Are We Really Cloud-Native?

Bert Ertman
Cloud-Native Computing
What is Cloud-Native?

answer: ‘Blah blah blah … Kubernetes!’
‘Kubernetes is the Greek god of spending money on cloud services’

- @QuinniPig
About me:

• Java/Cloud Postmodernist

• Java Champion, JavaOne Rockstar Speaker, and a Duke’s Choice Award Winner

• Book author for O’Reilly, speaker at many conferences

Bert Ertman
Fellow, VP Technology
About Cloud Computing
“The market for cloud services is growing faster than virtually every other IT market today, with much of this growth coming at the expense of the traditional, non-cloud offerings”

source: Gartner
Java EE is dead, long live Cloud!
What is Cloud Computing?
‘It’s like computers on the internet, right?’
There is no cloud
it's just someone else's computer
The “Evolution” of Application Platforms
‘What is this Serverless witchcraft that you speak of?’
The Evolution of Compute

Physical

Virtualization

Cloud Compute

Containers

Serverless
Serverless removes the ‘R’ from COMPUTER
‘Whoaa... Serverless is like cows on the Internet?!!’
Middleware as managed services?

- Database
- Messaging
- API Gateway
- Storage
- Web Server
- ...
What is happening in the world?
‘Software is eating the world’

Marc Andreessen
We want to move fast, and yet not break things
Our answer so far...

- Business agility = Microservices
- Infrastructure = CI/CD + containers
- Process = Agile + DevOps
...and this resulted in...
Trouble in Paradise
80-90% of IT budgets are spent on maintaining existing systems

Got change for my innovative ideas?
Is it really different?

App Server

App

virtual machine

virtual machine

inverted App Server

a.k.a. fat jar

a.k.a. Spring Boot

App
Is it different now?

inverted App Server
a.k.a. fat jar
a.k.a. Spring Boot

virtual machine
And now?
Modularization

• Breaking up bigger things into smaller, more manageable, parts

• Cohesion over coupling

• Modularity is the ultimate agile tool!
Trade-offs of decomposition

• How to test?
• How to deal with configuration
• How to deal with dependencies?
• How to deal with versioning?
• How to deal with latency and overhead
• How to deal with monitoring?
• How to deal with …
Now maybe?
DevOps
DevOps In Name Only
Most traditional organizations:

- Standardized technical infra components
- Standardized hypervisor
- Standardized operating system(s)
- Standardized middleware
- Standardized application development framework
- Standardized programming language
What is an application?
2009 answer...

“A bunch of code I have to build & test together into a monolithic blob, which I then toss over the wall to an ops team, who hopefully get it to run on a fleet of servers. Then, I hope some work comes its way so I don’t waste too much $...”
2019 answer...

“Managed services in the public cloud, connected and customized with highly differentiated business logic, that run (and bill) only when actually needed.”
Cloud-Native is a DevOps journey!

• Cloud-Native is the architecture for assembling cloud-based components in a way that is optimized for the cloud environment

• It’s not about the servers, but the services

• It’s about modernizing infrastructure and process, and transforming the organizational culture along the way
The “Evolution” of Application Platforms

- On-Premises
- IaaS
- PaaS
- Serverless
PaaS

IaaS

Serverless
This is more like it!
Technologies or frameworks are not cloud-native, it is the way you use them.
Getting the best from the Cloud

• Potential for economic disruption

• Ability to easily experiment with new technology or new business ideas

• Focus on strategic value vs managing infrastructure and middleware
Friends don’t let friends build their own Kubernetes platform.
Getting the best from the Cloud?

Kubernetes vs. Managed Service
Is Java a natural fit?
Are Java programmers a natural fit?
So you can do Java* programming?

But what does it take to become a Cloud Engineer?
Keep Exploring

Image by kamranahmedse (https://github.com/kamranahmedse/developer-roadmap)
AWS Release Pace

- 2013: 280 new features
- 2014: 516 new features
- 2015: 722 new features
- 2016: ~1000 new features
- 2017: 1430 new features
- 2018: ~2000 new features
Now let’s talk about culture...
Cloud-Native Culture Killers

- Business does not trust IT, so no true BizDevSecOps
- IT is a cost center
- We only do cloud because it saves us money (we think)
Over the summer, I caught up with Susan, one of my favorite college classmates, over brunch. Even though Susan and I never worked together, I always admired and loved working with her on school projects. We both became consultants at different firms. Over the years I continued to run into Susan and her colleagues at the airport so we stayed in touch quite often.

To no surprise, Susan’s colleagues gushed and time and time again about her. She was smart, hardworking, politically savvy, and had a very likable personality. She was the go-to person for clients, coworkers, and leadership alike. I watched over the years as Susan continued to climb the ladder at her firm and we would joke about her eventually fulfilling her world domination plans. On the outside looking in, it seemed like the sky was the limit for Susan’s career and the firm she worked at was a slam dunk.

Until it wasn’t.

Susan recently handed in her resignation and this news came as a surprising blow to her former firm.
For Susan, this was years in the making.

Why did Susan, a long time firm rockstar and a favorite leader, decide to leave? A changing culture.
“ar when I joined the firm 13 years ago, the leadership created an amazing culture of high growth, development, and community. But over the years, many of the leaders I worked with retired. And then the firm started hiring a lot of new leaders with different values because of their ability bring in revenue. What the leaders failed to realize is that this changed the culture of the firm over time. I do not recognize or identify with the company anymore.”

Cloud-Native Culture FTW!

• We have an IT-first strategy
• We see Cloud as a potential for economic disruption
• Cloud enables us to start experiments (forward thinking) and is our ability to innovate
• Cloud enables a faster time-to-market
• All our engineers are broadly skilled, and teams are fully mandated
Thank you!

Any questions?