EdgeX Scheduler

Summary

EdgeX currently uses the Java version of the scheduler. The Go version is incomplete and is currently residing in Holding-Area in the Git repository. Integration of the Go version of the scheduler will take some work.

It is the expectation that the Device Services will maintain its own version of a scheduler with all device level calls being completed by the device itself rather than externally invoked via the EdgeX Internal Services Scheduler.

EdgeX Scheduler Service (Internal Services) will be re-written in the Go language and will maintain internal service scheduling and event task dispatch. Additionally, a new Go pkg which will be shared by both EdgeX Internal Services Scheduling and EdgeX Device Services scheduling will be created.

The new common Go package should maintain the reference types "structs" used for Scheduling and Events. Additionally, the Go package should maintain common parsing algorithms for things like time and potentially helper functions for parsing schedules and events.

EdgeX Internal Services

Current (Java Scheduler Service)

Integrates with Meta Data DB (storage of schedulers and events)

Invokes endpoint calls via a schedule and then calls subsequent "events" on that event.

Schedule (domain)
- Name (string)
- Start (string)
- End (string)
- Frequency (string)
- Cron (string)
- RunOnce (string)

Event (domain)
- Name (string)
- Schedule (string)
- Parameters (string)
- Service (string)
- Path (string)
- Method (string)

- Scheduler (string)

SAMPLE DATA: (JAVA CLIENT)

Schedule (Domain Entity)

- Name = "midnight"
- Start = "20170101T000000"
- Stop = "20171212T000000"
- Cron = " 0 0 12 * * ?"
- Frequency = "P1D"
- RunOnce = "True"

Schedule Event (Domain Entity)

- Name = "scrub-pushed-events"
- Method = "DELETE"
- Target = "core-data"
- Owner = "scheduler-service"
- Path = "/api/v1/event/scrub, /api/v1/event/removeold/age/60480000"
- Schedule = "midnight"
- Scheduler = "support-scheduler"
- Params = "parm1, param2" Additionally, a simple callback structure is used via the HTTP Scheduler endpoint
- Id (string)
- Type (string)

Future (Go Scheduler Service)

Maintains internal as well as external (Pulse etc..) schedules for activities which pertain to the ecologically services with in the EdgeX domain. All device related actives(events) will be maintained in both the Meta Data as well as in the Device Services proper. A separate Scheduler API will be implemented with the device services.

EdgeX Scheduler Service will maintain (scheduler and invoke events) within the EdgeX Foundry Services domain. Example would be data cleanup internally in the Metadata services.

Shared (Go Package)

- Schedule Event
- Schedule
- Addressable
- Algorithms for parsing (Time et. Al)
- Schema (type related information translation)

EdgeX Device Services Current (Java Scheduler Service)

Currently the device Services are called by the Scheduling service. Devices then make a callback to themselves invoking and http endpoint (overhead of the http call to itself noted). Subsequently callbacks are then sent back to the meta data service.

Future (device service + scheduler Helper pkg)

Devices will no longer use an extra IPC call to themselves. Code will be reworked to process the "event" internally.

Results will still be dispatched back to the Metadata service.

Shared (Go pkg)

Device Services will share the following with the Internal Services

- Schedule Event
- Schedule
- Addressable
- Algorithms for parsing (Time et. Al)
- Schema (type related information translation)

CHANGE(S)

11/2/2018 - EFC
Introduced Schedule Event
- "Owner" property. This property represents the executor of the schedule event.

Renamed Schedule Event
- "Service" property renamed to "Target"