

2013 Enterprise End User Report

Linux Adoption: Third Annual Survey of
World's Largest Enterprise Linux Users

March 2013

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Executive Summary: Cloud Deployments Drive Enterprise Linux Adoption

The extent of Linux adoption among the world's largest enterprises¹ continues to grow, according to the findings of the 2013 Enterprise End User Report produced by The Linux Foundation in partnership with Yeoman Technology Group.

The results show that the increasing demand for cloud computing coupled with growing interest in virtualization and mobile technologies has positioned Linux as the fabric of enterprise computing. Cloud computing is a natural fit for Linux, as it depends on openness, and is an area where Windows is struggling. Growing Linux adoption is also evident in greenfield deployments and mission-critical workloads. Furthermore, the new release of Windows 8 is having no negative effect on companies' plans to adopt Linux. In fact, 39 percent of respondents say that in response to the Windows 8 introduction, their use of Linux will increase.

Research firm IDC most recently reported (4Q12) that while overall server revenue is only growing at 3.1 percent year-over-year, Linux experienced 12.7 percent year-over-year growth for the quarter while Windows only increased 3.2 percent and UNIX was down 24.1 percent.² This year's Enterprise End User Report helps to inform the industry as to why the Linux market is growing while other operating system adoption is lagging. By surveying the world's largest enterprise Linux users for three consecutive years, we can clearly see what is driving Linux adoption and how the market opportunities for vendors are shaping up for the future.

¹ Defined as organizations with 500 or more employees and/or revenues of \$500 million or more.

² IDC Worldwide Quarterly Server Tracker, 4Q12 (http://www.idc.com/getdoc.jsp?containerId=prUS23974913#.UU-PJBm_SJJ)

Key findings from this year's report include:

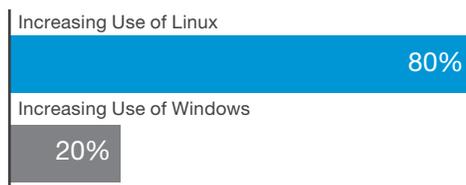
- **Enterprise Linux use climbs three years in a row.** All survey data points to continuing growth in Linux use, with current and projected adoption outstripping all other operating systems for the third year in a row. More than 80 percent of respondents plan to increase the number of Linux servers in their organizations over the next five years, compared with just 20 percent for Windows.
- **Linux powers the cloud.** For enterprises using cloud computing, Linux is by far the dominant platform with nearly 76 percent of cloud-enabled organizations using Linux servers for the cloud, and 74 percent planning to maintain or increase their use of Linux for future cloud initiatives.
- **Almost no one is building anything new with UNIX or Windows.** More than 75 percent of enterprises reported deploying Linux for new applications, services and greenfield deployments in the last two years, a number that has grown nearly 10 points since our first survey.
- **Dramatic increase in Linux use for mission-critical workloads.** The number of organizations with plans to increase the use of Linux for mission-critical workloads has grown consistently year-over-year to reach 73 percent in 2013 (a 12.8 point increase over our first survey). The reliance on Linux for cloud and big data is a strong contributing factor.
- **Rapid growth is driving concerns about finding Linux talent.** The concern among the world's largest enterprises about finding trained Linux staff has grown 11 percent since last year.

Linux Shows Consistent Growth Trend at Expense of Windows and UNIX, Plays Lead Role in Supporting the Cloud

Planned use of Linux continues to rise at a solid clip, outstripping Windows and UNIX plans again for the third year in a row. Eighty-two percent of this year's respondents say that in the next 12 months they plan to increase the number of Linux servers in their organizations, compared with fewer than 30 percent who said they would increase the number of Windows servers over the same time period.

When we asked respondents about their planned server purchases over the next five years, the Linux number remains consistent at just over 80 percent, while planned increases in Windows servers dwindles to 20 percent.

FIVE-YEAR PLANS FOR INCREASED OS INVESTMENTS



The 'big three' reasons cited for this growth remain remarkably consistent year over year: technical superiority, lower total cost of ownership (TCO) and security.

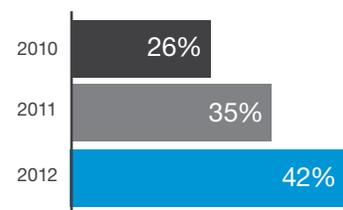
When it comes to current usage, application and web servers and relational enterprise databases show strong and growing numbers, with each showing around a seven point jump since our first survey three years ago. Current use of

Linux for development environments has increased more than five percentage points as well.

Part of this growth can certainly be attributed to the rise in cloud computing. During the time of the first Enterprise End User Report in 2010, cloud was more hype than reality. Today it dominates the way companies access internal and external data and how they work with partners,

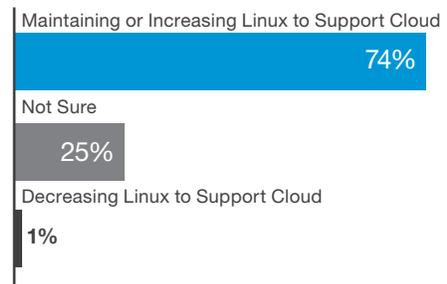
customers and the public. In 2010, less than half of the survey respondents were using any level of cloud computing; today that number has risen to nearly 70 percent of large enterprises, with 42 percent planning to increase cloud computing activities in the next 12 months.

ENTERPRISES MOVING APPS & SERVICES TO CLOUD



With a recent study reporting that 94 percent of enterprise users feel that "collaboration and a vibrant open source ecosystem" are important factors for cloud adoption¹, it becomes clear why Linux is the dominant platform for this space. This year's Enterprise End User Report supports this assertion with nearly 76 percent (I show 60%) of cloud-enabled organizations using Linux servers for the cloud, and more than 74 percent planning to maintain or increase their use of Linux for future cloud initiatives. Just fewer than 17 percent are using Windows and less than eight percent are using UNIX to support the cloud.

LINUX IS CORE TO THE CLOUD

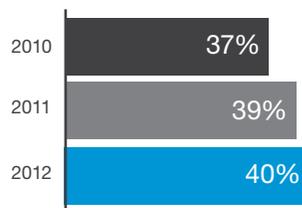


1 IDC & The Linux Foundation: Open Source Cloud System Software, August 2012: <http://www.linuxfoundation.org/publications/linux-foundation/open-source-cloud-system-software>

Enterprises Favor Linux over Microsoft for Greenfield Deployments; Windows to Linux Migration Trend Continues

Very few large enterprises are building anything new with Windows or UNIX. In the last two years, nearly 76 percent of enterprise users surveyed have deployed Linux for new applications, services and greenfield deployments, a number that has grown by nearly 10 points since our first survey.

**WINDOWS TO LINUX MIGRATIONS
CONTINUE TO RISE**



Nearly 40 percent of these respondents report that they are migrating to Linux servers from Windows, compared with 31 percent in 2010, representing a growing year-over-year trend.

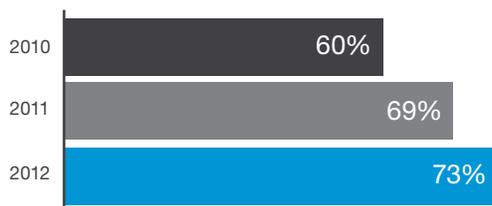
Linux also continues to show consistent year-over-year growth in planned usage for development environments and databases. Projected use of net new Linux servers to support development environments is up 10.7 points since we first asked the question last year. Support of relational/enterprise databases is up 5.7 points, and stand-alone, single-use databases is up 2.2 points.

The cumulative effect of the data suggests that enterprises that decide to use Linux tend to expand their usage of Linux over the years, reducing their overall activity with Windows and UNIX.

Dramatic Increase in Linux for Mission-critical Workloads Underscores Importance of the Operating System

One of the strongest trend lines in our surveys has been the growth in the use of Linux for mission-critical workloads relative to other operating systems. There has been a big uptick in this number every year, from a healthy 60 percent in our 2010 survey, to 69 percent in 2012, and a whopping 73 percent this year.

**ENTERPRISES INCREASING USE OF LINUX
FOR MISSION CRITICAL WORKLOADS**



This trend is mirrored by the responses to our question about which platforms organizations primarily use for deploying and developing enterprise applications. The

responses this year were 77 percent for deploying and 72 percent for developing enterprise apps on Linux; these numbers have been steadily increasing at the expense of Windows and UNIX over the last three years.

It should hardly be surprising that enterprise use of Linux for mission-critical workloads has increased over the last three years. After all, cloud computing, which we have already discussed, is mission-critical. And while “big data” is less of a hot topic than it was in previous years, all enterprises consider at least some portion of their proprietary business data to be mission-critical. With 69 percent of respondents concerned about their ability to manage and support big data in the enterprise, and 70 percent planning to add Linux servers to support big data, it becomes clear why the trend line for Linux in support of mission-critical workloads has been so strong.

Management's Perception of Linux Positive, but They Need Linux Talent

The reasons for Linux adoption have remained consistent for three years in a row. The top three drivers for adopting Linux use are its feature set (75 percent), lower TCO (71 percent) and security (69 percent). At the same time, management's view of Linux has remained consistently positive, with a reported 95 percent viewing the platform as equally or more strategic to the organization every year we have conducted the survey.

TOP 3 DRIVERS FOR LINUX ADOPTION

#1 Feature Set

#2 Total Cost of Ownership

#3 Security

But the growth of Linux is still causing growing pains, particularly when it comes to staffing.

While most concerns about Linux – such as lack of features, driver availability and interoperability - have plummeted, issues with finding qualified Linux talent to support Linux have grown 11 percent since last year.

Enrollment in Linux training programs, such as the one offered by The Linux Foundation, have dramatically increased over the last few years. Additionally, the number of enterprise users contributing code to the Linux kernel has increased more than eight points since 2010, indicating that more professionals are mastering collaborative development skills. Professionals understand the opportunity that awaits them if armed with the right skills, and we anticipate enterprise users will find more and more Linux talent coming up through the ranks.

The Bottom Line: Linux Shows Strong and Consistent Growth within the Largest Enterprises

Linux has shown strong and consistent growth within large enterprises over the last three years. Our data indicates that this is because Linux provides sustainable benefits that include a broad feature set, security, cost-savings and flexibility. Linux is also uniquely suited to support the latest demands of enterprise users for greenfield deployments, mission-critical workloads and mobile and cloud computing.

The consistency of the research findings and the year-over-year improvements in perception and adoption foretell a positive future for Linux. As the community works to foster talent, Linux vendors should continue to plan for growth in the coming years; the survey results indicate that the platform is maintaining its positive momentum, perception and adoption among the world's largest enterprise users, and the cloud providers that support them.

Methodology

This report was compiled by The Linux Foundation in partnership with Yeoman Technology Group, based on the results of its third annual invitation-only survey of enterprise Linux users. The survey pool was comprised of The Linux Foundation End User Council, as well as other companies, organizations and government agencies selected by The Linux Foundation and Yeoman.

This year our survey garnered responses from 1,279 participants. The analysis in this report is focused on 355 respondents who work for organizations with sales of more than \$500 million and/or 500+ employees.

The survey is not intended to be an assessment of the overall penetration of Linux in the market, nor is it designed as a cross-platform study. It is also important to note that enterprise users who are motivated to take a survey from The Linux Foundation should not be considered unbiased. But the size of these organizations, their buying power and technical prowess – as filtered by The Linux Foundation and Yeoman – should provide important guidance for Linux users, vendors and developers.

About Our Respondents

The results of this survey were based on responses from 355 IT professionals from organizations with \$500 million or more per year in revenues and/or 500+ employees. The majority (56 percent) identified themselves as IT/IS staff or developers and represented a wide range of industries. Users from the US and Canada make up 41 percent of the respondents, 25 percent are from Europe, and 16 percent are from Asia.

This survey was conducted with members of The Linux Foundation's End User Council, as well as other end users identified by The Linux Foundation and Yeoman Technology Group. The End User Council is a neutral forum for corporate end users to voice platform concerns, discuss best practices on Linux deployments, and identify common technical requirements that can be shared with The Linux Foundation Technical Advisory Board and the Vendor Advisory Council.

Companies represented throughout the years on The Linux Foundation End User Council include Morgan Stanley, Goldman Sachs, Bank of America, Bristol-Myers

Squibb, NTT, Deutsche Bank, Dreamworks, ADP, McKinsey and Company, Bank of New York, NYSE, CME Group, NASDAQ OMX, Goodrich, MetLife, AIG, and many more.

By participating in Linux Foundation events and frequently meeting with the Technical and Vendor Advisory Boards, the End User Council promotes understanding of how Linux is – and will be – used in many of the world's most demanding environments.

The organized collaboration among these three constituents aggregates and streamlines communication of key issues facing the platform now and in the future, strengthening Linux for all.

More information on the council, including how to get involved, can be found at <http://www.linuxfoundation.org/programs/advisory-councils/euc>.

The Enterprise End User Summit takes place May 14-15, 2013 in New York. For more information about this event, please visit: <http://events.linuxfoundation.org/events/enterprise-end-user-summit>



The Linux Foundation promotes, protects and standardizes Linux by providing unified resources and services needed for open source to successfully compete with closed platforms.

To learn more about The Linux Foundation or our other initiatives please visit us at www.linuxfoundation.org