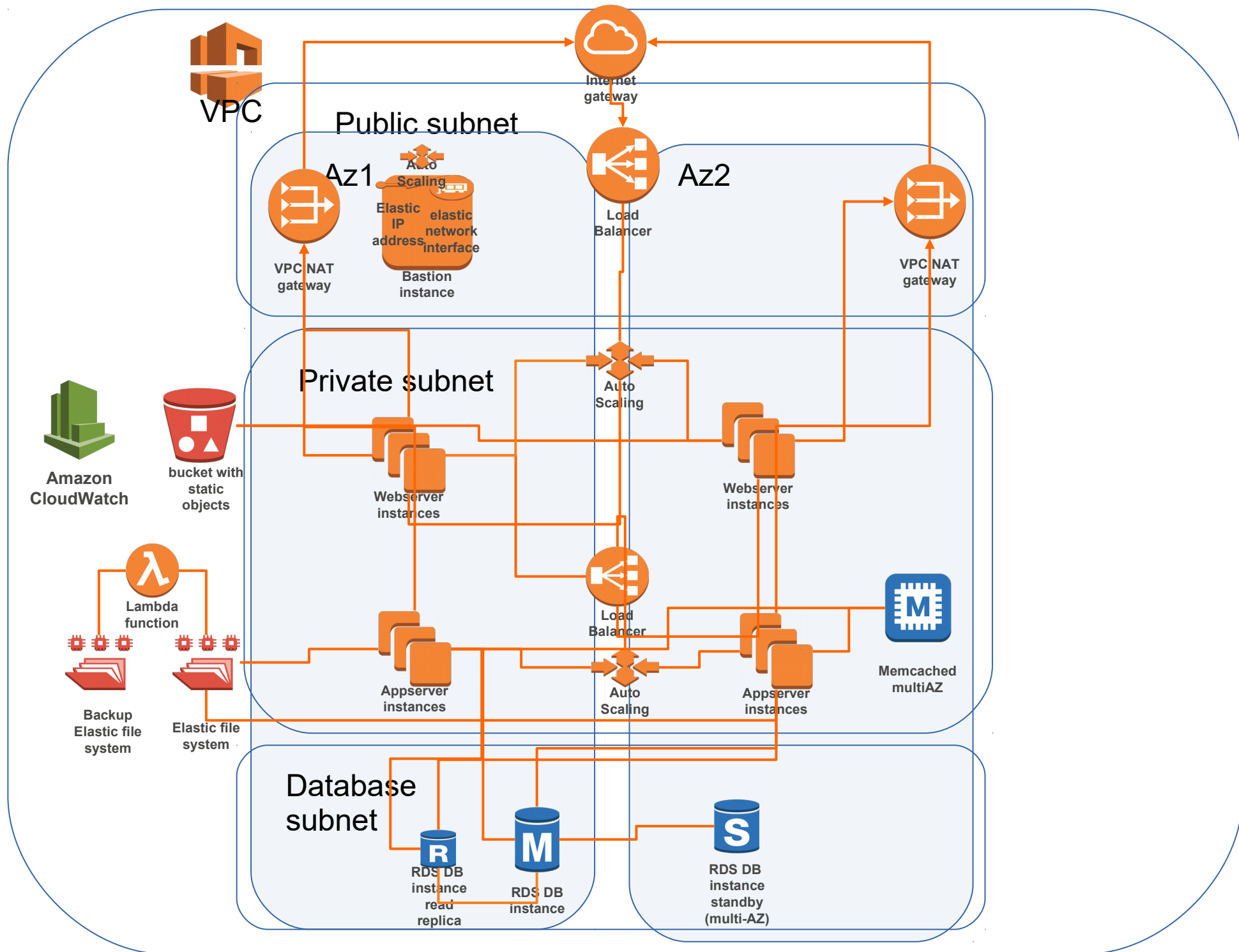


Deploying app to AWS

This presentation describe how to deploy classic 3-tier app in scalable and highly available and self-healing manner to AWS in fully automated way.

Infrastructure design

- VPC is created in multiple Availability zones (multiple regions are not considered in this example).
 - All servers are hidden in Private subnets to minimize attack surface.
 - The only internet facing instance is the Bastion host (for troubleshooting access, part of the app).
 - Only ssh access and only from specified IP is allowed to the Bastion host.
 - The Bastion host is behind AutoScaling group to enable self-healing.
 - AWS managed services like RDS, EFS, S3, CloudWatch are used to reduce maintenance.
 - To handle extra load and self-heal Webserver are behind AutoScaling group.
 - Webserver can deliver static objects like pictures from S3 bucket.
 - For accidental deletion protection Versioning is enabled on the S3 bucket.
 - To handle extra load and self-heal Appserver are behind AutoScaling group.
 - Appserver deliver shared files like php or configuration and other mutable storage from EFS filesystem.
 - Memcached is used to cache frequently used files and improve performance.
 - For backing up EFS files there is another EFS and a Lambda function that sync files periodically.
 - The RDS database is deployed in multiple AvailabilityZones for availability.
 - Database read replicas can be used to improve database throughput.
 - Database backups are done by AWS snapshots.
 - AWS native monitoring solution CloudWatch is used to collect metrics.
 - Logs from instances are sent to CloudWatchLogs.
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- P.S. I apologize for lousy picture on the next slide.



ToDo

- In order to save time and effort for doing this example, I reused some old application code I found lying around where Webserver and Appserver is one machine. So in the example there is a 2-tier application.
- S3 bucket for static objects is introduced in the infrastructure, but the application code is not yet modified to actually use it.
- EFS filesystem is introduced in the infrastructure and mounted on servers, but the application code is not yet modified to actually use it.
- Backup EFS filesystem and Lambda function for backing up mutable storage is not done.
- RDS Read Replica is introduced in the infrastructure, but the application code is not yet modified to actually use it.
- Route53 and ContentDeliveryNetwork is not described in this example.