

CLAIMS

1. A policy-driven system for protecting stored data accessed by a cloud-based service platform, the system comprising:
 - a network connection;
 - a working memory device;
 - a persistent data storage medium including a policy to control storage of a document;
 - one or more processors coupled to the working memory device, the network connection and the persistent data storage medium, the persistent data storage medium containing instructions that, when executed on the system, cause the system to perform operations including:
 - receiving, over the network connection, the document as part of a service request from a first user of the cloud-based service platform;
 - maintaining the document within the working memory device, without writing the document to the persistent data storage medium;
 - evaluating the service request and a document state associated with the document against the policy to determine a first save policy vector;
 - transmitting, over the network connection and based on the first save policy vector, the document to a security service provider for persistent storage;
 - deleting, in accordance with the first save policy vector, the document from the working memory device in response to receiving a confirmation of receipt of the document from the security service provider;
 - determining, after deleting the document, that a pending action associated with performance of the service request requires access to the document;
 - receiving in response to a request, over the network connection using the one or more processors, the document from the security service provider;
 - in response to receiving the document, maintaining the document within the working memory device, without writing the document to the persistent data storage medium;

performing, using the one or more processors, one or more actions involving the document in satisfaction of at least part of the service request, the one or more actions including the pending action; and

upon completion of the one or more actions involving the document, deleting the document from the working memory device in accordance with the first save policy vector.

2. The system of claim 1, wherein the determining that the pending action requires access to the document includes receiving a signature completion request from a second user.

3. The system of claim 2, wherein the performing the one or more actions includes presenting at least a representation of the document to the second user for signature.

4. The system of claim 3, wherein the performing the one or more actions includes receiving signature data from the second user representative of the second user applying a digital or electronic signature to the document.

5. The system of claim 4, wherein the persistent storage medium further comprises instructions that cause the system to perform the operation of storing the signature data in association with the document and the service request prior to deleting the document from the working memory.

6. The system of claim 1, wherein the performing the one or more actions includes collecting and maintaining metadata confirming the one or more actions associated with the document and the service request.

7. The system of claim 1, wherein the deleting the document from working memory device occurs in response to the following conditions:

no actions associated with the service request requiring access to the document are pending processing on the cloud-based service platform; and

receipt of a confirmation from the security service provider of receipt and storage of a current copy of the document.

8. The system of claim 1, wherein the performing one or more actions involving the document further includes:

accessing the policy associated with the first user;

evaluating the service request and an updated document state associated with the document against the policy to determine a second save policy vector; and

determining, based on the second save policy vector, whether to persistently store the document with the security service provider based on results of evaluating the service request and document.

9. The system of claim 8, wherein evaluating the service request and the document against the policy includes evaluating a status associated with the document against the policy.

10. A method for protecting stored data accessed by a cloud-based service platform, the method comprising:

on a computing system within the cloud-based document management service platform performing operations including:

receiving, over a network connection using one or more processors, a document as part of a service request from a first user of the cloud-based service platform;

evaluating the service request and a document state associated with the document against a policy to determine a first save policy vector;

transmitting, over the network connection using the one or more processors, the document to a security service provider for persistent storage in accordance with the first save policy vector;

deleting the document from the cloud-based service platform in response to receiving a confirmation of receipt of the document from the security service provider and in accordance with the first save policy vector;

determining, after deleting the document, that a pending action associated with performance of the service request requires access to the document;

receiving in response to a request, over the network connection using the one or more processors, the document from the security service provider;

performing, using the one or more processors, one or more actions involving the document in satisfaction of at least part of the service request, the one or more actions including the pending action; and

upon completion of the one or more actions involving the document, deleting the document from the cloud-based service platform for at least a second time in accordance with the first save policy vector.

11. The method of claim 10, wherein the determining that the pending action requires access to the document includes receiving a signature completion request from a second user.

12. The method of claim 11, wherein the performing the one or more actions includes presenting at least a representation of the document to the second user for signature.

13. The method of claim 12, wherein the performing the one or more actions includes receiving signature data from the second user representative of the second user applying a digital or electronic signature to the document.

14. The method of claim 13, further comprising storing the signature data in association with the document and the service request prior to deleting the document from the cloud-based service platform.

15. The method of claim 10, wherein the performing the one or more actions includes collecting and maintaining metadata confirming the one or more actions associated with the document and the service request.

16. The method of claim 10, wherein the deleting the document from the cloud-based service platform occurs in response to the following conditions:

no actions associated with the service request requiring access to the document are pending processing on the cloud-based service platform; and

receipt of a confirmation from the security service provider of receipt and storage of a current copy of the document.

17. The method of claim 10, wherein the performing one or more actions involving the document further includes:

accessing the policy associated with the first user;

evaluating the service request and an updated document state associated with the document against the policy to determine a second save policy vector; and

determining, based on the second save policy vector, whether to persistently store the document with the security service provider based on results of evaluating the service request and document.

18. The method of claim 17, wherein evaluating the service request and the document against the policy includes evaluating a status associated with the document against the policy.

19. A non-transitory computer-readable storage medium containing instructions that, when executed on a computer system within a cloud-based service platform, cause the computer system to perform operations including:

receiving, over a network connection, a document as part of a service request from a first user of the cloud-based service platform;

maintaining the document within a working memory portion of the computer system, without writing the document to a persistent data storage within the cloud-based service platform;

evaluating the service request and a document state associated with the document against a policy to determine a first save policy vector;

transmitting, over the network connection, the document to a security service provider for persistent storage in accordance with the first save policy vector;

deleting the document from the working memory portion in response to receiving a confirmation of receipt of the document from the security service provider and in accordance with the first save policy vector;

determining, after deleting the document, that a pending action associated with performance of the service request requires access to the document;

receiving in response to a request, over the network connection using the one or more processors, the document from the security service provider;

in response to receiving the document, maintaining the document within the working memory portion, without writing the document to the persistent data storage;

performing, using the one or more processors, one or more actions involving the document in satisfaction of at least part of the service request, the one or more actions including the pending action; and

upon completion of the one or more actions involving the document, deleting the document from the working memory portion in accordance with the first save policy vector.

20. The non-transitory computer-readable storage medium of claim 19, wherein the determining that the pending action requires access to the document includes receiving a signature completion request from a second user; and

wherein the performing the one or more actions includes presenting at least a representation of the document to the second user for signature.

21. The non-transitory computer-readable storage medium of claim 19, wherein performing the one or more actions includes collecting and maintaining metadata confirming the one or more actions associated with the document and the service request.

22. The non-transitory computer-readable storage medium of claim 19, wherein the deleting the document from working memory device occurs in response to the following conditions:

no actions associated with the service request requiring access to the document are pending processing on the cloud-based service platform; and

receipt of a confirmation from the security service provider of receipt and storage of a current copy of the document.

CLAIMS

1. A policy-driven system for protecting stored data accessed by a cloud-based service platform, the system comprising:

- a network connection;

- a working memory device;

- a persistent data storage medium including a policy to control storage of a document;

- one or more processors coupled to the working memory device, the network connection and the persistent data storage medium, the persistent data storage medium containing instructions that, when executed on the system, cause the system to perform operations including:

 - receiving, over the network connection, the document as part of a service request from a first user of the cloud-based service platform;

 - maintaining the document within the working memory device, without writing the document to the persistent data storage medium;

 - evaluating the service request and a document state associated with the document against the policy to determine a first save policy vector;

 - transmitting, over the network connection and based on the first save policy vector, the document to a security service provider for persistent storage;

 - deleting, in accordance with the first save policy vector, the document from the working memory device in response to receiving a confirmation of receipt of the document from the security service provider;

 - determining, after deleting the document, that a pending action associated with performance of the service request requires access to the document;

 - receiving in response to a request, over the network connection using the one or more processors, the document from the security service provider;

 - in response to receiving the document, maintaining the document within the working memory device, without writing the document to the persistent data storage medium;

performing, using the one or more processors, one or more actions involving the document in satisfaction of at least part of the service request, the one or more actions including the pending action; and

upon completion of the one or more actions involving the document, evaluating an updated document state against the policy to determine a second save policy vector, and deleting the document from the working memory device in accordance with the second save policy vector.

2. The system of claim 1, wherein the determining that the pending action requires access to the document includes receiving a signature completion request from a second user.
3. The system of claim 2, wherein the performing the one or more actions includes presenting at least a representation of the document to the second user for signature.
4. The system of claim 3, wherein the performing the one or more actions includes receiving signature data from the second user representative of the second user applying a digital or electronic signature to the document.
5. The system of claim 4, wherein the persistent storage medium further comprises instructions that cause the system to perform the operation of storing the signature data in association with the document and the service request prior to deleting the document from the working memory.
6. The system of claim 1, wherein the performing the one or more actions includes collecting and maintaining metadata confirming the one or more actions associated with the document and the service request.
7. The system of claim 1, wherein the deleting the document from working memory device occurs in response to the following conditions:

no actions associated with the service request requiring access to the document are pending processing on the cloud-based service platform; and

receipt of a confirmation from the security service provider of receipt and storage of a current copy of the document.

8. The system of claim 1, wherein evaluating the service request and the document against the policy includes evaluating a status associated with the document against the policy.

9. A method for protecting stored data accessed by a cloud-based service platform, the method comprising:

on a computing system within the cloud-based document management service platform performing operations including:

receiving, over a network connection using one or more processors, a document as part of a service request from a first user of the cloud-based service platform;

evaluating the service request and a document state associated with the document against a policy to determine a first save policy vector;

transmitting, over the network connection using the one or more processors, the document to a security service provider for persistent storage in accordance with the first save policy vector;

deleting the document from the cloud-based service platform in response to receiving a confirmation of receipt of the document from the security service provider and in accordance with the first save policy vector;

determining, after deleting the document, that a pending action associated with performance of the service request requires access to the document;

receiving in response to a request, over the network connection using the one or more processors, the document from the security service provider;

performing, using the one or more processors, one or more actions involving the document in satisfaction of at least part of the service request, the one or more actions including the pending action; and

upon completion of the one or more actions involving the document, evaluating an updated document state against the policy to determine a second save policy vector, and deleting the document from the cloud-based service platform for at least a second time in accordance with the second save policy vector.

10. The method of claim 9, wherein the determining that the pending action requires access to the document includes receiving a signature completion request from a second user.

11. The method of claim 10, wherein the performing the one or more actions includes presenting at least a representation of the document to the second user for signature.

12. The method of claim 11, wherein the performing the one or more actions includes receiving signature data from the second user representative of the second user applying a digital or electronic signature to the document.

13. The method of claim 12, further comprising storing the signature data in association with the document and the service request prior to deleting the document from the cloud-based service platform.

14. The method of claim 9, wherein the performing the one or more actions includes collecting and maintaining metadata confirming the one or more actions associated with the document and the service request.

15. The method of claim 9, wherein the deleting the document from the cloud-based service platform occurs in response to the following conditions:

no actions associated with the service request requiring access to the document are pending processing on the cloud-based service platform; and

receipt of a confirmation from the security service provider of receipt and storage of a current copy of the document.

16. The method of claim 15, wherein evaluating the service request and the document against the policy includes evaluating a status associated with the document against the policy.

17. A non-transitory computer-readable storage medium containing instructions that, when executed on a computer system within a cloud-based service platform, cause the computer system to perform operations including:

- receiving, over a network connection, a document as part of a service request from a first user of the cloud-based service platform;

- maintaining the document within a working memory portion of the computer system, without writing the document to a persistent data storage within the cloud-based service platform;

- evaluating the service request and a document state associated with the document against a policy to determine a first save policy vector;

- transmitting, over the network connection, the document to a security service provider for persistent storage in accordance with the first save policy vector;

- deleting the document from the working memory portion in response to receiving a confirmation of receipt of the document from the security service provider and in accordance with the first save policy vector;

- determining, after deleting the document, that a pending action associated with performance of the service request requires access to the document;

- receiving in response to a request, over the network connection using the one or more processors, the document from the security service provider;

- in response to receiving the document, maintaining the document within the working memory portion, without writing the document to the persistent data storage;

- performing, using the one or more processors, one or more actions involving the document in satisfaction of at least part of the service request, the one or more actions including the pending action; and

- upon completion of the one or more actions involving the document, evaluating an updated document state against the policy to determine a second save policy vector,

and deleting the document from the working memory portion in accordance with the second save policy vector.

18. The non-transitory computer-readable storage medium of claim 17, wherein the determining that the pending action requires access to the document includes receiving a signature completion request from a second user; and

wherein the performing the one or more actions includes presenting at least a representation of the document to the second user for signature.

19. The non-transitory computer-readable storage medium of claim 17, wherein performing the one or more actions includes collecting and maintaining metadata confirming the one or more actions associated with the document and the service request.

20. The non-transitory computer-readable storage medium of claim 17, wherein the deleting the document from working memory device occurs in response to the following conditions:

no actions associated with the service request requiring access to the document are pending processing on the cloud-based service platform; and

receipt of a confirmation from the security service provider of receipt and storage of a current copy of the document.