VMware vSphere™ 4

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vSphere Web Services SDK Best Practices

Balaji Parimi

Sr. MTS, Ecosystems Engineering

Agenda

- vSphere SDK Best Practices with various use case scenarios
- Q & A

Introduction

- This session assumes that the audience are familiar with the vSphere Web Services SDK usage.
- The various use case scenarios outlined in this session are based on our experiences in working with various partners.
- The use case scenarios cover these topics:
  - Client Session Management.
  - Managed Object Properties (caching, retrieval and monitoring).
  - Performance Statistics.
  - Events, and Tasks.

Client Session Management

- Use Case: The client session times out after 30 minutes of inactivity. My application assumes / requires continuous session availability. What are the options to maintain the session with least overhead?
  - Re-establish the session whenever it expires.
  - Caveats:
    - Requires exception handlers for all SDK API calls to re-establish session when session not authenticated exception occurs.
    - Session specific objects need to be re-initialized whenever a new session is established.

Client Session Management

- Maintain session validity by making sure that the interval between invoking two API calls is less than 30 minutes.
- Caveats:
  - If invoking an API call, just to maintain session validity, make sure to invoke a method that generates the least amount of traffic. Eg: Retrieve CurrentTime from the server.

Managed Object Properties

- Use Case: My application requires retrieving properties of several different managed objects at once. How can I achieve this using one API call? Is it possible to retrieve both the MOREF and some properties of a managed object?
  - Create appropriate PropertyFilterSpec objects for retrieving the properties of different managed objects and use property collector to retrieve those properties in one call.
  - The return value (ObjectContent) contains the MOREF (in the obj property), and the requested properties (in the propSet property).

Managed Object Properties

- Use Case: Is it a good idea to cache the properties of managed objects in my application?
  - Caching the managed object references rather than their properties eases keeping the cache up to date. It is easier to maintain the cache, as the managed object references do not change until the managed object is removed from the inventory.
  - Caveats:
    - Make sure to update the cache with the relevant MOREF whenever there is a change in the inventory.

Managed Object Properties

- Use Case: What are the different ways to monitor for changes to the properties of several different managed objects?
  - Create appropriate PropertyFilter objects for monitoring the properties of different managed objects.
  - Alternatively, use ListView for getting updates on a specific set of objects (this can avoid creating / destroying PropertyFilter objects).
  - All checkForUpdates and waitForUpdates return as soon as any change occurs to any of the properties in any of the PropertyFilter objects.
  - Caveats
    - There is no notion of associating a specific PropertyFilter object to a specific check/waitForUpdates API method.
    - The subsequent invocations of check/waitForUpdates API method requires using the version string returned from the previous invocation for correct results.
    - The PropertyFilter objects and ListView are session specific.

Managed Object Properties

- Use case: I would like to monitor changes in the inventory. What is the simplest way to achieve this with out burdening the VC server?
  - Use the ViewManager managed object to monitor the inventory changes.
  - Use ContainerView to track changes to the contents of a specific container managed object (Folder, Datacenter, ComputeResource, ResourcePool etc.).
  - Use InventoryView to browse the inventory and track changes to open folders.

Performance Statistics

- Use case: Describe the best practices in retrieving the performance statistics?
  - Retrieve the performance counters and performance metrics information once per VC server (and reuse them).
  - Create performance query specification based on the performance counters and metrics information obtained from the VC server.
  - Reuse the performance query specification, if the performance statistics are being queried repeatedly for a managed entity
  - Caveats:
    - Make sure the VC server stats level is set to the appropriate value for the counter in question.

Performance Statistics

- Use case: Explain the intricacies in retrieving the real-time performance statistics?
  - Retrieve the performance provider summary for the entity to confirm that it supports real-time stats.
  - Query the real-time stats at a slower rate than the supported refresh rate.
  - Caveats:
    - Do not compare the information with the results of “esxtop”. The ultimate source of information is the same, but the information metric and the refresh rate are different.

Events

- Use case: How can my application receive event notifications for the events of interest?
  - Create EventHistoryCollector with the appropriate EventFilterSpec, to get only the interested events.
  - Every event is appended to the latestPage property of the EventHistoryCollector.
  - Use waitForUpdates API method to track the latestPage of the EventHistoryCollector.
  - Process the event and send notifications.
  - Caveats:
    - The application should keep track of the events it has processed.
    - There is a risk of losing events if the events are generated faster than they could be processed.

Events

- Use case: My application requires triggering a work flow based on a specific event or property change. How can I achieve this?
  - Using the EventHistoryCollector, your application can get event notification. The event processing part can trigger the work flow or any other action.
  - Using appropriate PropertyFilter and one of check/waitForUpdates can monitor the property for changes. The client can trigger the work flow or any action as changes occur.
  - Caveats:
    - Resort to this approach only if the supported alarms do not serve the purpose.

Tasks

- Use case: My application requires keeping track of the status of all the tasks. My application runs into exceptions occasionally with the message, “managed object reference not found”. What should I do to avoid this?
  - Any API that ends with “_Task” returns a Task object so that the client does not need to wait for the call to complete.
  - The Task objects are very short lived, and hence need to be used as soon as possible.
  - TaskHistoryCollector, can provide information about the completed tasks.
  - Caveats:
    - The latestPage of TaskHistoryCollector contains TaskInfo of completed tasks.
    - The oldest item is removed to make room for the new one.

SDK Development Resources

- VMware Developer Community
- Downloads, Documentation, Forums, Sample Code, Latest Product introductions, Info Blogs
- More information: http://developer.vmware.com

Q & A

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