Tasks Workshop

Roundtable XXI

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Housekeeping

- Volunteer to Scribe?
- Note Well:
  - Share this material freely with other CalConnect participants and members – but in progress work is restricted to CalConnect members and member reps
  - In other words, what goes on in CalConnect stays in CalConnect (until it is published)

Agenda

1. Introduction
2. Review of current task based services
3. Key use cases
4. Tasks in iCalendar, CalDAV and WS Human Task
5. Where do iCalendar and CalDAV fall short
6. Discussion

Introduction

- Task (or To-do) applications have become a lot more popular over the last few years
- Driven pretty much by the increase in smart phone use
- Also "getting things done" fad
- Users need to better organize their lives with so much going on
- Many apps offer "cloud" sync'ing or storage of tasks, yet most use their own proprietary protocol
- So why not iCalendar and CalDAV?

CalConnect's Interest

- ✦ Tasks are part of iCalendar and therefore part of what CalConnect is concerned about
- ✦ In 2007 TC-UseCase developed use cases document on tasks
- ✦ The document was developed by looking at a variety of products available at the time
- ✦ Supported properties were looked at, with the minimum set needed for interoperability determined
- ✦ A glossary of task specific terms was defined
- ✦ Common use cases were listed

Review of Products

- ✦ Desktop calendaring apps (iCal, Outlook, Notes, Lightning, Omni Focus, Busy Todo etc)
- ✦ Mobile apps (eTask, 2Do, Omni Focus, etc)
- ✦ Web apps, smart grid work etc
- ✦ Other similar apps:
  - ❖ Project management
  - ❖ Bug reporting
- ✦ WS-HumanTask - OASIS standard for human based tasks. Used in business process management (BPM) tools. Possibly some parts of their schema would be relevant to iCalendar.
  - ❖ BPM: Activiti (mobile/web), JBPM (part of JBoss)
- ✦ What's your favorite task app? Pen & paper, post-it note :-)

Key Use Cases

- One-off tasks: "order new iMac"
- Fixed duration tasks: "do something for 10 minutes today"
- Checklists: grocery list, home DIY projects etc
- Sub-tasks: "arrange holiday: book flight, book hotel, reserve car, arrange for dog-sitter, etc"
- Dependent tasks: "do A, then B, then C in that order" with possible delays between start/end etc
- Routable tasks: "user A handles it first, then user B, then user C if complete, else user D if failed"
- Contextual tasks: only valid when certain conditions are met (e.g. location specific)

Key Use Cases: Repeating

- Repeating tasks: "take out the trash every Monday night"
    - Missed instances can be handled differently
        - If "take out trash" is missed have to wait for next week
        - If "service car" is missed need to reschedule to next available slot
- Regenerating task: create the next instance only when the current one is completed, based on either due date or completion date, or some external state changes (e.g., "ran out of milk")
- Template tasks: allow for quick entry of things that happen often (e.g., payment schedules, groceries etc)

Interaction Between Events and Tasks

- ✦ At some point a task is going to require action
- ✦ Time will need to be found on the task assignee's calendar to actually do the work
- ✦ At that point the task effectively becomes an event
- ✦ How does the calendar system manage that?
  - ❖ E.g. It would be handy if the calendar system could automatically reserve time to do tasks due today but allow them to "float" around existing booked events, and also prevent new event bookings that would prevent tasks from being done
- ✦ Events that require a set of tasks to be completed during the course of the event - how best to relate them

iCalendar Tasks

- iCalendar supports tasks via the VTODO component
- Has start, end, due, duration, completed date-time properties (allowed in various combinations or none at all)
- Usual summary and description
- Can support task assignment via organizer/attendee iTIP based scheduling
- Supports recurrences with overrides
- Supports alarms
- Basic priority and access properties are available
- Never block free time

CalDAV Tasks

- Supports storing iCalendar data with VTODOs
- All features available for events also available for tasks (includes time-range and other types of queries)
- Implicit scheduling works with tasks
- Can have task-only calendar collections or server

WS Human Task

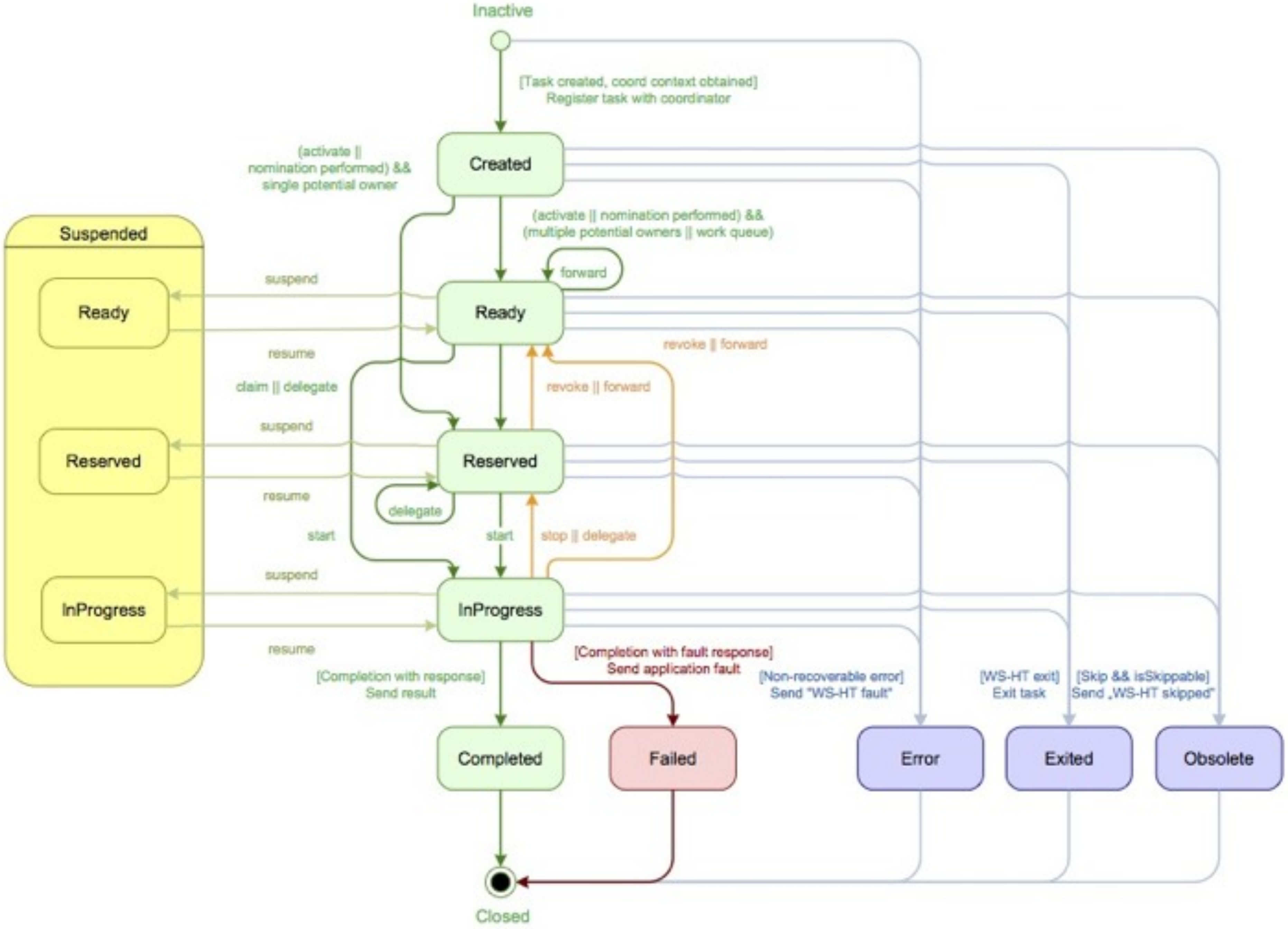
- Specifies:
  - A language for defining tasks
  - Task instance data model
  - API for operating on and monitoring tasks
- Typically used by business process management (BPM) systems

WS Human Task Compared to iCalendar

- 1-to-1 relationship between owner and performer
- Supports task specific "input/output data"
- Captures details about comments such as who and when
- Defines a set of outcomes and conditions for completion
- Task routing: parallel or sequential processing
- Supports multiple deadlines
- Supports escalations tied to deadlines
- Interface and API for interacting with tasks
- Complex state model

Stateful

- WS-HumanTask has a detailed state diagram



Excerpted from WS-HumanTask spec

Issues with Tasks

- In depth discussion of various issues follows

Regenerating Tasks

- A regenerating task is one that "repeats" at some possibly indeterminate or unpredictable interval
- When one task completes, a new one is automatically generated
- The new tasks date-time properties could be based on the original tasks start, due or completed times
  - "service car every 3000 miles or 3 months" regenerates based on completion date-time
- There is no iCalendar support to describe a regenerating task
- Would like regeneration automated by the server - implicit regeneration

Richer Status Information

- When tasks are scheduled, participants would like better per-attendee status
  - Current status
  - Reason codes for completion, rejection or failure
- Tracking history: track status changes with a date-time stamp
- WS-HumanTask has additional STATUS values, e.g., SUSPENDED, FAILED, ERROR, OBSOLETE etc

Relationships

- Better relationships
  - lead and lag times
  - ordering
  - grouping (hierarchical)

CalDAV Issues

- How best to query to get current tasks? E.g., don't show completed tasks in the past, or tasks set to start more than 1 week in the future
- Default tasks calendar?

Odds & Ends

- No expiration time for tasks (WS-HumanTask has that)
- Must respond by time (organizer needs attendee to respond to task assignment within a set period of time otherwise they will need to reassign the task to someone else)
- Escalation actions: what to do if a task does not start or complete on time - possibly treat this as an alarm that goes off based on date-time and current status
- iCalendar says RRULE based on DTSTART but need to support DUE
- Poll to find out who can do a task

Discussion

- Who is interested in this work?
- What is the right forum to pursue this work?

Questions?

Q&A