The Heat Death of Enterprise IT

The end of the (IT) world as we know it

@GarthGilmour (Mr Bad News)

BoyleEamonn (Mr Good News)





https://instil.co



why this talk? i write talks for three reasons

- I'm fascinated by something
- Someone paid me lots of money
- I'm genuinely worried





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POWERED BY INSTIL.

the heat death of the universe

The heat death of the universe (also known as the Big Chill or Big Freeze)^[] is a hypothesis on the ultimate fate of the universe, which suggests the universe would evolve to a state of no thermodynamic free energy and would therefore be unable to sustain processes that increase entropy. Heat death does not imply any particular absolute temperature; it only requires that temperature differences or other processes may no longer be exploited to perform work. In the language of physics, this is when the universe reaches thermodynamic equilibrium.

https://en.wikipedia.org/wiki/Heat_death_of_the_universe

We are being pulled apart

We are too far apart for work to occur

different dimensions of overload how we are being pulled apart

- 1. Frameworks
- 2. Thinking
- 3. Full Stack
- 4. Ethics
- 5. Anxiety



Frameworks



"There's no such thing as advanced developers"

"of course something something maturity something something great coping skills something something can communicate something something resilient something something wisdom"

thought experiment – part 1 could you...

- Name five frameworks for creating a Web App?
- Name five JVM frameworks for creating a Web App?
- Name five Kotlin frameworks for creating a Web App?







thought experiment – part 2 could you...

- Name five JavaScript frameworks?
- Name five frameworks for creating a SPA?
- Name five frameworks for managing state in React?



thought experiment – part 3 could you...

- Name five Cloud Computing platforms?
- Name five mechanisms for deploying to AWS?

Web Console AWS CLI Cloud Formation Template By CDK

- By CDK
- By SAM
- Via pure CF JSON
- Via YAML
- 4. Writing an Ansible playbook5. Writing Terraform6. Chef Automate

- 7. Puppet Enterprise
- 8. AWS Elastic Beanstalk
- 9. AWS CodeDeploy
- 10.AWS CodeStar
- 11.AWS OpsWorks
- 12.Cloud Foundry Bosh



it's not a battle between titans it's a struggle to be heard





everyone is fighting for our attention! hence DevRel is now a big thing...



Any sufficiently disparate set of frameworks is indistinguishable from rolling your own.



1995: "It will take you months to understand our design."

The Age Of Frameworks[™]

2025: "It will take you months to understand our design."

You're not wrong man



You just need to chill out

it's not all spin frameworks have value

- Consider writing your own React / Spring / Jetpack
- Or even just the core bits YOU use frequently
- This software is not only huge but battle tested

🖵 facebook / react 🕑	Q Notific	ations 🔂 Star	177k 😵 Fork	35.8k	
<> Code Issues 649	Pull requests 242 Action	ns 🛄 Projects 📮	🛛 Wiki ! Secu	rity 🗠 Insights	
<mark> </mark>	oches 🔿 138 tags 🛛 🖸	io to file Code -	Releases 96)	
acdlite Upgrade useld	to alpha chann 🗸 5cccacd 14 hours ago	0 14,607 commits	Used by 70m		
.circleci	Pin CI to Node 14 (#22665)	yesterday	Used by 7.9m		
.codesandbox	Update Node.js to latest v14.17.6 LTS (#224	40 last month	@ (() = ()	+ 7,949	,195
github	Update PULL_REQUEST_TEMPLATE.md	2 months ago			
fixtures	[Fizz] Add option to inject bootstrapping s	cr 13 days ago	Contributors	1,516	
packages	Upgrade useld to alpha channel (#22674)	14 hours ago	🙆 🚯 🔮	s 🎨 🌒 🌏	
scripts	Remove experimental useOpaqueIdentifier	14 hours ago	🔥 🔴 💟		
.editorconfig	https link to editorconfig.org (#18421)	2 years ago	+ 1,505 contribu	tors	
.eslintignore	Delete all but one build2 reference (#223	91) last month			

systems today do more they have more essential complexity





Minecraft 📀 @Minecraft

The Mob Vote is open! It's time pick your favorite: Glare, Allay or Copper Golem! ...

Vote now!



1,280,167 votes · Final results

5:44 PM · Oct 16, 2021 · Twitter for Advertisers.

there are economies of scale especially in resource consumption

- Many of the new frameworks and services enable innovation
- Consider shared data centres vs individual on-prem servers
- Consider power consumption of serverless vs 24x7 VMs

understanding cost vs benefit coupling has a price

- Coupling does have a cost
- We need to weigh the pros and cons
 - Like all things in engineering
- It's not all cons though

PROS	CONS
<u>{}</u>	

Thinking





Does Deep Thought Matter?









Comics about work. Made with love & lots of coffee. Hit the **follow** button to get the comics in your feed. Work Chronicles workchronicles.com



"Developers don't read books"

"Blogs shouldn't be wordy"

Magpie Development







Matt Coulter @NIDeveloper

....

The power of **#serverless** is it improves with no effort from you over time

The problem is you NEED to stay on top of all the announcements or you look foolish

Sheen Brisals @sheenbrisals · 27 Aug Often see consultants claim to be good @ #Serverless.

Reviewing designs, I'm like, oh really?

U know SQS batch is now 10k?...

20:43 · 27 Aug 21 · Twitter for iPhone



Last Week in AWS @LastWeekinAWS

"That's one of the major barriers with serverless. You can't use serverless for any of the major cloud providers until you understand that cloud provider. So yeah, do your 12 weeks of cloud school." - @lamStan

Have a listen: buff.ly/3sZbQxl



21:55 · 03 Sep 21 · Buffer

"This is all great. But I will miss coding"
this is what we would expect as we move from craftspeople to mechanics



Design the system



Diagnose the problem



You're not wrong man



You just need to chill out

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every generation can claim "authenticity" maybe it's just different / evolution





You're plugging AWS services together? Unless you're writing it all from scratch in Java, are you really thinking?

> You're using a compiler? If you're not writing assembly, are you really thinking?



You're using a managed language? If you're not writing C++ and considering memory layouts, are you really thinking?

You're using off the shelf hardware? Unless you're designing your own circuits, are you really thinking?

we think about & solve different problems we think about & solve problems differently

- Frameworks, tools and hardware allow us to achieve more
- It's still highly skilled, but perhaps different skills
- Logic, problem solving and thinking are still required



long-winded, rambling, wordy lengthy, verbose & repetitive blogs and books

- There are some terrible books & blog posts out there
- At a certain competency level, minimal info is required
- A lot of information is redundant / irrelevant







passionate about your work know what you love

- But I do love coding, not such a fan of YAML
- I will steer my career to the kind of work I enjoy
- But I will not seek out "busy work" either
 I don't want to do work that is not required

Full Stack



– Programmers (maybe?)







I remember when developers cared about *only* writing business code. Every bit of technical code was deemed bad.

Today, all developers seem / are supposed to care about is Kubernetes. It's as if they don't have to build actual apps anymore. All they do is deploy them.

19:14 · 31 Mar 21 · Tweetbot for iOS

- Programmers (maybe?)
- DevOps people / build experts



True ... and yet



- Programmers (maybe?)
- DevOps people / build experts
- Business Analysts / DDD experts



True ... and yet



Where have all the testers gone?



- Programmers (maybe?)
- DevOps people / build experts
- Business Analysts / DDD experts
- QA / experts in non-functional testing



True ... and yet



Hackers, for the most part, exploit bugs. If you want to improve security, I'd start by focusing on quality and testing. Introduce TDD and automated testing in a CI/CD pipeline. 1/3

...

8:05 PM · Oct 9, 2021 · chirr.app

- Programmers (maybe?)
- DevOps people / build experts
- Business Analysts / DDD experts
- QA / experts in non-functional testing
- Experts in security exploits / pen testing



True ... and yet

of new products fail

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product management we're part of a much bigger process





- Programmers (maybe?)
- DevOps people / build experts
- Business Analysts / DDD experts
- QA / experts in non-functional testing
- Experts in security exploits / pen testing
- Product People / experts in UX design



You're not wrong man



You just need to chill out

should we not have a holistic view? why are we at this place?

- Handover and communication are difficult
- Having full vertical slices has it's advantages
- Avoids narrow focus



It works on my machine

wGetGUI v1.0 You are using GNU Wget 1.9-beta - 1.7 is minimum.			
URL:		-	Retrieval Options
Hosts			No clobber
Span All		Clear	Timestamping
			🔲 Continue file download
			Quota (kB):
		Spider (check for files)	
Accept/Reject	Special	- Running Options	🗖 No directories
	Retries: 10	🔲 Go 2 background	✓ Force directories
Finan(i) ♥ gir	Additional Parameters:	🔲 No info	Save to custom dir:
		🔽 All info	
📄 zip 🔽 exe	Act like a browser	🔲 Some info	🔲 Clear Server Cache
🗖 doc 🗖 All	Convert links	Append to logfile	Recursive Retrieval
Clear Clear Sav Sav	Ignore robots.txt	Cverwrite Logfile Logfile: default.log	Depth: 0
	Configure Proxy		Download "as-is"
	Save Load	About Exit	Mirror site
	settingssettings		🔲 add HTML suffix
Start wGetStart.bat	Add to wGetStart.bat Empl	ty wGetStart.bat Pro Mode	🔲 Only go deeper



People also ask 🕴

Is it safe to store passwords in GitHub?

In short, **don't store your secrets in Git**! This applies to both secrets that are hardcoded into your application (such as putting the database password directly in the source code, which should be avoided at any cost), as well as keeping configuration files with secrets alongside your source code (such as . 7 May 2021

https://withblue.ink > 2021/05/07 > storing-secrets-and-pa...

Why storing secrets and passwords in Git is a bad idea | With Blue Ink

should we not have a holistic view? specialisms still exist

- We still have specialisms and specialists in our industry
- Real-world constraints often dictate how many hats we wear



Ethics





Michael Swaine and Paul Freiberger Foreword by John Markoff, The New York Times

Edited by Brian P. Hogan

Now the Channel 4 series The Triamph of the Needs ACCIDENTAL EMPIRES

How the boys of Silicon Valley make their millions, battle foreign competition, and still can't get a date

ROBERT X. CRINGELY 🚺


Global warming: Data centres to consume three times as much energy in next decade, experts warn

416.2 terawatt hours of electricity world's data centres used last year was far higher than UK's total consumption

Facebook whistleblower accuses firm of serially misleading over safety

Frances Haugen filed at least eight complaints against the company regarding its approach to safety

FT Magazine Cryptocurrencies (+ Ad

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Inside the cult of crypto

Debate? No thanks. Doubts? Not welcome. How the world of cryptocurrency diehards really works

Siddharth Venkataramakrishnan and Robin Wigglesworth SEPTEMBER 10 2021



JUL 16, 2021 • 4 MIN READ • BURNOUT

Work wants to own your soul

Work wants to own your need to grow, and your need to build, and your need to love.



"Alienated work is a rich source of these incomplete cycles. We expend effort, focus our will, develop our skills, solve problems, work through frustration - and then in many cases never see the results of our work, never mind benefit from them. We never get satisfaction, completion."

You're not wrong man



You just need to chill out

computers are everywhere they're in the good, the bad and the ugly

- It's inevitable IT will be involved in the bad
- It's involved in everything







perhaps we should hold ourselves to higher standards

- Our industry has the power and reach



Extra Anxieties*



* Suggested by early reviewers of this talk

the (agile) team is everything its own manager / coach / therapist

- As an Agile team we:

- self-organize
- self-educate
- act as our own coaches
- resolve our own disagreements
- etc...

life is too good is the current growth sustainable?

- New employers seem to be appearing all the time
- There is huge upward pressure on salaries and benefits
- Folks are entering into the profession from other fields
- It feels like we are living at the peak of a bubble

could we soon be redundant? no-code / low-code is back again...

Guest

No-code/low-code: Why you should be paying attention



You're not wrong man



You just need to chill out

about the bubble i'm not a fortune teller

We're all doomed!

about teams i feel we're in a better place today

- Teams function and support each other as a unit
- We're more aware of and open about mental health issues
- We realise the importance of a work / life balance



Conclusions



different dimensions of overload how we are being pulled apart

- **1. Frameworks proliferate**
- 2. Deep thought is deprecated
- 3. Developers now do everything
- 4. We are the baddies
- 5. Anxiety



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what do the following mean? after 20+ years i'm no longer sure...

- To be a <u>senior</u> developer?
- To be an architect?
- To work as a manager?
- To have skill?
- To have job security?



Or am I wrong?

you're not totally wrong but it's a matter of perspective



there's lots i've never done i don't feel i've missed out

- I never had to use punched cards
- I never wrote more than 100 lines of assembly in my life
- I never had to work directly with transistors
- I never had to write my own compiler

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but i was busy doing other stuff and I had fun doing it

Amstrad 128K Microcomputer (v3) ©1985 Amstrad Consumer Electronics plc and Locomotive Software Ltd. BASIC 1.1 <u>R</u>eady BBC Computer 32K

Acorn DFS

BASIC

>AUTO 10 CLS 20 PRINT "HELLO WORLD"







the new generation shouldn't feel bad either they might not do some stuff

- Most will not write their own sorting algorithms
- Most will never write their own data structures
- Most will never have to solve linker errors
- Most will never think about endianness

but they will busy doing other (hard) stuff and building great products!

