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Exam Number/Code:AZ-400

Exam Name: Microsoft Azure DevOps Solutions

Version: Demo

Testlet 1

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 in 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 section 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 in 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

Litware, Inc. is an independent software vendor (ISV). Litware has a main office and five branch offices.

Existing Environment

Application Architecture

The company's primary application is a single monolithic retirement fund management system based on ASP.NET web forms that use logic written in VB.NET. Some new sections of the application are written in C#.

Variations of the application are created for individual customers. Currently, there are more than 80 live code branches in the application's code base.

The application was developed by using Microsoft Visual Studio. Source code is stored in Team Foundation Server (TFS) in the main office. The branch offices access the source code by using TFS proxy servers.

Architectural Issues

Litware focuses on writing new code for customers. No resources are provided to refactor or remove existing code. Changes to the code base take a long time, as dependencies are not obvious to individual developers.

Merge operations of the code often take months and involve many developers. Code merging frequently introduces bugs that are difficult to locate and resolve.

Customers report that ownership costs of the retirement fund management system increase continually. The need to merge unrelated code makes even minor code changes expensive.

Customers report that bug reporting is overly complex.

Requirements

Planned changes

Litware plans to develop a new suite of applications for investment planning. The investment planning applications will require only minor integration with the existing retirement fund management system.

The investment planning applications suite will include one multi-tier web application and two iOS mobile applications. One mobile application will be used by employees; the other will be used by customers.

Litware plans to move to a more agile development methodology. Shared code will be extracted into a series of packages.

Litware has started an internal cloud transformation process and plans to use cloud-based services whenever suitable.

Litware wants to become proactive in detecting failures, rather than always waiting for customer bug reports.

Technical requirements

The company's investment planning applications suite must meet the following requirements:

New incoming connections through the firewall must be minimized.

Members of a group named Developers must be able to install packages.

The principle of least privilege must be used for all permission assignments.

A branching strategy that supports developing new functionality in isolation must be used.

Members of a group named Team Leaders must be able to create new packages and edit the permissions of package feeds.
Visual Studio App Center must be used to centralize the reporting of mobile application crashes and device types in use.
By default, all releases must remain available for 30 days, except for production releases, which must be kept for 60 days.
By default, all App Center must be used to centralize the reporting of mobile application crashes and device types in use.
Code quality and release quality are critical. During release, deployments must not proceed between stages if any active bugs are logged against the release.
The mobile applications must be able to call the share pricing service of the existing retirement fund management system. Until the system is upgraded, the service will only support basic authentication over HTTPS.
The required operating system configuration for the test servers changes weekly. Azure Automation State Configuration must be used to ensure that the operating system on each test server is configured the same way when the servers are created and checked periodically.

Current Technical Issue

The test servers are configured correctly when first deployed, but they experience configuration drift over time. Azure Automation State Configuration fails to correct the configurations.

Azure Automation State Configuration nodes are registered by using the following command.

```
Register-AzureRmAutomationDscNode
   -ResourceGroupName 'TestResourceGroup'
   -AutomationAccountName 'LitwareAutomationAccount'
   -AzureVMName $vname
   -ConfigurationMode 'ApplyOnly'
```
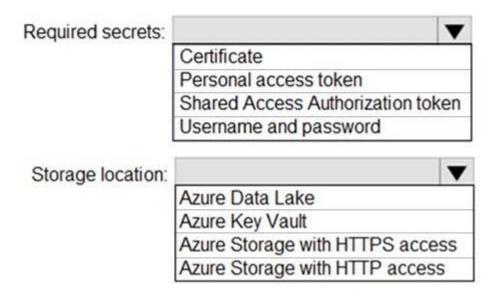
Q1
HOTSPOT

How should you configure the release retention policy for the investment planning depletions suite? To answer, select the appropriate options in the answer area.
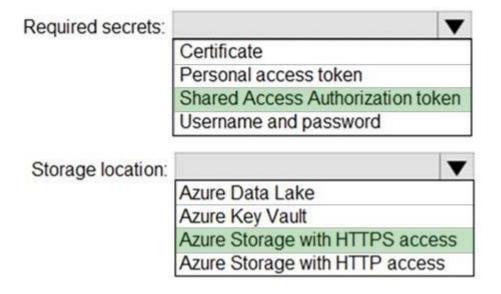
NOTE: Each correct selection is worth one point.

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Hot Area:

Answer Area

Required secrets:

Certificate
Personal access token
Shared Access Authorization token
Username and password

Storage location:

Azure Data Lake
Azure Key Vault
Azure Storage with HTTPS access
Azure Storage with HTTP access

Answer:

Answer Area

Required secrets:

Certificate
Personal access token
Shared Access Authorization token
Username and password

Storage location:

Azure Data Lake
Azure Key Vault
Azure Storage with HTTPS access
Azure Storage with HTTP access

Explanation:

Box 1: Shared Access Authorization token
Every request made against a storage service must be authorized, unless the request is for a blob or container resource that has been made available for public or signed access. One option for authorizing a request is by using Shared Key.

Box 2: Azure Storage with HTTPS access

Scenario: The mobile applications must be able to call the share pricing service of the existing retirement fund management system. Until the system is upgraded, the service will only support basic authentication over HTTPS.
The investment planning application suite will include one multi-tier web application and two iOS mobile application. One mobile application will be used by employees; the other will be used by customers.

Reference:
https://docs.microsoft.com/en-us/rest/api/storageservices/authorize-with-shared-key

Design a DevOps Strategy

Question Set 2

Q2
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?

A. Microsoft Project

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B. Bamboo
C. Microsoft Lync
D. Microsoft Teams

Answer: D

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

Q3
DRAG DROP

You need to recommend project metrics for dashboards in Azure DevOps.

Which chart widgets should you recommend for each metric? To answer, drag the appropriate chart widgets to the correct metrics. Each chart widget 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.

Select and Place:

Chart Widgets   **Answer Area**

Burndown

Cycle Time

Lead Time

Velocity

The elapsed time from the creation of work items to their completion: [   ]

The elapsed time to complete work items once they are active: [   ]

The remaining work: [   ]

Answer:

Chart Widgets   **Answer Area**

Velocity

The elapsed time from the creation of work items to their completion: Lead Time

The elapsed time to complete work items once they are active: Cycle Time

The remaining work: Burndown

Explanation:

Box 1: Lead time
Lead time measures the total time elapsed from the creation of work items to their completion.

Box 2: Cycle time
Cycle time measures the time it takes for your team to complete work items once they begin actively working on them.

Box 3: Burndown
Burndown charts focus on remaining work within a specific time period.

Incorrect Answers:
Velocity provides a useful metric for these activities:

Support sprint planning

Forecast future sprints and the backlog items that can be completed

A guide for determining how well the team estimates and meets their planned commitments

References:
https://docs.microsoft.com/en-us/azure/devops/report/dashboards/velocity-guidance?view=vst
s

https://docs.microsoft.com/en-us/azure/devops/report/dashboards/cycle-time-and-lead-time?v
iew=vsts

https://docs.microsoft.com/en-us/azure/devops/report/dashboards/configure-burndown-burnu
p-widgets? view=vsts

Q4
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?

A. modifying group memberships
B. adding users
C. assigning entitlements
D. procuring licenses

Answer: D

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:

Q5
DRAG DROP

You need to increase the security of your team's development process.

Which type of security tool should you recommend for each stage of the development process? To answer, drag the appropriate security tools to the correct stages. Each security 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.

Select and Place:

Security Tools

| Penetration testing |

| Static code analysis |

| Threat modeling |

Answer Area

Pull request:

Continuous integration:

Continuous delivery:

Answer:

Security Tools

Answer Area

Pull request: | Threat modeling |

Continuous integration: | Static code analysis |

Continuous delivery: | Penetration testing |

www.it-exams.fr original question and answer

Explanation:

Box 1: Threat modeling
Threat modeling's motto should be, "The earlier the better, but not too late and never ignore."

Box 2: Static code analysis
Validation in the CI/CD begins before the developer commits his or her code. Static code analysis tools in the IDE provide the first line of defense to help ensure that security vulnerabilities are not introduced into the CI/ CD process.

Box 3: Penetration testing
Once your code quality is verified, and the application is deployed to a lower environment like development or QA, the process should verify that there are not any security vulnerabilities in the running application. This can be accomplished by executing automated penetration test against the running application to scan it for vulnerabilities.

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

Q6
HOTSPOT

Your company uses Team Foundation Server 2013 (TFS 2013).

You plan to migrate to Azure DevOps.

You need to recommend a migration strategy that meets the following requirements:

Preserves the dates of Team Foundation Version Control changesets

Preserves the changes dates of work items revisions
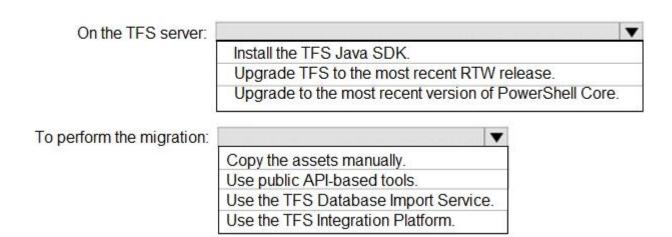
Minimizes migration effort

Migrates all TFS artifacts

What should you recommend? To answer, select the appropriate options in the answer area.
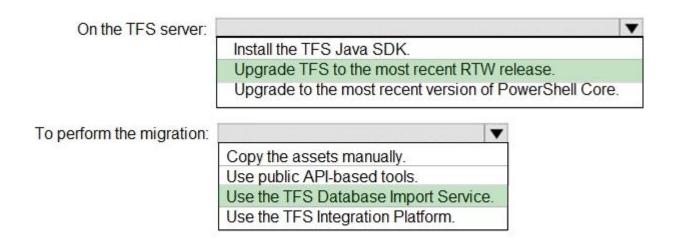
NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

On the TFS server:

Install the TFS Java SDK.
Upgrade TFS to the most recent RTW release.
Upgrade to the most recent version of PowerShell Core.

To perform the migration:

Copy the assets manually.
Use public API-based tools.
Use the TFS Database Import Service.
Use the TFS Integration Platform.

Answer:

Answer Area

On the TFS server:

Install the TFS Java SDK.
Upgrade TFS to the most recent RTW release.
Upgrade to the most recent version of PowerShell Core.

To perform the migration:

Copy the assets manually.
Use public API-based tools.
Use the TFS Database Import Service.
Use the TFS Integration Platform.

Explanation:

Box 1: Upgrade TFS to the most recent RTM release.

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One of the major prerequisites for migrating your Team Foundation Server database is to get your database schema version as close as possible to what is currently deployed in Azure Devops Services.

Box 2: Use the TFS Database Import Service
In Phase 3 of your migration project, you will work on upgrading your Team Foundation Server to one of the supported versions for the Database Import Service in Azure Devops Services.

Q7
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?

A. Service Map in Azure Log Analytics
B. Availability tests in Azure Application Insights
C. Profiler in Azure Application Insights
D. Application Map in Azure Application Insights

Answer: D

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

www.it-exams.fr original question and answer