at SuSE were greatly disappointed to learn of the SCO Group's recent actions. While we agree that SCO has every right to enforce

their intellectual property rights, and while we strongly believe that this does not impact Linux (as even SCO has made clear), we are concerned that these actions are not in the best interest of customers, partners and the Linux community. Accordingly, we are currently re-evaluating our relationship with the SCO Group. That said, we want to very clearly and unequivocally voice our support of the ideals and goals of UnitedLinux and the Linux community."

The other major partner in United Linux, Conectiva, also have reservations about SCO's actions. In an interview given to MozillaQuest, Conectiva's Gordon Ho has criticised much of the logic in SCO's preamble, asserting that various versions of Linux were enterprise ready before IBM were even interested in the OS.



Darl McBride, President and CEO of The SCO Group.

focus against IBM. However, more and more people are taking the opinion that IBM, despite being a very large company, deserve all the support they can get. It's also here that the case starts to stray onto particularly hazy ground – it attempts to prove that IBM has taken code from the proprietary UNIX codebase and dumped it directly into the Linux source code.

At first, it might seem fairly cut-and-dried to prove code copying – simply compare two lots of source code and look for an undue amount of similarity between the two. However, many people in IBM who previously worked on their AIX UNIX system were moved to Linux development at a later date, so it's quite possible that code designed to accomplish a particular task will naturally look fairly similar – after all, it may well have been the same programmer writing the code.

A key paragraph in the case is number 92: "IBM quote: Linux cannot fill that need today, but over time we believe it will. To help out we're making contributions to the open source movement like the journal file system... We're willing to open source any part of AIX that the Linux community considers valuable"

AIX is IBM's port of the UNIX code to its own platforms, originally AIX would have been almost entirely proprietary UNIX code. However, IBM apparently also built AIX on BSD code (not covered by UNIX intellectual property) to a great extent, and changes would have been made by them to add support for new features, optimise slow parts of the system, remove old features, etc.

Few outside of IBM are likely to know how much of the original UNIX source code remains in AIX, and this is where SCO are unhappy: if there are parts of AIX which do retain the original UNIX code, then it would be a breach of trade secrecy if IBM were to give such code away.

IBM's eagerness to help Open Source software may cause problems, as the suit highlights two quotes from IBM executives that in hindsight – particularly if it is found that AIX still contains UNIX code – would look particularly embarrassing. In paragraph 95 of SCO's complaint, we see "IBM's AIX contributions were integrated into the standard Linux source tree, a win for open source", then, in paragraph 98, "IBM will

exploit its expertise in AIX to bring Linux up to par with UNIX"

Carrier-grade Linux

One of the last claims made in the suit is in paragraph 102c, where it is alleged that "A carrier-grade Linux project has been undertaken to use UNIX code, methods, concepts, and know-how for the unlawful purpose of transforming Linux into an enterprise-hardened operating system"

Bill Weinberg of Montavista suggested that as a company, they were 'unconcerned' with SCO's action, as their work on hardened Linux was not based on UNIX code. As a founder member of the Open Source Development Labs Carrier-Grade Linux Working Group, Montavista helped create the spec for *Carrier Grade Linux* and are currently the only ones shipping a product that complies with this specification, and so regard the claim that their carrier-grade functionality owes something to SCO with a certain amount of derision.

What are the possibilities?

If IBM were to lose this case, where would it leave Linux, and indeed what would it mean for the Open Source community as a whole?

If it is found that Linux does indeed contain 'contaminated' code, then the method of resolution is likely to be entirely down to SCO – they can force the removal of offending code and claim extensive damages from IBM, or they allow the community to retain the code and still claim extensive damages from IBM. However, from discussions on the kernel developer lists and elsewhere, it seems that IBM has contributed little code that could fall under remedy terms of this action to the kernel itself.

In this event, Free Software developers across the world would need to be that little bit more careful when accepting code from companies that have potentially conflicting interests, in order to ensure this situation is not encountered again. As far as the community is concerned, this kind of lawsuit can only be bad – potential users may see proprietary developers such as Microsoft as being unaffected by these legal issues, and thus potentially a better bet.

However, if IBM comes out as the winner in this suit, it should hopefully sever any potential legal ties perceived

COMMENT

Nick Veitch, Editor – *Linux Format*

Whether or not IBM have acted unlawfully, which is obviously a matter for the court to decide, it seems that this case will change things. It won't change Linux. It seems that any exposure to 'tainted' code would be very limited. The likelihood of a successful SCO following up this action with other claims against Linux developers or vendors is slim.

It won't even change IBM's relationship with Linux. Linux is not just a convenient part of their strategy, in many ways it *is* their strategy, and they have certainly invested much more money in Linux than they stand to lose.

From what we have seen, most of SCO's preamble about Linux, in my opinion, doesn't really stand up to much scrutiny, whatever the validity of their claims about IBM. It is important though, because it forms the basis of their damages claim.

The law in cases like this can be unpredictable. If it does go to a jury trial, it could be even more unpredictable. But maybe a trial isn't part of SCO's plan at all. The worst-case scenario for them would be if it went to court and they lost. There are other options – they could hope that the unpredictability of the outcome forces IBM to settle. Or they could hope for a buyout. With their main assets including

a fair amount of intellectual property, one logical purchaser might be the largest single holder of technology related intellectual property – IBM.

Win, lose or buyout though, it seems with the unnecessary degrading terms used to describe Linux, SCO has burnt its bridges with the Linux community as a whole. By implying that the whole Linux community is a bunch of uncoordinated morons incapable of creating 'enterprise' software without stealing code, SCO will find themselves crossed off quite a few people's Christmas card lists. It also puts their Linux work in jeopardy, and further strains the relationship with the rest of the United Linux consortium.



"SCO has burnt its bridges with Linux...by implying that the Linux community are morons incapable of creating 'enterprise' software."

between proprietary UNIX and Linux, keeping Linux free for the masses.

The suit was filed in Utah, SCO's base of operations, but IBM have recently asked for it to be moved to federal courts. The process of filing suit in one's own state is such a common tactic in the US that it has its own name, "home-towning". Having a case conducted in your own state – where the judges need to win re-election regularly – is often thought to be biased towards the company making the filing, on the grounds that the presiding judge may favour local companies. Federal court judges, however, have life-long

positions, and so are not considered to be easily swayed.

Regardless of where the suit will be heard, SCO have already done well for themselves. From a low of just above \$1 a share part-way through February, SCO stock is currently selling at \$2.84, with particularly heavy trading taking place (and a corresponding share price jump) immediately after the announcement.

How the suit will pan out remains to be seen, however it has already sent shockwaves through the community, with the promise of much more to come. 