

Dark Matter

Just as physicists face challenges in gauging the quantity of Dark Matter in the universe, so do analysts, authors, and end-users miscalculate the rate of Linux adoption. Whether we look to enterprise servers, network infrastructure, embedded devices, or to that most luminous of computing bodies, the desktop, there is no agreement on how pervasive Linux and FOSS are becoming, nor on the best way to measure their progress.

Accepted market figures for Linux build upon hardware vendors' reports of how many systems ship with Linux pre-installed. With proprietary OS software, like Windows, MacOS or legacy UNIX, such figures are reliable due to strictly controlled per-unit software licensing. With Linux and other Open Source software, a completely different paradigm applies. The GPL and most other FOSS licenses do not require that hardware distributors count the number of instances of the OS shipped. When hardware vendors do count, they do so to measure their own product share.

How does Linux make its way onto most computers, anyway? Most Linux adoption is "after market", that is, not as factory-installed software. Worldwide, organisations that use Linux end up installing it over existing Windows disk partitions or beside it in dual-boot configurations. Legacy hardware, when it was new, shipped with Windows95 or 98. So, even in regions like Latin America, Asia, and Africa, where Linux is a recognized value platform, Microsoft will always "arrive first" in the numbers game.

Linux is not anti-matter - its installation does not annihilate the OS license sold with the machine. The response to this half-empty cosmic glass is to ask end-users what they use. Unfortunately, self-reporting creates new uncertainty. First, whom do you ask? Large enterprises? Small businesses? Individual end users? Because no cheques were written to acquire FOSS, many organizations don't even know how many copies of Linux they're using. In countries with draconian anti-piracy laws (like

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the Lei de Informatica in Brazil), companies migrate to Linux explicitly to avoid accounting for software licenses. Also, adjudication of SCO v. IBM and SCO v. AutoZone is still looming, So, while Linux adoption is by all accounts

strongly ascendant, disclosure of that adoption is highly occluded.

Conservative counts for enterprise Linux installed base are in the tens of millions; optimistic assessments are several times higher. However, deployments for successful embedded applications, like cell phones, can easily top ten million units each. Embedded represents both zenith and nadir in adoption. On the upside, analysts focusing on embedded already awarded the Number 1 spot, share-wise, to Tux. Astronomical numbers of wireless smart-phones and feature-phones, home digital video sets and PVRs, network appliances and routers, storage devices and SANs, and SOHO MFPs and other equipment are developed, shipped and deployed with embedded Linux on-board.

The downside is that real share is hard to count - commercial embedded Linux accounts for about US\$80 million in a total served market of US\$750 million (VDC). Device developers today don't pay for OSes. Moreover, OEMs have never liked to disclose what software they put into a gadget - OS and stack provide competitive advantage.

The centre of the FOSS vs. proprietary struggle lies on the desktop. Small victories mark Linux progress in 2004: with an estimated 2.8 per cent commercial share (IDC), Linux this year overtook MacOS (and overwhelmed desktop UNIX share in the last five years). Some studies show second-tier commercial and free distributions like Mandrake, Debian, Fedora and Gentoo Linux actually leading over commercial desktops from RedHat and Novell/SuSE. Such surveys and growing enterprise-wise adoption could multiply that 2.8 per cent by a factor of two, four, or even tenfold. Curbs on Linux adoption, however, come from after-market



Bill Weinberg

installation of ersatz copies of Windows, especially in China, on naked PC hardware and even over pre-installed copies of Linux.

While most analysts are free-thinking and well-intentioned, studies are often funded by moneyed interests. But the consensus is that Linux is gaining. Even Microsoft acknowledges this trend. Redmond has graduated from studiously ignoring Linux to denigrating its gains to mustering obscure benchmarks and marginal metrics to show advantage.

Also very telling is Redmond's assessment of Linux impact on current and future business: "non-commercial software... continues to pose a significant challenge to our business... To the extent that open source software gains increasing market acceptance, sales of our products may decline, we may have to reduce prices we charge for our products, and revenue and operating margins may consequently decline" - Microsoft 10-K for FY Ending June 30, 2004. Linux users (and pundits too) live in a hostile and uncertain universe. Linux adoption is difficult to measure and to defend. The best gauges are indirect, like declining growth of proprietary software sales in a recovering hardware marketplace. We probably won't even notice the supremacy of dark matter - Linux and FOSS - until the lights start winking out at proprietary software suppliers.

Bill Weinberg is Open Source Architecture specialist and Evangelist for the Open Source Development Lab (OSDL)