

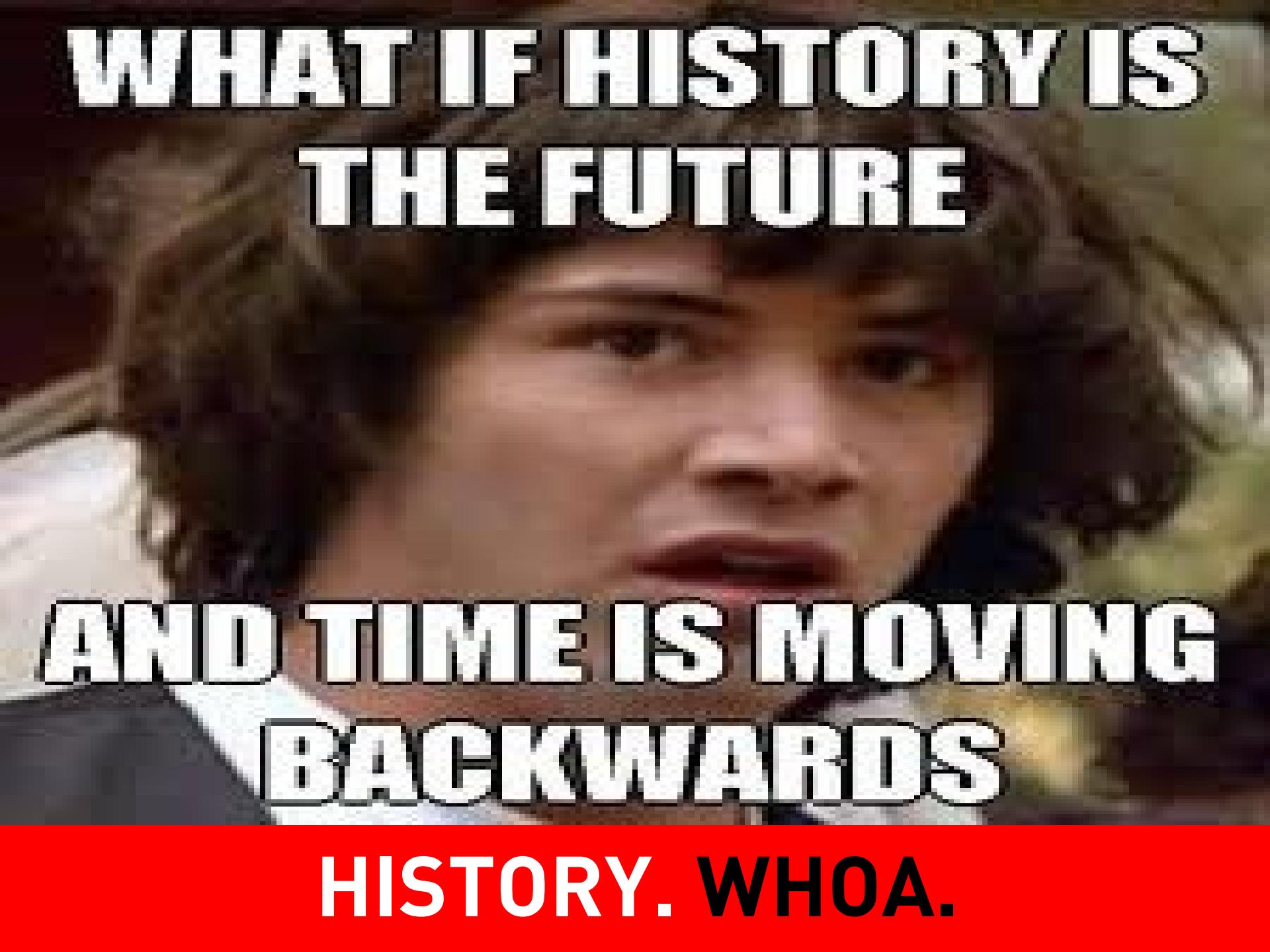
# PRODUCT ORIENTED ARCHITECTURE

Clever Subtitle

Rob Spectre, Director of Devangelism  
@dN0t – rob@twilio.com



**AND NOW...**



**WHAT IF HISTORY IS  
THE FUTURE**

**AND TIME IS MOVING  
BACKWARDS**

**HISTORY. WHOA.**



HACKING IN 1995



# Welcome to Amazon.com Books!

*One million titles,  
consistently low prices.*

(If you explore just one thing, make it our personal notification service. We think it's very cool!)

## SPOTLIGHT! -- AUGUST 16TH

These are the books we love, offered at Amazon.com low prices. The spotlight moves **EVERY** day so please come often.

## ONE MILLION TITLES

Search Amazon.com's [million title catalog](#) by author, subject, title, keyword, and more... Or take a look at the [books we recommend](#) in over 20 categories... Check out our [customer reviews](#) and the [award winners](#) from the Hugo and Nebula to the Pulitzer and Nobel... and [bestsellers](#) are 30% off the publishers list...

## EYES & EDITORS, A PERSONAL NOTIFICATION SERVICE

Like to know when that book you want comes out in paperback or when your favorite author releases a new title? Eyes, our tireless, automated search agent, will send you mail. Meanwhile, our human editors are busy previewing galleys and reading advance reviews. They can let you know when especially wonderful works are published in particular genres or subject areas. Come in, [meet Eyes](#), and have it all explained.

## YOUR ACCOUNT

Check the status of your orders or change the email address and password you have on file with us. Please note that you **do not** need an account to use the store. The first time you place an order, you will be given the opportunity to create an account.

# AMAZON IN 1995



VIEW CART

WISH LIST

YOUR ACCOUNT

HELP

WELCOME

YOUR  
STORE

BOOKS

ELECTRONICS

MUSIC

DVD

HEALTH  
& BEAUTYOUTDOOR  
LIVINGSEE MORE  
STORES

► INTERNATIONAL

► TOP SELLERS

► FRIENDS &amp; FAVORITES

► FREE E-CARDS

► FRIDAY SALE



VIEW CART

WISH LIST

YOUR ACCOUNT

HELP

WELCOME

YOUR  
STORE

BOOKS

APPAREL &  
ACCESSORIES

ELECTRONICS

TOYS &  
GAMESHOME &  
GARDENCELL PHONES &  
SERVICESEE MORE  
STORES

► INTERNATIONAL

► TOP SELLERS

► TODAY'S DEALS

► SELL YOUR STUFF



VIEW CART

WISH LIST

YOUR ACCOUNT

HELP

WELCOME

LUKE'S  
STOREAPPAREL &  
ACCESSORIES

TOYS

BABY

KIDS'  
SOFTWAREKIDS'  
BOOKSKIDS'  
DVDALL KIDS'  
STORESSEE MORE  
STORES

WOMEN

MEN

KIDS &  
BABY

SHOES

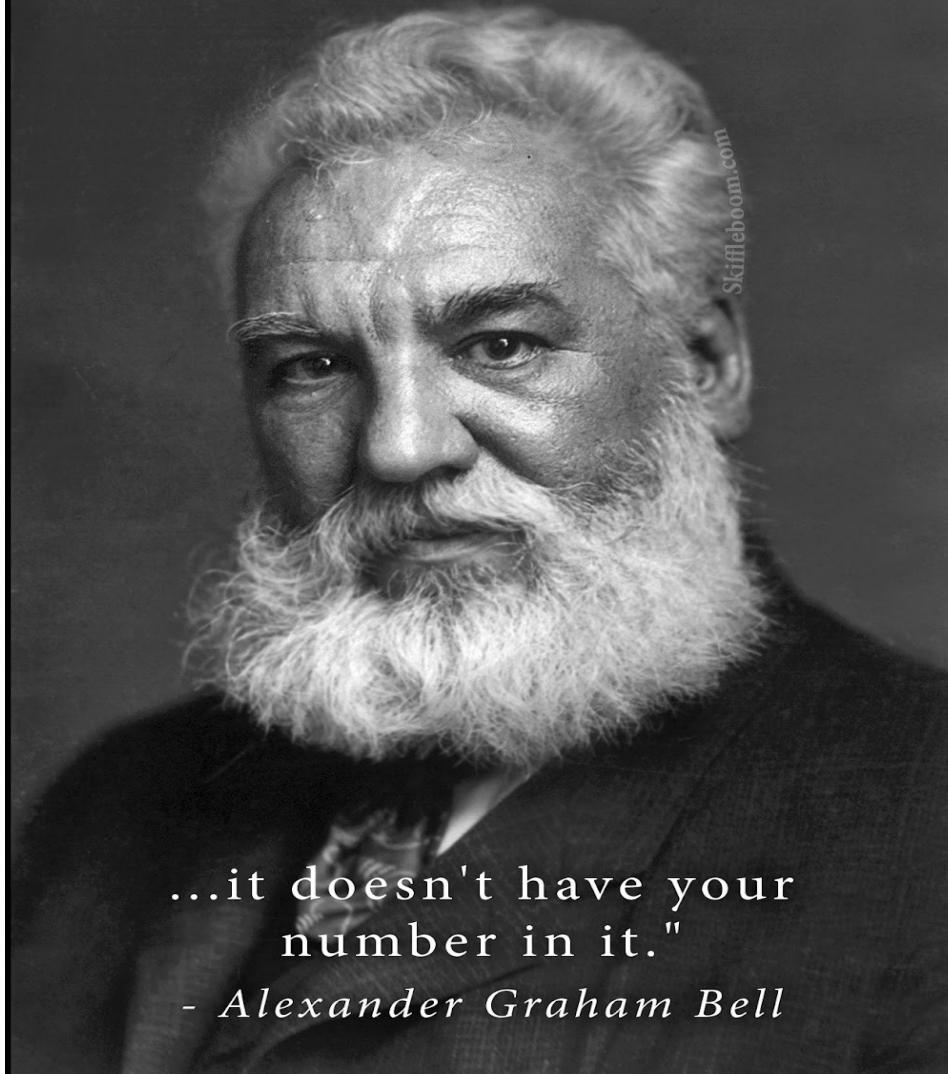
ACCESSORIES

MATERNITY

SELLER  
DIRECTORYSALES &  
DEALS

AMAZON IN 2001

"There is something wrong with  
my cell phone..."



...it doesn't have your  
number in it."

- *Alexander Graham Bell*

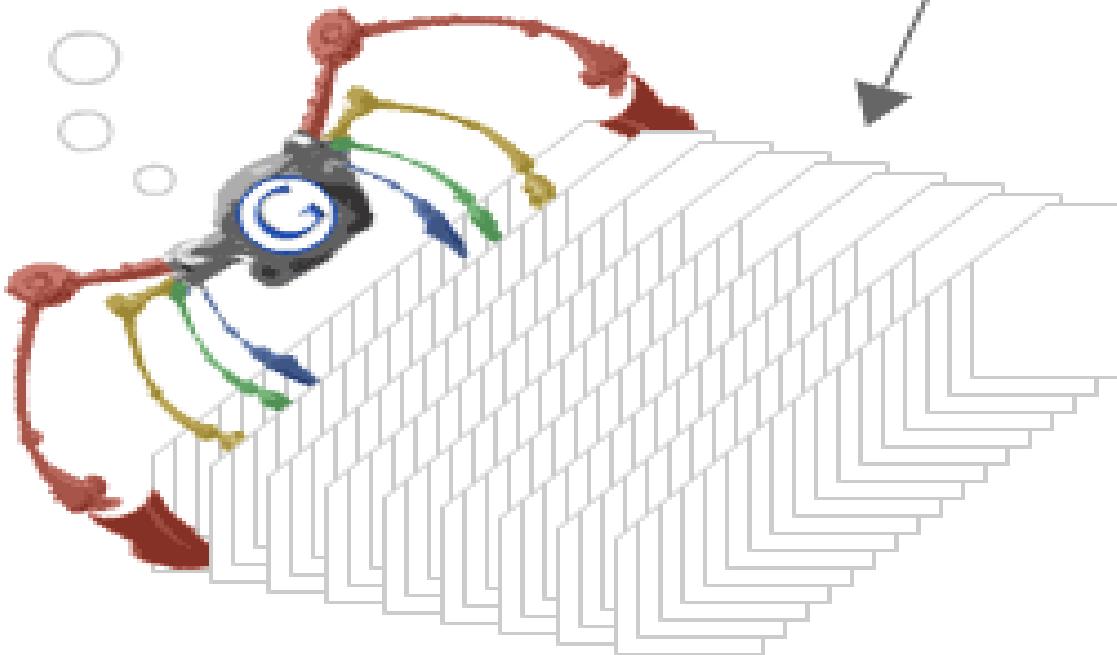
**TECHNICAL ACHIEVEMENT**



**WHEN LARRY MET SERGEY**

I WISH MATT  
CUTTS WOULD  
QUIT HOGGING ALL  
THE CREDIT

Billions of Pages



**EVERYDAY I'M CRUFTLIN'**



**ALL THE THINGS**



**ALL THE PIPELINES**



PEOPLE OF  
WALMART

**ALL THE WEIGHT**



**ALL THE CALLS**



**ALL THE MOOLAH**

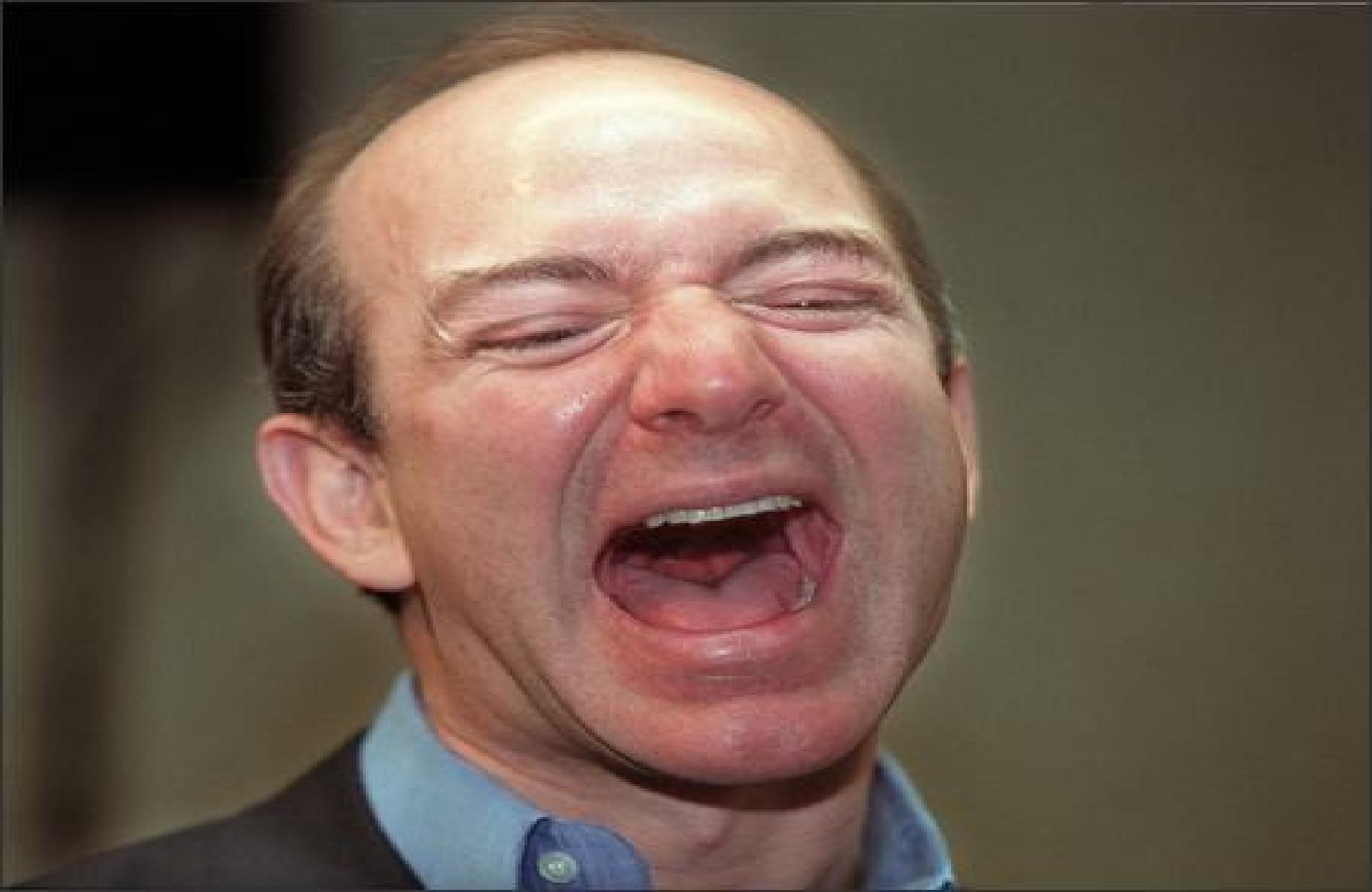


# FLASHY THERMALS

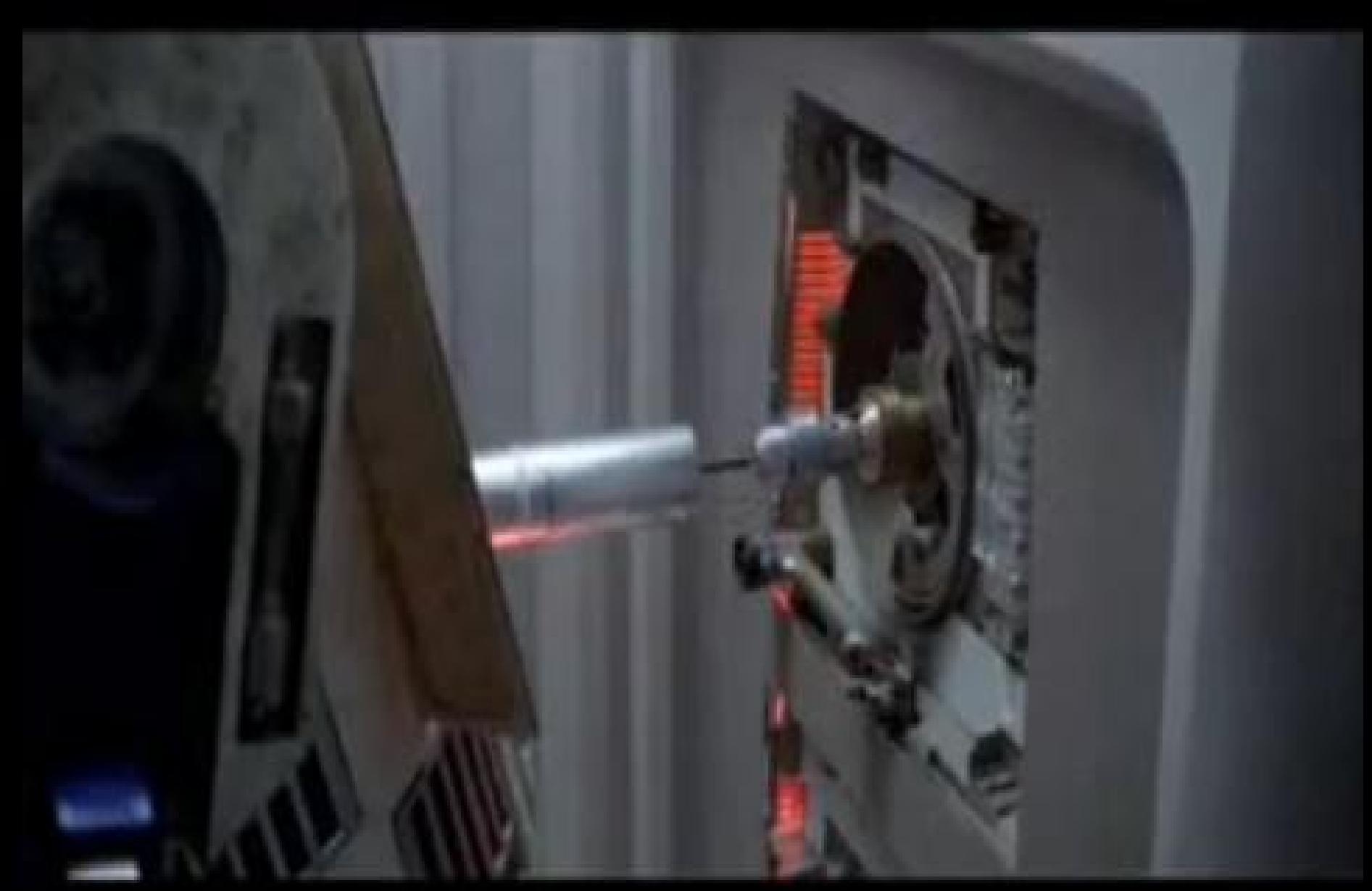


# FLASHY PADDLE

**AND THEN...**



**NO LAUGHING MATTER**



**INTERFACES ONLY**



**THIS CONVERSATION SEEMS BORING**

HIPPIES  
USE  
BACKDOOR



NO EXCEPTIONS

FINALLY.



**MEH.**

**IMPLEMENTATION DETAILS?**



**PLUG IT RIGHT IN**



**HEY I JUST MET YOU AND  
THIS IS CRAZY**

**BUT YOU KILLED MY FATHER.  
PREPARE TO DIE.**

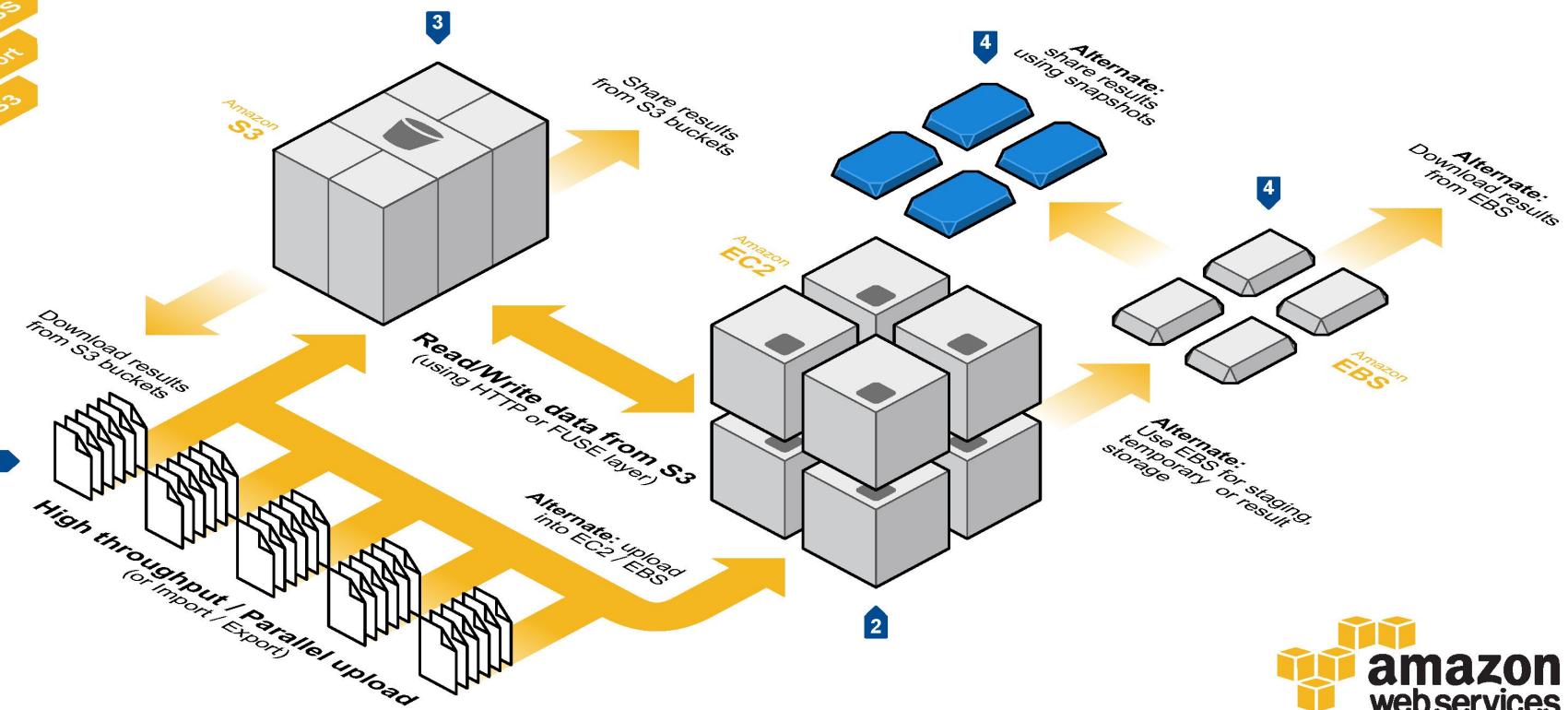
**DIYLOL.COM**

**SIX FINGERED CRAZY**

**AND NOW...**

# LARGE SCALE COMPUTING & HUGE DATA SETS

Amazon Web Services is very popular for large-scale computing scenarios such as scientific computing, simulation, and research projects. These scenarios involve huge data sets collected from scientific equipment, measurement devices, or other compute jobs. After collection, these data sets need to be analyzed by large-scale compute jobs to generate result data sets. Ideally, results will be available as soon as the data is collected. Often, these results are then made available to a larger audience.



## System Overview

**1** To upload large data sets into AWS, it is critical to make the most of the available bandwidth. You can do so by uploading data into Amazon Simple Storage Service (S3) in parallel from multiple clients, each using multithreading to enable concurrent uploads or multipart uploads for further parallelization. TCP settings like window scaling and selective acknowledgement can be adjusted to further enhance throughput. With the proper optimizations, uploads of several terabytes a day are possible. Another alternative for huge data sets might be Amazon Import/Export, which supports sending storage devices to AWS and inserting their contents directly into Amazon S3 or Amazon EBS volumes.

**2** Parallel processing of large-scale jobs is critical, and existing parallel applications can typically be run on multiple Amazon Elastic Compute Cloud (EC2) instances. A parallel application may sometimes assume large scratch areas that all nodes can efficiently read and write from. S3 can be used as such a scratch area, either directly using HTTP or using a FUSE layer (for example, s3fs or SubCloud) if the application expects a POSIX-style file system.

**3** Once the job has completed and the result data is stored in Amazon S3, Amazon EC2 instances can be shut down, and the result data set can be downloaded. The

output data can be shared with others, either by granting read permissions to select users or to everyone or by using time limited URLs.

**4** Instead of using Amazon S3, you can use Amazon EBS to stage the input set, act as a temporary storage area, and/or capture the output set. During the upload, the concepts of parallel upload streams and TCP tweaking also apply. In addition, uploads that use UDP may increase speed further. The result data set can be written into EBS volumes, at which time snapshots of the volumes can be taken for sharing.



# DIAGRAMS ARE INTENSE



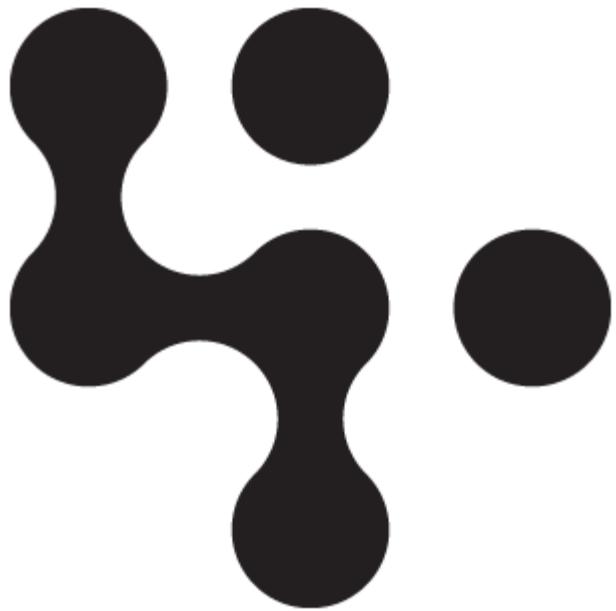
# RAPID EXPANSION

- [Amazon AWS Authentication](#), an implicit service, the authentication infrastructure used to authenticate access to the various services.
- [Amazon CloudFront](#), a content delivery network (CDN) for distributing objects stored in S3 to so-called "edge locations" near the requester.
- [Amazon CloudWatch](#), provides monitoring for AWS cloud resources and applications, starting with EC2.
- [Amazon DevPay](#), currently in limited beta version, is a billing and account management system for applications that developers have built atop Amazon Web Services.
- [Amazon Elastic Beanstalk](#) provides quick deployment and management of applications in the cloud.
- [Amazon Elastic Block Store \(EBS\)](#) provides persistent block-level storage volumes for EC2.
- [Amazon Elastic Compute Cloud \(EC2\)](#) provides scalable virtual private servers using Xen.
- [Amazon Elastic MapReduce](#) allows businesses, researchers, data analysts, and developers to easily and cheaply process vast amounts of data. It uses a hosted Hadoop framework running on the web-scale infrastructure of [EC2](#) and [Amazon S3](#).
- [Amazon ElastiCache](#) provides in-memory caching for web applications.
- [Amazon Flexible Payments Service \(FPS\)](#) provides an interface for micropayments.
- [Amazon Fulfillment Web Service](#) provides a programmatic web service for sellers to ship items to and from Amazon using [Fulfillment by Amazon](#).
- [Amazon Historical Pricing](#) provides access to Amazon's historical sales data from its affiliates. (It appears that this service has been discontinued.)
- [Amazon Mechanical Turk \(Mturk\)](#) manages small units of work distributed among many humans.
- [Amazon Product Advertising API](#) formerly known as Amazon Associates Web Service (A2S) and Amazon E-Commerce Service (ECS), provides access to Amazon's product data and electronic commerce functionality.
- [Amazon Relational Database Service \(RDS\)](#) provides a scalable database server with MySQL and Oracle support.
- [Amazon Route 53](#) provides a highly available and scalable Domain Name System (DNS) web service.
- [Amazon CloudSearch](#), currently in limited beta version, provides basic full text search and indexing of textual content.
- [Amazon Simple Email Service \(SES\)](#) provides bulk and transactional email sending.
- [Amazon Simple Storage Service \(S3\)](#) provides Web Service based storage.
- [Amazon Simple Queue Service \(SQS\)](#) provides a hosted message queue for web applications.
- [Amazon Simple Notification Service \(SNS\)](#) provides a hosted multiprotocol "push" messaging for web applications.
- [Amazon SimpleDB](#), allows developers to run queries on structured data. It operates in concert with EC2 and S3 to provide "the core functionality of a database."
- [Amazon Virtual Private Cloud \(VPC\)](#) creates a logically isolated set of Amazon EC2 instances which can be connected to an existing network using a VPN connection.
- [AWS CloudFormation](#), create a collection of related AWS resources and provision them in an orderly and predictable fashion.
- [AWS Import/Export](#), accelerates moving large amounts of data into and out of AWS using portable storage devices for transport.
- [AWS Management Console \(AWS Console\)](#), A web-based point and click interface to manage and monitor the Amazon infrastructure suite including EC2, EBS, [Amazon Elastic MapReduce](#), and [Amazon CloudFront](#).
- [AWS Storage Gateway](#), an iSCSI block storage appliance with cloud-based backup.

# HOLY BISCUITS



**TRAVEL LIKE A HUMAN**



**WHAT DOES IT MEAN?**



**BILLION. SRSLY.**



**COPY / PASTE**



**twilio**<sup>TM</sup>

CLOUD COMMUNICATIONS

**SHAMELESS PLUG**

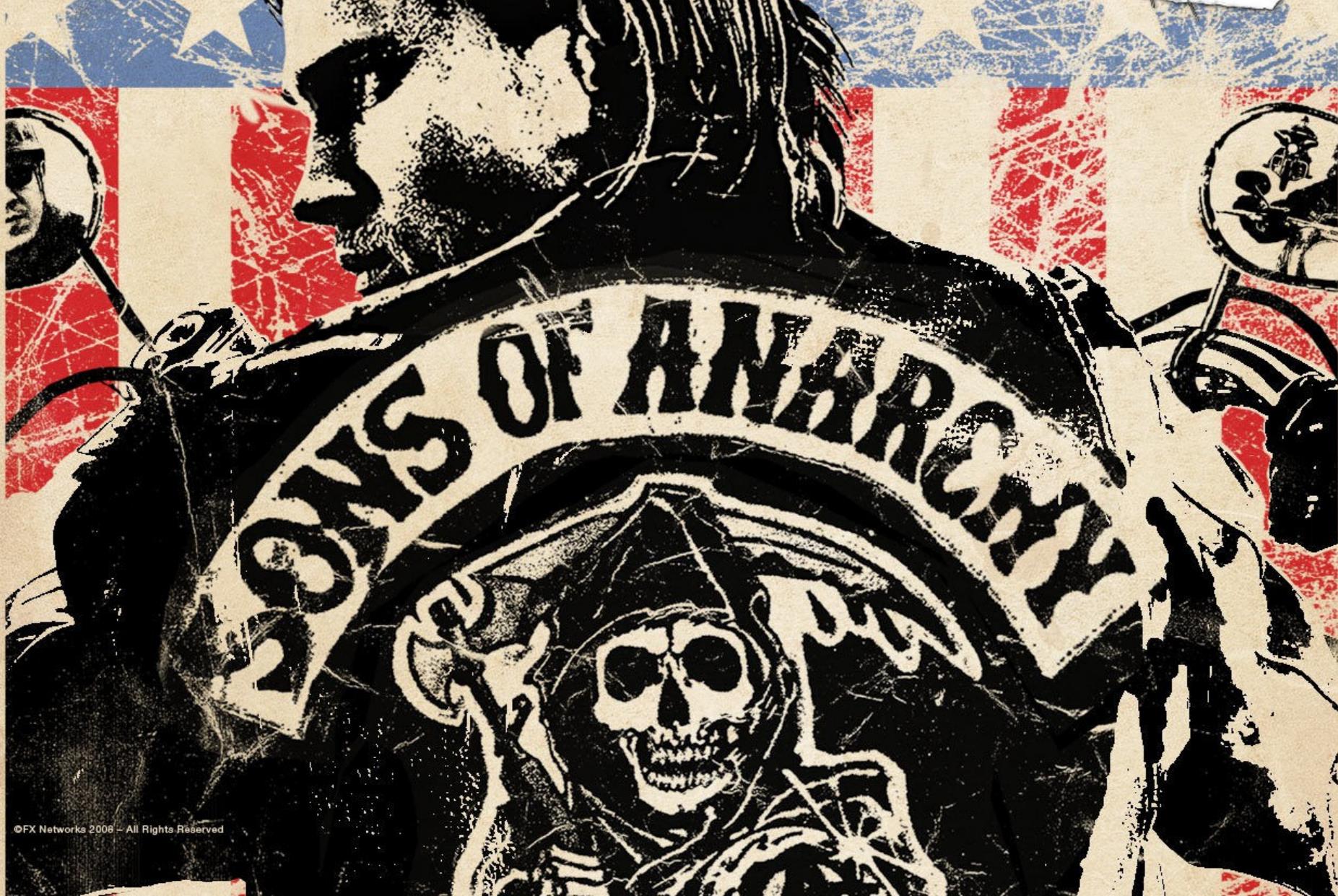


# PORKCHOP SANDWICHES



**EVERYDAY I'M SHUFFLIN'**

O HAI.

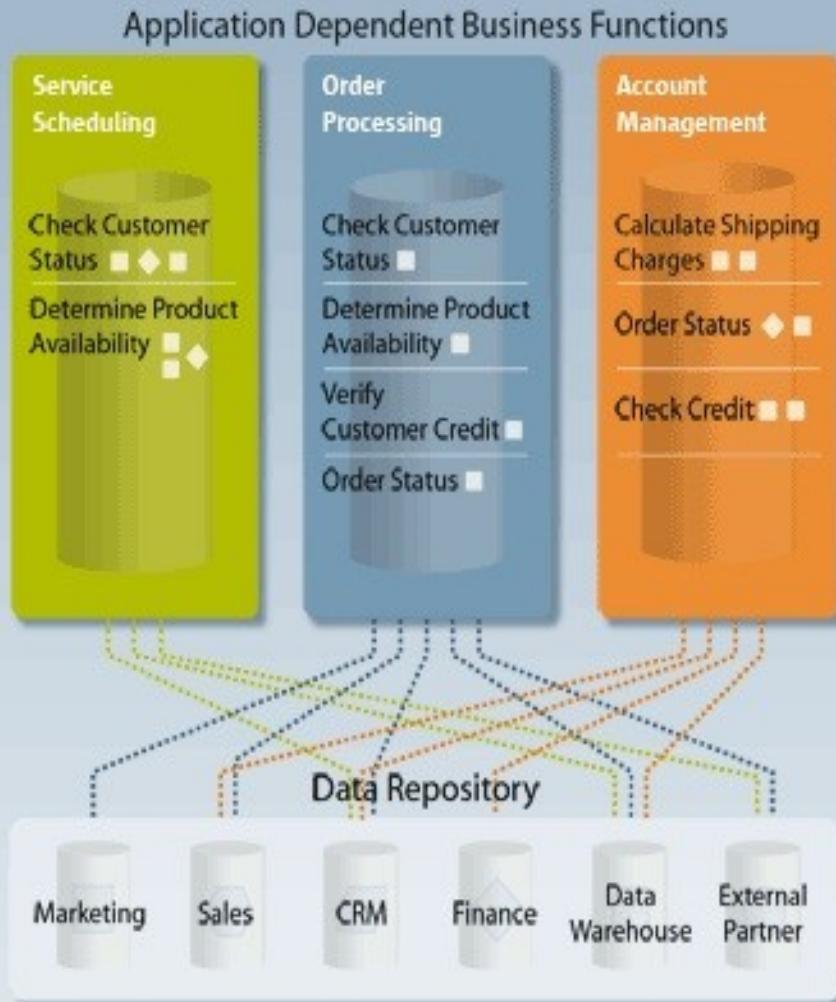


©FX Networks 2008 – All Rights Reserved

SOA

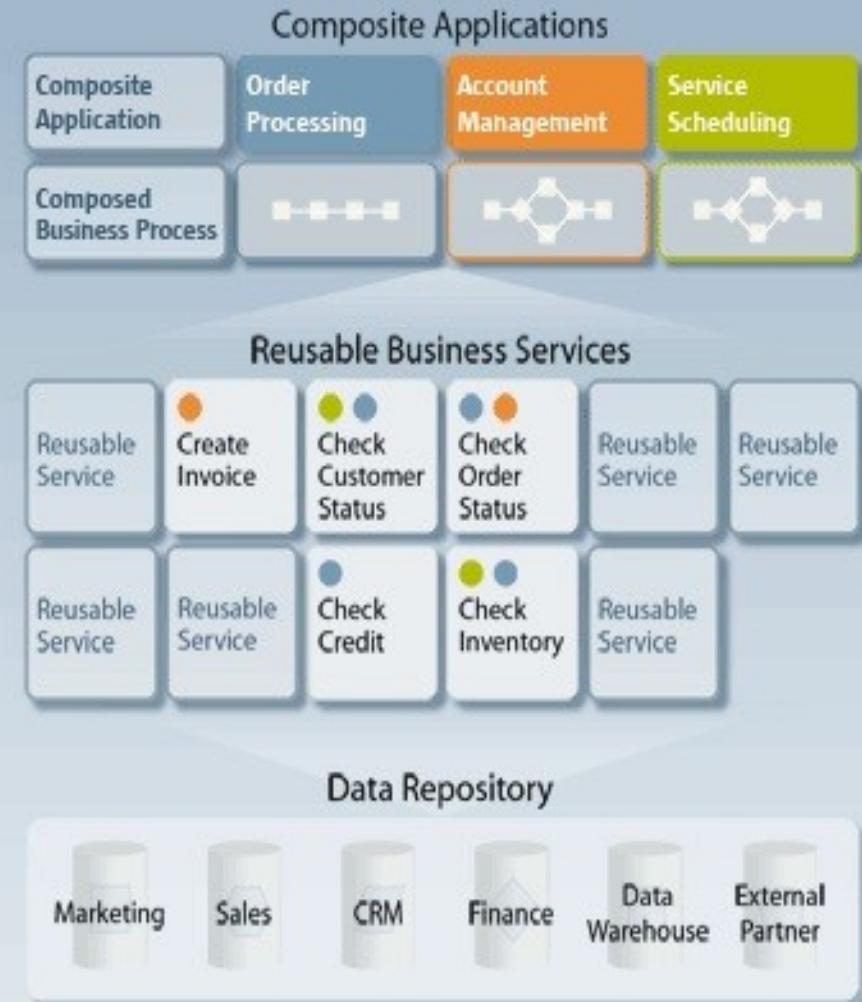
## Before SOA

Siloed • Closed • Monolithic • Brittle

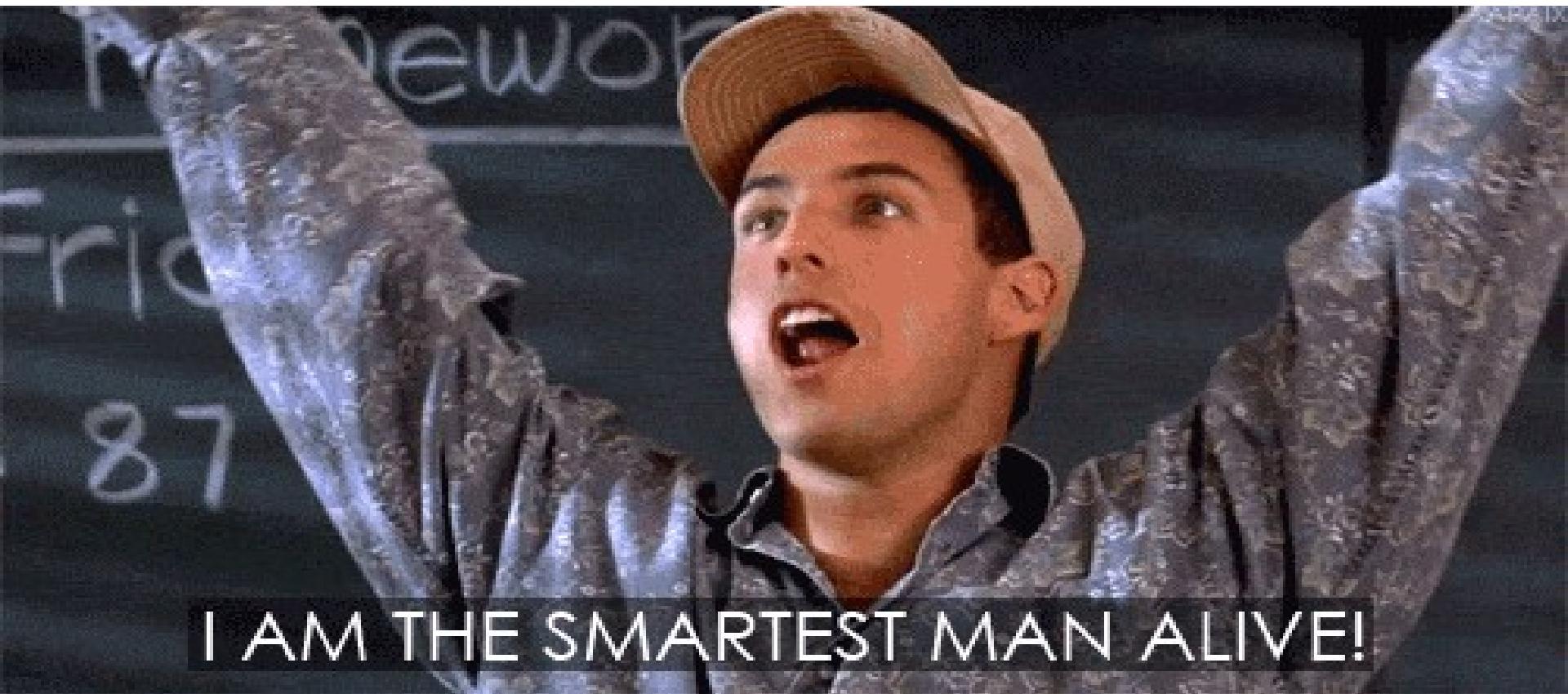


## After SOA

Shared services • Collaborative • Interoperable • Integrated



**FLOWCHARTS. YEAH BUDDY.**



I AM THE SMARTEST MAN ALIVE!

**ONE TRICK PONY**



PRODUCTS HAVE BOXES

**API != PRODUCT**



PRODUCTS HAVE BOXES



FunnyChill.com

**EXPOSURE**



RAD BRO



**RESPECT MY AUTHORITY**



Mick Coulas

**SSL AIN'T ENOUGH**



EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF MANAGEMENT AND BUDGET  
WASHINGTON, D.C. 20503

WHITEHOUSE.GOV

THE DIRECTOR

September 21, 2011

M-11-35

MEMORANDUM TO THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: Jacob J. Lew  
Director

A handwritten signature in black ink, appearing to read "Jacob J. Lew".

SUBJECT: Eliminating Excess Conference Spending and Promoting Efficiency in  
Government

**THIS DUDE PRINTS OUR MONEY**



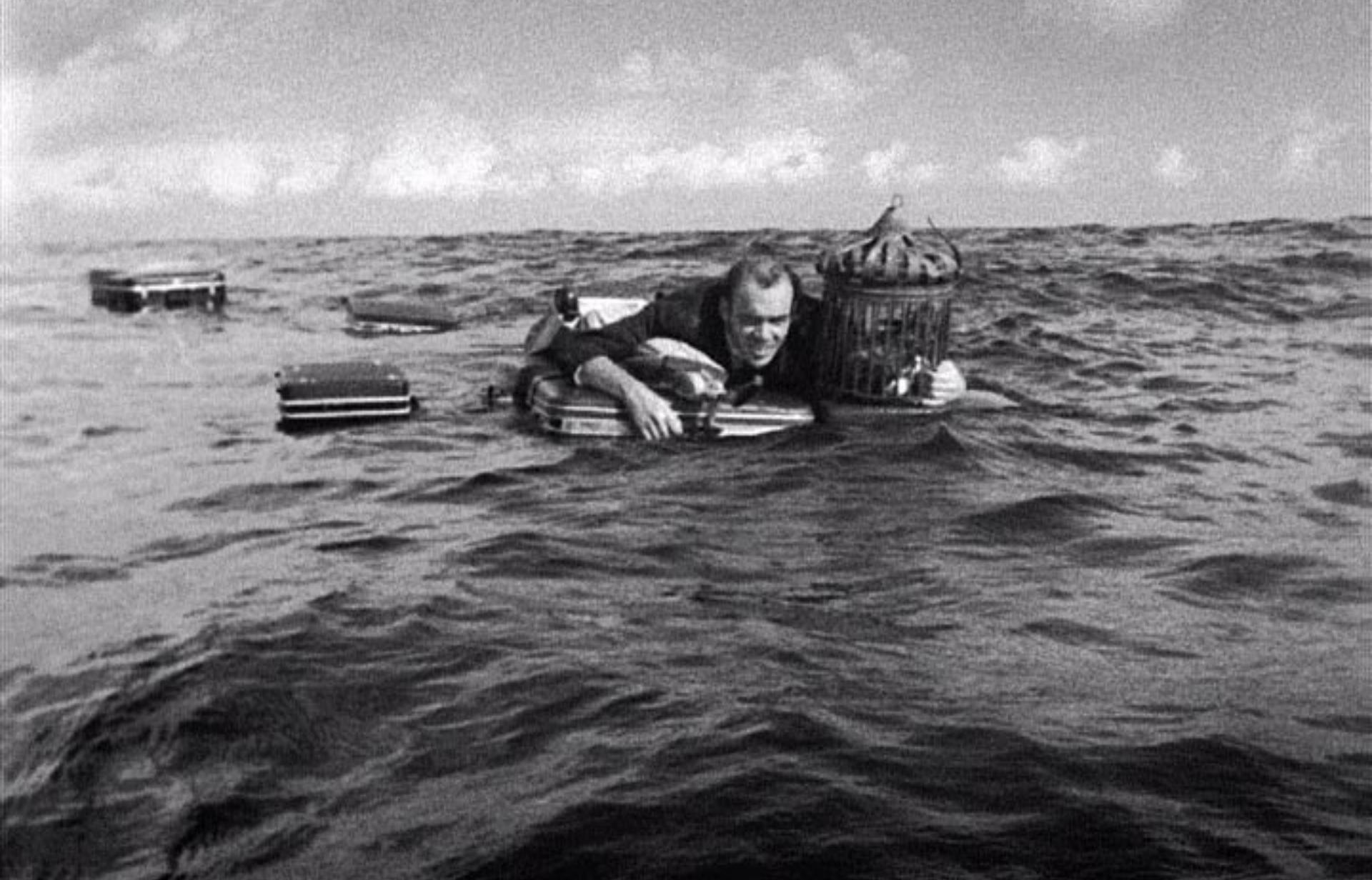
**AVOID THIS COMMON MISTAKE**

**Rester soi-même ,  
dans le respect  
de la différence !**



Jacqueline militant

**TOLERANCE**



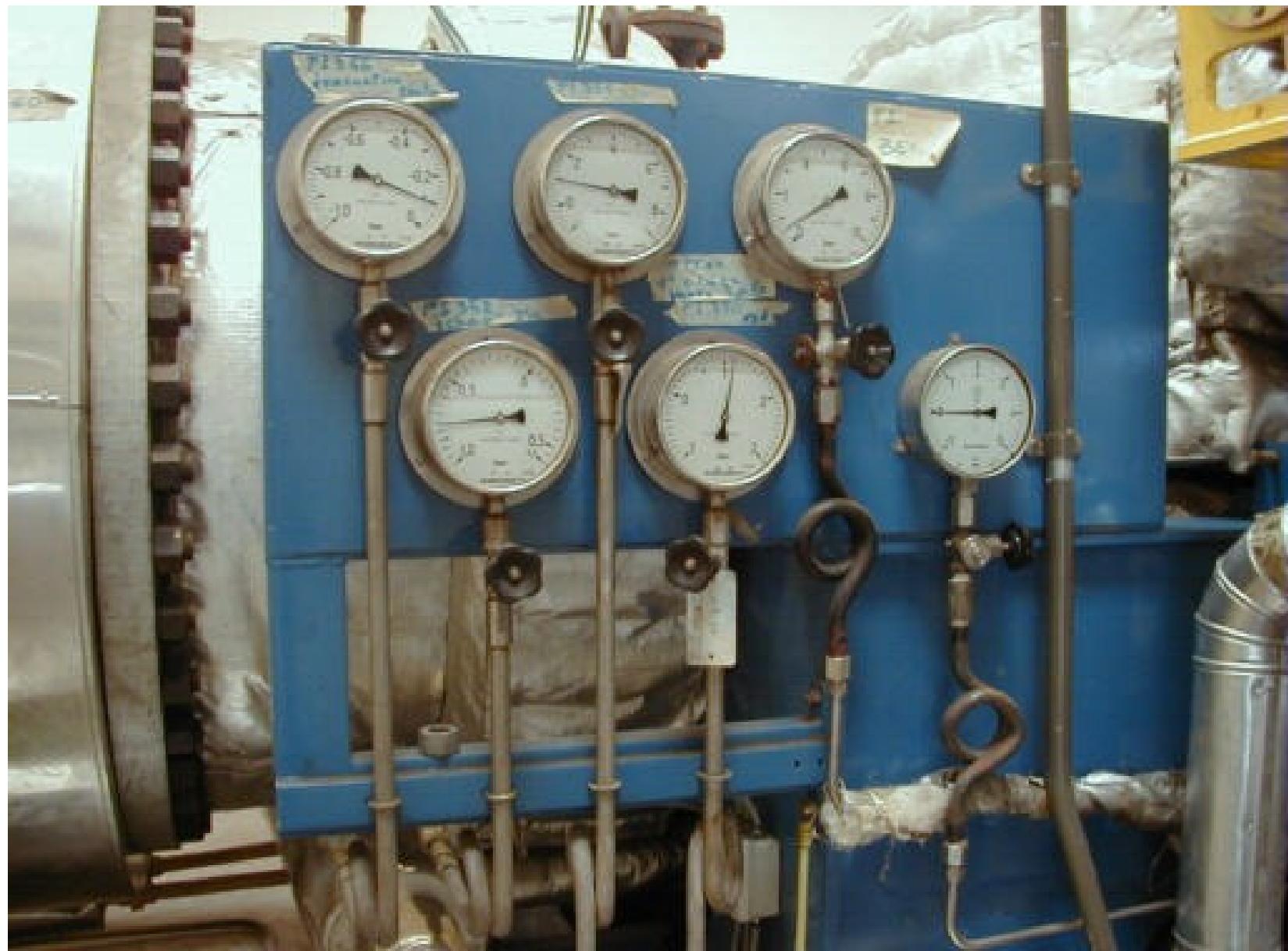
**INTERNET FLOTSAM**



**YANKEES SUCK**



**COMMUNICATION FAIL**



**GAUGES RULE**



# HIPSTERS IN SPACE

56  
Bad



On March 8, All Becomes Crystal Clear  
NEW SEASON SUNDAYS 10PM  
EMMY®-WINNING SERIES

amc  
[amctv.com](http://amctv.com)

COOK WITH CARE



*Spagnolo*  
UGO SPAGNOLO - DS NUMERO 9 CONCEPT

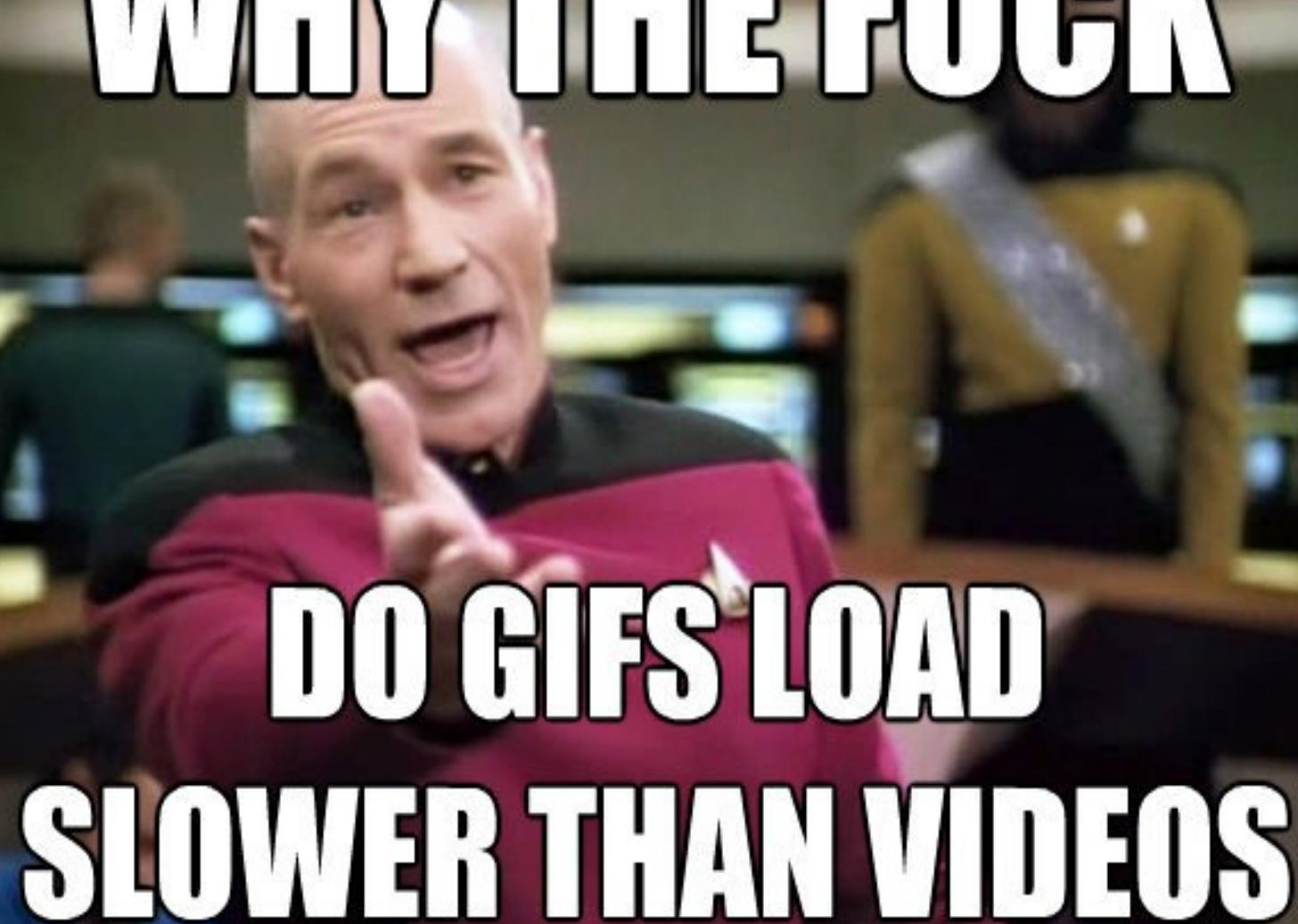
**BE GREAT. ITERATE.**

**THIS SHIT IS HARD**



**SO SO HARD**

# WHY THE FUCK



DO GIFS LOAD  
SLOWER THAN VIDEOS

live mememe.com

## WHY LIVE THE PAIN



**All aboard the Failboat**

**SHARED STATE IS SHARED FAIL**



**WELL USED**



I HEART CLOUDS

# CONCLUSIONS

# THANK YOU

[Github.com/RobSpectre/Talks](https://github.com/RobSpectre/Talks)

[www.brooklynhacker.com](http://www.brooklynhacker.com)

@dN0t – [rob@twilio.com](mailto:rob@twilio.com)

