17. A non-transitory computer-accessible storage medium storing program instructions that when executed on one or more processors:

transmit, from an access subsystem of a distributed file storage service to a metadata subsystem of the file storage service, a request for a session identifier to be associated with a client session of a particular client;

receive, at the access subsystem from the metadata subsystem, a session identifier based at least in part on a persistent session storage location at which one or more elements of metadata of the client session are stored;

cache the session identifier at the access subsystem prior to a transmission of the session identifier to the particular client;

receive, at the access subsystem, a lock state indicator of a file store object from the metadata subsystem, wherein the lock state indicator is generated at the metadata subsystem in response to a particular request from the client during the client session;

cache, at the access subsystem, the lock state indicator; and

determine a response, at the access subsystem, to another request from the client directed to the particular file store object based at least in part on the cached session identifier and the cached indication of the lock state indicator.

18. The non-transitory computer-accessible storage medium as recited in claim 17, wherein the one or more elements of metadata comprise an indication of a lease associated with the client session, wherein the instructions when executed on the one or more processors:

cache, at the access subsystem, the indication of the lease.

19. The non-transitory computer-accessible storage medium as recited in claim 18, wherein the instructions when executed on the one or more processors:

determine, at the access subsystem, that the other request belongs to a category of lease-renewing operations associated with the file store object; and

initiate a renewal of the lease from the access subsystem.

20. The non-transitory computer-accessible storage medium as recited in claim 19, wherein to initiate the renewal of the lease, the instructions when executed on the one or more processors:

determine, at the access subsystem in response to the other request, that the lease is due to expire after a time period greater than a threshold time period; and

combine, within a single batched lease renewal request to the metadata subsystem, a plurality of requests to renew respective leases associated with respective client sessions.