

TCP Terminates on the Floor:

The Ebbing Tide of Networking Expertise



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Networking is a complete mess

Just look at IPv6

- ✚ It's coming soon
- ✚ It's been coming soon for 20 years
- ✚ It's still not here



**JUST GIVE
IT A BIT LONGER**



**I PROMISE IT'S
TOTALLY
HAPPENING ANY TIME NOW**

IPv6-Only Networks

As of June 1, 2016, all apps submitted to the App Store must support IPv6-only networks. A majority of apps will not require any changes as IPv6 is already supported by NSURLSession and CFNetwork APIs. However, if your app utilizes IPv4-specific APIs or hardcoded IP addresses, you'll need to make changes. Make sure to test for IPv6 compatibility before submitting your app to the App Store for review.

For more information on supporting IPv6 networks, review [Supporting IPv6 DNS64/NAT64 Networks](#).

Corey Quinn



Corey is the Chief Cloud Economist at The Duckbill Group, where he specializes in helping companies improve their AWS bills by making them smaller and less horrifying. He also hosts the "Screaming in the Cloud" and "AWS Morning Brief" podcasts, and curates "Last Week in AWS," a weekly newsletter summarizing the latest in AWS news, blogs, and tools, sprinkled with snark and thoughtful analysis in roughly equal measure.

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A laptop is open on a wooden surface, displaying a close-up image of a white and brown puppy with striking blue eyes. The laptop is positioned in front of a large, patterned cushion with geometric designs in orange, white, and blue. The scene is lit with warm, natural light, suggesting an indoor setting.

Twitter For Pets

Disrupting the World of Pet Communication

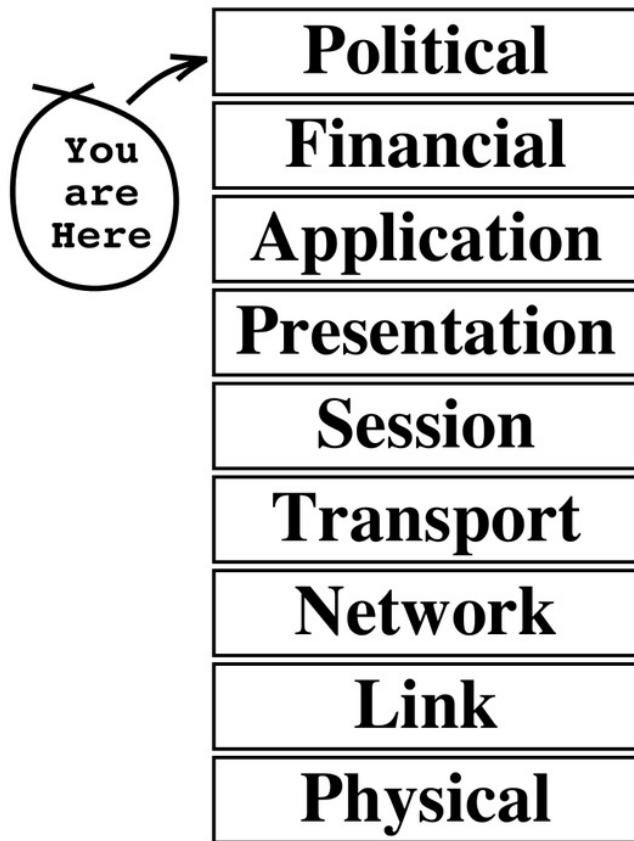
Making the World a Better Place

Things Weren't Terrific at Big Roy's Data Center & Taxidermy





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**How do we send
the elevator back
down?**



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- Enterprise Routers
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Home Network Wireless Routers
Enterprise Router Modules, Cards & Adapters
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Cisco 1921 2-Port Gigabit Integrated Services Router 1900 Series 40224F12

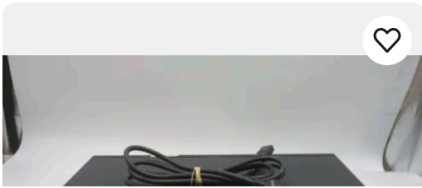
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fre-am0 (12,798) 99.7%

Price

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Over \$75.00



Cisco 2500 Series 2501 Router

Pre-Owned

\$35.89
Was: \$39.88 10% off

sotasellers (2,915) 99.1%



VPCs Are Easy Now

```
module "vpc" {  
  source = "terraform-aws-modules/vpc/aws"  
  
  name = "StagingVPC"  
  cidr = "10.0.0.0/16"  
  
  azs          = ["us-east-1a", "us-east-1b", "us-east-1c"]  
  private_subnets = ["10.0.1.0/24", "10.0.2.0/24", "10.0.3.0/24"]  
  public_subnets  = ["10.0.101.0/24", "10.0.102.0/24", "10.0.103.0/24"]  
  
  enable_dns_hostnames = true  
  enable_dns_support   = true  
  enable_nat_gateway   = true  
}
```





Edit inbound rules

Inbound rules control the incoming traffic that's allowed to reach the instance.

Type ⓘ	Protocol ⓘ	Port Range ⓘ	Source ⓘ	Description ⓘ	
Custom ... ▼	TCP	22	Custom ▼ 74.217.76.101/32	Set to my CIDR (SSH)	✕
Custom ... ▼	TCP	443	Custom ▼ 74.217.76.101/32	Set to my CIDR (UI access)	✕
Custom ... ▼	TCP	9443	Custom ▼ 52.36.110.208/32, 52.40.16...	Set to CDP CIDR	✕
Custom ... ▼	TCP	0-65535	Custom ▼ 10.10.0.0/16	Open to internal commun...	✕
Custom ... ▼	UDP	0-65535	Custom ▼ 10.10.0.0/16	Open to internal commun...	✕

Add Rule



```
module "vpc" {  
  source = "terraform-aws-modules/vpc/aws"  
  
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  enable_nat_gateway   = true  
}
```



```
module "vpc" {  
  source = "terraform-aws-modules/vpc/aws"  
  
  name = "ProdVPC"  
  cidr = "11.0.0.0/16"  
  
  azs          = ["us-east-1a", "us-east-1b", "us-east-1c"]  
  private_subnets = ["11.0.1.0/24", "11.0.2.0/24", "11.0.3.0/24"]  
  public_subnets  = ["11.0.101.0/24", "11.0.102.0/24", "11.0.103.0/24"]  
  
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  enable_dns_hostnames = true  
  enable_dns_support   = true  
  enable_nat_gateway   = true  
}
```



**This isn't to
single anyone
out.**



You're now connected on this device

The Internet service on your previous device has been automatically disconnected.

[Open a new browser tab to continue](#)

[Return to homepage](#)

Service reminder ▼

About your Wi-Fi session ▼

Page time-out

We're sorry, your page has timed out. Please return to homepage to continue.

[Return to homepage](#)

Site Engineer for a Data Center (on site)

Location Bear DE -**Must be local**

Duration: Long Term Contract (No End Date)

Must be legally authorized to work in the US without additional sponsorship

Shift: 12 AM (midnight) to 12 PM (noon) or 12 PM to 12 AM- **4 days a week**

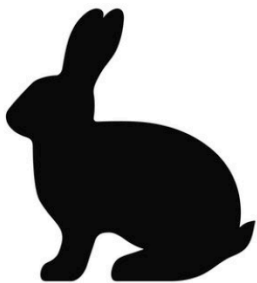
No degree needed, it's a bonus if there is an IT degree or a certification like CompTia A+,
Network+, Server

Job duties

Racking /Stacking, Infrastructure Network hardware, PC break fix,
work with/testing, Data Center

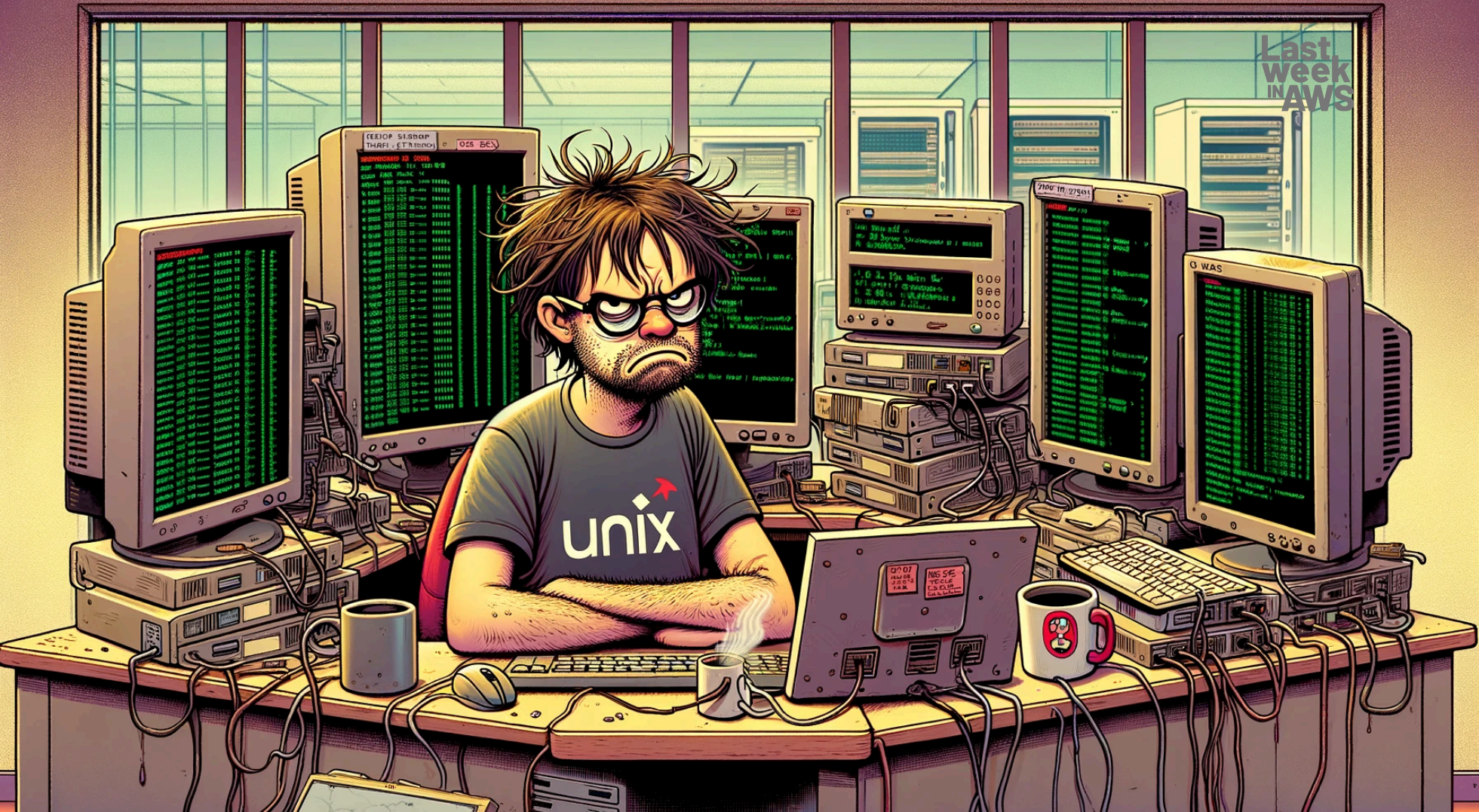
Background working with cabling CAT5/6, fiber optics and PC assembly





**You must be at least this
smart to ride**

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Title Shift



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Lie to me, Amazon!

```
aws ec2 describe-instance-types --filters "Name=instance-type,Values=c5.*" --query \
"InstanceTypes[].[InstanceType, NetworkInfo.NetworkPerformance, NetworkInfo.NetworkCards[0].BaselineBandwidthInGbps]" \
--output table
```

DescribeInstanceTypes			
c5.4xlarge	Up to 10 Gigabit	5.0	
c5.xlarge	Up to 10 Gigabit	1.25	
c5.12xlarge	12 Gigabit	12.0	
c5.24xlarge	25 Gigabit	25.0	
c5.metal	25 Gigabit	25.0	
c5.9xlarge	12 Gigabit	12.0	
c5.2xlarge	Up to 10 Gigabit	2.5	
c5.large	Up to 10 Gigabit	0.75	
c5.18xlarge	25 Gigabit	25.0	



Why is everything manual?!



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ONE SIZE

Fits

MOST

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There is no cloud
it's just someone else's computer



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Java

Last
week
in
AWS



Fear Not, It's the:

Uplifting Part



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week
IN
AWS



Smart

Professional

Professional Plus

500

Monthly SMS

1,500

Monthly SMS

5,000

Monthly SMS

5¢

Per Additional SMS

4¢

Per Additional SMS

3¢

Per Additional SMS

\$24^{.95}

Per Month

\$48^{.95}

Per Month

\$128^{.95}

Per Month

Select

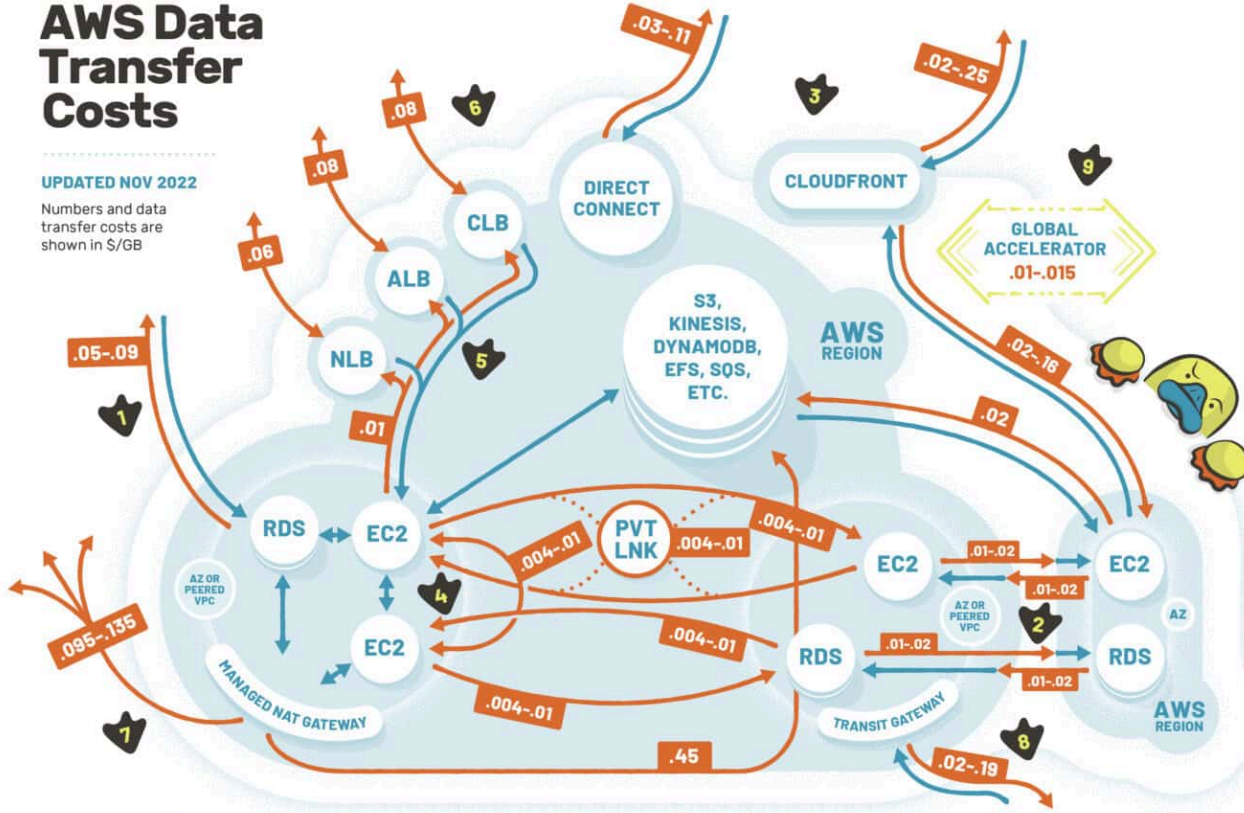
Select

Select

AWS Data Transfer Costs

UPDATED NOV 2022

Numbers and data transfer costs are shown in \$/GB



Inbound traffic is typically free – outbound is not. Some (but not all) internal traffic is **free**.

Outbound traffic costs are shown **per transmission**.

1 Direct outbound data starts at **\$90/TB** for less than 10TB, and discounts with volume. **First 100GB is free**.

2 Region-to-region traffic is **\$20/TB** when it exits a region for indicated services except between us-east-1 and us-east-2, where it's **\$10/TB**. Even data wants to get out of Ohio.

3 Outbound CloudFront prices are variable by region and usage, but the free tier includes 1TB/month

4 Internal traffic via public or elastic IPs incurs **additional fees** in both directions.

5 Cross-AZ EC2 traffic within a region costs as much as region-to-region. ELB-EC2 traffic is **free** except outbound crossing AZs.

6 Elastic Load Balancing: Classic and Network LB is priced per GB. Application LB costs are in LCUs, not \$/GB.

7 Traffic via Managed NAT Gateway – regardless of destination – costs an additional **\$45/TB** on top of other transfer, including internal transfer (S3, Kinesis, etc.).

8 Variable by port speed and location. Data processing charges apply for each gigabyte sent to the AWS Transit Gateway – whether from a VPC, Direct Connect or VPN.

9 Global Accelerator charges a **\$15-\$105/TB** charge on top of existing data transfer rates, in whichever direction the data flow is more expensive.

Inspired by Open Guide to AWS's data transfer diagram
github.com/open-guides/og-aws



the duckbill group

Still confused as hell? Get help at duckbillgroup.com

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162

"Tell me
about your
worst code."



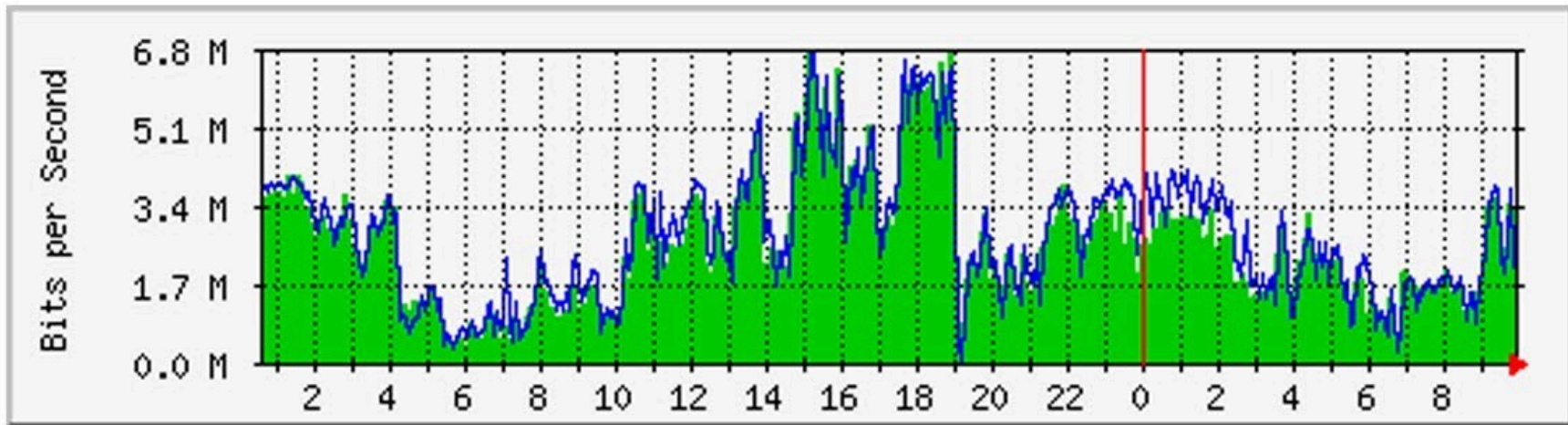
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MRTG

Multi Router Traffic Grapher





Redefine Yourself



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joyce carol ma...

@jon-christian.bs...

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computer scientists: we have
invented a virtual dumbass who is
constantly wrong

tech CEOs: let's add it to every
product



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