S90.09^Q&As^

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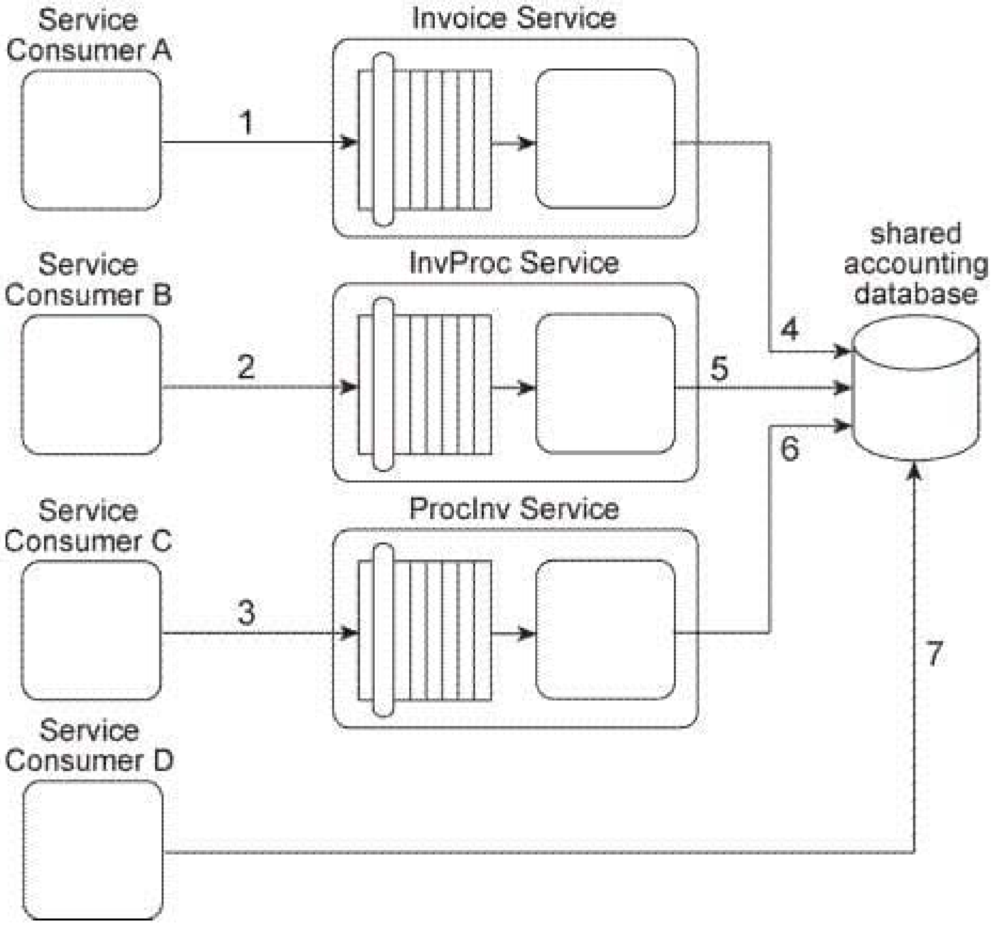
QUESTION 1

Our service inventory contains the following three services that provide invoice-related data access capabilities: Invoice, InvProc, and Proclnv. These services were created at different times by different project teams and were not required to comply to any design standards. Therefore each of these services has a different data model for representing invoice data.

Currently each of these three services has one service consumer: Service Consumer A accesses the Invoice service(1). Service Consumer B (2) accesses the InvProc service, and Service Consumer C (3) accesses the Proclnv service. Each service consumer invokes a data access capability of an invoice-related service, requiring that service to interact with the shared accounting database that is used by all invoice-related services (4, 5, 6).

Additionally, Service Consumer D was designed to access invoice data from the shared accounting database directly (7). (Within the context of this architecture. Service Consumer D is labeled as a service consumer because it is accessing a resource that is related to the illustrated service architectures.)



A project team recently proclaimed that it has successfully applied the Contract Centralization pattern to the service inventory in which the Invoice service, InvProc service, and ProcInv service reside. Upon reviewing the previously described architecture you have doubts that this is true. After voicing your doubts to a manager, you are asked to provide specific evidence as to why the Contract Centralization is not currently fully applied. Which of the following statements provides this evidence?

A. The Contract Centralization pattern is not fully applied to the Invoice, InvProc, and ProcInv services because they are being accessed by different service consumers and because they have redundant logic that introduces denormalization into the service inventory.

B. The Contract Centralization pattern is not fully applied because Service Consumer D is accessing the shared accounting database directly.

C. The Contract Centralization pattern is not fully applied because none of the invoice- related services are carrying out data access logic via a centralized and standardized invoice service. This is primarily because the Standardized Service Contract principle was not consistently applied during the delivery processes of the individual services.

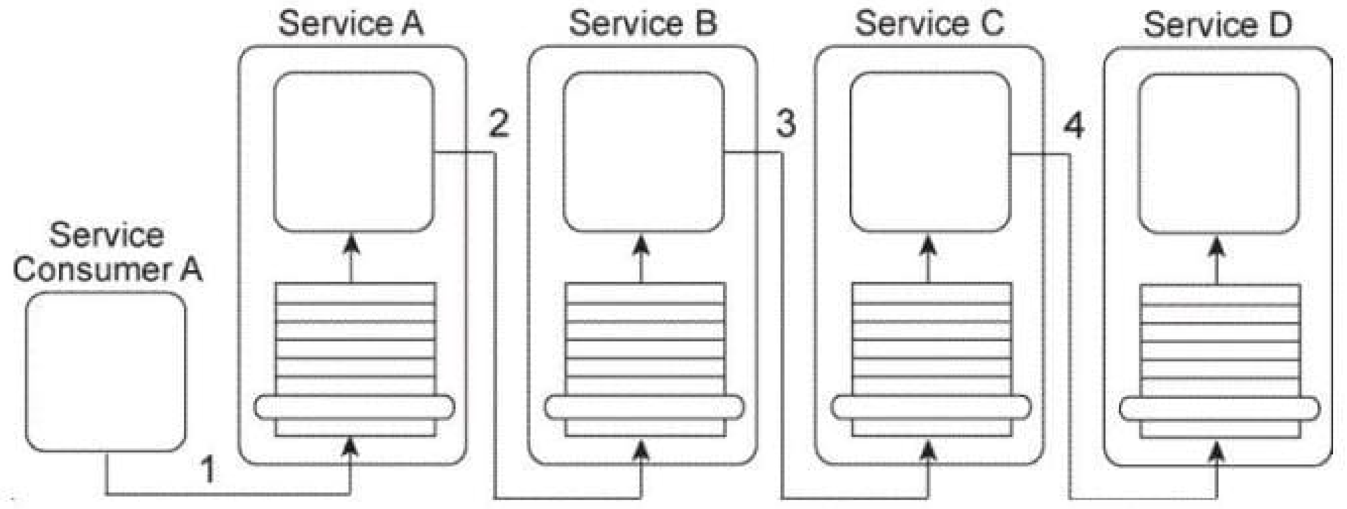
D. None of the above.

Correct Answer: B

QUESTION 2

Service Consumer A sends a message to Service A (1), which then forwards the message to Service B (2). Service B forwards the message to Service C (3), which finally forwards the message to Service D (4).

Services A, B, and C each contain logic that reads the content of the message and, based on this content, determines which service to forward the message to. As a result, what is shown in the Figure is one of several possible runtime scenarios.



Currently, this service composition architecture is performing adequately, despite the number of services that can be involved in the transmission of one message. However, you are told that new logic is being added to Service A that will require it to compose one other service in order to retrieve new data at runtime that Service A will need access to in order to determine where to forward the message to. The involvement of the additional service will make the service composition too large and slow. What steps can be taken to improve the service composition architecture while still accommodating the new requirements and avoiding an increase in the amount of service composition members?

A. The Rules Centralization pattern can be applied to establish a centralized service that contains routing-related business rules. This new Rules service would replace Service B and could be accessed by Service A and Service C in order for Service A and Service C to determine where to forward a message to at runtime. The Service Composability principle can be further applied to ensure that all remaining services are designed as effective service composition participants.

B. The Asynchronous Queuing pattern can be applied together with the Rules Centralization pattern to establish a Rules service that encapsulates a messaging queue. This new Rules service would replace Service B and could be accessed by Service A and Service C in order for Service A and Service C to determine where to forward a message to at runtime. The Service Composability principle can be further applied to ensure that all remaining services are designed as effective service composition participants.

C. The Intermediate Routing pattern can be applied together with the Service Agent pattern by removing Service B or Service C from the service composition and replacing it with a service agent capable of intercepting and forwarding the message at runtime based on predefined routing logic. The Service Composability principle can be further applied to ensure that all remaining services are designed as effective service composition participants.

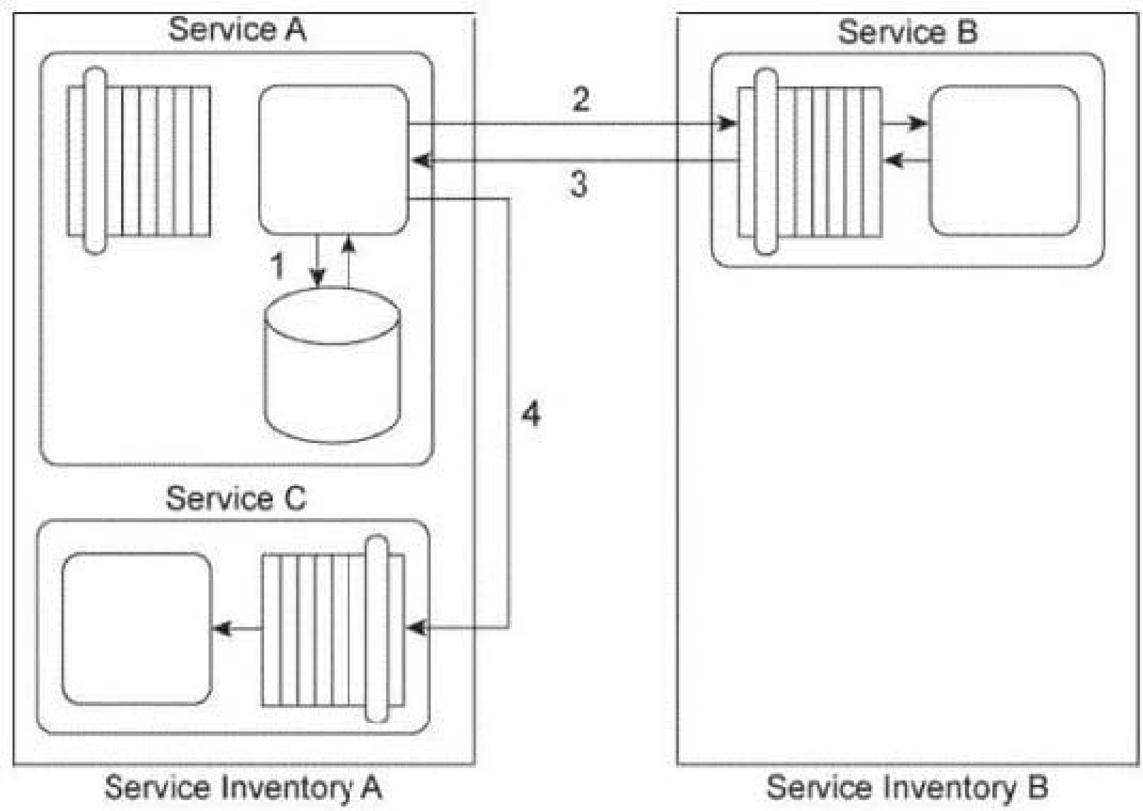
D. None of the above.

Correct Answer: C

QUESTION 3

Service A is a task service that sends Service B a message (2) requesting that Service B return data back to Service A in a response message (3). Depending on the response received. Service A may be required to send a message to Service C (4) for which it requires no response. Before it contacts Service B, Service A must first retrieve a list of code values from its own database (1) and then place this data into its own memory. If it turns out that it must send a message to Service C, then Service A must combine the data it receives from Service B with the data from the code value list in order to create the message it sends to Service C. If Service A is not required to invoke Service C, it can complete its task by discarding the code values.

Service A and Service C reside in Service Inventory A. Service B resides in Service Inventory B.



You are told that the services in Service Inventory A are all SOAP-based Web services designed to exchange SOAP 1.1 messages and the services in Service Inventory B are SOAP-based Web services designed to exchange SOAP 1.2 messages. Therefore, Service A and Service B cannot currently communicate. Furthermore, you are told that Service B needs to access a shared database in order to retrieve the data required by Service A. The response time of the database can sometimes be lengthy, which would cause Service A to consume too much resources while it is waiting and keeping the code values in memory. How can this service composition architecture be changed to avoid these problems?

A. The Protocol Bridging pattern can be applied by establishing an intermediate processing layer between Service A and Service B that can convert SOAP 1.1 messages to SOAP 1.2 messages and vice versa. The Service Data Replication pattern can be applied to Service B so that it is given a dedicated database with its own copy of the data it needs to access. The Service Normalization pattern can then be applied to ensure that the data within the replicated database is normalized with the shared database it is receiving replicated data from.

B. The Protocol Bridging pattern can be applied by establishing an intermediate processing layer between Service A and Service B that can convert SOAP 1.1 messages to SOAP 1.2 messages and vice versa. The Service Statelessness principle can be applied with the help of the State Repository pattern so that Service A can write the code value data to a state database while it is waiting for Service B to respond.

C. The Protocol Bridging pattern can be applied by establishing an intermediate processing layer between Service A and Service B that can convert SOAP 1.1 messages to SOAP 1.2 messages and vice versa. The Intermediate Routing pattern can be applied to dynamically determine whether Service A should send a message to Service C. The Service Autonomy principle can be applied to Service A to further increase its behavioral predictability by reducing the amount of memory it is required to consume.

D. None of the above.

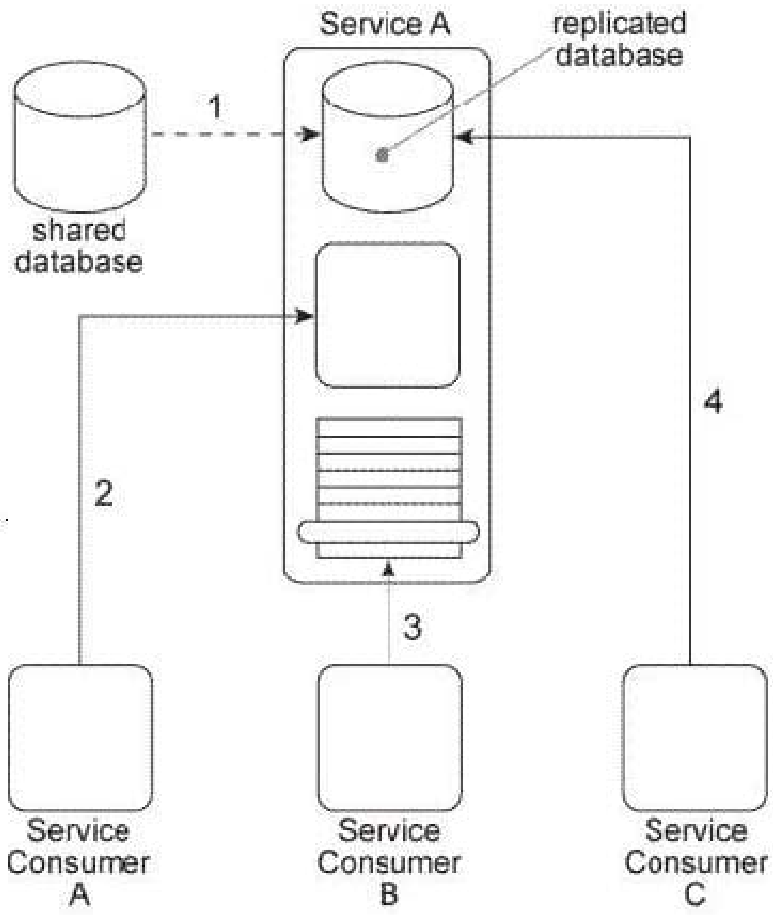
Correct Answer: B

QUESTION 4

Service A is a utility service that provides generic data access logic to a database that contains data that is periodically replicated from a shared database (1). Because the Standardized Service Contract principle was applied to the design of Service A, its service contract has been fully standardized.

The service architecture of Service A is being accessed by three service consumers. Service Consumer A accesses a component that is part of the Service A implementation by invoking it directly (2). Service Consumer B invokes Service A by accessing its service contract (3). Service Consumer C directly accesses the replicated database that is part of the Service A implementation (4).

You\\'ve been told that the shared database will soon be replaced with a new database product that will have new data models and new replication technology. How can the Service A architecture be changed to avoid negative impacts that may result from the replacement of the database and to establish a service architecture in which negative forms of coupling can be avoided in the future?



A. The Contract Centralization pattern can be applied to force all service consumers to access the Service A architecture via its published service contract. This will prevent negative forms of coupling that could lead to problems when the database is replaced. The Service Abstraction principle can then be applied to hide underlying service implementation details so that future service consumers cannot be designed to access any part of the underlying service implementation.

B. The Contract Centralization pattern can be applied to force Service Consumer C to access the Service A architecture via its published service contract. This will prevent Service Consumer A from being negatively impacted when the database is replaced in the future.

C. The Standardized Service Contract principle can be applied to force Service Consumer B to comply to the standardized service contract of Service A. As a result, the coupling between Service Consumer B and Service A is reduced. The Logic Centralization pattern can then be applied to position the logic provided by Service A as a primary access point for the database. As a result, the component within the Service A architecture abstracts the proprietary details of the database, thereby shielding Service Consumer A (and any future service consumers) from changes made to the database.

D. None of the above.

Correct Answer: A

QUESTION 5

Currently, due to the increasing amount of concurrent access by service consumers, the runtime performance of both the Client and Vendor services has worsened and has therefore reduced their effectiveness as service composition members. Additionally, a review of the logic of both services has revealed that some of the business rules used by the Client and Vendor services are actually the same. What steps can be taken to improve performance and reduce redundant business rule logic?

A. The Rules Centralization pattern can be applied by extracting the business rule logic from the Client and Vendor services and placing it into a new Rules service, thereby reducing the redundancy of business rules logic. The Redundant Implementation pattern can then be applied to establish a scalable Rules service that is capable of supporting concurrent access from many service consumers.

B. The Redundant Implementation pattern can be applied to the Client and Vendor services, thereby establishing duplicate service implementations that can be accessed when a service reaches its runtime usage threshold. The Intermediate Routing pattern can be further applied to provide load balancing logic that can, at runtime, determine which of the redundant service implementations is the least busy for a given service consumer request.

C. The Rules Centralization pattern can be applied to isolate business rules logic into a central and reusable Rules service. Additionally, the Service Abstraction principle can be applied to hide the implementation details of new the Rules service.

D. None of the above.

Correct Answer: A