vce trainer



Reference Solution for AZ-400.67q

AZ-400

AZ-400

Microsoft Azure DevOps Solutions

Score: 800/1000

Version:

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Time Limit: 120 Minutes

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Design a DevOps Strategy

(7 questions)

Question 1

Your development team is building a new web solution by using the Microsoft Visual Studio integrated development environment (IDE).

You need to make a custom package available to all the developers. The package must be managed centrally, and the latest version must be available for consumption in Visual Studio automatically.

Which three actions should you perform? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- ☒ Publish the package to a feed.
- ☒ Create a new feed in Azure Artifacts.
- ☐ Upload a package to a Git repository.
- ☐ Add the package URL to the Environment settings in Visual Studio.
- ☒ Add the package URL to the NuGet Package Manager settings in Visual Studio.
- ☐ Create a Git repository in Azure Repos.

Explanation:

Explanation:

B: By using your custom NuGet package feed within your Azure DevOps (previously VSTS) instance, you'll be able to distribute your packages within your organization with ease.

Start by creating a new feed.

A: We can publish, pack and push the built project to our NuGet feed.

E: Consume your private NuGet Feed

Go back to the Packages area in Azure DevOps, select your feed and hit "Connect to feed". You'll see some instructions for your feed, but it's fairly simple to set up.

Just copy your package source URL, go to Visual Studio, open the NuGet Package Manager, go to its settings and add a new source. Choose a fancy name, insert the source URL. Done.

Search for your package in the NuGet Package Manager and it should appear there, ready for installation. Make sure to select the appropriate feed (or just all feeds) from the top right select box.

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References:

https://medium.com/medialesson/get-started-with-private-nuget-feeds-in-azure-devops-8c7b5f022a68

Question 2

You manage build pipelines and deployment pipelines by using Azure DevOps.

Your company has a team of 500 developers. New members are added continually to the team.

You need to automate the management of users and licenses whenever possible.

Which task must you perform manually?

- ☐ modifying group memberships
- ☐ adding users
- ☐ assigning entitlements
- ☒ procuring licenses

Explanation:

Incorrect Answers:

A: You can seamlessly replace existing solutions with group-based licensing to more easily manage licenses in Azure DevOps. You can use Group rules.

C: Member Entitlement Management APIs allow managing Entitlements that include -

License

Extensions

Project/Team memberships

References:

https://docs.microsoft.com/en-us/azure/devops/organizations/accounts/migrate-to-group-based-resource-management?view=vsts&tabs=new-nav

https://docs.microsoft.com/en-us/rest/api/azure/devops/memberentitlementmanagement/?view=azure-devops-rest-5.0

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Question 3

You are developing a multi-tier application. The application will use Azure App Service web apps as the front end and an Azure SQL database as the back end. The application will use Azure functions to write some data to Azure Storage.

You need to send the Azure DevOps team an email message when the front end fails to return a status code of 200.

Which feature should you use?

- ☐ Service Map in Azure Log Analytics
- ☐ Availability tests in Azure Application Insights
- ☐ Profiler in Azure Application Insights
- ☒ Application Map in Azure Application Insights

Explanation:

Explanation:

Application Map helps you spot performance bottlenecks or failure hotspots across all components of your distributed application. Each node on the map represents an application component or its dependencies; and has health KPI and alerts status.

Incorrect Answers:

A: Service Map automatically discovers application components on Windows and Linux systems and maps the communication between services. You can use it to view your servers as you think of them--interconnected systems that deliver critical services. Service Map shows connections between servers, processes, and ports across any TCP-connected architecture with no configuration required, other than installation of an agent.

References: https://docs.microsoft.com/en-us/azure/azure-monitor/app/app-map

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Question 4

Your company has an on-premises Bitbucket Server that is used for Git-based source control. The server is protected by a firewall that blocks inbound Internet traffic.

You plan to use Azure DevOps to manage the build and release processes.

Which two components are required to integrate Azure DevOps and Bitbucket? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- ☐ a deployment group
- ☐ a Microsoft-hosted agent
- ☐ service hooks
- ☒ a self-hosted agent
- ☒ an External Git service connection

Explanation:

Explanation:

E: GitLab CI/CD can be used with GitHub or any other Git server such as BitBucket. Instead of moving your entire project to GitLab, you can connect your external repository to get the benefits of GitLab CI/CD.

Note: When a pipeline uses a remote, 3rd-party repository host such as Bitbucket Cloud, the repository is configured with webhooks that notify Azure Pipelines Server or TFS when code has changed and a build should be triggered. Since on-premises installations are normally protected behind a firewall, 3rd-party webhooks are unable to reach the on-premises server. As a workaround, you can use the External Git repository type which uses polling instead of webhooks to trigger a build when code has changed.

References: https://docs.microsoft.com/en-us/azure/devops/pipelines/repos/pipeline-options-for-git

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Question 5

During a code review, you discover many quality issues. Many modules contain unused variables and empty catch blocks.

You need to recommend a solution to improve the quality of the code.

What should you recommend?

- ☐ In a Grunt build task, select Enabled from Control Options.
- ☒ In a Maven build task, select Run PMD.
- ☐ In a Xcode build task, select Use xcpretty from Advanced.
- ☐ In a Gradle build task, select Run Checkstyle.

Explanation:

Explanation:

PMD is a source code analyzer. It finds common programming flaws like unused variables, empty catch blocks, unnecessary object creation, and so forth.

There is an Apache Maven PMD Plugin which allows you to automatically run the PMD code analysis tool on your project's source code and generate a site report with its results.

Incorrect Answers:

C: xcpretty is a fast and flexible formatter for xcodebuild.

References: https://pmd.github.io/

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Question 6

Your company plans to use an agile approach to software development.

You need to recommend an application to provide communication between members of the development team who work in locations around the world. The applications must meet the following requirements:

Provide the ability to isolate the members of different project teams into separate communication channels and to keep a history of the chats within those channels.
Be available on Windows 10, Mac OS, iOS, and Android operating systems.
Provide the ability to add external contractors and suppliers to projects.
Integrate directly with Azure DevOps.

What should you recommend?

- ☐ Microsoft Project
- ☐ Bamboo
- ☐ Microsoft Lync
- ☒ Microsoft Teams
- ☐ Octopus

Explanation:

Explanation:

Within each team, users can create different channels to organize their communications by topic. Each channel can include a couple of users or scale to thousands of users.

Microsoft Teams works on Android, iOS, Mac and Windows systems and devices. It also works in Chrome, Firefox, Internet Explorer 11 and Microsoft Edge web browsers.

The guest-access feature in Microsoft Teams allows users to invite people outside their organizations to join internal channels for messaging, meetings and file sharing. This capability helps to facilitate business-to-business project management.

Teams integrates with Azure DevOps.

Note: Slack would also be a correct answer, but it is not an option here.

References:

https://searchunifiedcommunications.techtarget.com/definition/Microsoft-Teams

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Question 7

Your company plans to use an agile approach to software development.

You need to recommend an application to provide communication between members of the development team who work in locations around the world. The applications must meet the following requirements:

Provide the ability to isolate the members of different project teams into separate communication channels and to keep a history of the chats within those channels.
Be available on Windows 10, Mac OS, iOS, and Android operating systems.
Provide the ability to add external contractors and suppliers to projects.
Integrate directly with Azure DevOps.

What should you recommend?

- ☐ Microsoft Project
- ☐ Bamboo
- ☐ Octopus
- ☒ Slack

Explanation:

Explanation:

Slack is a popular team collaboration service that helps teams be more productive by keeping all communications in one place and easily searchable from virtually anywhere. All your messages, your files, and everything from Twitter, Dropbox, Google Docs, Azure DevOps, and more all together. Slack also has fully native apps for iOS and Android to give you the full functionality of Slack wherever you go.

Integrated with Azure DevOps

This integration keeps your team informed of activity happening in its Azure DevOps projects. With this integration, code check-ins, pull requests, work item updates, and build events show up directly in your team's Slack channel.

Note: Microsoft Teams would also be a correct answer, but it is not an option here.

References:

https://marketplace.visualstudio.com/items?itemName=ms-vsts.vss-services-slack

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Implement DevOps Development Processes

(16 questions)

Question 8

Your company uses Azure DevOps.

Only users who have accounts in Azure Active Directory can access the Azure DevOps environment.

You need to ensure that only devices that are connected to the on-premises network can access the Azure DevOps environment.

What should you do?

- ☐ Assign the Stakeholder access level all users.
- ☐ In Azure Active Directory, configure risky sign-ins.
- ☐ In Azure DevOps, configure Security in Project Settings.
- ☒ In Azure Active Directory, configure conditional access.

Explanation:

Explanation:

Conditional Access is a capability of Azure Active Directory. With Conditional Access, you can implement automated access control decisions for accessing your cloud apps that are based on conditions.

Conditional Access policies are enforced after the first-factor authentication has been completed.

References:

https://docs.microsoft.com/en-us/azure/active-directory/conditional-access/overview

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Question 9

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You need to recommend an integration strategy for the build process of a Java application. The solution must meet the following requirements:

The builds must access an on-premises dependency management system.
The build outputs must be stored as Server artifacts in Azure DevOps.
The source code must be stored in a Git repository in Azure DevOps.

Solution: Configure an Octopus Tentacle on an on-premises machine. Use the Package Application task in the build pipeline.

Does this meet the goal?

- ☒ Yes
- ☐ No

Explanation:

Explanation:

Octopus Deploy is an automated deployment server that makes it easy to automate deployment of ASP.NET web applications, Java applications, NodeJS application and custom scripts to multiple environments.

Octopus can be installed on various platforms including Windows, Mac and Linux. It can also be integrated with most version control tools including VSTS and GIT.

When you deploy software to Windows servers, you need to install Tentacle, a lightweight agent service, on your Windows servers so they can communicate with the Octopus server.

When defining your deployment process, the most common step type will be a package step. This step deploys your packaged application onto one or more deployment targets.

When deploying a package you will need to select the machine role that the package will be deployed to.

References:

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https://octopus.com/docs/deployment-examples/package-deployments

https://explore.emtecinc.com/blog/octopus-for-automated-deployment-in-devops-models

Question 10

Your team uses an agile development approach.

You need to recommend a branching strategy for the team's Git repository. The strategy must meet the following requirements.

Provide the ability to work on multiple independent tasks in parallel.
Ensure that checked-in code remains in a releasable state always.
Ensure that new features can be abandoned at any time.
Encourage experimentation.

What should you recommend?

- ☐ a single long-running branch
- ☐ multiple long-running branches
- ☐ a single fork per team member
- ☒ a single-running branch with multiple short-lived topic branches

Explanation:

Explanation:

Topic branches, however, are useful in projects of any size. A topic branch is a short-lived branch that you create and use for a single particular feature or related work. This is something you've likely never done with a VCS before because it's generally too expensive to create and merge branches. But in Git it's common to create, work on, merge, and delete branches several times a day.

Reference:

https://git-scm.com/book/en/v2/Git-Branching-Branching-Workflows

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Question 11

You have an Azure Resource Manager template that deploys a multi-tier application.

You need to prevent the user who performs the deployment from viewing the account credentials and connection strings used by the application.

What should you use?

- ☒ Azure Key Vault
- ☐ a Web.config file
- ☐ an Appsettings.json file
- ☐ an Azure Storage table
- ☐ an Azure Resource Manager parameter file

Explanation:

Explanation:

When you need to pass a secure value (like a password) as a parameter during deployment, you can retrieve the value from an Azure Key Vault. You retrieve the value by referencing the key vault and secret in your parameter file. The value is never exposed because you only reference its key vault ID. The key vault can exist in a different subscription than the resource group you are deploying to.

References: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-manager-keyvault-parameter

Question 12

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You integrate a cloud-hosted Jenkins server and a new Azure DevOps deployment.

You need Azure DevOps to send a notification to Jenkins when a developer commits changes to a branch in Azure Repos.

Solution: You create a service hook subscription that uses the code pushed event.

Does this meet the goal?

- ☒ Yes
- ☐ No

Explanation:

Explanation:

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You can create a service hook for Azure DevOps Services and TFS with Jenkins.

References:

https://docs.microsoft.com/en-us/azure/devops/service-hooks/services/jenkins

Question 13

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You need to recommend an integration strategy for the build process of a Java application. The solution must meet the following requirements:

The builds must access an on-premises dependency management system.
The build outputs must be stored as Server artifacts in Azure DevOps.
The source code must be stored in a Git repository in Azure DevOps.

Solution: Install and configure a self-hosted build agent on an on-premises machine. Configure the build pipeline to use the Default agent pool. Include the Java Tool Installer task in the build pipeline.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Instead use Octopus Tentacle.

References:

https://explore.emtecinc.com/blog/octopus-for-automated-deployment-in-devops-models

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Question 14

You have a branch policy in a project in Azure DevOps. The policy requires that code always builds successfully.

You need to ensure that a specific user can always merge changes to the master branch, even if the code fails to compile. The solution must use the principle of least privilege.

What should you do?

- ☐ Add the user to the Build Administrators group.
- ☐ Add the user to the Project Administrators group.
- ☐ From the Security settings of the repository, modify the access control for the user.
- ☒ From the Security settings of the branch, modify the access control for the user.

Explanation:

Explanation:

In some cases, you need to bypass policy requirements so you can push changes to the branch directly or complete a pull request even if branch policies are not satisfied. For these situations, grant the desired permission from the previous list to a user or group. You can scope this permission to an entire project, a repo, or a single branch. Manage this permission along the with other Git permissions.

References: https://docs.microsoft.com/en-us/azure/devops/repos/git/branch-policies

Question 15

Your company has a project in Azure DevOps for a new web application.

The company identifies security as one of the highest priorities.

You need to recommend a solution to minimize the likelihood that infrastructure credentials will be leaked.

What should you recommend?

- ☐ Add a Run Inline Azure PowerShell task to the pipeline.
- ☒ Add a PowerShell task to the pipeline and run Set-AzureKeyVaultSecret.
- ☐ Add a Azurre Key Vault task to the pipeline.
- ☐ Add Azure Key Vault references to Azure Resource Manger templates.

Explanation:

Explanation:

Azure Key Vault provides a way to securely store credentials and other keys and secrets.

The Set-AzureKeyVaultSecret cmdlet creates or updates a secret in a key vault in Azure Key Vault.

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References:

https://docs.microsoft.com/en-us/powershell/module/azurerm.keyvault/set-azurekeyvaultsecret

Question 16

Your company uses cloud-hosted Jenkins for builds.

You need to ensure that Jenkins can retrieve source code from Azure Repos.

Which three actions should you perform? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- ☐ Create a webhook in Jenkins.
- ☒ Add the Team Foundation Server (TFS) plug-in to Jenkins.
- ☐ Add a domain to your Jenkins account.
- ☒ Create a personal access token in your Azure DevOps account.
- ☒ Create a service hook in Azure DevOps.

Explanation:

Explanation:

B: Jenkins' built-in Git Plugin or Team Foundation Server Plugin can poll a Team Services repository every few minutes and queue a job when changes are detected.

D: Use Azure DevOps/ Visual Studio Team Services to create an access token, and use th

E: For those who need tighter integration, Team Services provides two additional ways to achieve it: 1) the Jenkins Service Hook, and 2) Jenkins build and release tasks.)

References:

https://blogs.msdn.microsoft.com/devops/2017/04/25/vsts-visual-studio-team-services-integration-with-jenkins/

http://www.aisoftwarellc.com/blog/post/how-to-setup-automated-builds-using-jenkins-and-visual-studio-team-foundation-server/2044

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Question 17

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You integrate a cloud-hosted Jenkins server and a new Azure DevOps deployment.

You need Azure DevOps to send a notification to Jenkins when a developer commits changes to a branch in Azure Repos.

Solution: You create an email subscription to an Azure DevOps notification.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

You can create a service hook for Azure DevOps Services and TFS with Jenkins.

References:

https://docs.microsoft.com/en-us/azure/devops/service-hooks/services/jenkins

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Question 18

DRAG DROP

You are configuring Azure Pipelines for three projects in Azure DevOps as shown in the following table.

Project name	Project Details
Project1	The project team provides preconfigured YAML files that it wants to use to manage future pipeline configuration changes.
Project2	The sensitivity of the project requires that the source code be hosted on the managed Windows server on your company's network.
Project3	The project team requires a centralized version control system to ensure that developers work with the most recent version.

Which version control system should you recommend for each project? To answer, drag the appropriate version control systems to the correct projects. Each version control system may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Version Control Systems

- Assembla Subversion
- Bitbucket Cloud
- Git in Azure Repos
- GitHub Enterprise

Answer Area

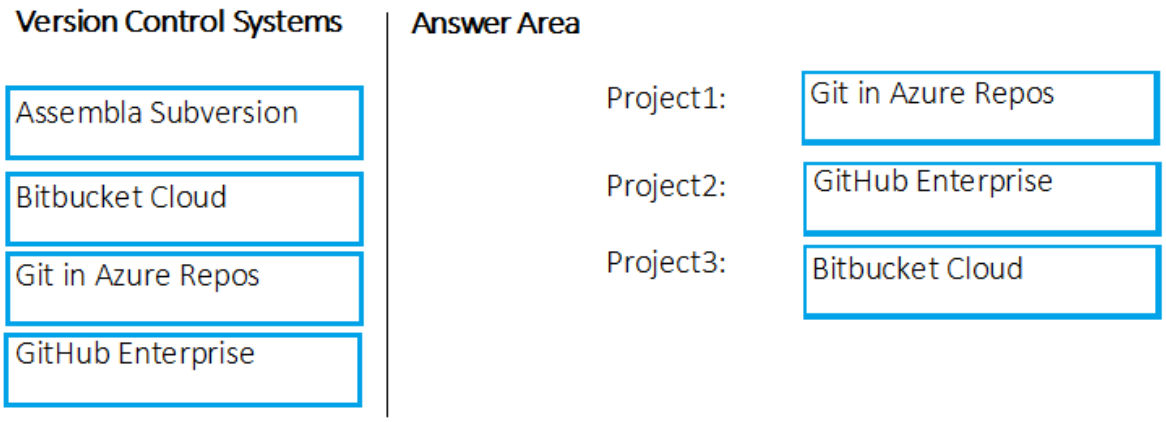
Project1: [ ]

Project2: [ ]

Project3: [ ]

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Solution:



Explanation:

Explanation:

Project1:Git in Azure Repos

Project2: Github Enterprise

GitHub Enterprise is the on-premises version of GitHub.com. GitHub Enterprise includes the same great set of features as GitHub.com but packaged for running on your organization's local network. All repository data is stored on machines that you control, and access is integrated with your organization's authentication system (LDAP, SAML, or CAS).

Project3: Bitbucket cloud

One downside, however, is that Bitubucket does not include support for SVN but this can be easily amended migrating the SVN repos to Git with tools such as SVN Mirror for Bitbucket .

Note: SVN is a centralized version control system.

Incorrect Answers:

Bitbucket:

Bitbucket comes as a distributed version control system based on Git.

Note: A source control system, also called a version control system, allows developers to collaborate on code and track changes. Source control is an essential tool for multi-developer projects.

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Our systems support two types of source control: Git (distributed) and Team Foundation Version Control (TFVC). TFVC is a centralized, client-server system. In both Git and TFVC, you can check in files and organize files in folders, branches, and repositories.

References:

https://www.azuredevopslabs.com/labs/azuredevops/yaml/

https://enterprise.github.com/faq

Question 19

Your company uses a Git repository in Azure Repos to manage the source code of a web application. The master branch is protected from direct updates. Developers work on new features in the topic branches.

Because of the high volume of requested features, it is difficult to follow the history of the changes to the master branch.

You need to enforce a pull request merge strategy. The strategy must meet the following requirements:

Consolidate commit histories.
Merge the changes into a single commit.

Which merge strategy should you use in the branch policy?

- ☒ squash merge
- ☐ fast-forward merge
- ☐ Git fetch
- ☐ no-fast-forward merge

Explanation:

Explanation:

Squash merging is a merge option that allows you to condense the Git history of topic branches when you complete a pull request. Instead of each commit on the topic branch being added to the history of the default branch, a squash merge takes all the file changes and adds them to a single new commit on the default branch.

A simple way to think about this is that squash merge gives you just the file changes, and a regular merge gives you the file changes and the commit history.

Note: Squash merging keeps your default branch histories clean and easy to follow without demanding any workflow changes on your team. Contributors to the topic branch work how they want in the topic branch, and the default branches keep a linear history through the use of squash

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merges. The commit history of a master branch updated with squash merges will have one commit for each merged branch. You can step through this history commit by commit to find out exactly when work was done.

References: https://docs.microsoft.com/en-us/azure/devops/repos/git/merging-with-squash

Question 20

You are automating the build process for a Java-based application by using Azure DevOps.

You need to add code coverage testing and publish the outcomes to the pipeline.

What should you use?

- ☒ Cobertura
- ☐ Bullseye Coverage
- ☐ MSTest
- ☐ Coverlet
- ☐ NUnit
- ☐ Coverage.py

Explanation:

Explanation:

Use Publish Code Coverage Results task in a build pipeline to publish code coverage results to Azure Pipelines or TFS, which were produced by a build in Cobertura or JaCoCo format.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/tasks/test/publish-code-coverage-results

Question 21

You are automating the testing process for your company.

You need to automate UI testing of a web application.

Which framework should you use?

- ☐ JaCoco
- ☒ Selenium
- ☐ Xamarin.UITest
- ☐ Microsoft.CodeAnalysis

Explanation:

Explanation:

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Performing user interface (UI) testing as part of the release pipeline is a great way of detecting unexpected changes, and need not be difficult. Selenium can be used to test your website during a continuous deployment release and test automation.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/test/continuous-test-selenium?view=azure-devops

Question 22

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You integrate a cloud-hosted Jenkins server and a new Azure DevOps deployment.

You need Azure DevOps to send a notification to Jenkins when a developer commits changes to a branch in Azure Repos.

Solution: You add a trigger to the build pipeline.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

You can create a service hook for Azure DevOps Services and TFS with Jenkins.

References:

https://docs.microsoft.com/en-us/azure/devops/service-hooks/services/jenkins

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Question 23

You have an Azure DevOps organization named Contoso, an Azure DevOps project named Project1, an Azure subscription named Sub1, and an Azure key vault named vault1.

You need to ensure that you can reference the values of the secrets stored in vault1 in all the pipelines of Project1. The solution must prevent the values from being stored in the pipelines.

What should you do?

- ☒ Create a variable group in Project1.
- ☐ Add a secure file to Project1.
- ☐ Modify the security settings of the pipelines.
- ☐ Configure the security policy of Contoso.

Explanation:

Explanation:

Use a variable group to store values that you want to control and make available across multiple pipelines.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/library/variable-groups

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Implement Continuous Integration

Case Study (2 questions)

Case Study
This is a case study. Case studies are not timed separately. You can use as much exam time as you would like to complete each case. However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other question on this case study.

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next sections of the exam. After you begin a new section, you cannot return to this section.

To start the case study
To display the first question on this case study, click the Next button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements. If the case study has an All Information tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the Question button to return to the question.
Overview

Contoso, Ltd. is a manufacturing company that has a main office in Chicago.

Existing Environment

Contoso plans to improve its IT development and operations processes by implementing Azure DevOps principles. Contoso has an Azure subscription and creates an Azure DevOps organization.

The Azure DevOps organization includes:

The Docker extension
A deployment pool named Pool7 that contains 10 Azure virtual machines that run Windows Server 2016

The Azure subscription contains an Azure Automation account.

Requirements
Planned changes

Contoso plans to create projects in Azure DevOps as shown in the following table.

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Project name	Project details
Project 1	Project1 will provide support for incremental builds and third-party SDK components
Project 2	Project2 will use an automatic build policy. A small team of developers named Team2 will work independently on changes to the project. The Team2 members will not have permissions to Project2.
Project 3	Project3 will be integrated with SonarQube
Project 4	Project4 will provide support for a build pipeline that creates a Docker image and pushes the image to the Azure Container Registry. Project4 will use an existing Dockerfile.
Project 5	Project5 will contain a Git repository in Azure Reports and a continuous integration trigger that will initiate a build in response to any change except for changes within /folder1 of the repository.
Project 6	Project6 will provide support for build and deployment pipelines. Deployment will be allowed only if the number of current work items representing active software bugs is 0.
Project 7	Project7 will contain a target deployment group named Group7 that maps to Pool7. Project7 will use Azure Automation State Configuration to maintain the desired state of the computers in Group7.

Technical requirements

Contoso identifies the following technical requirements:

Implement build agents for Project1.
Whenever possible, use Azure resources.
Avoid using deprecated technologies.
Implement a code flow strategy for Project2 that will:
-Enable Team2 to submit pull requests for Project2.
-Enable Team2 to work independently on changes to a copy of Project2.
-Ensure that any intermediary changes performed by Team2 on a copy of Project2 will be subject to the same restrictions as the ones defined in the build policy of Project2.
Whenever possible implement automation and minimize administrative effort.
Implement Project3, Project5, Project6, and Project7 based on the planned changes
Implement Project4 and configure the project to push Docker images to Azure Container Registry.

Question 24

In Azure DevOps, you create Project3.

You need to meet the requirements of the project.

What should you do first?

- ☐ From Azure DevOps, modify the build definition.
- ☐ From SonarQube, obtain an authentication token.
- ☒ From Azure DevOps, create a service endpoint.
- ☐ From SonarQube, create a project.

Explanation:

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Explanation:

The first thing to do is to declare your SonarQube server as a service endpoint in your VSTS/DevOps project settings.

References:
https://docs.sonarqube.org/display/SCAN/Analyzing+with+SonarQube+Extension+for+vsts-TFS

Question 25

You need to implement Project4.

What should you do first?

- ☐ Add the FROM instruction in the Dockerfile file.
- ☐ Add a Copy and Publish Build Artifacts task to the build pipeline.
- ☒ Add a Docker task to the build pipeline.
- ☐ Add the MAINTAINER instruction in the Dockerfile file.

Explanation:

Explanation:

Scenario: Implement Project4 and configure the project to push Docker images to Azure Container Registry.

Project 4	Project4 will provide support for a build pipeline that creates a Docker image and pushes the image to the Azure Container Registry. Project4 will use an existing Dockerfile.

You use Azure Container Registry Tasks commands to quickly build, push, and run a Docker container image natively within Azure, showing how to offload your "inner-loop" development cycle to the cloud. ACR Tasks is a suite of features within Azure Container Registry to help you manage and modify container images across the container lifecycle.

References:

https://docs.microsoft.com/en-us/azure/container-registry/container-registry-quickstart-task-cli

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(15 questions)

Question 26

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has a project in Azure DevOps for a new web application.

You need to ensure that when code is checked in, a build runs automatically.

Solution: From the Triggers tab of the build pipeline, you select Enable continuous integration.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

In Visual Designer you enable continuous integration (CI) by:

Select the Triggers tab.

Enable Continuous integration.

A continuous integration trigger on a build pipeline indicates that the system should automatically queue a new build whenever a code change is committed.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/get-started-designer

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Question 27

You are developing an open source solution that uses a GitHub repository.

You create a new public project in Azure DevOps.

You plan to use Azure Pipelines for continuous build. The solution will use the GitHub Checks API.

Which authentication type should you use?

- ☒ OAuth
- ☐ GitHub App
- ☐ a personal access token
- ☐ SAML

Explanation:

Explanation:

You can authenticate as a GitHub App.

References: https://developer.github.com/apps/building-github-apps/authenticating-with-github-apps/

Question 28

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has a project in Azure DevOps for a new web application.

You need to ensure that when code is checked in, a build runs automatically.

Solution: From the Continuous deployment trigger settings of the release pipeline, you enable the Pull request trigger setting.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

In Visual Designer you enable continuous integration (CI) by:

Select the Triggers tab.

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Enable Continuous integration.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/get-started-designer

Question 29

Your company is building a new solution in Java.

The company currently uses a SonarQube server to analyze the code of .NET solutions.

You need to analyze and monitor the code quality of the Java solution.

Which task types should you add to the build pipeline?

- ☐ Chef
- ☒ Gradle
- ☐ Octopus
- ☐ Gulp

Explanation:

Explanation:

SonarQube is a set of static analyzers that can be used to identify areas of improvement in your code. It allows you to analyze the technical debt in your project and keep track of it in the future. With Maven and Gradle build tasks, you can run SonarQube analysis with minimal setup in a new or existing Azure DevOps Services build task.

References:

https://docs.microsoft.com/en-us/azure/devops/java/sonarqube?view=azure-devops

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Question 30

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has a project in Azure DevOps for a new web application.

You need to ensure that when code is checked in, a build runs automatically.

Solution: From the Pre-deployment conditions settings of the release pipeline, you select Batch changes while a build is in progress.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Instead, In Visual Designer you enable continuous integration (CI) by:

Select the Triggers tab.

Enable Continuous integration.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/get-started-designer

Question 31

You have a project in Azure DevOps. You have an Azure Resource Group deployment project in Microsoft Visual Studio that is checked in to the Azure DevOps project.

You need to create a release pipeline that will deploy resources by using Azure Resource Manager templates. The solution must minimize administrative effort.

Which task type should you include in the solution?

- ☐ Azure Cloud Service Deployment
- ☐ Azure RM Web App Deployment
- ☒ Azure PowerShell
- ☐ Azure App Service Manage

Explanation:

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Explanation:

There are two different ways to deploy templates to Azure DevOps Services. Both methods provide the same results, so choose the one that best fits your workflow.

Add a single step to your build pipeline that runs the PowerShell script that's included in the Azure Resource Group deployment project (Deploy-AzureResourceGroup.ps1). The script copies artifacts and then deploys the template.

Add multiple Azure DevOps Services build steps, each one performing a stage task.

The first option has the advantage of using the same script used by developers in Visual Studio and providing consistency throughout the lifecycle.

References:

https://docs.microsoft.com/en-us/azure/vs-azure-tools-resource-groups-ci-in-vsts

Question 32

Your company has a hybrid cloud between Azure and Azure Stack.

The company uses Azure DevOps for its full CI/CD pipelines. Some applications are built by using Erlang and Hack.

You need to ensure that Erlang and Hack are supported as part of the build strategy across the hybrid cloud. The solution must minimize management overhead.

What should you use to execute the build pipeline?

- ☐ a Microsoft-hosted agent
- ☐ Azure DevOps self-hosted agents on Azure DevTest Labs virtual machines.
- ☐ Azure DevOps self-hosted agents on Hyper-V virtual machines
- ☒ Azure DevOps self-hosted agents on virtual machines that run on Azure Stack

Explanation:

Explanation:

Azure Stack offers virtual machines (VMs) as one type of an on-demand, scalable computing resource. You can choose a VM when you need more control over the computing environment.

References: https://docs.microsoft.com/en-us/azure/azure-stack/user/azure-stack-compute-overview

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Question 33

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has a project in Azure DevOps for a new web application.

You need to ensure that when code is checked in, a build runs automatically.

Solution: From the Pre-deployment conditions settings of the release pipeline, you select After stage.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Instead, In Visual Designer you enable continuous integration (CI) by:

Select the Triggers tab.

Enable Continuous integration.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/get-started-designer

Question 34

Your company develops a client banking application that processes a large volume of data.

Code quality is an ongoing issue for the company. Recently, the code quality has deteriorated because of an increase in time pressure on the development team.

You need to implement static code analysis.

During which phase should you use static code analysis?

- ☒ integration testing
- ☐ staging
- ☐ production release
- ☐ build

Explanation:

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Explanation:

The Secure Development Lifecycle (SDL) Guidelines recommend that teams perform static analysis during the implementation phase of their development cycle.

Note: The company should focus in particular on the implementation of DevOps tests to assess the quality of the software from the planning stage to the implementation phase of the project.

References:

https://secdevtools.azurewebsites.net/

Question 35

Your company uses Azure DevOps for the build pipelines and deployment pipelines of Java-based projects.

You need to recommend a strategy for managing technical debt.

Which two actions should you include in the recommendation? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- ☐ Configure post-deployment approvals in the deployment pipeline.
- ☒ Configure pre-deployment approvals in the deployment pipeline.
- ☒ Integrate Azure DevOps and SonarQube.
- ☐ Integrate Azure DevOps and Azure DevTest Labs.

Question 36

Your company has a project in Azure DevOps.

You need to ensure that when there are multiple builds pending deployment, only the most recent build is deployed.

What should you use?

- ☐ deployment conditions
- ☒ deployment queue settings
- ☐ release gates
- ☐ pull request triggers

Explanation:

Explanation:

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The options you can choose for a queuing policy are:

Number of parallel deployments

If you specify a maximum number of deployments, two more options appear:

- Deploy all in sequence

- Deploy latest and cancel the others: Use this option if you are producing releases faster than builds, and you only want to deploy the latest build.

Incorrect Answers:

C: Release gates allow automatic collection of health signals from external services, and then promote the release when all the signals are successful at the same time or stop the deployment on timeout. Typically, gates are used in connection with incident management, problem management, change management, monitoring, and external approval systems.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/process/stages?tabs=classic&view=azure-devops#queuing-policies

Question 37

You have an Azure DevOps organization named Contoso and an Azure DevOps project named Project1.

You plan to use Microsoft-hosted agents to build container images that will host full Microsoft .NET Framework apps in a YAML pipeline in Project1.

What are two possible virtual machine images that you can use for the Microsoft-hosted agent pool? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- ☐ vs2017-win2016
- ☒ ubuntu-16.04
- ☒ win1803
- ☐ macOS-10.13
- ☐ vs.2015-win2012r2

Explanation:

Explanation:

The Microsoft-hosted agent pool provides 7 virtual machine images to choose from:

Ubuntu 16.04 (ubuntu-16.04)

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Windows Server 1803 (win1803) - for running Windows containers

Visual Studio 2019 Preview on Windows Server 2019 (windows-2019)

Visual Studio 2017 on Windows Server 2016 (vs2017-win2016)

Visual Studio 2015 on Windows Server 2012R2 (vs2015-win2012r2)

macOS X Mojave 10.14 (macOS-10.14)

macOS X High Sierra 10.13 (macOS-10.13)

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/agents/hosted?view=azure-devops

Question 38

You plan to create an image that will contain a .NET Core application.

You have a Dockerfile file that contains the following code. (Line numbers are included for reference only.)

```
01 FROM microsoft/dotnet:2.1-sdk
02 COPY ./
03 RUN dotnet publish -c Release -o out
04 FROM microsoft/dotnet:2.1-sdk
05 COPY -from=0 /out /
06 WORKDIR /
07 ENTRYPOINT ["dotnet", "appl.dll"]
```

You need to ensure that the image is as small as possible when the image is built.

Which line should you modify in the file?

- ☒ 1
- ☐ 3
- ☐ 4
- ☐ 7

Explanation:

Explanation:

Multi-stage builds (in Docker 17.05 or higher) allow you to drastically reduce the size of your final image, without struggling to reduce the number of intermediate layers and files.

With multi-stage builds, you use multiple FROM statements in your Dockerfile. Each FROM instruction can use a different base, and each of them begins a new stage of the build. You can

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selectively copy artifacts from one stage to another, leaving behind everything you don't want in the final image.

References: https://docs.docker.com/develop/develop-images/multistage-build/#use-multi-stage-builds

Question 39

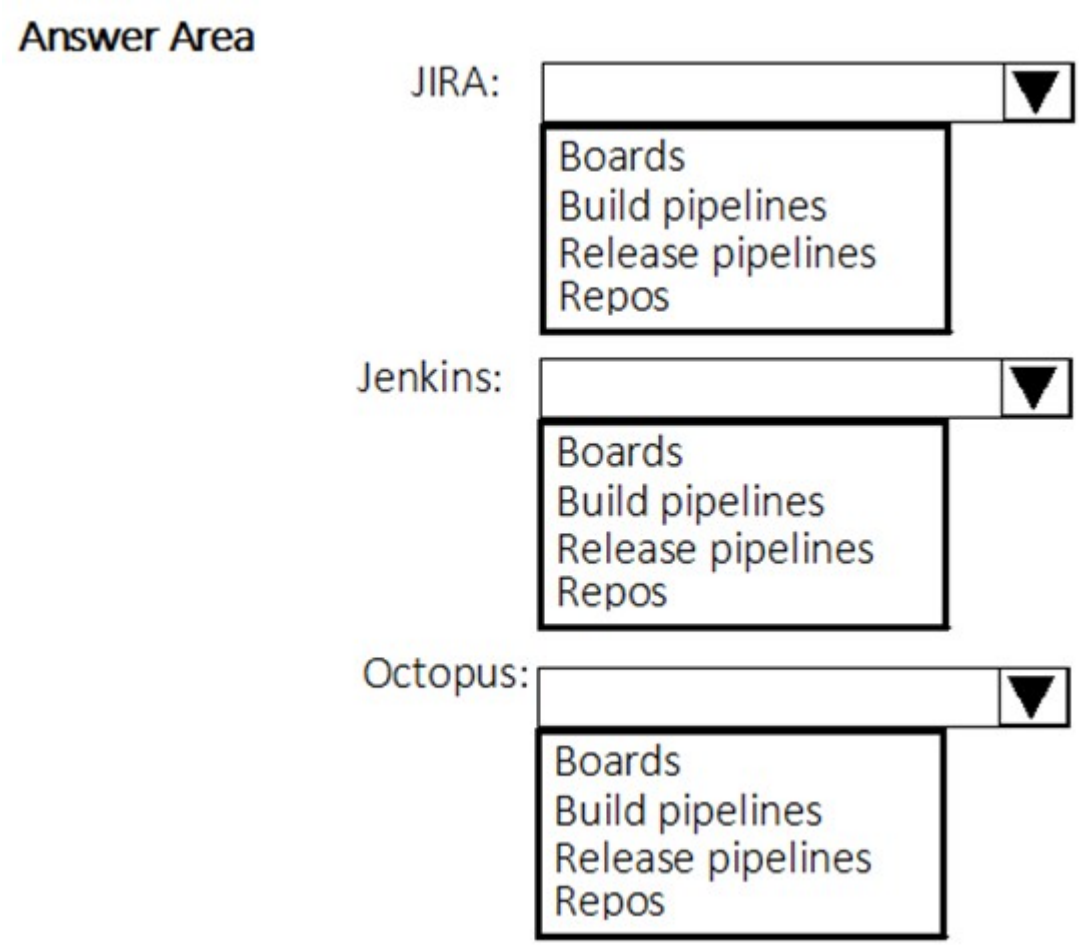
HOTSPOT

You currently use JIRA, Jenkins, and Octopus as part of your DevOps processes.

You plan to use Azure DevOps to replace these tools.

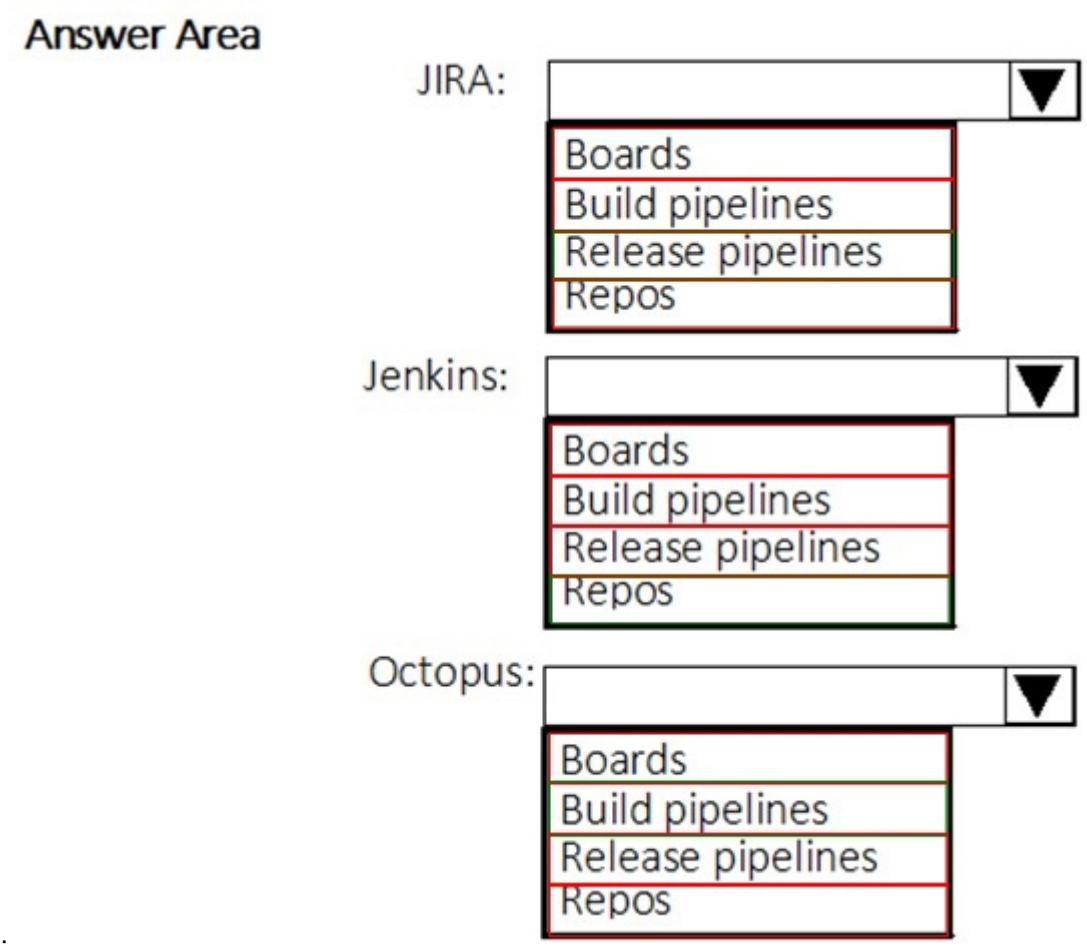
Which Azure DevOps service should you use to replace each tool? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.



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Answer Area



Solution:

Explanation:

Explanation:

JIRA: Release pipelines

Atlassian's Jira Software is a popular application that helps teams to plan, track, and manage software releases, whereas Octopus Deploy helps teams automate their development and operations processes in a fast, repeatable, and reliable manner. Together, they enable teams to get better end-to-end visibility into their software pipelines from idea to production.

Jenkins: Repos

One way to integrate Jenkins with Azure Pipelines is to run CI jobs in Jenkins separately. This involves configuration of a CI pipeline in Jenkins and a web hook in Azure DevOps that invokes the CI process when source code is pushed to a repository or a branch.

Octopus: Build pipelines

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References:

https://octopus.com/blog/octopus-jira-integration

https://www.azuredevopslabs.com/labs/vstsextend/jenkins/

Question 40

Your company deploys applications in Docker containers.

You want to detect known exploits in the Docker images used to provision the Docker containers.

You need to integrate image scanning into the application lifecycle. The solution must expose the exploits as early as possible during the application lifecycle.

What should you configure?

- ☒ a task executed in the continuous integration pipeline and a scheduled task that analyzes the image registry
- ☐ manual tasks performed during the planning phase and the deployment phase
- ☐ a task executed in the continuous deployment pipeline and a scheduled task against a running production container
- ☐ a task executed in the continuous integration pipeline and a scheduled task that analyzes the production container

Explanation:

Explanation:

You can use the Docker task to sign into ACR and then use a subsequent script to pull an image and scan the container image for vulnerabilities.

Use the docker task in a build or release pipeline. This task can be used with Docker or Azure Container registry.

Incorrect Answers:

C: We should not wait until deployment. We want to detect the exploits as early as possible.

D: We should wait until the image is in the product container. We want to detect the exploits as early as possible.

References: https://docs.microsoft.com/en-us/azure/devops/articles/security-validation-cicd-pipeline?view=vsts

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Implement Continuous Delivery

(12 questions)

Question 41

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an approval process that contains a condition. The condition requires that releases be approved by a team leader before they are deployed.

You have a policy stating that approvals must occur within eight hours.

You discover that deployment fail if the approvals take longer than two hours.

You need to ensure that the deployments only fail if the approvals take longer than eight hours.

Solution: From Post-deployment conditions, you modify the Timeout setting for post-deployment approvals.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Use Pre-deployments conditions instead.

Use a gate instead of an approval instead.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/release/approvals/gates

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Question 42

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure DevOps project.

Your build process creates several artifacts.

You need to deploy the artifacts to on-premises servers.

Solution: You deploy a Kubernetes cluster on-premises. You deploy a Helm agent to the cluster. You add a Download Build Artifacts task to the deployment pipeline.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Instead you should deploy an Azure self-hosted agent to an on-premises server.

Note: To build your code or deploy your software using Azure Pipelines, you need at least one agent.

If your on-premises environments do not have connectivity to a Microsoft-hosted agent pool (which is typically the case due to intermediate firewalls), you'll need to manually configure a self-hosted agent on on-premises computer(s).

Note 2: As we [Microsoft] are launching this new experience in preview, we are currently optimizing it for Azure Kubernetes Service (AKS) and Azure Container Registry (ACR). Other Kubernetes clusters, for example running on-premises or in other clouds, as well as other container registries, can be used, but require setting up a Service Account and connection manually.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/agents/agents?view=azure-devops

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Question 43

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure DevOps project.

Your build process creates several artifacts.

You need to deploy the artifacts to on-premises servers.

Solution: You deploy a Docker build to an on-premises server. You add a Download Build Artifacts task to the deployment pipeline.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Instead you should deploy an Azure self-hosted agent to an on-premises server.

Note: To build your code or deploy your software using Azure Pipelines, you need at least one agent.

If your on-premises environments do not have connectivity to a Microsoft-hosted agent pool (which is typically the case due to intermediate firewalls), you'll need to manually configure a self-hosted agent on on-premises computer(s).

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/agents/agents?view=azure-devops

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Question 44

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
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You have an approval process that contains a condition. The condition requires that releases be approved by a team leader before they are deployed.

You have a policy stating that approvals must occur within eight hours.

You discover that deployment fail if the approvals take longer than two hours.

You need to ensure that the deployments only fail if the approvals take longer than eight hours.

Solution: From Post-deployment conditions, you modify the Time between re-evaluation of gates option.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Use a gate From Pre-deployment conditions instead.

References: https://docs.microsoft.com/en-us/azure/devops/pipelines/release/approvals/gates

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Question 45

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You plan to create a release pipeline that will deploy Azure resources by using Azure Resource Manager templates. The release pipeline will create the following resources:

Two resource groups
Four Azure virtual machines in one resource group
Two Azure SQL databases in other resource group

You need to recommend a solution to deploy the resources.

Solution: Create a main template that has two linked templates, each of which will deploy the resources in its respective group.

Does this meet the goal?

- ☒ Yes
- ☐ No

Explanation:

Explanation:

To deploy your solution, you can use either a single template or a main template with many related templates. The related template can be either a separate file that is linked to from the main template, or a template that is nested within the main template.

References: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-linked-templates

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Question 46

Your company has a project in Azure DevOps for a new web application.

The company uses ServiceNow for change management.

You need to ensure that a change request is processed before any components can be deployed to the production environment.

What are two ways to integrate ServiceNow into the Azure DevOps release pipeline? Each correct answer presents a complete solution.

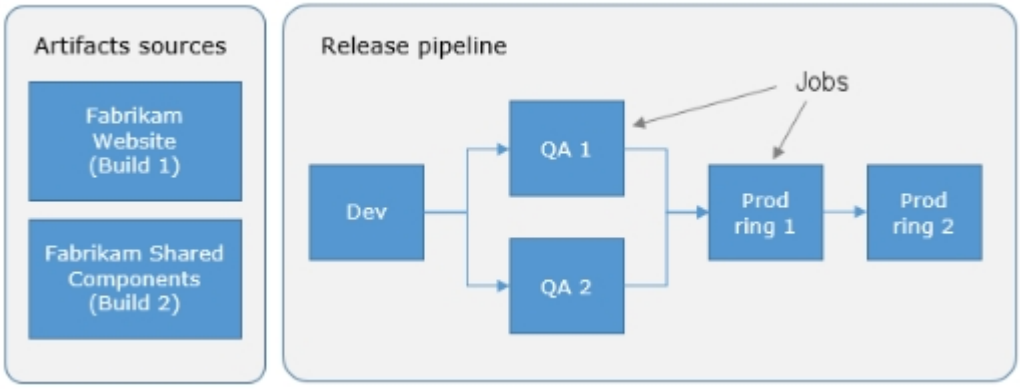
NOTE: Each correct selection is worth one point.

- ☐ Define a deployment control that invokes the ServiceNow REST API.
- ☒ Define a pre-deployment gate before the deployment to the Prod stage.
- ☐ Define a deployment control that invokes the ServiceNow SOAP API.
- ☒ Define a post-deployment gate after the deployment to the QA stage.

Explanation:

Explanation:

An example of a release pipeline that can be modeled through a release pipeline in shown below:



In this example, a release of a website is created by collecting specific versions of two builds (artifacts), each from a different build pipeline. The release is first deployed to a Dev stage and then forked to two QA stages in parallel. If the deployment succeeds in both the QA stages, the release is deployed to Prod ring 1 and then to Prod ring 2. Each production ring represents multiple instances of the same website deployed at various locations around the globe.

References: https://docs.microsoft.com/en-us/azure/devops/pipelines/release

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Question 47

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You have an approval process that contains a condition. The condition requires that releases be approved by a team leader before they are deployed.

You have a policy stating that approvals must occur within eight hours.

You discover that deployment fail if the approvals take longer than two hours.

You need to ensure that the deployments only fail if the approvals take longer than eight hours.

Solution: From Pre-deployment conditions, you modify the Timeout setting for pre-deployment approvals.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Use a gate instead of an approval instead.

References: https://docs.microsoft.com/en-us/azure/devops/pipelines/release/approvals/gates

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Question 48

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You plan to create a release pipeline that will deploy Azure resources by using Azure Resource Manager templates. The release pipeline will create the following resources:

Two resource groups
Four Azure virtual machines in one resource group
Two Azure SQL databases in other resource group

You need to recommend a solution to deploy the resources.

Solution: Create two standalone templates, each of which will deploy the resources in its respective group.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Use a main template and two linked templates.

References: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-linked-templates

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Question 49

This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure DevOps project.

Your build process creates several artifacts.

You need to deploy the artifacts to on-premises servers.

Solution: You deploy an Azure self-hosted agent to an on-premises server. You add a Copy and Publish Build Artifacts task to the deployment pipeline.

Does this meet the goal?

- ☒ Yes
- ☐ No

Explanation:

Explanation:

To build your code or deploy your software using Azure Pipelines, you need at least one agent.

If your on-premises environments do not have connectivity to a Microsoft-hosted agent pool (which is typically the case due to intermediate firewalls), you'll need to manually configure a self-hosted agent on on-premises computer(s). The agents must have connectivity to the target on-premises environments, and access to the Internet to connect to Azure Pipelines or Team Foundation Server.

References:

https://docs.microsoft.com/en-us/azure/devops/pipelines/agents/agents?view=azure-devops

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Question 50

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You plan to create a release pipeline that will deploy Azure resources by using Azure Resource Manager templates. The release pipeline will create the following resources:

Two resource groups
Four Azure virtual machines in one resource group
Two Azure SQL databases in other resource group

You need to recommend a solution to deploy the resources.

Solution: Create a single standalone template that will deploy all the resources.

Does this meet the goal?

- ☐ Yes
- ☒ No

Explanation:

Explanation:

Use two templates, one for each resource group, and link the templates.

References:

https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-linked-templates

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Question 51

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an approval process that contains a condition. The condition requires that releases be approved by a team leader before they are deployed.

You have a policy stating that approvals must occur within eight hours.

You discover that deployment fail if the approvals take longer than two hours.

You need to ensure that the deployments only fail if the approvals take longer than eight hours.

Solution: From Pre-deployment conditions, you modify the Time between re-evaluation of gates option.

Does this meet the goal?

- ☒ Yes
- ☐ No

Explanation:

Explanation:

Gates allow automatic collection of health signals from external services, and then promote the release when all the signals are successful at the same time or stop the deployment on timeout. Typically, gates are used in connection with incident management, problem management, change management, monitoring, and external approval systems.

Approvals and gates give you additional control over the start and completion of the deployment pipeline. Each stage in a release pipeline can be configured with pre-deployment and post-deployment conditions that can include waiting for users to manually approve or reject deployments, and checking with other automated systems until specific conditions are verified.

References: https://docs.microsoft.com/en-us/azure/devops/pipelines/release/approvals/gates

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Question 52

SIMULATION

You need to ensure that an Azure web app named az400-9940427-main supports rolling upgrades. The solution must ensure that only 10 percent of users who connect to az400-9940427-main use update versions of the app.

The solution must minimize administrative effort.

To complete this task, sign in to the Microsoft Azure portal.

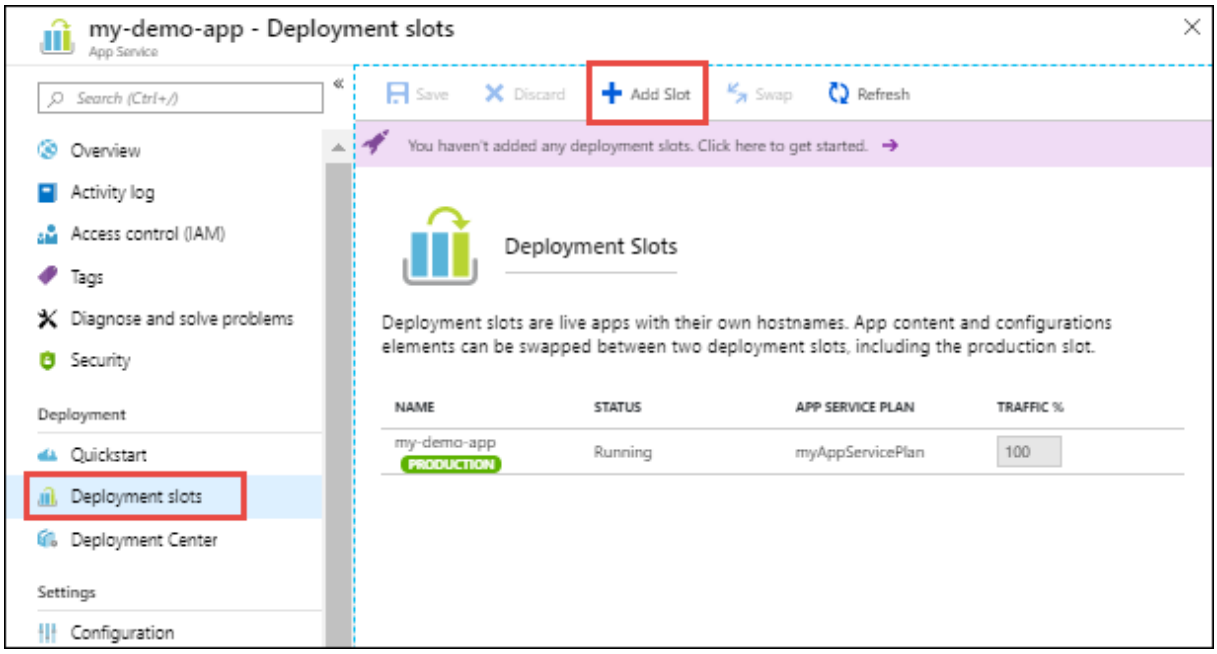
Explanation:

Explanation:

Set up staging environments in Azure App Service

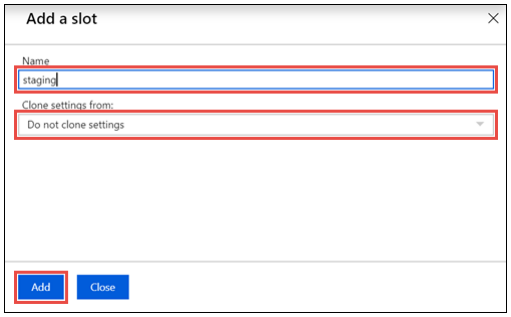
1. Open Microsoft Azure Portal

2. Log into your Azure account, select your app's resource page, in the left pane, select Deployment slots > Add Slot.



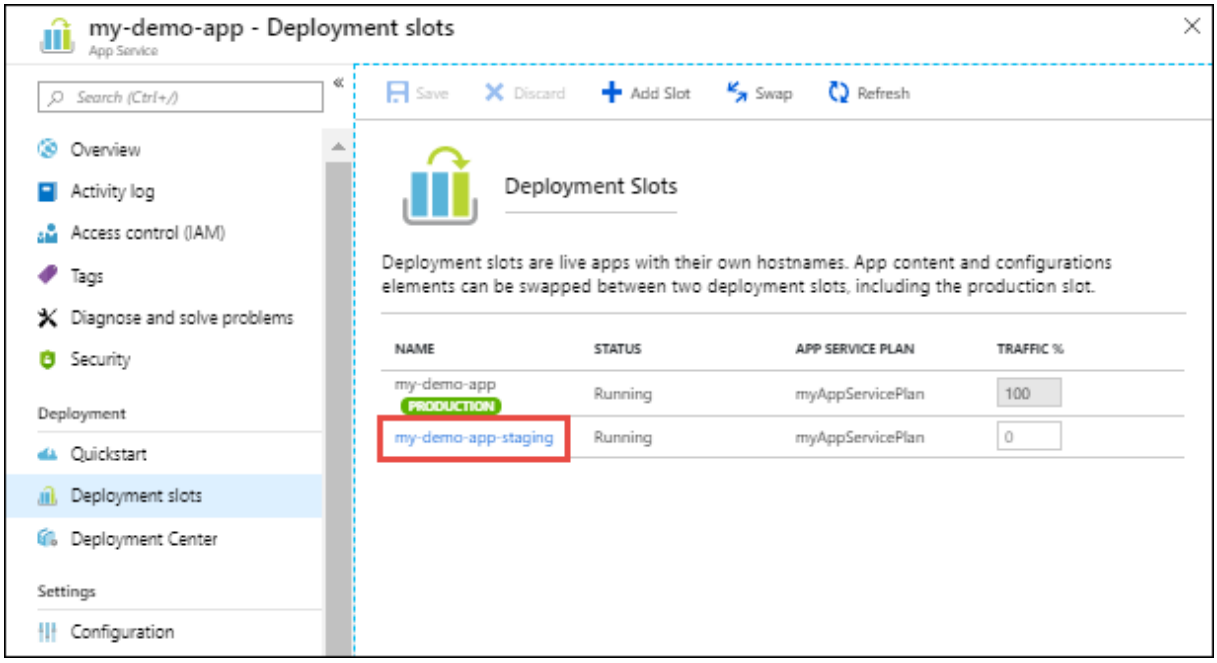
3. In the Add a slot dialog box, give the slot a name, and select whether to clone an app configuration from another deployment slot. Select Add to continue.

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4. After the slot is added, select Close to close the dialog box. The new slot is now shown on the Deployment slots page. By default, Traffic % is set to 0 for the new slot, with all customer traffic routed to the production slot.

5. Select the new deployment slot to open that slot's resource page.



6. Change TRAFFIC % to 10

References:

https://docs.microsoft.com/en-us/azure/app-service/deploy-staging-slots

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Implement Dependency Management

(3 questions)

Question 53

You plan to share packages that you wrote, tested, validated, and deployed by using Azure Artifacts.

You need to release multiple builds of each package by using a single feed. The solution must limit the release of packages that are in development.

What should you use?

- ☐ local symbols
- ☐ views
- ☐ global symbols
- ☒ upstream sources

Explanation:

Explanation:

Upstream sources enable you to manage all of your product's dependencies in a single feed. We recommend publishing all of the packages for a given product to that product's feed, and managing that product's dependencies from remote feeds in the same feed, via upstream sources. This setup has a few benefits:

Simplicity: your NuGet.config, .npmrc, or settings.xml contains exactly one feed (your feed).

Determinism: your feed resolves package requests in order, so rebuilding the same codebase at the same commit or changeset uses the same set of packages

Provenance: your feed knows the provenance of packages it saved via upstream sources, so you can verify that you're using the original package, not a custom or malicious copy published to your feed

Peace of mind: packages used via upstream sources are guaranteed to be saved in the feed on first use; if the upstream source is disabled/removed, or the remote feed goes down or deletes a package you depend on, you can continue to develop and build

References: https://docs.microsoft.com/en-us/azure/devops/artifacts/concepts/upstream-sources?view=vsts

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Question 54

Your company is concerned that when developers introduce open source libraries, it creates licensing compliance issues.

You need to add an automated process to the build pipeline to detect when common open source libraries are added to the code base.

What should you use?

- ☐ Microsoft Visual SourceSafe
- ☐ Code Style
- ☒ Black Duck
- ☐ Jenkins
- ☐ SourceGea
- ☐ OWASP ZAP

Explanation:

Explanation:

Secure and Manage Open Source Software

Black Duck helps organizations identify and mitigate open source security, license compliance and code-quality risks across application and container portfolios.

Black Duck Hub and its plugin for Team Foundation Server (TFS) allows you to automatically find and fix open source security vulnerabilities during the build process, so you can proactively manage risk. The integration allows you to receive alerts and fail builds when any Black Duck Hub policy violations are met.

Note: WhiteSource would also be a good answer, but it is not an option here.

References:

https://marketplace.visualstudio.com/items?itemName=black-duck-software.hub-tfs

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Question 55

Your company is concerned that when developers introduce open source libraries, it creates licensing compliance issues.

You need to add an automated process to the build pipeline to detect when common open source libraries are added to the code base.

What should you use?

- ☐ Microsoft Visual SourceSafe
- ☐ PDM
- ☒ WhiteSource
- ☐ OWASP ZAP

Explanation:

Explanation:

WhiteSource is the leader in continuous open source software security and compliance management. WhiteSource integrates into your build process, irrespective of your programming languages, build tools, or development environments. It works automatically, continuously, and silently in the background, checking the security, licensing, and quality of your open source components against WhiteSource constantly-updated de?nitive database of open source repositories.

Azure DevOps integration with WhiteSource Bolt will enable you to:

Detect and remedy vulnerable open source components.

Generate comprehensive open source inventory reports per project or build.

Enforce open source license compliance, including dependencies' licenses.

Identify outdated open source libraries with recommendations to update.

Note: Black duck would also be a good answer, but it is not an option here.

References: https://www.azuredevopslabs.com/labs/vstsextend/WhiteSource/

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Implement Application Infrastructure

(6 questions)

Question 56

Your company has a project in Azure DevOps for a new application. The application will be deployed to several Azure virtual machines that run Windows Server 2016.

You need to recommend a deployment strategy for the virtual machines. The strategy must meet the following requirements:

Ensure that the virtual machines maintain a consist configuration.
Minimize administrative effort to configure the virtual machines.

What should you include in the recommendation?

- ☐ Azure Resource Manager templates and the PowerShell Desired State Configuration (DSC) extension for Windows
- ☐ Deployment YAML and Azure pipeline deployment groups
- ☒ Azure Resource Manager templates and the Custom Script Extension for Windows
- ☐ Deployment YAML and Azure pipeline stage templates

Explanation:

Explanation:

The Custom Script Extension downloads and executes scripts on Azure virtual machines. This extension is useful for post deployment configuration, software installation, or any other configuration or management tasks. Scripts can be downloaded from Azure storage or GitHub, or provided to the Azure portal at extension run time. The Custom Script Extension integrates with Azure Resource Manager templates, and can be run using the Azure CLI, PowerShell, Azure portal, or the Azure Virtual Machine REST API.

Incorrect Answers:

B: YAML doesn't work with Azure pipeline deployment groups.

References:

https://docs.microsoft.com/en-us/azure/virtual-machines/extensions/custom-script-windows

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Question 57

You have an application that consists of several Azure App Service web apps and Azure functions.

You need to access the security of the web apps and the functions.

Which Azure features can you use to provide a recommendation for the security of the application?

- ☐ Security & Compliance in Azure Log Analytics
- ☐ Resource health in Azure Service Health
- ☐ Smart Detection in Azure Application Insights
- ☒ Compute & apps in Azure Security Center

Explanation:

Explanation:

Monitor compute and app services: Compute & apps include the App Services tab, which App services: list of your App service environments and current security state of each.

Recommendations

This section has a set of recommendations for each VM and computer, web and worker roles, Azure App Service Web Apps, and Azure App Service Environment that Security Center monitors. The first column lists the recommendation. The second column shows the total number of resources that are affected by that recommendation. The third column shows the severity of the issue.

Incorrect Answers:

C: Smart Detection automatically warns you of potential performance problems, not security problems in your web application.

References:

https://docs.microsoft.com/en-us/azure/azure-monitor/app/proactive-diagnostics

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Question 58

Your company develops an app for iOS. All users of the app have devices that are members of a private distribution group in Microsoft Visual Studio App Center.

You plan to distribute a new release of the app.

You need to identify which certificate file you require to distribute the new release from App Center.

Which file type should you upload to App Center?

- ☐ .cer
- ☐ .pfx
- ☒ .p12
- ☐ .pvk

Explanation:

Explanation:

A successful IOS device build will produce an ipa file. In order to install the build on a device, it needs to be signed with a valid provisioning profile and certificate. To sign the builds produced from a branch, enable code signing in the configuration pane and upload a provisioning profile (.mobileprovision) and a valid certificate (.p12), along with the password for the certificate.

References:

https://docs.microsoft.com/en-us/appcenter/build/xamarin/ios/

Question 59

You have a private distribution group that contains provisioned and unprovisioned devices.

You need to distribute a new iOS application to the distribution group by using Microsoft Visual Studio App Center.

What should you do?

- ☐ Request the Apple ID associated with the user of each device.
- ☒ Register the devices on the Apple Developer portal.
- ☐ Create an active subscription in App Center Test.
- ☐ Add the device owner to the organization in App Center.

Explanation:

Explanation:

When releasing an iOS app signed with an ad-hoc or development provisioning profile, you must obtain tester's device IDs (UDIDs), and add them to the provisioning profile before compiling a release. When you enable the distribution group's Automatically manage devices setting, App Center automates the before mentioned operations and removes the constraint for you to perform any

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manual tasks. As part of automating the workflow, you must provide the user name and password for your Apple ID and your production certificate in a .p12 format.

App Center starts the automated tasks when you distribute a new release or one of your testers registers a new device. First, all devices from the target distribution group will be registered, using your Apple ID, in your developer portal and all provisioning profiles used in the app will be generated with both new and existing device ID. Afterward, the newly generated provisioning profiles are downloaded to App Center servers.

References:

https://docs.microsoft.com/en-us/appcenter/distribution/groups

Question 60

SIMULATION

You need to create a virtual machine template in an Azure DevTest Labs environment named az400-9940427-dtl1. The template must be based on Windows Server 2016 Datacenter. Virtual machines created from the template must include the selenium tool and the Google Chrome browser.

To complete this task, sign in to the Microsoft Azure portal.

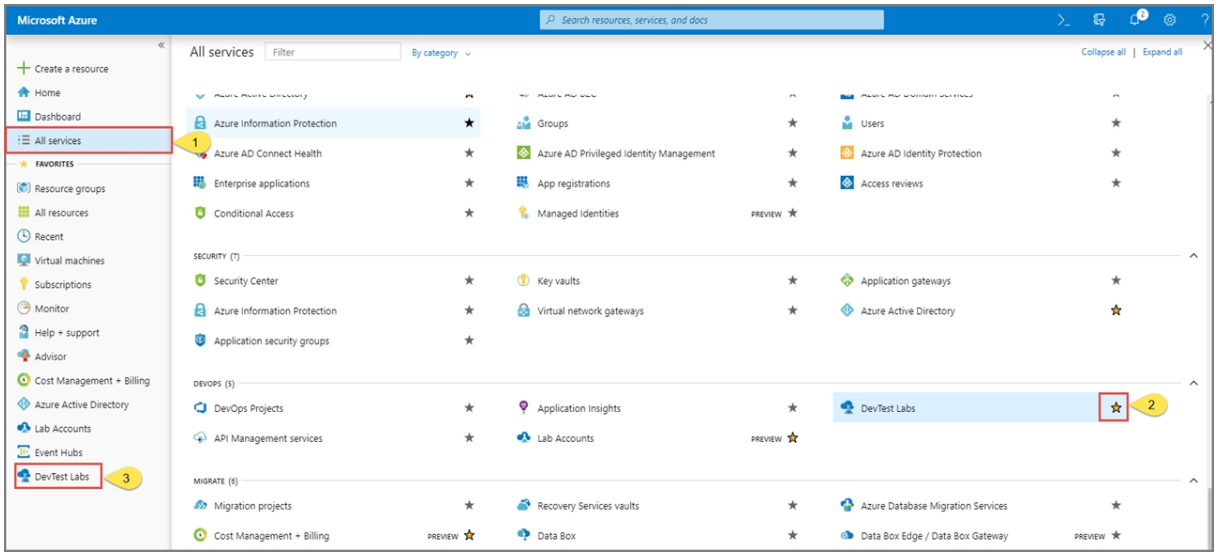
Explanation:

Explanation:

1. Open Microsoft Azure Portal

2. Select All Services, and then select DevTest Labs in the DEVOPS section.

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3. From the list of labs, select the az400-9940427-dtl1 lab

4. On the home page for your lab, select + Add on the toolbar.

5. Select the Windows Server 2016 Datacenter base image for the VM.

6. Select automation options at the bottom of the page above the Submit button.

7. You see the Azure Resource Manager template for creating the virtual machine.

8. The JSON segment in the resources section has the definition for the image type you selected earlier.

References:

https://docs.microsoft.com/bs-cyrl-ba/azure//lab-services/devtest-lab-vm-powershell

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Question 61

SIMULATION

You need to prepare a network security group (NSG) named az400-9940427-nsg1 to host an Azure DevOps pipeline agent. The solution must allow only the required outbound port for Azure DevOps and deny all other inbound and outbound access to the Internet.

To complete this task, sign in to the Microsoft Azure portal.

Explanation:

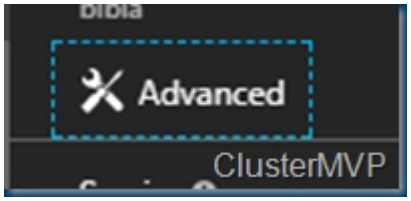
Explanation:

1. Open Microsoft Azure Portal and Log into your Azure account.

2. Select network security group (NSG) named az400-9940427-nsg1

3. Select Settings, Outbound security rules, and click Add

4. Click Advanced



5. Change the following settings:

Destination Port range: 8080

Protocol. TCP

Action: Allow

Note: By default, Azure DevOps Server uses TCP Port 8080.

References:

https://robertsmit.wordpress.com/2017/09/11/step-by-step-azure-network-security-groups-nsg-security-center-azure-nsg-network/

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https://docs.microsoft.com/en-us/azure/devops/server/architecture/required-ports?view=azure-devops

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Implement Continuous Feedback

(6 questions)

Question 62

You have a multi-tier application that has an Azure Web Apps front end and an Azure SQL Database back end.

You need to recommend a solution to capture and store telemetry data. The solution must meet the following requirements:

Support using ad-hoc queries to identify baselines.
Trigger alerts when metrics in the baseline are exceeded.
Store application and database metrics in a central location.

What should you include in the recommendation?

- ☐ Azure Event Hubs
- ☐ Azure SQL Database Intelligent Insights
- ☐ Azure Application Insights
- ☒ Azure Log Analytics

Explanation:

Explanation:

Azure Platform as a Service (PaaS) resources, like Azure SQL and Web Sites (Web Apps), can emit performance metrics data natively to Log Analytics.

The Premium plan will retain up to 12 months of data, giving you an excellent baseline ability.

There are two options available in the Azure portal for analyzing data stored in Log analytics and for creating queries for ad hoc analysis.

Incorrect Answers:

B: Intelligent Insights analyzes database performance by comparing the database workload from the last hour with the past seven-day baseline workload. However, we need handle application metrics as well.

References: https://docs.microsoft.com/en-us/azure/azure-monitor/platform/collect-azurepass-posh

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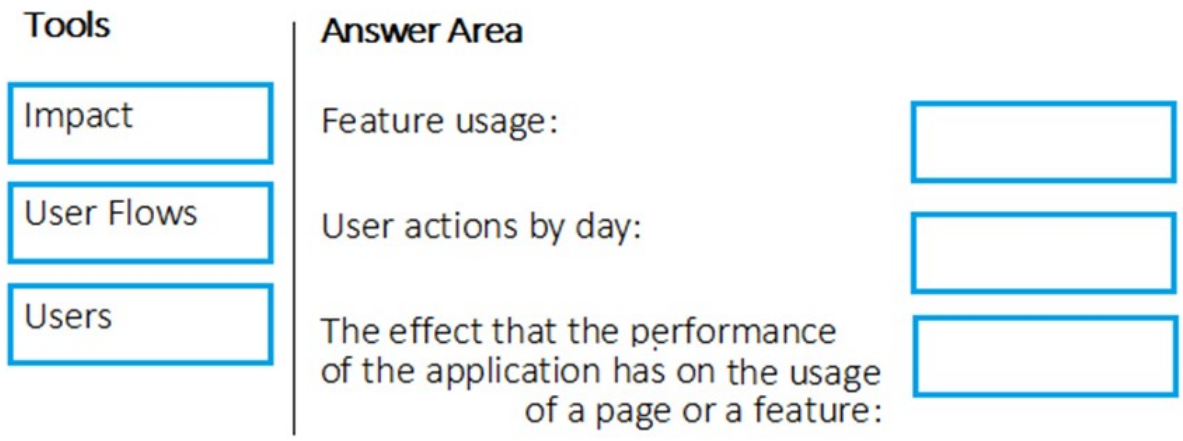
Question 63

DRAG DROP

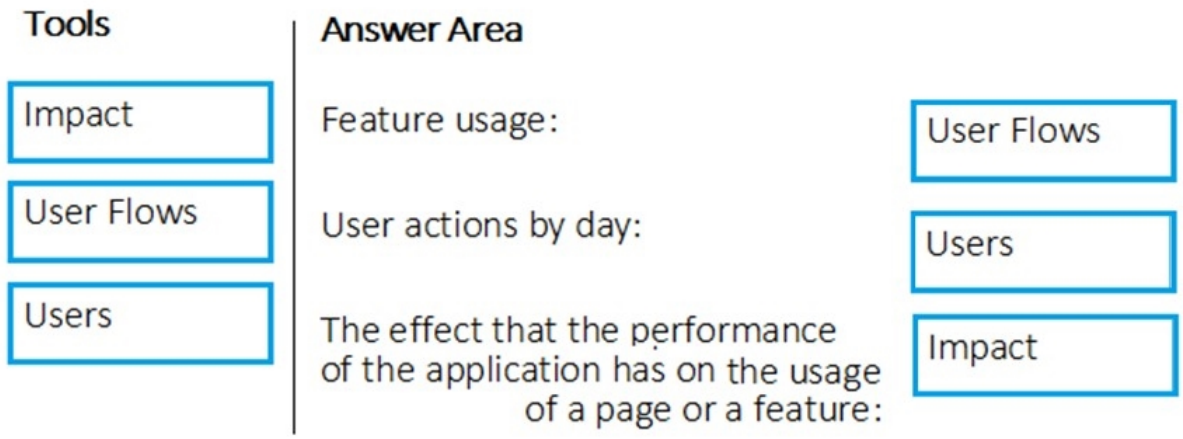
Your company wants to use Azure Application Insights to understand how user behaviors affect an application.

Which application Insights tool should you use to analyze each behavior? To answer, drag the appropriate tools to the correct behaviors. Each tool may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.



Solution:



Explanation:

Explanation:

Box 1: User Flows

The User Flows tool visualizes how users navigate between the pages and features of your site. It's great for answering questions like:

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How do users navigate away from a page on your site?

What do users click on a page on your site?

Where are the places that users churn most from your site?

Are there places where users repeat the same action over and over?

Box 2: Users

Box 3: Impact

Reference:

https://docs.microsoft.com/en-us/azure/azure-monitor/app/usage-flows

Question 64

Your company creates a web application.

You need to recommend a solution that automatically sends to Microsoft Teams a daily summary of the exceptions that occur in the application.

Which two Azure services should you recommend? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- ☒ Azure Logic Apps
- ☐ Azure Pipelines
- ☐ Microsoft Visual Studio App Center
- ☐ Azure DevOps Project
- ☒ Azure Application Insights

Explanation:

Explanation:

E: Exceptions in your live web app are reported by Application Insights.

Note: Periodical reports help keep a team informed on how their business critical services are doing. Developers, DevOps/SRE teams, and their managers can be productive with automated reports reliably delivering insights without requiring everyone to sign in the portal. Such reports can also help identify gradual increases in latencies, load or failure rates that may not trigger any alert rules.

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A: You can programmatically query Application Insights data to generate custom reports on a schedule. The following options can help you get started quickly:

Automate reports with Microsoft Flow

Automate reports with Logic Apps

References:

https://docs.microsoft.com/en-us/azure/azure-monitor/app/asp-net-exceptions

https://docs.microsoft.com/en-us/azure/azure-monitor/app/automate-custom-reports

Question 65

Your company is building a mobile app that targets Android and iOS devices.

Your team uses Azure DevOps to manage all work items and release cycles.

You need to recommend a solution to perform the following tasks:

Collect crash reports for issue analysis.
Distribute beta releases to your testers.
Get user feedback on the functionality of new apps.

What should you include in the recommendation?

- ☒ the Microsoft Test & Feedback extension
- ☐ Microsoft Visual Studio App Center integration
- ☐ Azure Application insights widgets
- ☐ Jenkins integration

Explanation:

Explanation:

The "Exploratory Testing" extension is now "Test & Feedback" and is now Generally Available.

Anyone can now test web apps and give feedback, all directly from the browser on any platform: Windows, Mac, or Linux. Available for Google Chrome and Mozilla Firefox (required version 50.0 or above) currently. Support for Microsoft Edge is in the pipeline and will be enabled once Edge moves to a Chromium-compatible web platform.

References:

https://marketplace.visualstudio.com/items?itemName=ms.vss-exploratorytesting-web

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Question 66

You use Azure SQL Database Intelligent Insights and Azure Application Insights for monitoring.

You need to write ad-hoc queries against the monitoring data.

Which query language should you use?

- ☒ Azure Log Analytics
- ☐ PL/pgSQL
- ☐ PL/SQL
- ☐ Transact-SQL

Explanation:

Explanation:

Data analysis in Azure SQL Analytics is based on Log Analytics language for your custom querying and reporting.

References: https://docs.microsoft.com/en-us/azure/azure-monitor/insights/azure-sql

Question 67

You have an Azure DevOps project named Project1 and an Azure subscription named Sub1. Sub1 contains an Azure virtual machine scale set named VMSS1. VMSS1 hosts a web application named WebApp1. WebApp1 uses stateful sessions.

The WebApp1 installation is managed by using the Custom Script extension. The script resides in an Azure Storage account named sa1.

You plan to make a minor change to a UI element of WebApp1 and to gather user feedback about the change.

You need to implement limited user testing for the new version of WebApp1 on VMSS1.

Which three actions should you perform? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- ☐ Modify the load balancer settings of VMSS1.
- ☒ Redeploy VMSS1.
- ☒ Upload a custom script file to sa1.
- ☒ Modify the Custom Script extension settings of VMSS1.
- ☐ Update the configuration of a virtual machine in VMSS1.

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