

Robotics Service Bus - Enhancement #2531

Enhancement # 2195 (Resolved): Implement Spread connection pooling

Spread connection pooling for listeners [Python]

04/15/2016 11:37 AM - J. Moringen

Status:	Resolved	Start date:	04/15/2016
Priority:	Normal	Due date:	
Assignee:	J. Moringen	% Done:	100%
Category:	Python	Estimated time:	0.00 hour
Target version:	rsb-0.18		
Description			

Associated revisions

Revision dc5e89ec - 01/26/2018 01:51 PM - J. Moringen

Added ScopeDispatcher in rsb/eventprocessing.py

refs #2531

- rsb/eventprocessing.py (header): updated copyright
(ScopeDispatcher): new class; maintains a map of scopes to sinks
- test/eventprocessing_test.py (ScopeDispatcherTest): new test case;
for ScopeDispatcher class

Revision fd01ee44 - 01/26/2018 05:26 PM - J. Moringen

Removed RefCountingSpreadConnection in rsb/transport/rsbspread/__init__.py

refs #2531

- rsb/transport/rsbspread/__init__.py (RefCountingSpreadConnection):
removed; will be replaced by full Spread connection sharing
(TransportFactory.__getSharedConnection): likewise
(TransportFactory.createOutConnector): create SpreadConnection
without sharing

Revision 26449fb1 - 01/26/2018 06:07 PM - J. Moringen

Spread connection sharing in rsb/transport/rsbspread/__init__.py

fixes #2531

A new class Bus manages one Spread connection and its group memberships. One or more connectors are attached to the Bus and notifications are routed between the Spread connection and the attached connectors:

- Notifications originating from OutConnectors are sent via the Spread connection and dispatched to In{Push,Pull}Connectors with matching scopes

- Notifications received via the Spread connection are dispatched to `In{Push,Pull}Connectors` with matching scopes

The lifecycle of Bus objects is driven by reference counting. The `TransportFactory` class creates Bus objects as needed which start out with a reference count of 1. Each connector that is removed from its Bus object decreases the reference count by 1. When the reference count reaches 0, the Bus object deactivates its Spread connection and self-destructs.

- `rsb/transport/rsbspread/__init__.py` (import Queue): new import; needed for `InPullConnector`
- (Notification): new class; superclass for notification representations
- (IncomingNotification): new class; represents incoming notifications
- (OutgoingNotification): new class; represents outgoing notifications
- (DeserializingHandler.handleMessage): return an IncomingNotification object instead of a tuple
- (Bus): new class; manages a Spread connection and Spread group memberships; dispatches events to local connectors as well as the Spread connection
- (Connector.__init__): changed parameter connection -> bus; changed attribute `connection` -> `_bus`
- (Connector.getBus): renamed `get{Connection -> Bus}`
- (Connector.bus): renamed `connection` -> `busch`
- (Connector.activate): do not activate connection
- (Connector.deactivate): do not deactivate connection; call `Bus.unref` method instead
- (Connector.getTransportURL): call `Bus.getTransportURL`
- (InConnector.__init__): removed `memberships` attribute; now handled by Bus class
- (InConnector.activate): removed `Memberships.join` call; replaced by `Bus.addSink` call
- (InConnector.deactivate): similar
- (InConnector.notificationToEvent): operate on Notification objects instead of tuples
- (InPushConnector.__init__): removed `receive{Thread,Task}` attributes; now handled by Bus
- (InPushConnector.activate): removed method; now handled by Bus
- (InpushConnector.deactivate): likewise
- (InPushConnector.handleNotification): renamed `handleIncomingNotification` -> `handleNotification`
- (InPullConnector.__init__): removed `deserializingHandler` attribute; now handled by Bus; added `_queue` attribute
- (InPullConnector.raiseEvent): pop events from `_queue` instead of receiving from a Spread connection
- (InPullConnector.handleNotification): new method; push events onto `_queue`
- (OutConnector.handle): do not send messages via Spread connection; instead, construct `OutgoingNotification` object and submit to bus for sending
- (TransportFactory.__init__): added attributes `__logger`, `__buses` and `__lock`

- (TransportFactory.obtainBus): new method; find an reference an existing Bus instance or create and register a new one
- (TransportFactory.createInPushConnector): use obtainBus
- (TransportFactory.createInPullConnector): likewise
- (TransportFactory.createOutConnector): likewise
- test/rsbspread_test.py (getConnector): construct and activate a Bus object and pass it to the connector

Revision 90601d9f - 01/26/2018 06:12 PM - J. Moringen

Mention full Spread connection sharing in Python in news.rst

refs #2531

- news.rst (RSB 0.18): mention full Spread connection sharing in Python implementation

History

#1 - 06/08/2016 09:01 PM - J. Moringen

- Target version changed from rsb-0.14 to rsb-0.15

#2 - 11/07/2016 10:38 AM - J. Moringen

- Target version changed from rsb-0.15 to rsb-0.16

#3 - 04/10/2017 09:01 PM - J. Moringen

- Target version changed from rsb-0.16 to rsb-0.17

#4 - 09/28/2017 08:54 PM - J. Moringen

- Target version changed from rsb-0.17 to rsb-0.18

#5 - 01/25/2018 09:32 AM - J. Moringen

- Status changed from New to In Progress
- Assignee set to J. Moringen
- % Done changed from 0 to 50

#6 - 01/26/2018 05:40 PM - J. Moringen

- Status changed from In Progress to Resolved
- % Done changed from 50 to 100

Applied in changeset commit:rsb-python|26449fb1ebad34351b22acbf6939a21b18338a95.