Cloudy with a Chance of Meatballs cloud surprises

Holly Cummins WW Development Lead IBM **Cloud** Garage





























This was a story ...





This was a storyof a hero who wanted to make the world better...



This was a storyof a hero who wanted to make the world better... ... who had some challenges along the way.



We all know these stories.



Joseph Campbell









COLLECTED WORKS WITH A THOUSAND FACES

CAMPBELL



monomyth





Laconic Kylix with Prometheus and Atlas ~550 BC

Prometheus



Osiris Tomb of Sennedjem









King Arthur and the Holy Grail

Howard Pyle





There is only one story:



There is only one story:

the quest



Call to Action









Reward

Call to Action

Obstacles

I







Image from the Nationaal Archief, the Dutch National Archives, and Spaarnestad Photo.



Luke Skywalker



E

Joseph CAMPBELL

THE HERO WITH A THOUSAND FACES

5

2



We are all the hero of our own story.









What's our quest?







Fast hardware.



Lots of fast hardware.



No repetitive tasks.





We are all the hero of our own story.



Bring value to our employer

• •



Have an audience for our

awesome code




Make the world better.





















install software.

patch.

repeat.



deploy times



It takes us 3 months to get a VM provisioned... ...to run a shell script with a cron job.









 \sim

"Sooo I'm working on my new startup, it's going great so far"

| 🗧 🗧 🥘 🔯 React App | × |
|-------------------------------------------------------------|-----|
| $\leftrightarrow \rightarrow \mathbb{C}$ (i) localhost:3000 | |
| Hello World | |
| 5:21 AM - 18 Dec 2017 | |
| 1,008 Retweets 4,053 Likes 🔞 🚳 🌑 🌑 🌑 🌚 🌚 | 2 😡 |
| ♀ 113 ℃ 1.0K ♡ 4.1K ⊡ | |





 \sim

OKAY! Time to lift our **#startup**. Everyone visit http://localhost:8080 and share :)

1:02 AM - 27 Sep 2015





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"Sooo I'm working on my new startup, it's going great so far"

| 🗧 🗧 🥘 🔯 React App | × |
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| ♀ 113 ℃ 1.0K ♡ 4.1K ⊡ | |





OKAY! Time to lift our **#startup**. Everyone visit http://localhost:8080 and share :)

1:02 AM - 27 Sep 2015





I'm here to proudly announce my **new startup company**. I'm really excited

21 M



2 🐼





OKAY! Time to lift our **#startup**. Everyone visit http://localhost:8080 and share :)

1:02 AM - 27 Sep 2015





These jokes make no sense.

cf push my-cool-startup



Hello JavaLand

Jatumba!

C







Hello JavaLand

Jatumba!

C



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 \Box



export image=registry.bluemix.net/coolness/cool:v1 kubectl run coolstartup -image=\${image} --port=8080 kubectl expose deployment coolstartup --type="LoadBalancer"





Ô Talks

🏠 Kotlin in Practice 📒

Philipp Hauer (Tuesday, 13th Mar, 08:30 (40 min) 👚 Wintergarten 🛛 🖡 900 ★ 28

🖶 Core Java & JVM Languages

🏠 Geheimes sicher in der Cloud 🛛 💻

Dominik Schadow O Tuesday, 13th Mar, 08:30 (40 min) 👚 Quantum 3+4 🛛 📮 250 ★ 21 & Architecture & Security

2 Service Discovery in Container Orchestration Frameworks

Arun P. Gupta

(Tuesday, 13th Mar, 08:30 (40 min) 👚 Schauspielhaus 🛛 📮 460 ★ 14 S Container & Cloud

🏫 Alexa, frage Duke: Wie entwickelt man Skills mit Java? 📒

Marek Wester Adam Giemza () Tuesday, 13th Mar, 08:30 (40 min) A STOCK's 🛔 400 ★ 9 **」** Innovations

☆ JavaInnovationLab 📒

André Sept Jens Deters () Tuesday, 13th Mar, 08:30 (570 min) 🛉 Quantum Community Hall ★ 3 Community Activities



Language

Stream

Core Java & JVM Languages

Methodology & Culture and Quality

Architecture & Security

Enterprise & Microservices

Container & Cloud

IDE & Tools

Innovations

Frontend & Mobile

Cloud

Community Activities

Location





Language

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Core Java & JVM Languages

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Architecture & Security

Enterprise & Microservices

Container & Cloud

IDE & Tools

Innovations

Frontend & Mobile

Cloud

Community Activities

Location









Language

Stream



Location

Methodology & Culture and Quality Wir schlachten einen Monolither **Dirk Mahler** Stephan Pirnbaum O Tuesday, 13th Mar, 08:30 (40 min) n Quantum 1+2 🛛 👖 250 📩 24 **Architecture & Security** Twitter's Quest for a Wholly Gra Runtime Chris Thalinger ① Tuesday, 13th Mar, 08:30 (40 min) Lecture Tent 100 🛨 2 Core Java & JVM Languages 1 Begrüßung: Willkommen zur Ja
A 06:30 (\mathbf{v}) 2018 Fried Saacke



Methodology & Culture and Quality Language 2 Wir schlachten einen Monolither Stream **Dirk Mahler** Stephan Pirnbaum O Tuesday, 13th Mar, 08:30 (40 min) Also running on cloud, n Quantum 1+2 🛛 👖 250 📩 24 but you don't care that **Architecture & Security** it's cloud Twitter's Quest for a Wholly Gra Container & Cloud Runtime Chris Thalinger Yup, still on cloud ① Tuesday, 13th Mar, 08:30 (40 min) Lecture Tent 100 12 Core Java & JVM Languages 1 Cloud Community Activities Begrüßung: Willkommen zur Ja
 06:30 (\mathbf{v}) Location 2018 Fried Saacke









Fast hardware No pointless tasks Users love the hero





Fast hardware No pointless tasks Users love the hero



Call to Action

Fast hardware No pointless tasks Users love the hero





Problem solved.



Problem solved. Quest over.





Problem solved. Quest over.

Und wenn sie nicht gestorben sind, so leben sie noch heute.



Er, sort of.





Wait, we're not all using containers?






2016 Container Adoption

Survey of 504 users by Cloud Native **Computing Foundation**



Sorry, can't do it. I need to stay where I am.



2017

2016 Container Adoption

Survey of 504 users by Cloud Native **Computing Foundation**



Security.



Scary outside

Firewall

Safe inside



Scary outside

Firewall

÷.,

Safe inside



Watson 11 0 Discovery Data ly m Firewall Me



 $\langle x \rangle$

Clients from a large bank



Hey boss, I put all our sensitive data on the cloud. Unencrypted.

Annual Review Room







Annual Review.





Annual Review.

Theodoor Rombouts 1597 - 1637.





actually...



actually ... encryption fixes most things











Built artefact boundary





Built artefact boundary

app middleware OS virtualisation hardware and the standard

Developers are responsible for security in the cloud.



actually ...



Vulnerability Advisor

•••

+



The Vulnerability Advisor has scanned your image looking for installed packages with known security vulnerabilities.









Cloud can be more secure.











I've been putting my apps onto the cloud.





Good plan. You should consider the IBM Cloud. :)

IBM Vice-President

•••

I've been putting my apps onto the cloud.



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I've been putting my apps onto the cloud.



۰ ۴















Call to Action



Cloud Native-ness



Reward



IBM **Cloud** Garage Interview Room







IBM **Cloud** Garage Interview Room

1, 17

Cloud native is just hype. It's a new name for an old concept.



Shared centralised computing is not new.

Es gibt nichts Neues unter der Sonne





Marcin Wichary

the first internet





There are 5 computers. In the whole world.





There are 5 computers. In the whole world.


Microcomputer



Microcomputer



Microcomputer

Personal computer



Microcomputer

e e e e e e e e e e f f d

Personal computer



Microcomputer

eee eee eee Grid

Personal computer



Laptops



Microcomputer

erid



Cloud

Personal computer



Laptops



Microcomputer

EEE DDD EIE Grid



Cloud

Personal computer



Laptops





@holly_cummins



If it's not new, why is it so hard?

EyeCue Lab @EyeCueLab

Famous last words: "it works on my localhost" #startup #developer

03/02/2015 22:29



cloud native is hard

@holly_cummins



Containerized

Containerized Dynamically orchestrated

Containerized Dynamically orchestrated Microservices oriented

Containerized Dynamically orchestrated Microservices oriented

Agile

 Containerized Dynamically orchestrated Microservices oriented

Agile

Devops

 Containerized Dynamically orchestrated Microservices oriented Agile Devops

• Elastic

 Containerized Dynamically orchestrated Microservices oriented Agile Devops • Elastic Stateless

Our server may go

away at any time.

Chat project - load balance with socket.io



I am involved in a development project of a chat where we are using node.js, socket.io (rooms) and mongodb. We are at the stage of performance testing and we are very concerned if the system needs a load balance.



 \star

5

How can we develop if our project needs it? J'a researched on NGINX looks cool, but we are in doubt whether solves our problem as how the system will be a chat, we fear the servers are not ~talking~ with each other correctly ...

Where do we go if we need a load balancing?



add a comment



@holly_cummins











Our old JVMs don't work so well in the cloud.



@holly_cummins





Physical machine





Physical machine

Virtual machine

and the second se

and marks where the strength



Pocker container

Physical machine

Virtual machine

and the second second

The second second

1.





Physical machine

Virtual machine

......

The second second second

/ B ...



How much memory Docker thinks JVM has



1.

Physical machine

Virtual machine

Sec. Sec.



How much memory the JVM thinks the JVM has

How much memory Docker thinks JVM has



1.

Physical machine

Virtual machine



How much memory the JVM thinks the JVM has

How much memory Docker thinks JVM has



1. 1. 1. 1. 1.

5.7 million 1 mi

Physical machine

The KILL ZONE







The JVM dies.



The JVM dies. We bring it back to life.





The JVM dies. We bring it back to life. But it's still annoying.






Our old way of doing ops doesn't work.

Happy Server



Application monitoring in the old days



Happy Server



Unhappy Server

Application monitoring in the old days



Happy Server



Unhappy Server

Application monitoring in the old days







Questions

Developer Jobs

Tags Us

How to retain the Bluemix logs?



×

Bluemix maintains a log of every cloud app just fine when the app is running.

But when the app restarts, I can no more why the previous instance had crashed.



ibm-bluemix ibm

share edit close flag

Are you already using the Log Analysis se

No. I am not using it. - Balaji Vignesh y

add a comment

| stackoverflow.com/questions | /47321534/how-to-retain-the-bluemix-lo | ogs 🔿 |
|-----------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------|
| sers Search | | 6,357 • 3 • 13 • 20 ♀ ♀ |
| | | Ask Que |
| p deployed. In my case, it is a java app and the logs are | | asked yesterday viewed 18 times |
| get the logs of previous r | un. This is important to check | active today |
| tain them? | | FEATURED ON META |
| | asked yesterday 49 • 10 | template to help people ask better questions? |
| ervice? – data_henrik yester | day | 13 Audit questions also teach, so why aren't they manually cultivated? |
| /esterday | | 9 Flagging an answer and editing the details of that answer into another answer |
| | | |



















Microservices

are hard.



"A typical microservices deployment."





"A bad microservices deployment."



Just because you can distribute your application across 600 servers, doesn't mean you should.



The cloud makes it **so** easy to provision hardware.



That doesn't mean the hardware is free.



Or useful.





Hey boss, I created a Kubernetes cluster.





















There is surely nothing quite so useless as doing with great efficiency what should not be done at all. Peter Drucker



@holly_cummins





cloud providers to manage your cloud providers



We need a cloud to manage our cloud.











Innovation



End-uservalue Innovation



End-user value Lower costs

Innovation



End-user value Lower costs

Innovation

Internet of things



End-user value Lower costs

Innovation

Blockchain Internet of things



End-user value Lower costs

Innovation

Artificial Intelligence Blockchain Internet of things



End-user value Lower costs

Innovation
Serverless is just

someone else's server.



Data scientist



What's the biggest problem data scientists report?



Access to data.



What makes everything easier?





What makes everything easier?

it is in the second second







The Cloud is for data, not just applications





The cloud is just someone else's computer.



The cloud is just someone else's super-special

GPU-loaded computer.





"I can do what?" IaaS







IBM's 50-qubit quantum computer

The cloud is just someone else's quantum computer.











Users are getting more demanding.





millisecond response times





uptime.







immediate fixes



constant innovation





Obstacles

Awesome compute power







"When I was last in Germany, cloud was a thing in the sky that made rain."



cloud native thinking





digital native





the hero of 2018 is the cloud native native



Thank you.@holly_cumminsIBM Cloud Garage