







## Provisioning Database Instances:




### Database Engine

- Oracle
  - Enterprise, Standard, Standard Edition One, Standard Edition 2
- SQL Server
  - Express, Web, Standard and Enterprise
- Aurora
  - MySQL 5.6, MySQL 5.7, PostgreSQL
- PostgreSQL
- MySQL
- MariaDB



### DB Engine Version

- PostgreSQL 9.3.12 – 10.4
- SQL Server 2008 – 2017
- MySQL 5.5.46 – 5.7.21



### License Model

- On-Demand License
  - License cost is included
- BYO License

## Database Instance Class

- 3 Instance Families
- These relate to EC2 Instance Types

### T2/T3 Family

Burstable instances  
1 - 8 vCPU  
1 - 32GB RAM  
Moderate networking Perf.

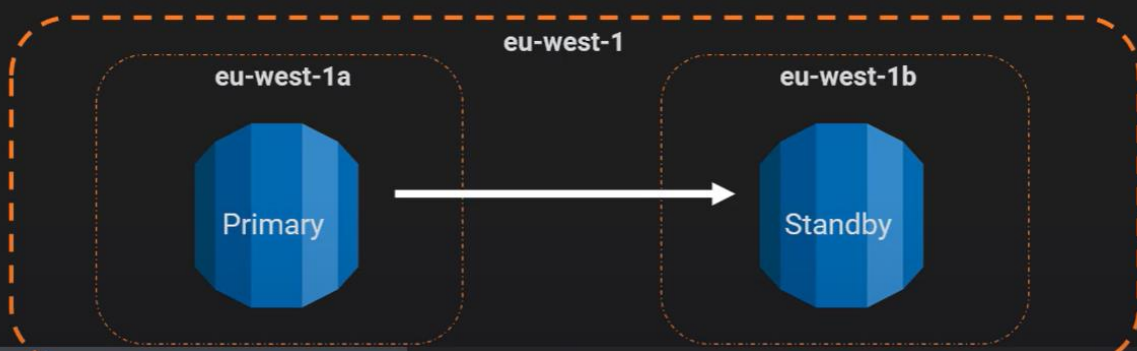
### M3/M4 Family

General purpose instances  
2 - 64 vCPU  
8 - 256GB RAM  
High Perf. networking

### R3/R4 Family

Memory optimized instances  
2 - 64 vCPU  
16 - 488GB RAM  
High Perf. networking

- Multi-AZ Deployment
  - Achieve High Availability in the case of failure
  - Two Database Nodes running with replication
  - Primary and Standby in different AZs



## Storage Types and Allocation

- MySQL, MariaDB, PostgreSQL, Oracle and SQL Server use AWS EBS volumes
- Aurora uses proprietary storage system

### General Purpose (GP2)

SSD Storage  
Max 16TB  
3 IOPS per GB  
Bursts to 3000 IOPS

### Provisioned IOPS (IO1)

SSD Storage  
Max 16TB  
Max 40K IOPs (20K for SQL)  
I/O intensive workloads

### Magnetic

Magnetic Storage  
Max 16TB  
Supported for Legacy DBs

## Costs



- Database Engine and Version
- License Model
- Database Instance Class
- Multi-AZ Deployment
- Storage Type and Allocation

## Database Identifier

- Identifies the Database Instance
- Unique for your account across the Region

## Credentials

- Master user account (varies across DB Engines)



## Networking configuration

### VPC

VPC defines the virtual networking environment for this DB instance

### Subnet Group

Subnet group that defines which subnets and IP ranges the DB instance can use in the VPC you selected

### Public accessibility

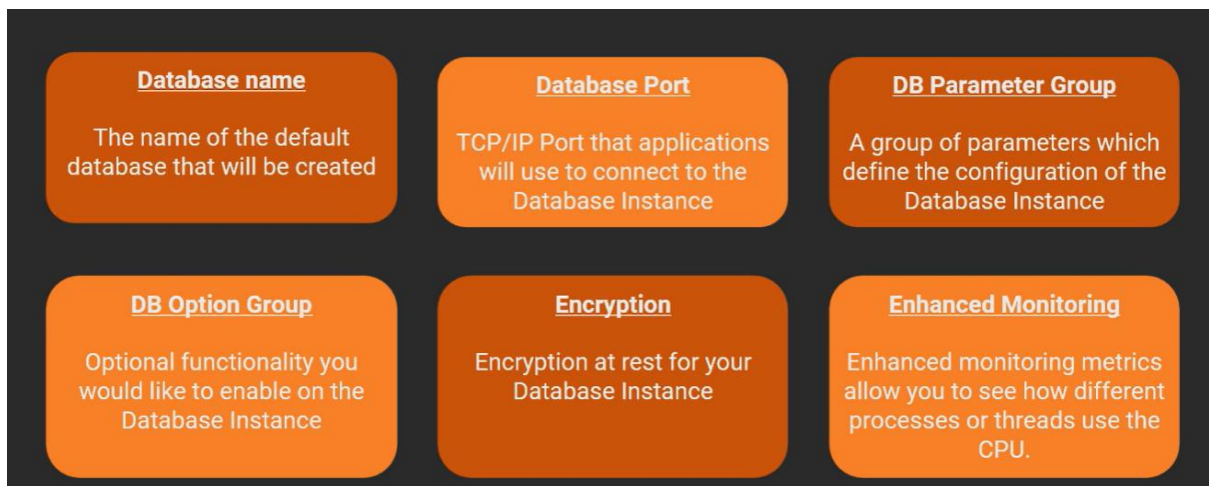
DB Instance accessible from outside the VPC

### Availability Zone

Any preference for Availability Zone

### VPC Security Groups

Any preference for Availability Zone



## Backups

- Backup retention period
  - Range is 0 – 35 days
- Backup window
  - Daily time range when automated backups occur
- Copy tags to snapshots



## Maintenance



- Auto minor version upgrade
  - Automatic upgrades minor versions
    - X.Y.Z being the version number, Z denotes a minor version.
- Maintenance window
  - Aimed at patching and upgrades
  - Once a week time range when maintenance occurs



## Database Engine Upgrades

- Database engine upgrades **require downtime**.
- Minor version upgrades - automatic or manually applied (you decide)
- Major version upgrades - manually applied (can cause application compatibility issues)
- Version deprecation – three-to-six month notification before scheduled upgrades