Swinburne University of Technology

*COS20019 Cloud Computing Architecture*

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Lab 5 - Build a Database Server

*Saturday 7th October, 2023*

**Task 1: Create a Security Group for the RDS DB Instance**

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| **Step** | **Description** | **Screenshot** |
| 1 | In the **AWS Management Console**, on the Services menu, choose **VPC**. | A screenshot of a computer  Description automatically generated |
| 2 | In the left navigation pane, choose **Security Groups**.  Choose Create security group and then configure:   * **Security group name:** DB Security Group * **Description:** Permit access from Web Security Group * **VPC:** *Lab VPC* | A screenshot of a computer  Description automatically generated |
| 3 | In the **Inbound rules** pane , choose Add rule. Configure the following settings:   * **Type:** *MySQL/Aurora (3306)* * **CIDR, IP, Security Group or Prefix List:** Type sg and then select *Web Security Group*. | A screenshot of a computer  Description automatically generated |
| 4 | Choose **Create security group** | A screenshot of a computer  Description automatically generated  A screenshot of a computer  Description automatically generated |

**Task 2: Create a DB Subnet Group**

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| **Step** | **Description** | **Screenshot** |
| 5 | On the Services menu, choose **RDS**. | A screenshot of a computer  Description automatically generated |
| 6 | In the left navigation pane, choose **Subnet groups**.  Choose Create DB Subnet Group then configure:   * **Name:** DB-Subnet-Group * **Description:** DB Subnet Group * **VPC:** *Lab VPC* | A screenshot of a computer  Description automatically generated |
| 7 | Scroll down to the **Add Subnets** section.  Expand the list of values under **Availability Zones** and select the first two zones: **us-east-1a** and **us-east-1b**.  Expand the list of values under **Subnets** and select the subnets associated with the CIDR ranges **10.0.1.0/24** and **10.0.3.0/24**.  These subnets should now be shown in the **Subnets selected** table. | A screenshot of a computer  Description automatically generated |
| 8 | Choose **Create** | A screenshot of a computer  Description automatically generated |

**Task 3: Create an Amazon RDS DB Instance**

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| **Step** | **Description** | **Screenshot** |
| 9 | In the left navigation pane, choose **Databases**. Choose Create database Select **MySQL** under **Engine Options**. | A screenshot of a computer  Description automatically generated  A screenshot of a computer  Description automatically generated |
| 10 | Under **Templates** choose **Dev/Test**.  Under **Availability and durability** choose **Multi-AZ DB instance**. | A screenshot of a computer  Description automatically generated |
| 11 | Under **Settings**, configure:   * **DB instance identifier:** lab-db * **Master username:** main * **Master password:** lab-password * **Confirm password:** lab-password | A screenshot of a computer  Description automatically generated |
| 12 | Under **DB instance class**, configure:   * Select **Burstable classes (includes t classes)**. * Select *db.t3.micro* | A screenshot of a computer  Description automatically generated |
| 13 | Under **Storage**, configure:   * **Storage type:** *General Purpose (SSD)* * **Allocated storage:** *20* | A screenshot of a computer  Description automatically generated |
| 14 | Under **Connectivity**, configure:   * **Virtual Private Cloud (VPC):** *Lab VPC* | A screenshot of a computer  Description automatically generated |
| 15 | Under **Existing VPC security groups**, from the dropdown list:   * Choose *DB Security Group*. * Deselect *default*. | A screenshot of a computer  Description automatically generated |
| 16 | Expand **Additional configuration**, then configure:   * **Initial database name:** lab * Uncheck **Enable automatic backups**. * Uncheck **Enable encryption** * Uncheck **Enable Enhanced monitoring**. | A screenshot of a computer  Description automatically generated  A screenshot of a computer  Description automatically generated |
| 17 | Choose Create database | A screenshot of a message  Description automatically generated  A screenshot of a computer error  Description automatically generated |
| 18 | Choose **lab-db.** Wait until **Info** changes to **Modifying** or **Available**. Scroll down to the **Connectivity & security** section and copy the **Endpoint** field.  ***lab-db.c8wkkok2ubu9.us-east-1.rds.amazonaws.com*** | A screenshot of a computer  Description automatically generated |

**Task 4: Interact with Your Database**

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| **Step** | **Description** | **Screenshot** |
| 19 | To copy the **WebServer** IP address, choose on the Details drop down menu above these instructions, and then choose Show. | A screenshot of a computer  Description automatically generated |
| 20 | Open a new web browser tab, paste the *WebServer* IP address and press Enter.  Choose the **RDS** link at the top of the page. | A screenshot of a computer  Description automatically generated |
| 21 | Configure the following settings:   * **Endpoint:** lab-db.c8wkkok2ubu9.us-east-1.rds.amazonaws.com * **Database:** lab * **Username:** main * **Password:** lab-password * Choose **Submit** | A screenshot of a computer  Description automatically generated |
| 22 | A message will appear explaining that the application is running a command to copy information to the database. After a few seconds the application will display an **Address Book**.  The Address Book application is using the RDS database to store information. | A screenshot of a computer  Description automatically generated |
| 23 | Test the web application by adding, editing and removing contacts. | A screenshot of a computer  Description automatically generated |

**END LAB.**