

The Future is Serverless



Saman A. Pour

 /in/samanamp



About Me

Lead Software Engineer @ Knockri

Masters in Information Technology
CFA level 1 & CSC

Produce podcasts
Write articles
Give talks

Hiking
Cycling
Cooking
Kayaking (new)





The Talk Structure

- ⛵ Introduce Case Study
 - ⛵ Architecture History (100B.C. - 2019)
 - ⛵ Challenges of Serverless
 - ⛵ Live Demo
 - ⛵ Use the demo we created together
- 

Friday, August 27, 1999

SEARCH



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Wrapping up an ambitious reissue program, the great Penelope Fitzgerald delivers not one but two classics in miniature. *The Golden Child* is the British author's first novel, in which an ancient mummy ignites a curatorial ruckus, while *At Freddie's* revolves around a drama academy and its deeply amusing student body. Go to [Books](#)



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In a stunning admission this week, the FBI confirmed that in 1993 its agents fired flammable devices at the Branch Davidian compound in Waco, Texas, hours before the inferno erupted. But the Oscar-nominated *Waco: The Rules of Engagement* suggested this possibility back in 1997. Check out this fearless documentary and prepare to question the government's spin. Go to [Video](#)

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Case Study

1999



System Description



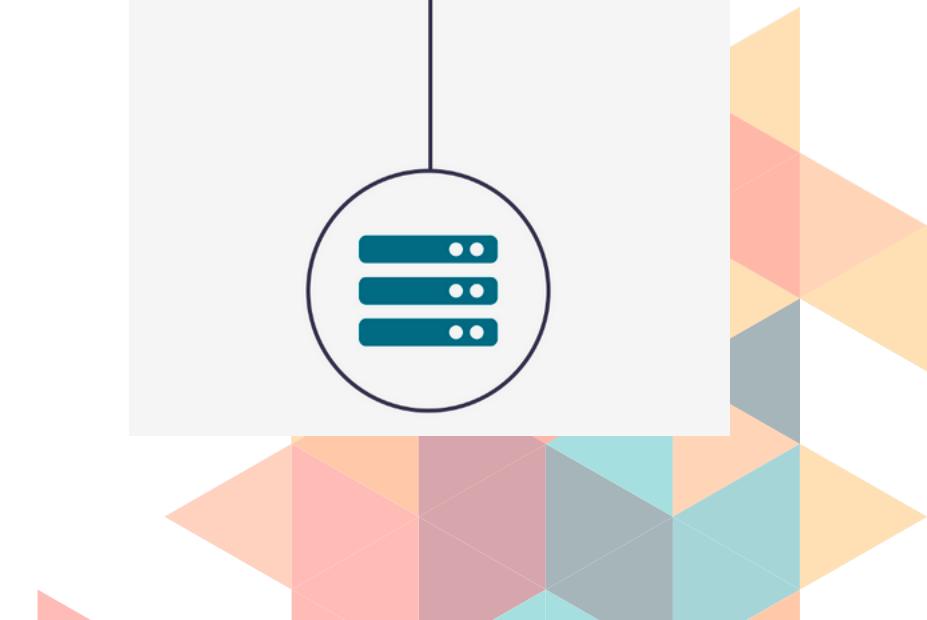
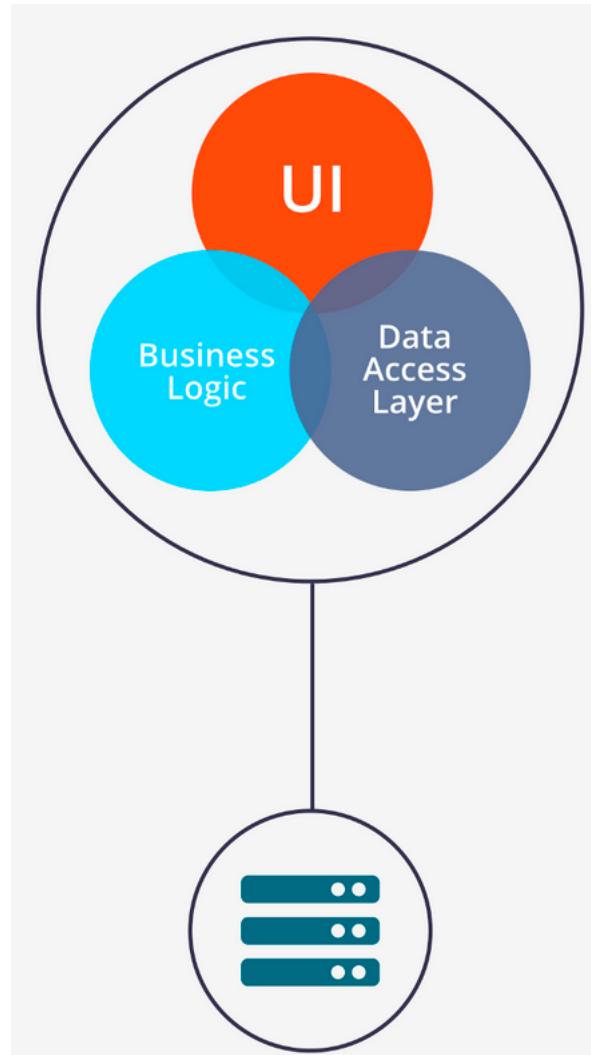
Architecture History





Monoliths

- A big chunk of code
- Composed of different components
- All-in-one software app





Monolith Arch Benefits



- Easy to build
- Easy to test
- Easy to deploy
- Perfect for small loads
- Perfect for startups at MVP level
- Simple to scale horizontally



Monolith Arch Drawbacks

- Maintenance – Too large
 - Slow startup time – Because of the size
 - Redeploy application for each update
 - Lower reliability – One bug brings down all
 - Very hard to adopt and evolve
- 



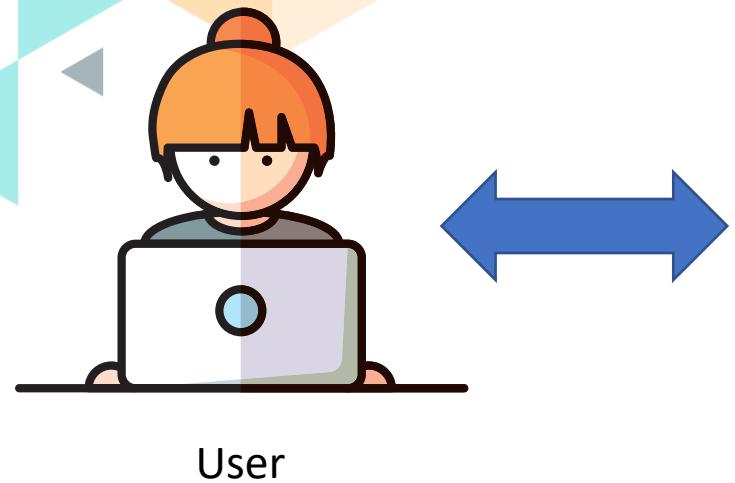
Service Oriented Architecture (SOA) Guiding Design Principles



A service has the following properties:

- It logically represents a business activity with a specified outcome.
- It is self-contained.
- It is a black box for its consumers.
- It may consist of other underlying services.

Case Study: Monolith -> SOA





SOA Criticism

At the time that we didn't have cloud:

- Separate infrastructure for each service (Huge upfront investment)
 - Networking required (switch, router, cables, ...)
 - Very good developers needed for RPC, Sys Availability
 - Developers / Operation people needed
- 

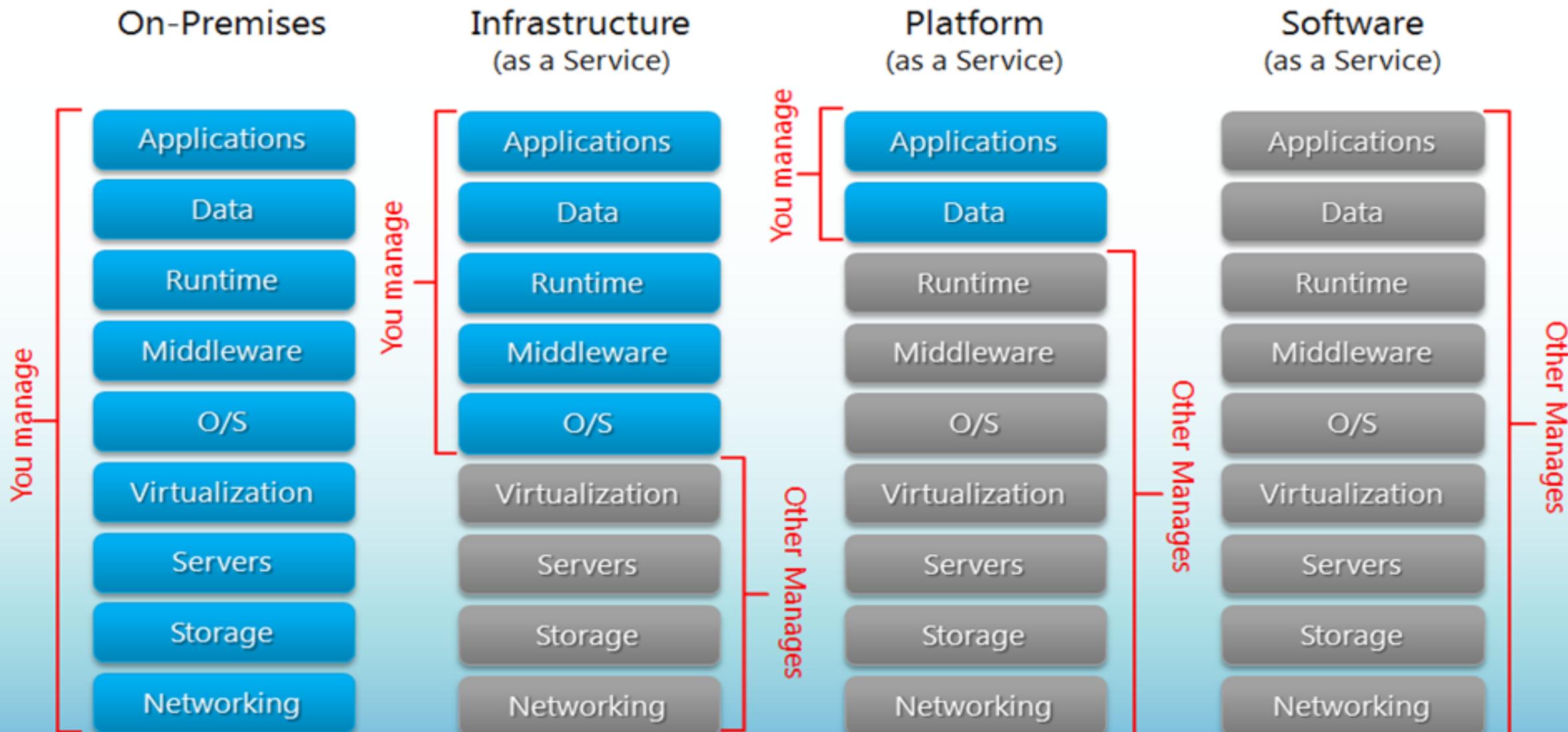


Cloud Computing

- On-Demand
- relies on sharing of resources for economics of scale
- 2006 – Amazon EC2
- 2008 – Google App Engine
- 2010 – Azure
- 2011 - IBM



Separation of Responsibilities





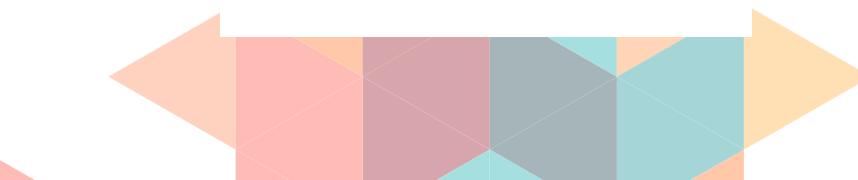
SOA -> CLOUD





Serverless

- Function As a Service (FaaS)
- No Server Management
- No Heavy Frameworks (Django, Flask,...)
- Applications -> Small Functions
- Functions Scaled Individually





Design Constraints

- Serverless apps are a bit slower
 - Good with the apps with simple functionalities
 - They need a warm-up time
- 



Cloud -> Serverless





Serverless Benefits



- The program is easier to debug
- Easier to deploy (one command deploy)
- Inherent Elasticity
- Devs can focus on “business logic” code
- Pay as usage
- First 1,000,000 request for free (good for startups)



Serverless Challenges



- Warm up time
- Generally slower
- Can't well tune the underlying structure
- Not very mature (many options are not well written)
- Changing everyday as matures
- Privacy/Security
- !!! Vendor Lock-in



LIVE DEMO