



Cloud Architecture according to AWS (Amazon)



Hello!

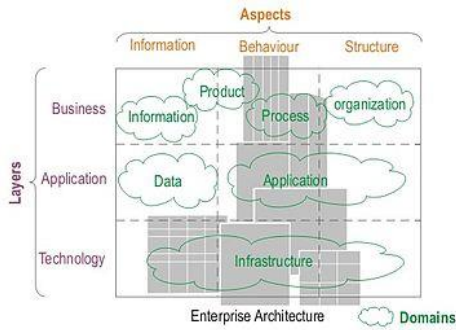
Rienk van der Ploeg

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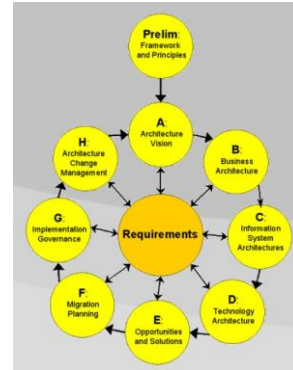




Architecture



Source: <https://nl.wikipedia.org/wiki/ArchiMate>



Source: https://en.wikipedia.org/wiki/The_Open_Group_Architecture_Framework



...ity

- Capacity
- Flexibility
- Scalability
- Reliability
- Security
- Traceability
- Reusability
- Standardization
- Performance
- Portability
- Capability





• Hardware

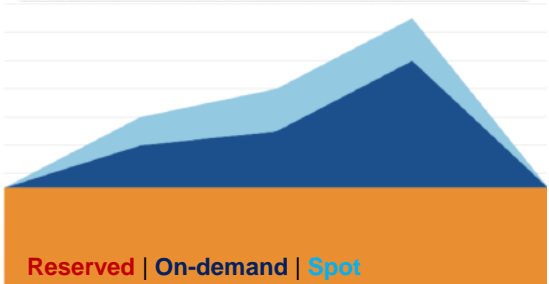
Model	vCPU	CPU Credits / hour	Mem (GiB)	Storage
t3.nano	2	6	0.5	EBS-Only
t3.micro	2	12	1	EBS-Only
t3.small	2	24	2	EBS-Only
t3.medium	2	24	4	EBS-Only
t3.large	2	36	8	EBS-Only
t3.xlarge	4	96	16	EBS-Only

Why is the cloud different?

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- Hardware
- Price Model



Why is the cloud different?

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- Hardware
- Price Model
- SLA



Why is the cloud different?

Monthly Uptime Percentage	Service Credit Percentage
Less than 99.99% but equal to or greater than 99.0%	10%
Less than 99.0%	30%

Source: <https://aws.amazon.com/compute/sla/>



- Hardware
- Price Model
- SLA
- IaaS/SaaS/PaaS

On-Premises	IaaS	PaaS	SaaS
Applications	Applications	Applications	Applications
Data	Data	Data	Data
Runtime	Runtime	Runtime	Runtime
Middleware	Middleware	Middleware	Middleware
O/S	O/S	O/S	O/S
Virtualization	Virtualization	Virtualization	Virtualization
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Networking	Networking	Networking	Networking
you manage			
other manages			



AWS

*Design for failure and nothing fails
Loose coupling sets you free
implement "Elasticity"
build security in every layer
don't fear constraints.*

Source: AWS Summit 2011: Architecting in the cloud



Amazon Lightsail

A great place to get started. A better place to evolve.
Starting at \$3.50 USD per month.

[Get started for free](#)

\$3.50
USD

- 512 MB Memory
- 1 Core Processor
- 20 GB SSD Disk
- 1 TB Transfer*

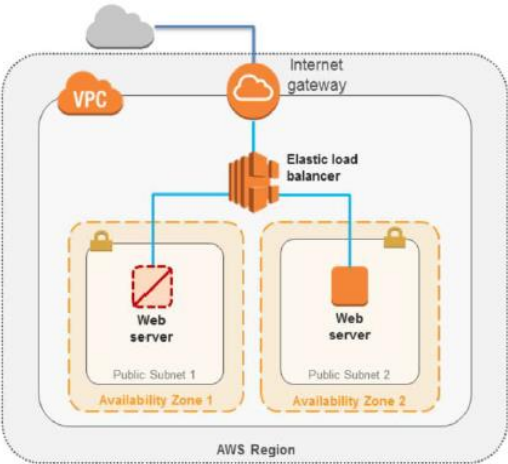


Design patterns



Basic Pattern

- VPC
- IGW
- ELB
- 2 AZs, 1 Regions



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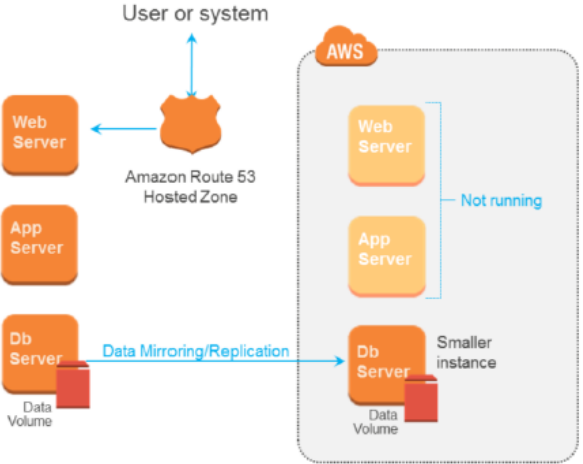


Design patterns



Disaster Recovery

- Backup / Restore
- Cold Standby
- Hot Standby
- Active-Active



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Template



AWS CloudFormation Engine

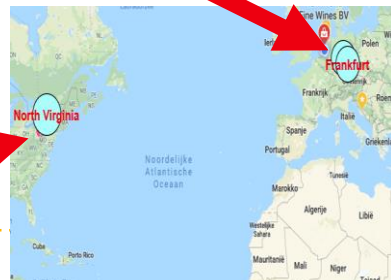
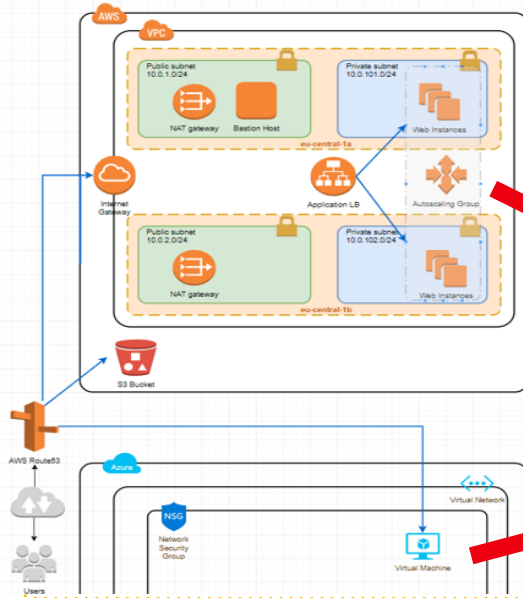


Stack



Characteristics:

- Version Control
- Flexibility
- Every team its own templates: network / security / front-end / shared-services / back-end
- Standardization
- No snowflake servers.





How do I know I did it right?



Different perspectives

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Well Architected Framework

Introduction



- ❖ Operational Excellence
- ❖ Security
- ❖ Reliability
- ❖ Performance Efficiency
- ❖ Cost Optimization

Source: <https://aws.amazon.com/architecture/well-architected/>



Alec
@alechendry

Follow



@TheRegister Billshock for some AWS Lightsail users today. Apparently I owe \$46 billion!! 😬

Service

The chart below shows the proportion of costs spent for each service you use.



LightSail	\$38,861,065,422.89
Route53	\$1.01
S3	\$0.01
CloudWatch	\$0.00
Tax	\$7,772,213,084.78
Total	\$46,633,278,588.69

Costs are shown in USD. For other currencies, the exchange rate for the Payment Currency is estimated.

Current month-to-date balance for November 2017, the exchange rate for the Payment Currency is estimated.

46,633,278,588.69 USD, which converts to

35,956,633,378 GBP

at today's exchange rate of 0.7710509432



9:40 AM - 7 Nov 2017

preventing



Focus on **cost** optimization



Cost Explorer

<https://console.aws.amazon.com/billing/home?region=us-east-1#/costexplorer>

Budgets

Billing Alerts

Architectural Solutions

Reserved instances
Autoscaling
Cloudwatch + SNS.

TCO:

<https://awstcocalculator.com/>

Trusted Advisor

Inspect your AWS environment and find opportunities to save money.

Calculator

<https://calculator.s3.amazonaws.com/index.html>

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Cost Explorer > Saved Reports > Monthly costs by service

Save as... Reports New report

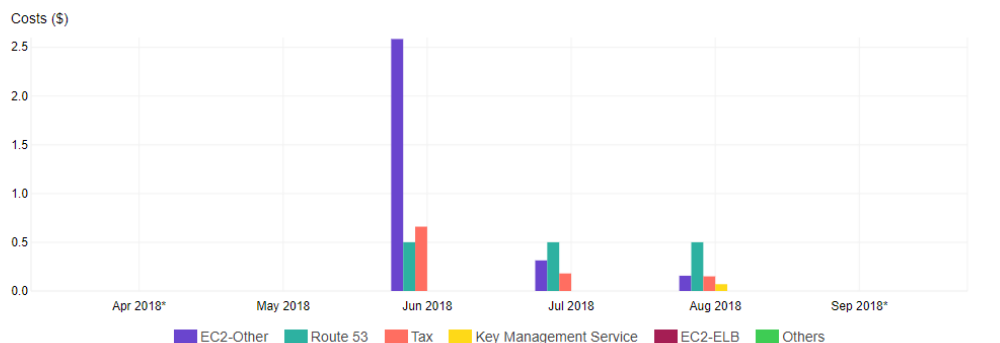
Monthly costs by service

Last 6 Months

Monthly

Group by: Service

Bar



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What's Next ?



Follow a course, to start quickly:

- In company
- Training Institute
- Contact Amazon



Thanks!

Any questions?

You can find me at www.kwintex.nl | info@kwintex.nl





Credits

Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by [SlidesCarnival](#)
- Photographs by [Unsplash](#)