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New Internet tech transmits data at 26 terabytes per second

Empfehlen

2.326 Personen empfehlen das. Empfiehl dies deinen Freunden.

By Stephen C. Webster

Monday, May 23, 2011 11:07 EDT



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Topics: **dramatic breakthrough** ♦ **dwarf** ♦ **Experiment** ♦ **frequency division multiplexing** ♦ **nature photonics** ♦ **today**

In a dramatic breakthrough, scientists have learned how to use optical fiber to transmit data over a single laser at speeds that dwarf even today's fastest Internet connections.

Using techniques called "fast Fourier transform" and "orthogonal frequency division multiplexing," scientists at the Karlsruhe Institute of Technology in Germany were able to stitch 300 individual data streams into colors beamed by a single laser, which were then picked apart at the other end.

The result of their experiment was a blazing fast transfer rate of 26 terabytes per second.

A **terabyte** is the equivalent of 1,000 gigabytes — the measurement used to grade most consumer level computer hard drives.

A more complex version of the experiment was previously used to demonstrate the transmission of data at over 100 terabytes per second, but it required hundreds of lasers.

This latest research shows that similar speeds are possible with far less energy output.

Such bandwidth would enable an Internet user to download the entire library of congress in about 10 seconds, **according to the BBC**.

The experiment was outlined in the latest edition of the scientific journal *Nature Photonics*.

Image credit: *Flickr commons*.



Stephen C. Webster

Stephen C. Webster is the senior editor of Raw Story, and is based out of Austin, Texas. He previously worked as the associate editor of The Lone Star Iconoclast in Crawford, Texas, where he covered state politics and the peace movement's resurgence at the start of the Iraq war. Webster has also contributed to publications such as True/Slant, Austin Monthly, The Dallas Business Journal, The Dallas Morning News, Fort Worth Weekly, The News Connection and others. Follow him on Twitter at @StephenCWebster.

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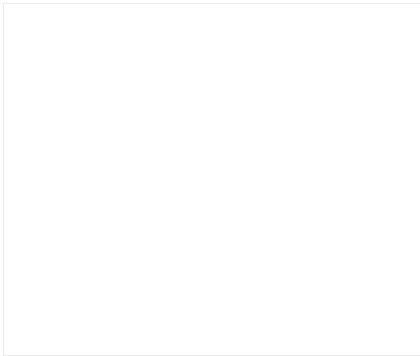
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MarkusGarvey

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Chowlee1211

I just need to know where to go



Chowlee1211

I can show them how to dwarf their effect I just have to find someone who will listen. I came up with a close but different method that will transfer data faster and I can prove it!



MarkusGarvey

You know this story is 9 months old?



Jason Ficcone

A terabyte is equal to 1024 gigabytes. The times 1000 "hard drive marketing math" only applies to....hard drives.
FTFY



Mikethedog

Wow!



BillFromDover

Anybody remember when a 40 meg hard drive was humongous? Then we advanced to gigs (meg *1000) and now I have two internal 1 terabyte (gig * 1000; trigs?) drives with another external for backup.

And all this stuff is cheaper than the original 40meg drive.

Ain't technology great!

Before ya know it, the right-wing disinformation machine will be able to disseminate their lies at 4,098* the speed of light.squared.

Perhaps, this technology ain't so great after all?



JuanLiberale

Wow! My entire porn library in one second! Isn't technology grand?



Me

Even if the telecom companies did get this tech up and running they will still limit us for bandwidth. They have been able to give us better bandwidth with what is currently in place but they know they can make more money by telling (no forcing) us to use only what small portion of the available bandwidth they will give us. And Just like now they will have huge charges for going over your bandwidth rate plan. It would be nice to have free bandwidth but that's looking less and less likely to me.



unsean

Yeah, and Verizon, AT&T, Cablevision, Comcast, etc are going to pass this technology (when it is developed further) onto consumers at a fair price no matter how cheaply such speeds are able to be produced.

Yeah, and I have a bridge that I can sell you, cheap.



verylargehat

Bring it!!



S. S.

By the way the articles says "terabits per second" not "terabytes per second"



jays0210x

You know how expensive that would be? I know even if you had that bandwidth speed almost no site would support it. But if you could download at that speed! And were able too... Judging from even the most cost effective bandwidth limits! 300GB +0.25 Cents per extra GB used... That would cost about \$6,450 for the first second... And a little more for each second after that!!!

If you had rogers best deal package. With 175GB Limit and \$0.50 extra per GB. It would be \$12912.50 for the first second and a little more for every other second. So... Of course if this speed ever hit homes and worked correctly the cost and internet itself would have to change 10 times over! Basically bandwidth

would have to be free or at least free in today's standards. I know this was not the point of this news post. But I just wanted to throw this out there.



Dani A

it wouldn't be hard to roll back the current implementations.. but 26Tb to the house? unlikely... more likely is 1 or 2 Tb to the house and 100Tb trunks going to neighborhoods..

the main reason these people are charging for extra bandwidth, is because they don't want to build the infrastructure to allow better bandwidth.. which seems silly to me.. force you to pay more so we don't have to build more infrastructure? how about have us pay more so we can build it so we can then pay less!

blah...

I have Verizon's FiOS, 35Mbps symmetrical, it's blazing fast, I download frequently between 1.5MB/s and 4MB/s depending on the site I'm connecting to. I can't imagine what 26TB/s would feel like... it would be wholly underutilized.



ThoughtPolice

"how about have us pay more so we can build it so we can then pay less!":

That **is** what's happening but you have such a short term view on this technology that you can't see it. (plus maybe a touch of automatic 'anti-corporate bias') This tech is just being invented and already everyone on RS is whining, "why isn't Comcast/AT&T/Verizon/Time Warner already offering this to meeeee?!?!?"

This is why I mentioned everyone's pessimism in my previous comment. Just because America's service is running at some (respectable) fraction to other countries in the world doesn't mean we don't have a VERY effective and certainly useful system already in place. It's like how everyone complains when their cell phone service is down for 10 minutes out of every 10,000. I certainly don't see it as a 'screwing' by the telecom companies.

I just see a need for taking a little breath and calming a bit. Everyone is so quick to jump on anyone out there that is providing a service. It's always "a little too expensive" or "a little too 'inadequate'".

I might add, the main thing I was surprised about was how little of scm21st's style of optimism and wonder is evident here, "I'm blown away at how incredibly brilliant some people are." It seems telling, to me anyway.



Dani A

actually, the only companies currently improving their infrastructure... well Verizon was, but they stopped last year. Who ever has FiOS now, is likely the only ones who are going to get FiOS within the next couple years.

Comcast is, sadly, but they are still one of the worst companies, price gouging, with terrible rates, and bandwidth caps even though they have fiber to many places they are still screwing their customers. So no, the customers with better service are not paying less, they are paying more for premium.

T-Mobile last I heard was doing a lot of expansion... but through AT&T/T-Mobile merger bullshit, that may have halted.. AT&T instead of improving infrastructure went out to buy T-Mobile... if they actually buy them, will they continue to build infrastructure? who knows.. but most of that is just wireless.

I'm not blown away by this, because I know the theoretical limits of data through a beam of light. Practical limits are another story, but we keep pushing the boundaries. And as I said, I already have Fiber to the house, and it's slower than non-Fiber in other countries. We are so behind the curve, and whose fault is it? We sure as hell have been paying top dollar for crap, so it's certainly not the fault of the customer.

Yes, there is a lot of land to cover, but do you realize that that a large part of the country is still stuck with either dialup or sat?



blue63

Dani A might be closer to the truth than you are. Never mind the anti-corporate bias, how about corporate accountability?

The phone companies collected over \$200 billion in higher phone rates and tax perks collectively in the early 90s in return for rewiring America, state by state - replacing copper wiring with fiber-optic infrastructure. By 2005 or 2006, 10s of millions of households should have had a service capable of 45 Mbps in both directions comparable to the global leaders (Korea, Japan etc).

USA is about 28th in the world for internet speed, under countries like Bulgaria and Romania, and 100X slower than the top of the food chain. Where faster internet is available, such as FiOS's, the top speed is only a % of the Asian standard and costs around \$150 or so vs Korea @ about \$45 (42,000 won) without contract for 100 Mbps. They will likely hit 1Gbps by 2012.

The Bell phone companies were able to evade their responsibilities through legal maneuvering such as mergers that dissolved old contractual agreements. USA has lost trillions in economic growth and consumer's quality of life has been compromised relative to many other countries. The thought of corporations not fulfilling their obligations to consumers? Uh...yeah, I believe it.

So go ahead and be an apologist for the multinational corps. and domestic enterprises alike. Instead of the savvy realist you try to paint yourself as you come off as a naive shill for the telecom industries. I'll throw my lot in with informed consumers who demand quality and value from corporate interests.



crash2parties

This was merely an incremental improvement, in a laboratory setting. 25.6 Tb was achieved back in 2008. I'll reserve my optimism for achievements that are practical and at least somewhat likely to affect consumer products. This was an academic exercise, not much more. Kinda like those "show cars" that get 200mpg and go 200mph, but even at \$200,000 are never going to be released to the market because production is not practical.

The school does have a very impressive reputation for purely academic achievements and esteemed alumni. I'd say that they also have a very effective PR department.

Regarding scm21st's statement, my three year old says something similar when I do the "I found a quarter behind your ear" trick: It's all relative.



Bishop5

I would be just grateful to receive my promised 2mbit/s speed from Charter I'm supposed to be paying for and not being threatened for "overuse of data" and "penalize" for watching Netflix time to time.

I WOULD BE GRATEFUL, to get what I'm paying for.



Guest

I'm blown away at how incredibly brilliant some people are.



dennyerane

On my qwest dsl, it would take me 15 years.



xoxoliberal

Not going to see high speed here either



Flange Wogskit Bardgeholly

Maybe I wont have to get comcast afterall! Maybe AT&T will stretch a fiberoptic cable to my house where the phone lines arc in the rain because they haven't been upgraded since 1922 and never will since all you gen xers dont have land lines anymore.



ThoughtPolice

So much pessimism and cynicism in the RawStory comments section. ugh



Dani A

of course, because people are just beginning to realize how much they are being screwed by the telecom companies..



Chad H

i don't think the telecommunications company's will stop capping bandwidth even after this



SpitbucketBaptismo

When are regular folk gonna get some of this?



Dougl

Good news for America, we might be able to take advantage of this in a hundred years, South Korean will probably be using this in a few years.



BuckJohnson

You are 100% spot on, others outside of America will probably be using this in less than a decade. But in America, they have to find a way to make money. This was done overseas but not in the US, because in the US our leaders want us to just read the bible and just keep chugging along at the 40 and over work week with maybe maybe 2 weeks of vacation. While other parts of the world are more worried about their people and their ability to be competitive in the future. America is going (no in fact we are) to be a third world nation, thats it. We will have a small populace that will live in gated communities/compounds and the rest will have to earn a living on the outside fighting both crime and corrupt govt./police officials.



wonderisis

Yup! That's what it sure seems like. The US is headed down its own toilet. Who knows how our decline will really pan out, but its going to be grim here and fantastic in other parts of the world. Start learning another language, we might have to retire somewhere else.



Bob_in_Prague

Central Europe is lovely, my 25 mb/s cable works like a charm for about 30 bucks a month (including phone), since there is genuine competition here; smoking a joint is a misdemeanor and not worth the trouble of a pinch; I just retired with full dental, eye, and health care, free of charge forever; and the people are very nice. I settled here at age 45 (in 1991 - yeah, I'm an old fart), and couldn't be happier with my choice. I would highly recommend it!



Stumptownhero

If this can be made commercially feasible the phone companies with their "hard networks" are sitting pretty and the wireless networks are going to be the red headed step children of modern communications!



Justin_Funski

NSA's gotta love this one.



Les Kern

I already got the Library of Congress off of Torrent. Got anything else?
Okay, I joke, but let me ask this in all seriousness: WHEN or HOW will this help American's break into the first world of internet speeds? We're number 28! Whoop! Hell, even Portugal beats us.



HeidiStevenson

So when will I be able to take breaks?



Lurch

wow a terrabyte on a fiber..... hd movies in 3 seconds! now if there was only something to watch.....



rebecca meritt

And to think 2 days ago I could hit the like button,go get a sandwich and coffee,look out the window to see if the rolling tide of Armageddon had reached me and get back before the number changed.



antoinepgrew

Current fibre optic pipe can be opened to do this. Now. We are being fed such BS stories about "broadband." (Since our kids are so poorly educated about science and math in this country, how would we know, right?)

How do you think Israel-based NARUS sweeps up all the data and calls from AT&T nodes for the NSA? At a gigabyte/sec? Three terabytes/sec is dead slow. So is 26 T/sec. for that matter. We're using exabytes now. As I wrote below, the US military was using fibre optic computing, laser heads, and holographic storage (the Library of Congress is around 10-12 terabytes and could fit on a holographic drive less than the size of an iPod Shuffle) when Carter was President. Why do you think the Israelis, Russians, Chinese spy on us for our technology, although the Chinese and Russians now have better engineers than we do? We had better inventors. But by outsourcing everything we've given all this technology away.



Kaborka

This is all I want to know: do those lightning download speeds allow for cheating the internet providers of their asinine caps?



Kimberly J

You wouldn't want the poor wittel internet and cable providers to have to upgrade their systems, would you?

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