

OTHER FREE CONTENT
FROM THE WALL STREET
JOURNAL

EDITORS' PICKS

How Playing: Memorial tributes are a hit on Broadway.

Expensive Ride: Disney plans to overhaul California Adventure.

Portals: Can Linux replace Windows as the PC mainstay?

Question of the Day: Does a candidate's personal life factor into your vote?

Online Today | Law
Deal Journal | Econ

More free features, WSJ
blogs and data.

MORE EDITORS' PICKS

BLOGS

Most Popular Posts

1. Thanks, But No Thanks for \$9.11 Checks
2. A Lawyer Bride Sues Her Florist
3. Bookstaber Asks: Where Were the Risk Managers?
4. Text of Paulson's Remarks on Housing

SEE ALL BLOGS

MORE FREE CONTENT

- » Personal Journal
- » Personal Finance
- » Leisure
- » Markets Data Center
- » Video
- » Blogs
- » Forums
- » Interactives
- » Autos
- » Career Journal
- » RealEstate Journal
- » StartUp Journal
- » Opinion Journal

TECH Q & A

'Choice Is Absolutely Essential'

Linus Torvalds, head of development for Linux, comments on the operating system, its rival Windows, what motivates software developers and the occasional messiness of free choice

October 17, 2007

Mr. Torvalds and Wall Street Journal columnist Lee Gomes talked over email. Below is an edited version of their exchange. (See related column.)

* * *

The Wall Street Journal: Around the 1999-2000 time frame, when Linux became widely known, there were a lot of excited predictions that, just as Linux was conquering the server, it would soon be conquering the desktop, too. That doesn't seem to have happened; any thoughts?



Linus Torvalds

Mr. Torvalds: Well, I suspect that the Linux desktop probably isn't that visible from the outside, but hoo-boy, there's been a lot of advances in the last seven or eight years to the point where you can actually buy a Linux desktop box (not just server boxes) from several tier-one manufacturers.

So maybe the desktop isn't exactly getting "conquered," but it's getting a fair amount of development attention. So as a desktop user myself, I have to say that I'm very happy in the technical development (as opposed, perhaps, to the actual market penetration) over the last years.

I'll leave most of the market-share worries to the people who care more deeply about it. I'm a technical guy, so I tend to believe in the "If you build it, they will come" motto, even if the inertia in the market would make it a long road to travel.

WSJ: You often talk about how the Linux community likes choices, and how neither you nor anyone else wants to impose, say, some user interface choice on them. But the vast majority of nontechnical users don't want a choice in this; they just want someone to solve the problem for them in an easy-to-use way. Do you think the emphasis on free choice inside the technical community "scales up," as they say, to users in general?

Mr. Torvalds: Hey, I think that choice always adds complexities and ends

SEARCH

Advanced Search

MORE FROM TO

\$ Subscription ma

PEOPLE WHO

Also read these s

- How Far Behind
- Artisans Fired L
- Grant and Lee e
- Mukasey Tries t
- The Microsoftin

Recommendations by I

▶ WHAT'S NEW

- J.P. Morgan Pos
- Stocks Point to I
- Consumer Price
- Cablevision Dee
- Food Companie

MORE

up being something that confuses people and can make things appear messy and unplanned.

So in that sense, choice is horribly bad, no?

No. I think choice is absolutely essential. It may hinder some early adoption, and yes, it will also result in wasted resources, but in the end, choice is also the thing that keeps people honest, and your options open, and means that you don't fall into a trap of "that's how things have to be done -- deal with it."

I don't think the analogy with politics is necessarily a wonderfully good one, but it says at least something about it: You absolutely want choice, and you want a lively debate about that choice, even if it ends up looking messy and even unfriendly from the outside. The absolute worst thing that can happen is that you don't have any choice at all, or you get a prepared choice decided for you -- and you can just choose between a couple of options that were prepared for you.

And the thing is, both in politics and in technology, that maybe in the short term, yes, that choice does slow you down. So the most efficient model tends to be one that does away with all that unnecessary confusion.

Well, at least it's efficient for what it does, until it gets corrupted by its own sense of inevitability and corruption.

For example, I think Microsoft used to actually care about trying to help the consumer. I may not think that they did wonderful technology, but I think they really did try to serve their customers. But look at their [digital rights management] and their "Genui they're not trying to serve their customers any more in their products; they are adding features that ; they probably feel like they aren't even competing any more.

In other words, "choice" may be confusing, but it's also what drives the market.

Without choice, you cannot have an effective market.

And don't get me wrong: Here "market" is a heck of a lot more than "Wall Street," even if you happen to be talking about the way technology, or anything else for that matter, evolves. It's a jungle out there, and choice, or it will turn really ugly!

So I think we need choice and real competition. And by "real competition" I mean not just the external competition; internal competition within a project is often much more important than the external factors, and is critical to be productive, of course, but that's largely where the choice of license comes in. Companies cannot "wall themselves off" from that internal competition!

WSJ: Google uses Linux a lot, and they have some very deep pockets these days. Do you think that's changing the competitive landscape, for example, by their moving to try to solve some of the desktop issues that Linux has had?

Mr. Torvalds: I'm not sure Google feels that they would push a "desktop" agenda, and most of their focus is on the server side. That said, they obviously have huge incentives to make sure that the client market doesn't get skewed by a competitor to the point where the clients get funneled away from them.

So I think Google wants to keep the client, largely desktop, market at least open, but it's not their primary focus. They end up being involved in Linux kernel development, and yes, they've also obviously made their "Go

▶ WHAT'S PO

1. Paulson Urges
 2. Apple Cuts Sor
 3. Credit Crunch F
 4. Behind Banks' i
 5. Stocks Slide as
- MORE

ADVERTISERS LI

Capital One Sm
Apply now and ge
day one
www.capitalone.com

Online Stock Tr
Trade free for 30
Sign up now.
www.TDAMERIT.com

Email Archiving
Exploring the com
archiving.
www.eSeminars.com

... but I don't think they'd necessarily be the primary mover on the desktop. Their immediate concerns to be their server farms.

However, on the client side, I think one thing they'd want to do is expand on that market, and if the same time, that sounds like a no-brainer to them. So the constant rumors about the "Google phone" to cell phones sound more likely to me.

But I have absolutely no inside knowledge, so take that for what it's worth -- just personal speculation about on the client side.

In general, I guess I simply don't foresee any one particular company being that big an influence. The open source in general) really tends to be that there are lots of different companies, and individuals (single productive individual -- can make a huge difference in specific areas! And all these entities have goals to work with Linux, and improve some small and perhaps insignificant thing.

And the thing is, the devil is in the details, and if you have lots of different companies and people all insignificant details," you eventually do end up having done large and very significant changes, even individually.

To put it simply: I think Google is helping, but I don't look for or expect any "silver bullet." That's ju

WSJ: [Microsoft's Windows] Vista hasn't exactly taken the world by storm. Do you think that mig

Mr. Torvalds: I suspect Vista is doing well enough -- I think the problems with it are more indicative of anything else. The desktop market in general simply has a very high inertia, and while a Microsoft utilizes a lot of the advantages of that inertia, I think Microsoft is also noticing that the inertia can work against

So I don't think Vista will "fail" or anything like that. But if I was Microsoft, I'd realize that this whole mentality just doesn't work in a maturing market. And we may not be there yet, but the whole operation is turning into a commodity, not a "bells and whistles" kind of thing.

And yes, I do actually think that that is an opening for Linux, although not in the way you meant. I care about it much, but I do think that the maturity and commoditization of the market does mean that the things that are mattering more.

The whole open-source idea really is a "slow and steady does the job": We may not be flashy, and we may be living in their parents' basements, but there's an incredible breadth of resources, and the whole model is a very stable base and improving on it inexorably.

(Aside: The funny thing is how many people see open source as the "quick" model. It's absolutely not an overnight thing, but even when development is fast, it is fast not so much because of any individual contributions, but because of tons of small improvements on a very wide base. So it really is "slow and steady," but it can be all kinds of things. A "directed" approach could never be!)

WSJ: Do you even care about desktop penetration? If not, what about the argument that the sheer presence is what drove its success, such as it has been, in servers, and that without a very large installed base an operating system is consigned to being a niche product?

Mr. Torvalds: I do actually care about desktop penetration, but not so much for any of the "tradit

If you're a company, you care deeply about desktop penetration, because that's just so lucrative due to the network effects that it brings with it!) And that is not something I care about myself at all.

But I do end up caring about market penetration for other reasons, even if they tend to be perhaps

One big reason I care about market share is that, while I love doing technology for its own sake, I think technology is not in general an end in itself. To me, technology is only as good as it is actually useful.

So I love doing Linux because of technical problems and technical issues, but at the same time the thing I care most about is measured in how well they work for people, and in particular for how many different people they work for.

As a result, I do actually care about especially a wide market share in the sense that I think niche market technology. So I think it's a great thing that Linux is not only on big supercomputers and servers, but also on desktop machines and various small embedded things. And in many ways, the desktop market may sound like a very real sense it's the one that is the most varied, and the "widest" of the markets, so trying to do well in that market is important [to me].

The other reason I do end up caring about the desktop penetration in particular is that it's also how many people get involved. People who started out as users, and get interested in the technology, and end up being involved. A lot of people in the desktop area than in most other markets.

Finally, there's the issue of hardware documentation. We've had problems with hardware vendors not providing enough information to allow us to write drivers for their hardware. And it turns out that while I may not care about it, those hardware manufacturers definitely do. So having a bigger market share makes it more likely that they will at least let us know how their hardware works!

That last point shouldn't be a point at all, but it definitely seems to matter.

WSJ: How, in general, would you say the kernel is doing, using any metric you'd care to use: in market share, vis-à-vis Solaris, etc?

Mr. Torvalds: I really don't worry about kernel issues. We have tons of things going on, with no real competition at a technical level, we've long since surpassed any competition in terms of performance or features or hardware support even with respect to Windows: We almost certainly support more hardware than any other OS (you only look at PC's.)

Linux scales to more processors, and scales to smaller devices, too. There may be individual features that we don't support, but the breadth of support (and that's not just about hardware, but when it comes to almost any issue) is much better than any other OS.

So on the kernel side, the reason I say that there's no end in sight is partly because the hardware just keeps getting better, and what we do is related to that. Also, users also (happily!) always figure out new things to do, and new features that are relevant for the kernel, it happens enough to keep us busy.

But most of all, the kernel really competes with itself. It's what we tell our kids -- you don't compete with your friends, you make yourself do better than you did before.

So are there exceptions where we need to do better. Always. I don't think that will ever go away.

But I know I told you this before back in 1999-2000, and I'll say it again: a lot of the really exciting things are in the user space. The kernel is "uninteresting" -- the excitement is in all the pretty graphical interfaces etc.

RELATED ARTICLES AND BLOGS

Related Content may require a subscription | [Subscribe Now -- Get 2 Weeks FREE](#)

Related Articles from the Online Journal

[Linux: The Future of Computing](#)

- [Reading: Cash and Rickie Markets](#)
- [Walgreen to Expand Take Care](#)
- [Auditors to Street: Use Market Price](#)
- [Reading: All China, All the Time](#)

Blog Posts About This Topic

- [No Title](#) volokh.com
- [Marco](#) tumblelog.marco.org

More related content *Powered by Sphere* 

 [EMAIL THIS](#)  [FORMAT FOR PRINTING](#)  [MOST POPULAR](#)  [ORDER REF](#)



[Return To Top](#)

[Subscribe](#) [Log In](#) [Take a Tour](#) [Contact Us](#) [Help](#) [Email Setup](#) [Customer Service: Online](#) | [Print](#)

[Privacy Policy](#) [Subscriber Agreement & Terms of Use](#) [Mobile Devices](#) [RSS Feeds](#)

[News Licensing](#) [Advertising](#) [About Dow Jones](#)

Copyright © 2007 Dow Jones & Company, Inc. All Rights Reserved

DOW JONES