
AWS
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AIM303

RStudio on Amazon SageMaker

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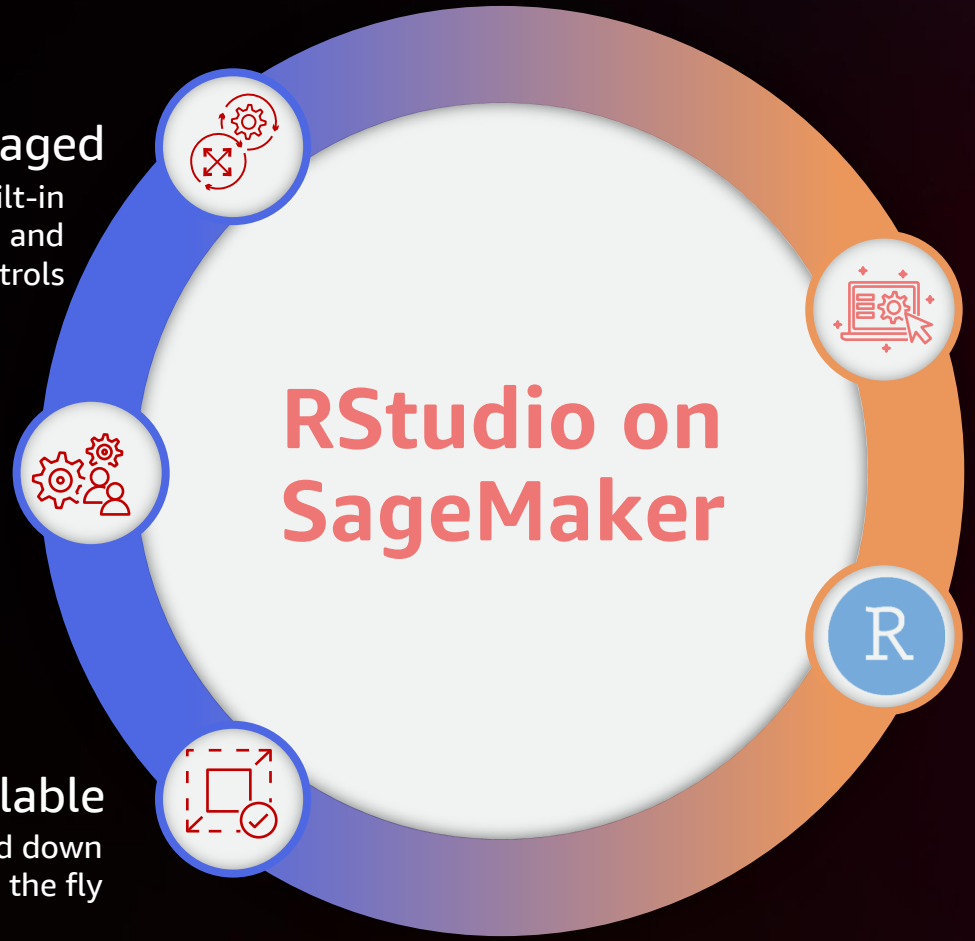
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Agenda

- Advantages of using RStudio on Amazon SageMaker
- License setup considerations
- Getting started with new and existing SageMaker domains
- RStudio application types
- Accessing SageMaker Studio from R
- Demo

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First managed RStudio Workbench in the cloud



Fully managed
Enterprise ready; built-in security, access, and administrative controls

Unified teams
Seamlessly switch between RStudio and SageMaker Studio Notebooks

Scalable
Easily dial up and down the compute on the fly

Quick lift and shift
Migrate your current license at no additional charge with AWS License Manager

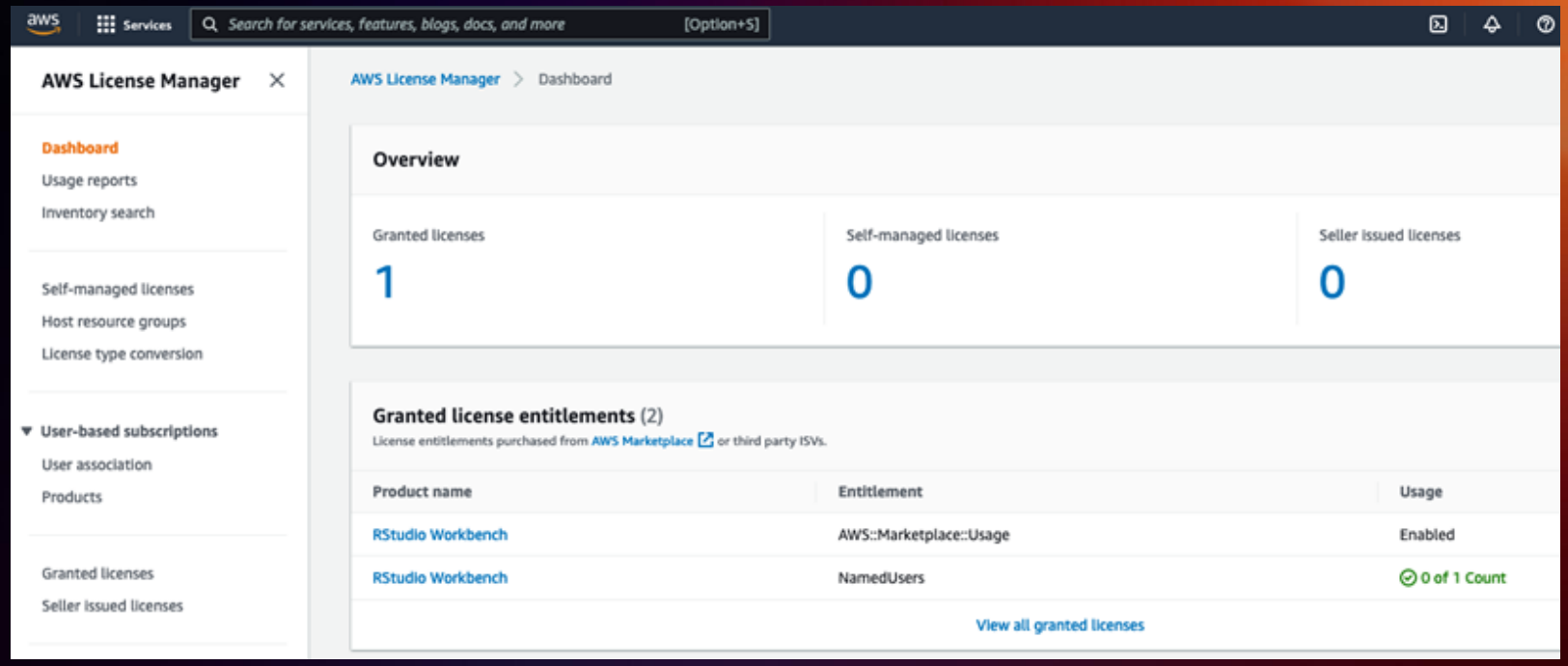
Familiar interface
Same, familiar RStudio Workbench – no learning curve

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Quick license setup with AWS Marketplace and AWS License Manager



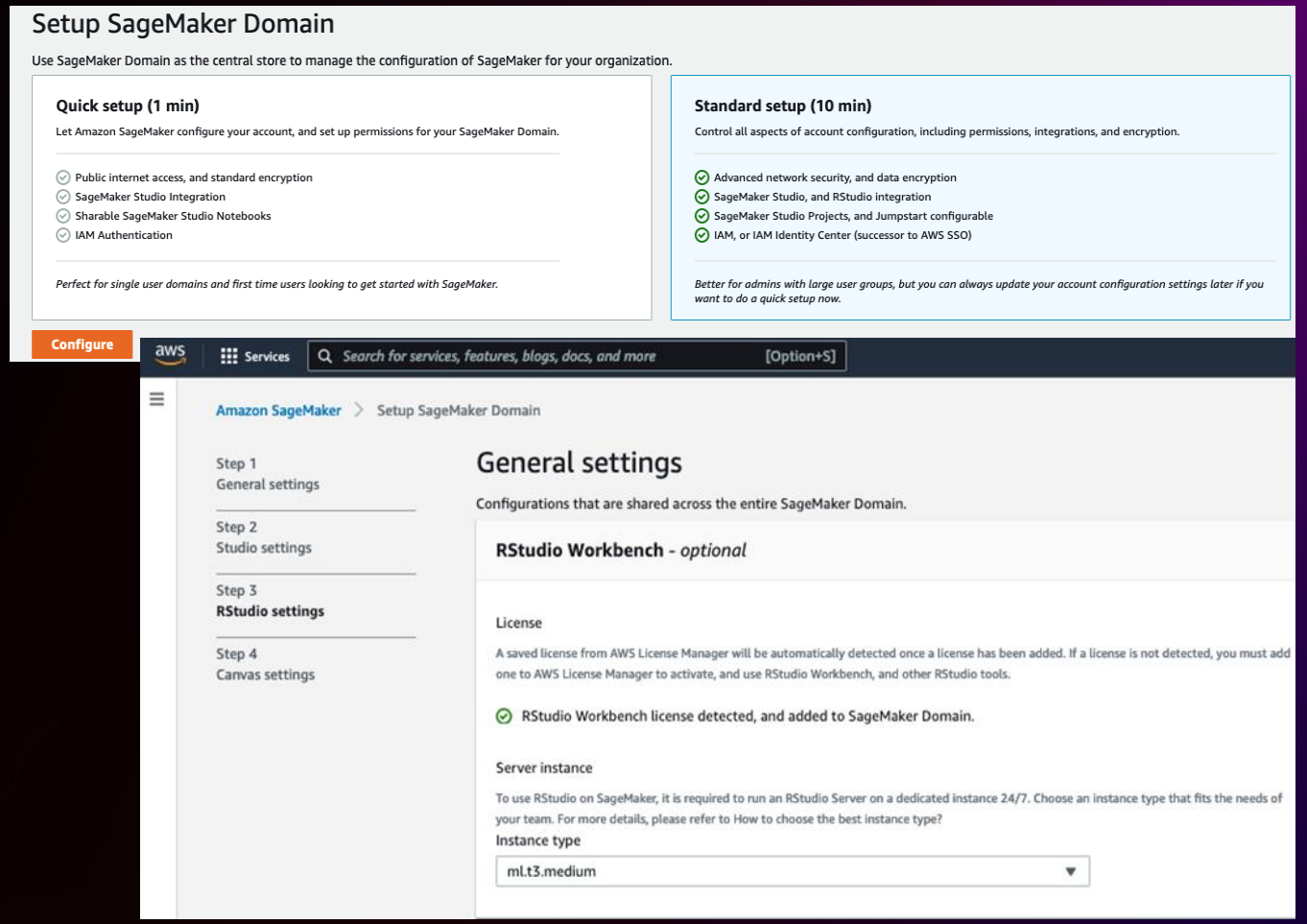


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Getting started with RStudio on SageMaker

Create a new domain

- In the console, choose Standard setup
- Your license grant will be automatically detected
- You need a Domain Execution role with permissions to AWS License Manager
- You can choose your environment with access to public internet or restrict to VPC-only traffic
- A VPC-only setup can either use an internet gateway in your VPC or leverage AWS PrivateLink



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Getting started with RStudio on SageMaker

Add RStudio to an existing domain

- You can use the AWS CLI/SDK to call the UpdateDomain API and enable RStudio on your existing domain
- VPC-only mode domains require you to set the Security Group management attribute to “Service”
- Mind your security groups quota if you have modified your domain defaults
- You can set default access levels for all user profiles in the domain

```
aws sagemaker \
update-domain \
--domain-id <DOMAIN_ID> \
--app-security-group-management Service \
--domain-settings-for-update
RStudioServerProDomainSettingsForUpdate={DomainExec
utionRoleArn=<DOMAIN_EXEC_ROLE_ARN>} \
--default-user-settings
"{\"RStudioServerProAppSettings\":
{\"AccessStatus\": \"ENABLED\",
\"userGroup\":\"R_STUDIO_USER\"}}"
```

aws

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RStudio on SageMaker provisions two types of apps

RStudioServerPro app

- Only one instance for any given domain
- Responsible for serving the RStudio UI to all user profiles in the domain
- Requires an Execution role with permissions to AWS License Manager
- Default instance type (ml.t3.medium) is provided at no cost
- Changing the instance type will generate costs and requires shutting down and restarting the app

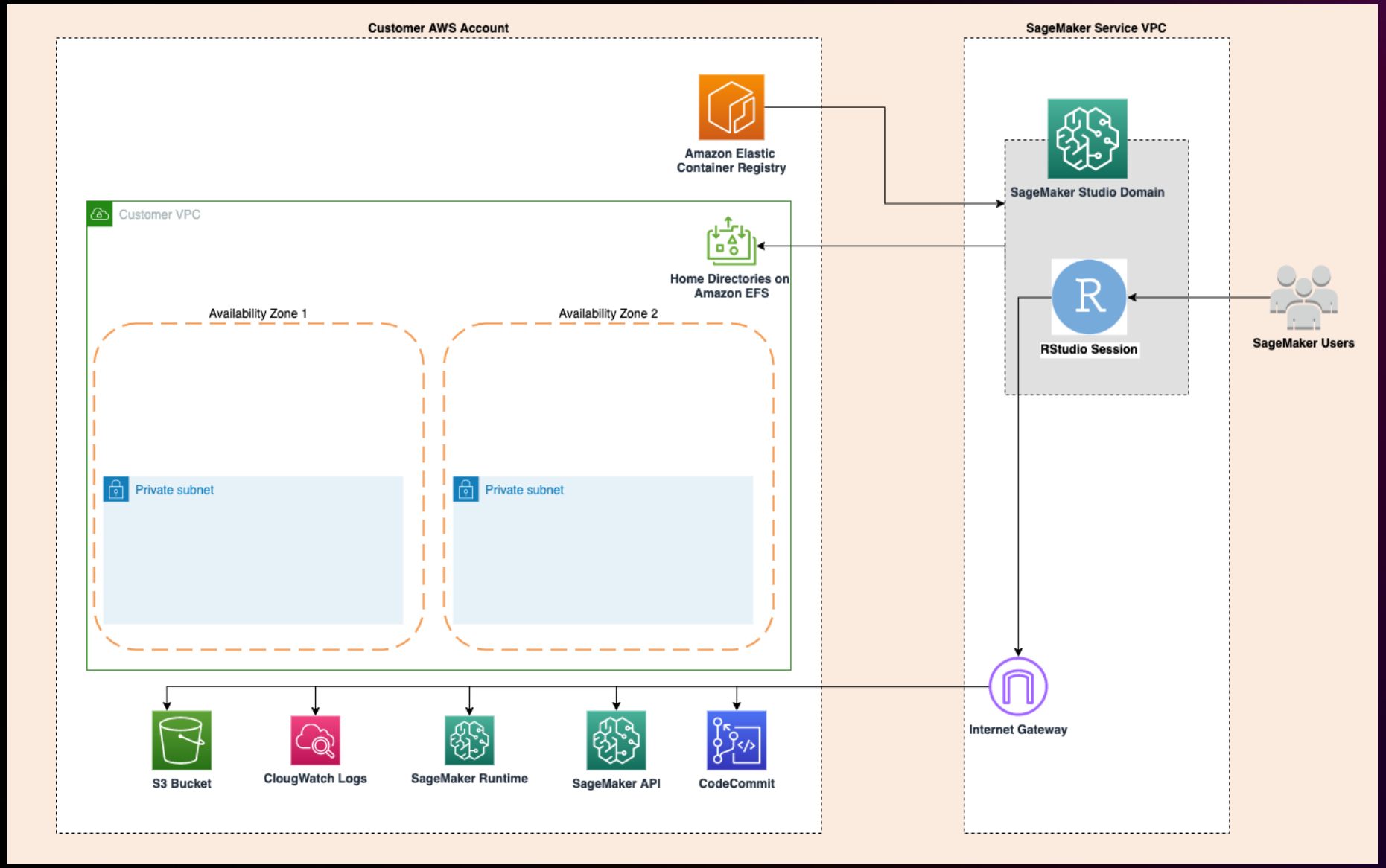
RSessionGateway app

- One is created every time a user profile launches a new session
- Free tier provides 250 hours of ml.t3.medium per month for the first 2 months
- Can provide your own custom-image-based R sessions through Amazon ECR
- Can swap to a different instance type without losing your data
- Session data is persisted in Amazon EFS

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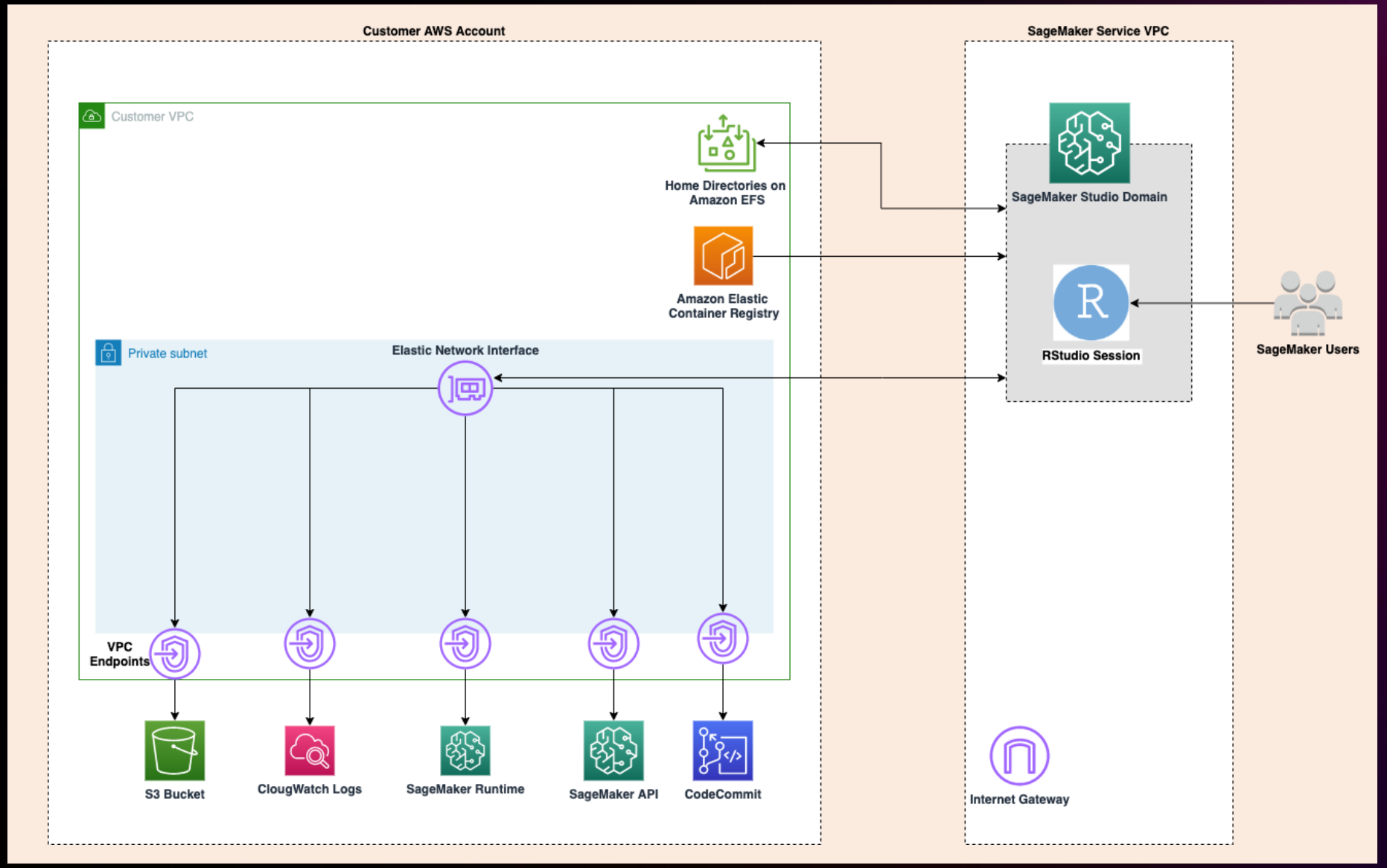
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RStudio on SageMaker architecture (default)



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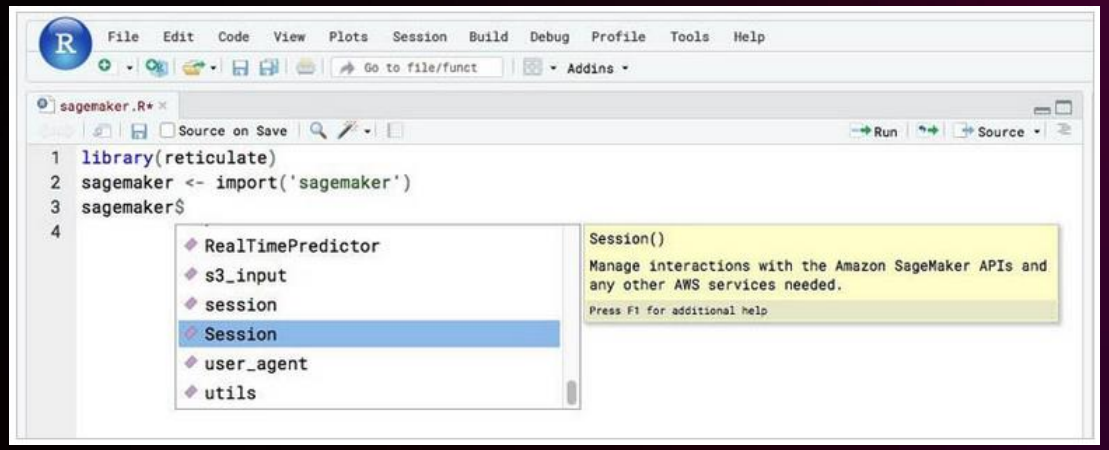
RStudio on SageMaker architecture (VPC-only)

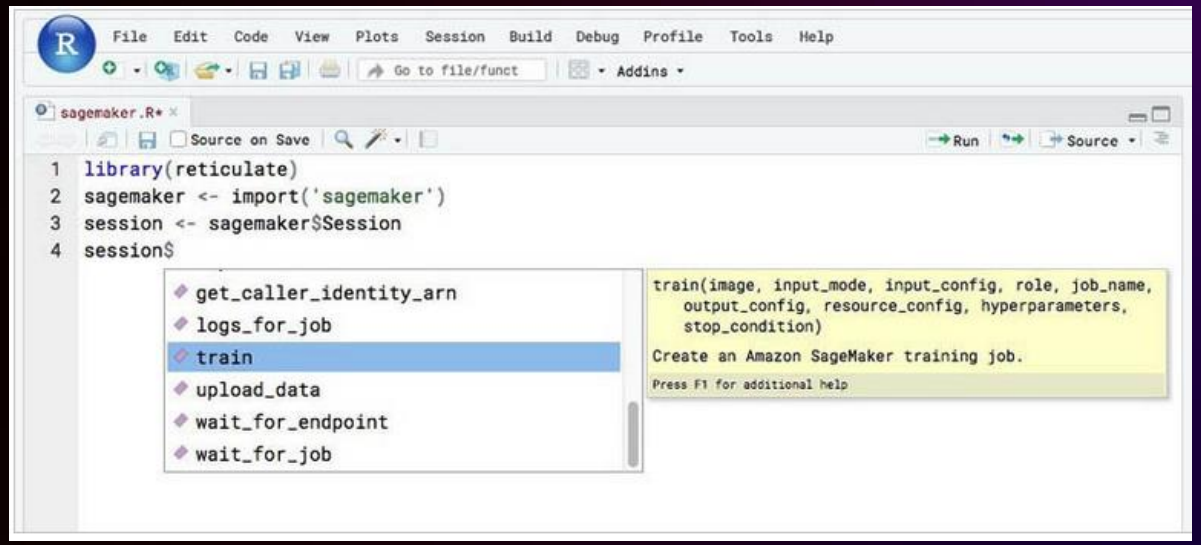


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Access SageMaker features from RStudio

- You can use the **`reticulate`** library in R and import the **`sagemaker`** Python module to access SageMaker functionality
- This enables you to leverage all SageMaker Studio functionality, including launching training jobs, AutoML jobs, or deploying inference endpoints
- You can also access all your data sources in the AWS Cloud





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Thank you!

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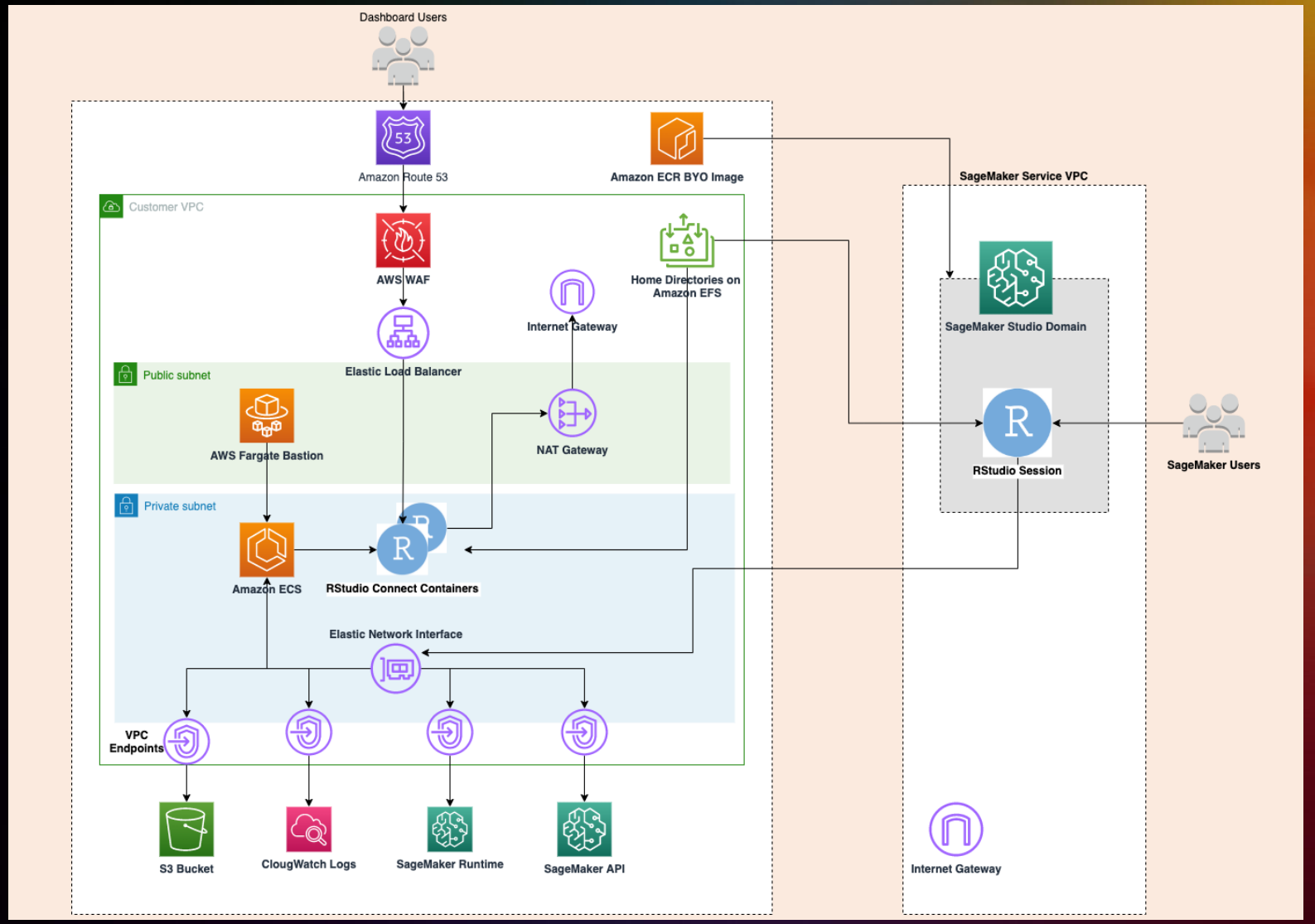
Farooq Sabir
farsabir@amazon.com
farooqsabir



Please complete the session survey in the **mobile app**

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RStudio on SageMaker and RStudio Connect



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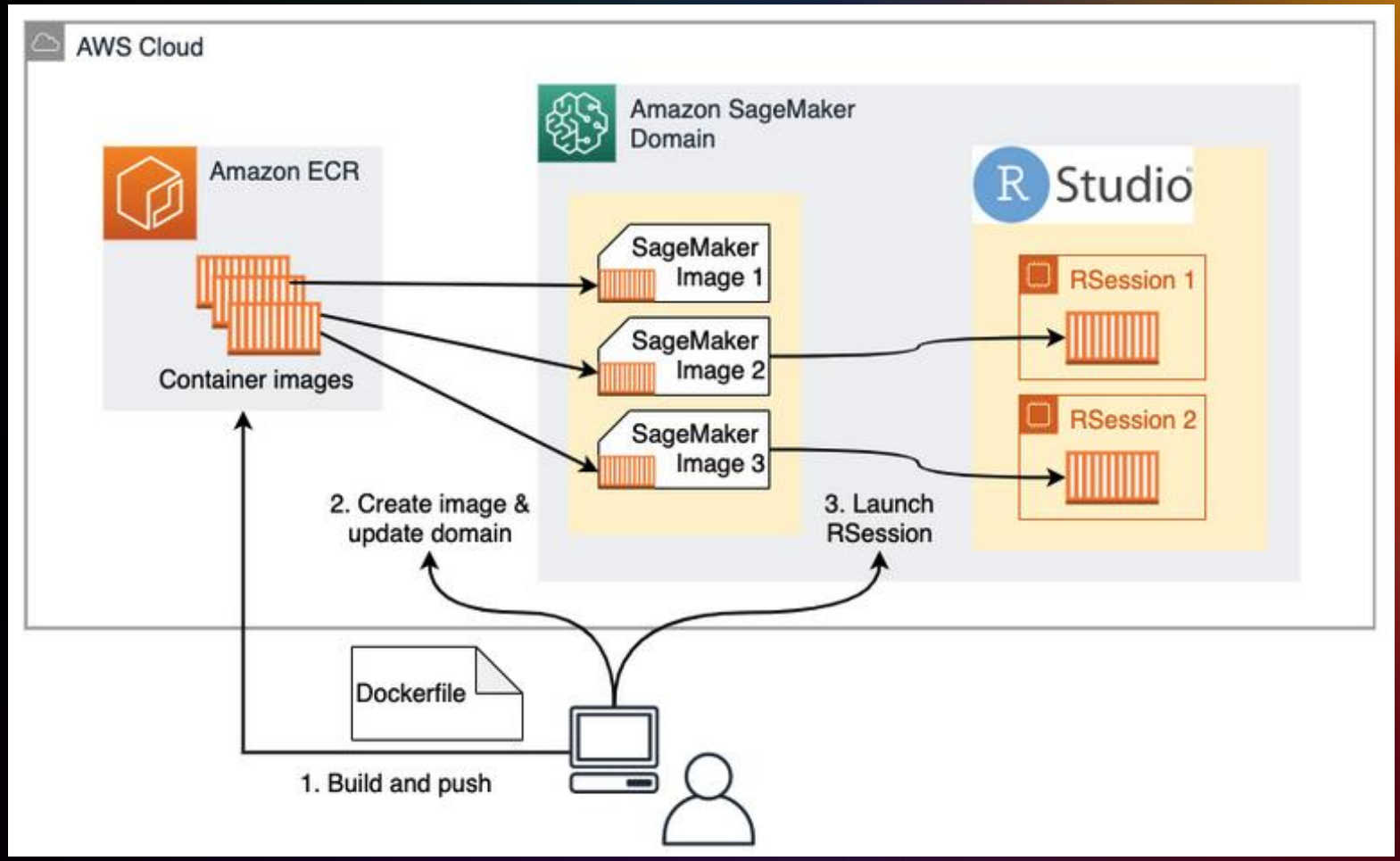
Create a new domain with RStudio – CLI/SDK

```
aws sagemaker create-domain --region <REGION> --domain-name <DOMAIN_NAME> \
    --auth-mode IAM \
    --default-user-settings ExecutionRole=<DEFAULT_USER_EXECUTIONROLE> \
    --domain-settings
RStudioServerProDomainSettings={RStudioPackageManagerUrl=<<PACKAGE_MANAGER_URL>,
RStudioConnectUrl=<CONNECT_URL>,DomainExecutionRoleArn=<DOMAINEXECUTION_ROLE_ARN
>} \
    --vpc-id <VPC_ID> \
    --subnet-ids <SUBNET_IDS> \
    --app-network-access-type <NETWORK_ACCESS_TYPE>
```

aws

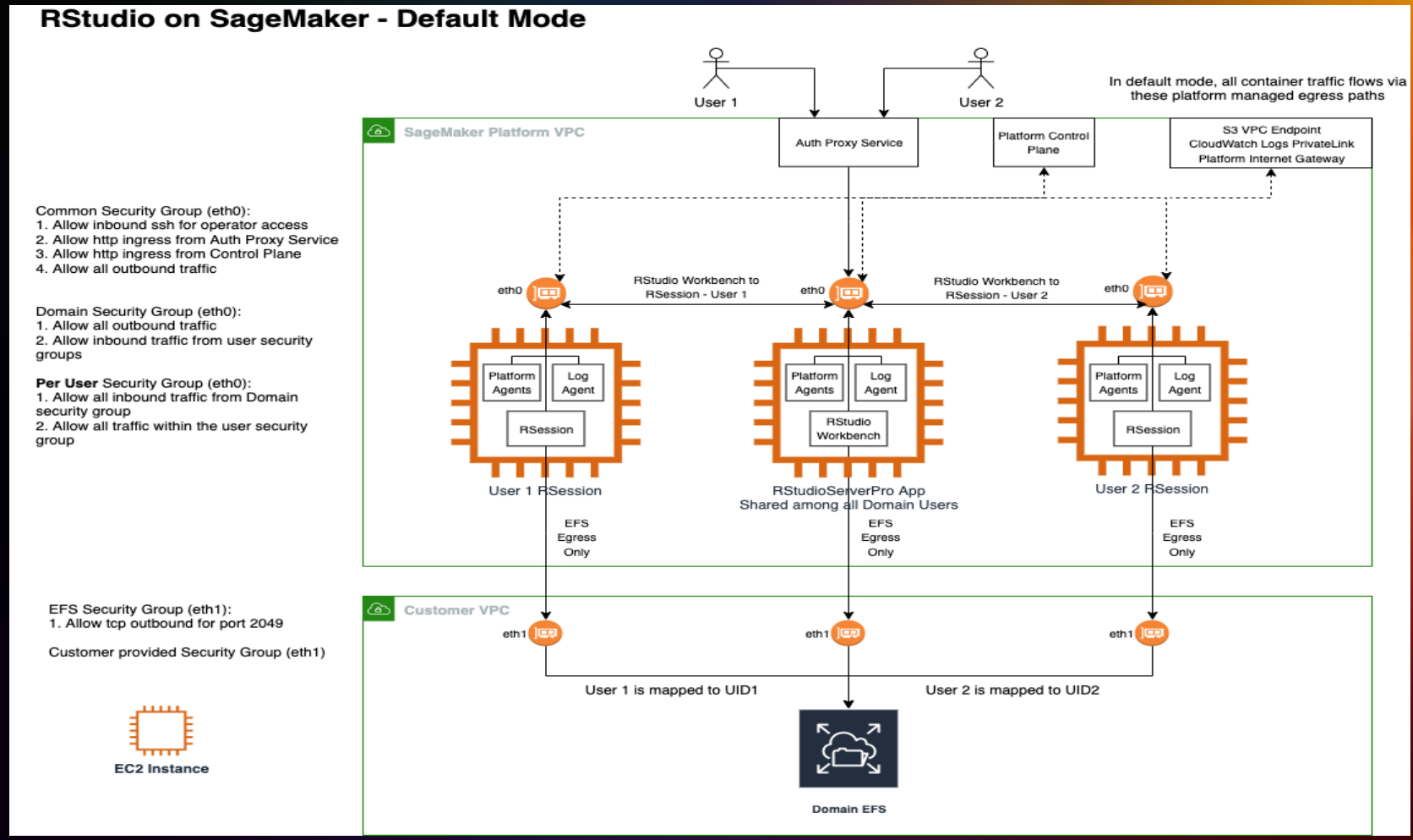
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Using custom images in RStudio on SageMaker



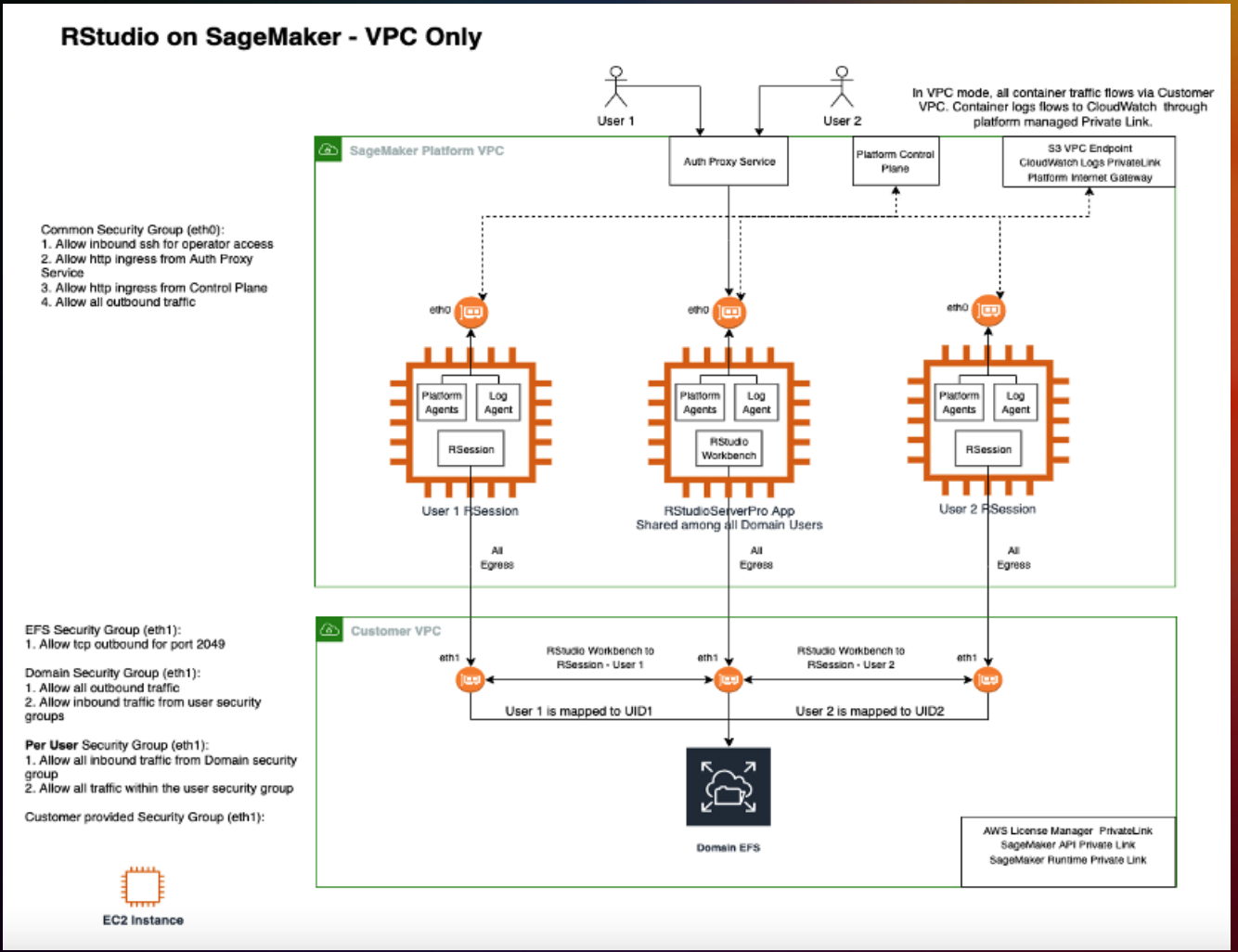
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RStudio on SageMaker detailed architecture (default)



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RStudio on SageMaker detailed architecture (VPC-only)



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