

CLAIMS

1. A method of providing a user of a client device with content from a web application, a server portion of the web application being executed on at least one server device and a client portion of the web application being executed on the client device, wherein at least part of the content provided to the user is obtained from one or more external servers, the method being performed by one or more processes executing on the at least one server device and comprising:

storing, in a first memory, an entitlement associated with the user, wherein the entitlement represents a status of an authorization for the user to access the content;

based upon a determination that the entitlement has a first status, storing, in a second memory that is different from the first memory, information regarding a current status of the entitlement as corresponding to the first status;

creating a session by which the user communicates with the server portion of the web application via the client device, wherein said creating includes (1) adding a session record to a session table in the first memory on the at least one server device, and associating with the session record an entitlement object representing the entitlement, (2) adding an external server session record associated with the session record to a session table in the second memory on at least one of the external servers, and associating, with the external server session record, the information regarding the current status of the entitlement, and (3) modifying a memory to indicate the session being active; and

while the session is indicated as being active:

receiving information regarding a change of the entitlement stored in the first memory from the first status to a second status,

in response to the receiving, updating said information stored in the second memory according to the change from the first status to the second status,

in response to a plurality of requests received from the client device, (a) receiving portions of the content from said at least one of the external servers when another process, by accessing the information stored in the second memory, determines the current status of the entitlement as corresponding to the first status, and (b) being notified of a failure without receiving portions of the content when said another process, by accessing the information stored in the second memory, determines the current status of the entitlement as corresponding to the second status.

2. The method according to claim 1, wherein said updating said information stored in the second memory according to the change from the first status to the second status comprises updating a value corresponding to the current status of the entitlement in the second memory.

3. The method according to claim 2, wherein said another process executes on said one or more external servers.

4. The method according to claim 2, wherein said another process executes on said at least one server.

5. The method according to claim 1, wherein at least part of the provided content is obtained from a first one of the external servers and a second one of the external servers.

6. The method according to claim 5, wherein said updating said information stored in the second memory according to the change from the first status to the second status comprises updating a value to represent the second status in respective memories of the first one of the external servers and the second one of the external servers, wherein the second memory comprises at least one of the memories of the first one of the external servers and the second one of the external servers.

7. The method according to claim 6, wherein the first one of the external servers, the second one of the external servers, and a third one of the external servers each has a respective external server session with the at least one server device in relation to the user, and wherein the updating said information stored in the second memory according to the change from the first status to the second status comprises, based upon a determination that the third one of the external servers does not provide any part of said content subject to the entitlement, selecting not to update a memory in the third one of the external servers to reflect the second status of the entitlement.

8. The method according to claim 1, wherein the creating a session comprises creating a first session with a first session identifier between the client device and the at least one server device, creating at least one second session with a second session identifier between the at least one server device and the one or more external servers, wherein the first session is associated with the second session.

9. The method according to claim 8, wherein the at least one second session comprises a plurality of second sessions each being associated with the first session.

10. The method according to claim 8, wherein said creating the session further comprises associating a first timestamp with a data structure associated with the session, and wherein said receiving information comprises:

detecting, based upon the first timestamp, that the entitlement stored in the first memory has changed; and

after the detecting, transmitting a current value of the entitlement stored in the first memory to at least one of said external servers.

11. The method according to claim 1, wherein said storing the entitlement associated with the user comprises linking, in a memory, a first object representing the user to one or more second objects representing portions of the entitlement.

12. The method of claim 1, further comprising:

storing one or more first objects in a memory, each of the first objects representing a respective authorization to obtain the content from one or more said external servers; and

for one of the first objects, configuring in the memory one or more second objects representing the entitlement,

wherein storing the entitlement associated with the user includes storing a third object representing the user, and configuring links from said one of the first objects to the third object and from the third object to the one or more second objects.

13. A server comprising:

at least a first memory;
a network interface; and
at least one processor communicatively coupled to the first memory and the network interface, and configured to:

- execute a server-portion of a web application of which a client portion is executed on a client device;
- store, in the first memory, an entitlement associated with a user of a client device, wherein the entitlement represents a status of an authorization for the user to access content from the web application, wherein at least part of the content provided to the user is obtained through the network interface from one or more external servers;
- based upon a determination that the entitlement has a first status, storing, in a second memory that is different from the first memory, information regarding a current status of the entitlement as corresponding to the first status;
- create a session by which the user communicates with the server portion of the web application, wherein said creating includes (1) adding a session record to a session table in the first memory, and associating with the session record an entitlement object representing the entitlement, (2) adding an external server session record associated with the session record to a session table in the second memory on at least one of the external servers, and associating with the external server session record said information regarding the current status of the entitlement, and (3) modifying a memory to indicate the session being active; and
- while the session is indicated as being active:
 - receive information regarding a change of the entitlement stored in the first memory from the first status to a second status,
 - in response to the receiving, update said information stored in the second memory according to the change from the first status to the second status, and
 - in response to a plurality of requests received from the client device over the network interface, (a) receive portions of the content from the at least one external server when another process, by accessing the information stored in the second memory, determines the current status of the entitlement as corresponding to the first status, and (b) being notified of a failure without receiving portions of the content when said another process, by accessing the

information stored in the second memory, determines the current status of the entitlement as corresponding to the second status.

14. A non-transitory computer readable storage medium storing instructions which, upon execution by at least one processor of a server, causes the server to perform operations comprising:

executing a server-portion of a web application of which a client portion is executed on a client device;

storing, in a first memory of the server, an entitlement associated with a user of a client device, wherein the entitlement represents a status of an authorization for the user to access content from the web application, wherein at least part of the content provided to the user is obtained from one or more external servers;

based upon a determination that the entitlement has a first status, storing, in a second memory that is different from the first memory, information regarding a current status of the entitlement as corresponding to the first status;

creating a session by which the user communicates with the server portion of the web application, wherein said creating includes (1) adding a session record to a session table in the first memory, and associating with the session record an entitlement object representing the entitlement, (2) adding an external server session record associated with the session record to a session table in the second memory on at least one of the external servers, and associating with the external server session record said information regarding the current status of the entitlement, and (3) modifying a memory to indicate the session being active; and

while the session is indicated as being active:

receiving information regarding a change of the entitlement stored in the first memory from the first status to a second status,

in response to the receiving, updating said information stored in the second memory according to the change from the first status to the second status, and

in response to a plurality of requests received from the client device, (a) receiving portions of the content from said at least one external server when another process, by accessing the information stored in the second memory, determines the current status of the entitlement as corresponding to the first status, and (b) being notified of a failure without receiving portions of

the content when said another process, by accessing the information stored in the second memory, determines the current status of the entitlement as corresponding to the second status.

15. A system comprising a first server device and a second server device communicatively connected over a network,

the first server device comprising:

- at least a first memory;
- a first network interface; and
- at least one first processor communicatively coupled to the first memory and the network interface, and configured to:
 - execute a server-portion of a web application of which a client portion is executed on a client device;
 - store, in the first memory, an entitlement associated with a user of a client device, wherein the entitlement represents a status of an authorization for the user to access content from the web application, wherein at least part of the content provided to the user is obtained from the second server device;
 - based upon a determination that the entitlement has a first status, storing, in a second memory that is different from the first memory, information regarding a current status of the entitlement as corresponding to the first status;
 - create a session by which the user communicates with the server portion of the web application, wherein said creating includes (1) adding a session record to a session table in the first memory, and associating with the session record an entitlement object representing the entitlement, (2) adding an external server session record associated with the session record to a session table in the second memory on the second server device, and associating with the external server session record said information regarding the current status of the entitlement, and (3) modifying a memory to indicate the session being active; and
 - while the session is indicated as being active:
 - receive information regarding a change of the entitlement stored in the first memory from the first status to a second status,
 - in response to the receiving, updating said information stored in the second memory according to the change from the first status to the second status, and

in response to a plurality of requests received from the client device over the first network interface, (a) receive portions of the content from the second server device when another process, by accessing the information stored in the second memory, determines the current status of the entitlement as corresponding to the first status, and (b) being notified of a failure without receiving portions of the content when said another process, by accessing the information stored in the second memory, determines the current status of the entitlement in as corresponding to the second status,

and the second server device comprising:

the second memory;

a second network interface; and

at least one second processor communicatively coupled to the second memory and the second network interface, and configured to:

store one or more entitlement associated with the user in the second memory;

during the session:

in response to information received from the first server device, change at least one said entitlement from the first status to the second status;

after the changing, in response to a plurality of requests received from the first server device over the second network interface, (a) transmit portions of the content from a storage device when it is determined that a current status of the entitlement in the second memory as corresponding to the first status, and (b) transmit a failure notification without transmitting portions of the content when it is determined that the current status of the entitlement in the second memory as corresponding to the second status.

16. A client device for communicating over a network with a server-portion of a web-application executing on server device, the client device comprising:

a memory; and

at least one processor configured to:

initiate a sign-on of a user to the web-application and establish a session for communicating with the server-portion of the web application, wherein establishing the session includes causing the server device to perform, in order to associate with the user an entitlement for accessing content from an external server device, operations including (1) adding a session

record to a session table in a first memory on the server device and associating with the session record an entitlement object representing the entitlement, and (2) adding an external server session record associated with the session record to a session table in a second memory on the external server device, and associating with the external server session record information regarding a current status of the entitlement, wherein the entitlement represents a status of an authorization for the user to access the content;

during the session:

transmitting a first content request to the web application;

receiving a first content in response to the first content request, wherein the server device and/or the external server device determines in relation to the first content request that a status of the entitlement associated with the user is valid;

transmitting a second content request to the web application; and

receiving a failure indication in response to the second content request, wherein prior to the receiving, in response to a changing of the status of the entitlement to not valid in a memory at the server, a status of the entitlement in a memory of the external server device is changed from valid to not valid, and wherein the server device and/or the external server device determines in relation to the second content request that a status of the entitlement associated with the user is not valid.