S90.09 Q&As

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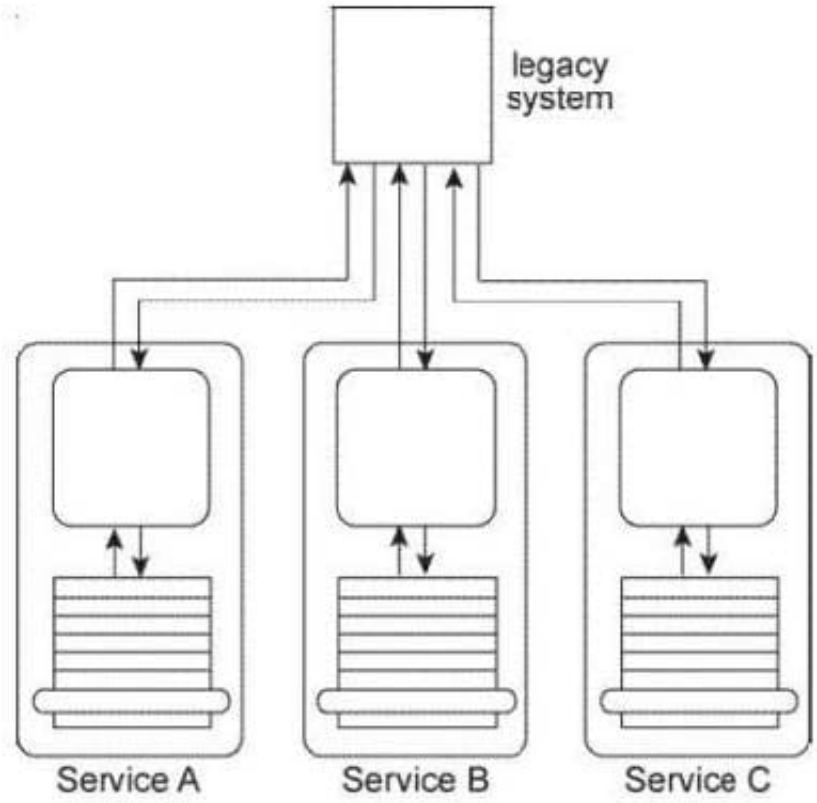
QUESTION 1

Service A. Service B. and Service C are each designed to access the same shared legacy system. The service contracts for Service A, Service B, and Service C are standardized and decoupled from the underlying service logic. Service A and Service B are agnostic services that are frequently reused by different service compositions. Service C is a non- agnostic task service that requires access to the legacy system in order to retrieve business rules required for the service to make runtime decisions that determine its service composition logic. The legacy system uses a proprietary file format that Services A, B, and C need to convert to and from.



You are told that additional services need to be created, all of which need access to the legacy system. You are also told that the legacy system may be replaced in the near future. What steps can be taken to ensure that the replacement of the legacy system has a minimal impact on Services A, B, and C and any future services that are designed to rely upon it?

A. The Legacy Wrapper pattern can be applied together with the Standardized Service Contract principle to position a standardized service contract between the legacy system and any services that require access to it. This effectively establishes a new utility service dedicated to the encapsulation of the legacy system. When the legacy system is replaced, the utility service can keep its standardized service contract. To build the utility service, the Data Format Transformation pattern is applied to convert between the proprietary legacy system file format and the XML format used in the standardized service contract.

B. The Legacy Wrapper pattern can be applied together with the Official Endpoint pattern so that the Service A service contract is positioned as the sole access point for the legacy system. The Data Format Transformation pattern is applied to enable the conversion between the proprietary legacy system file format and the XML format used in the Service A service contract. Finally, the Contract Centralization pattern is applied so that Service A is forced to only access the legacy system via its

published standardized service contract.

C. The Legacy Wrapper pattern can be applied together with the Data Format Transformation pattern and the Standardized Service Contract principle in order to establish an intermediate layer of standardized transformation logic that is positioned between the legacy system and Services A, B, and C. This way, if the legacy system is replaced, the services will not be affected because of the abstraction established by the standardized transformation layer.

D. None of the above.

Correct Answer: A

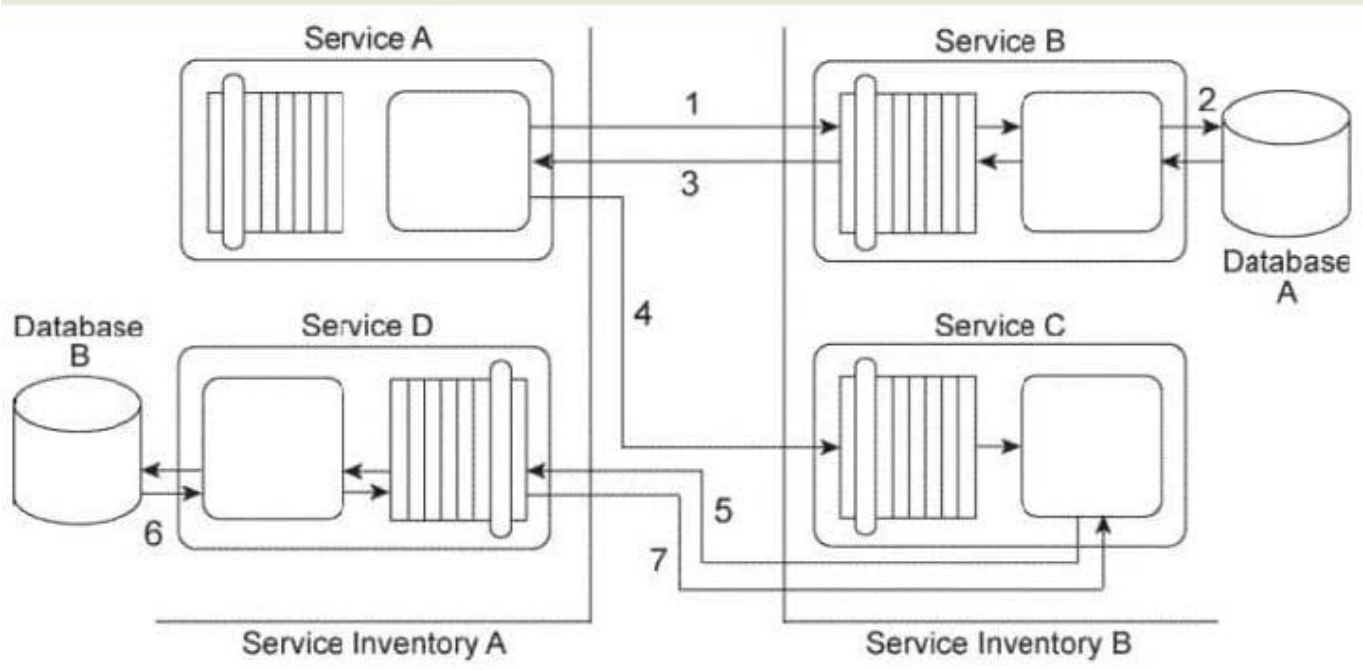
QUESTION 2

Service Consumer A invokes Service A (1). The logic within Service A is required to retrieve three independent data values from Services B, C, and D and to then return these data values back to Service Consumer A.

To accomplish this, Service A begins by sending a request message to Service B (2). After receiving a response message with the first data value from Service B, Service A sends a request message to Service C (3). After it receives a response message with the second data value from Service C, Service A then sends a request message to Service D (4). Upon receiving a response message with the third data value from Service D. Service A finally sends its own response message (containing all three collected data values) back to Service Consumer A.

Service Consumer A and Service A reside in Service Inventory A. Service B and Service C reside in Service Inventory B. Service D is a public service that can be openly accessed via the World Wide Web. The service is also available for purchase so that it can be deployed independently within IT enterprises.

Due to the rigorous application of the Service Abstraction principle within Service Inventory B, the only information that is made available about Service B and Service C are the published service contracts. For Service D, the service contract plus a Service Level Agreement (SLA) are made available. The SLA indicates that Service D has a planned outage every night from 11 PM to midnight.



You are an architect with a project team building services for Service Inventory A . You are told that the owners of Service Inventory A and Service Inventory B are not generally cooperative or communicative. Cross-inventory service composition is tolerated, but not directly supported. As a result, no SLAs for Service B and Service C are available and you have no knowledge about how available these services are. Based on the service contracts you can determine that

the services in Service Inventory B use different data models and a different transport protocol than the services in Service Inventory A. Furthermore, recent testing results have shown that the performance of Service D is highly unpredictable due to the heavy amount of concurrent access it receives from service consumers from other organizations. You are also told that there is a concern about how long Service Consumer A will need to remain stateful while waiting for a response from Service A . What steps can be taken to solve these problems?

A. The Event-Driven Messaging pattern is applied so that a subscriber-publisher relationship is established between Service Consumer A and Service A . This gives Service A the flexibility to provide its response to Service Consumer A whenever it is able to collect the three data values without having to require that Service Consumer A remain stateful. The Asynchronous Queuing pattern is applied so that a central messaging queue is positioned between Service A and Service B and between Service A and Service C . The Data Model Transformation and Protocol Bridging patterns are applied to enable communication between Service A and Service B and between Service A and Service C . The Redundant Implementation pattern is applied so that a copy of Service D is brought in- house and made part of Service Inventory A.

B. The Asynchronous Queuing pattern is applied so that a central messaging queue is positioned between Service A and Service B and between Service A and Service C and so that a separate messaging queue is positioned between Service A and Service Consumer

C. The Data Model Transformation and Protocol Bridging patterns are applied to enable communication between Service A and Service B and between Service A and Service C . The Redundant Implementation pattern is applied so that a copy of Service D is brought in- house for fail-over purposes. The Legacy Wrapper pattern is further applied to wrap Service D with a standardized service contract that is in compliance with the design standards used in Service Inventory

A. This wrapper utility service first attempts to access the external service, but if that service is

unavailable it will access the redundant internal service instead.

D. The Reliable Messaging pattern is applied so that a system of acknowledgements is established between Service Consumer A and Service A . This gives Service A the flexibility to provide Service Consumer A with acknowledgements that indicate that the processing steps that are occurring between Service A and Service B, Service C, and Service D are progressing. The Asynchronous Queuing pattern is applied so that a central messaging queue is positioned between Service A and Service B and between Service A and Service C and between Service A and Service D . The Data Model Transformation and Protocol Bridging patterns are applied to enable communication between Service A and Service B and between Service A and Service C .

E. None of the above.

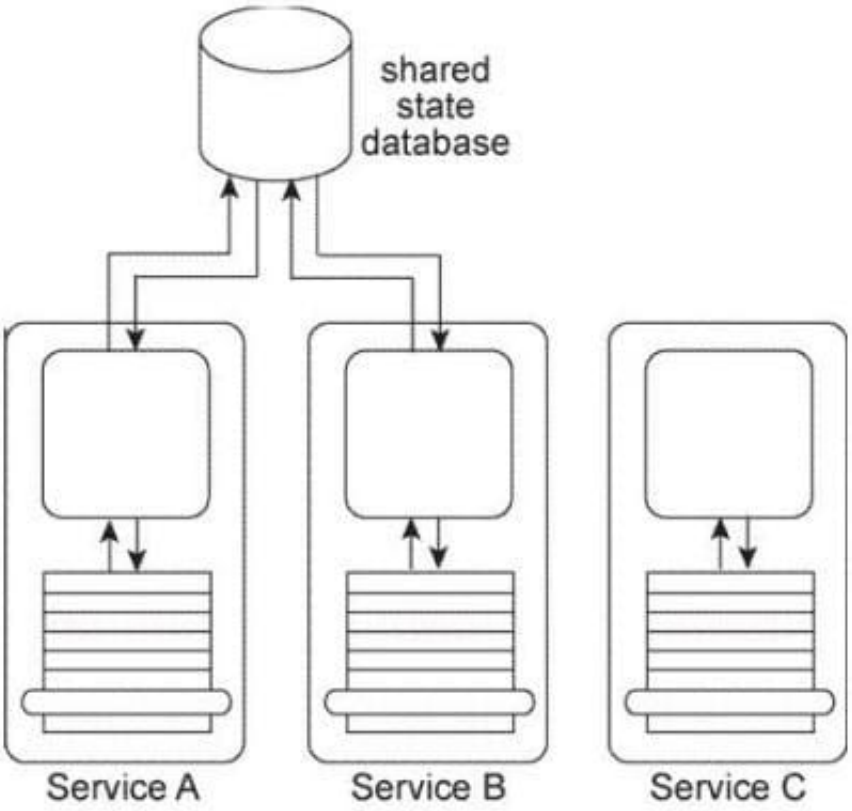
Correct Answer: B

QUESTION 3

Services A, B, and C are non-agnostic task services. Service A and Service B use the same shared state database to defer their state data at runtime.

An assessment of these three services reveals that each contains some agnostic logic, but because it is bundled together with the non-agnostic logic, the agnostic logic cannot be made available for reuse.

The assessment also determines that because Service A and Service B and the shared state database are each located in physically separate environments, the remote communication required for Service A and Service B to interact with the shared state database is causing an unreasonable decrease in runtime performance.



You are asked to redesign this architecture in order to increase the opportunity for agnostic service logic to be reused and in order to decrease the runtime processing demands so that performance can be improved. What steps can be taken to achieve these goals?

A. The Enterprise Service Bus pattern can be applied to establish an environment whereby the Process Abstraction and Process Centralization patterns are naturally applied, resulting in a clean separation of non-agnostic task services from newly designed agnostic services that are further shaped into reusable services by the application of the Service Reusability principle.

B. The Process Centralization pattern can be applied, resulting in a redesign effort where agnostic logic is removed from the three task services so that they only encapsulate non- agnostic logic. The agnostic logic is then moved to one or more new agnostic services that are shaped into reusable services by the application of the Service Reusability principle. The Process Abstraction pattern is then applied to the redesigned task services Service A and Service B, so that their logic is physically centralized, turning them into orchestrated task services.

C. The Process Abstraction pattern can be applied, resulting in a redesign effort where agnostic logic is removed from the three task services so that they only encapsulate non- agnostic logic. The agnostic logic is then moved to one or more new agnostic services that are shaped into reusable services by the application of the Service Reusability principle. The Orchestration pattern can be further applied to establish an environment whereby the Process Centralization pattern is naturally applied to Services A and B and the State Repository pattern in naturally applied to further help avoid remote communication by providing a local and centralized state database that can be shared by both services.

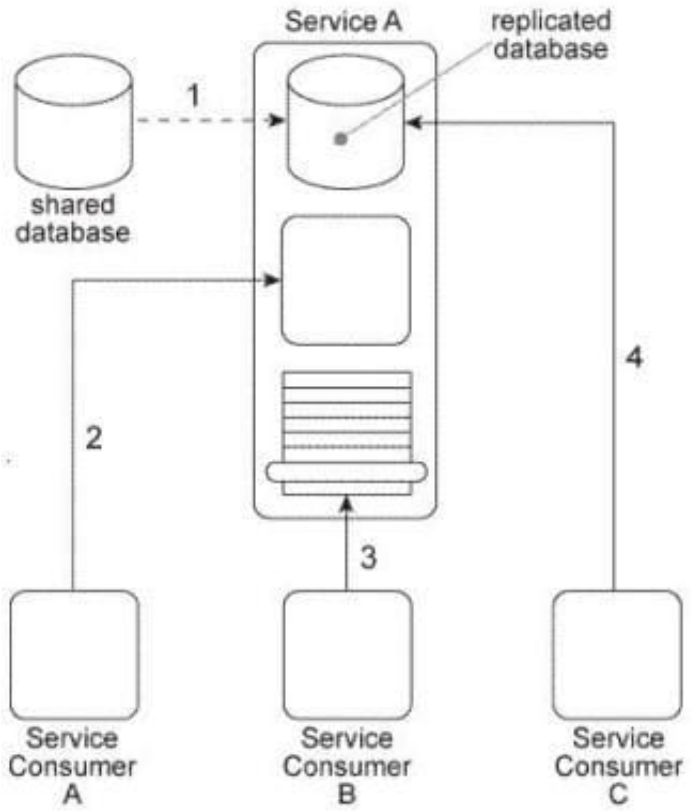
D. None of the above.

Correct Answer: C

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.

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 reason Service Consumers A and C bypass the published Service A service contract is because, for security reasons, they are not allowed to access a subset of the operations in the WSDL definition that expresses the service contract. How can the Service A architecture be changed to enforce these security restrictions while avoiding negative forms of coupling?

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 architecture 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 consumers to access the Service A architecture via its published service contract only. The Service Loose Coupling principle can then be applied to ensure that the centralized service contract does not contain any content that is dependent on or derived from the underlying service implementation.

C. The Concurrent Contracts pattern can be applied to Service A in order to establish one or more alternative service contracts. This allows service consumers with different levels of security clearance to continue accessing the service logic via its published service contracts.

D. None of the above.

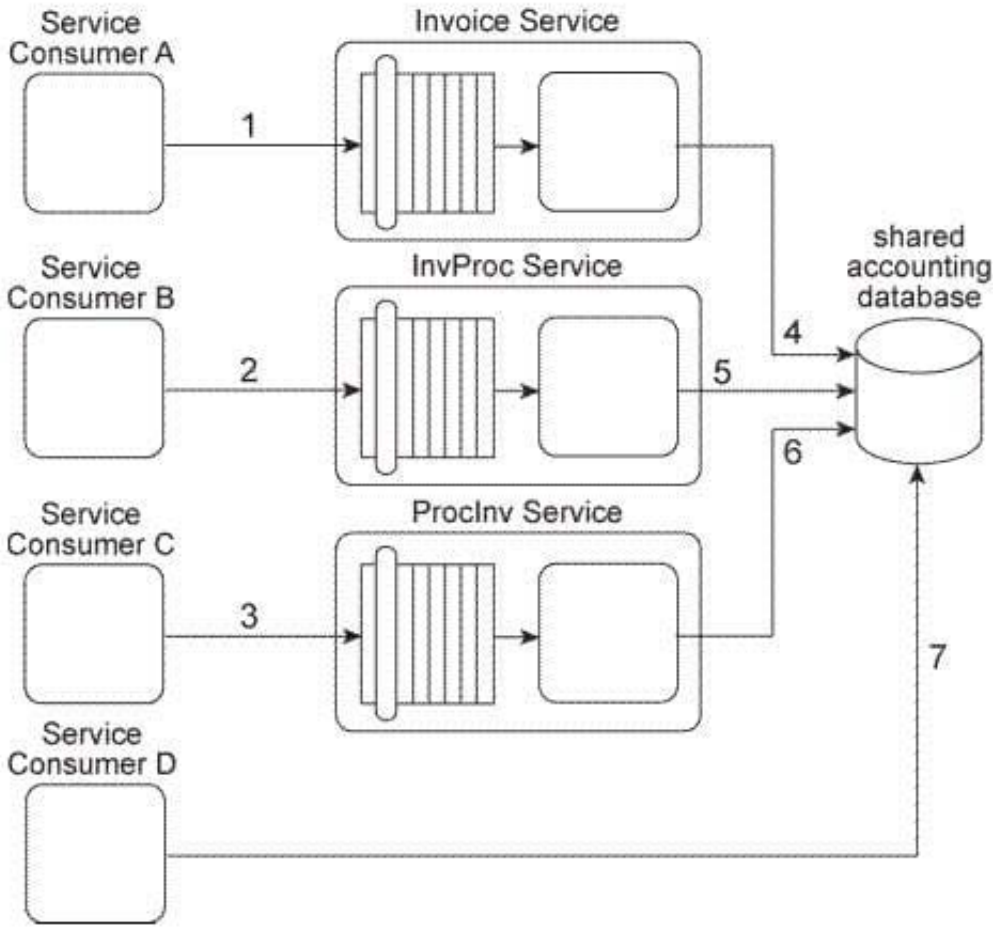
Correct Answer: C

QUESTION 5

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