<u>Calconnect IV</u>
<u>Interoperability Testing of RFC 2445, RFC 2446 and RFC 2447</u>
<u>University of California at Berkeley</u>
<u>July 28-30, 2004</u>

Participants:
Dave Thewlis - Calendaring and Scheduling Consortium
Pat Egen - IETF Co-chair and Calendaring and Scheduling Consortium
Nathaniel S. Borenstein, IBM
Chris Stoner – IBM
Keith MacDonald – Oracle
Simon Vaillancourt – Oracle
Jeff McCullough – University of California at Berkeley - our host

Products Tested:
Lotus Notes 7
Oracle Collaboration Suite

General Summary:

During our testing event at UC Berkeley two vendors participated. This was the fourth in a series of interoperability testing events for RFC 2445, 2446, and 2447. The first two were "onsite" events and the third was a "virtual" event with testing occurring via conference calls and email testing.

At the last three testing events, the testing done was more at a vendor to vendor level rather than at a pure IETF "RFC Conformance" level. By Conformance testing, we mean identifying support for and testing explicit MUST/MUST NOT/SHOULD/SHOULD NOT/ and MAY requirements.

In preparation for this interop event and to satisfy the requirement for RFC conformance testing, a matrix of all three RFC's was prepared and this was used as our driver for testing compliance. We, as a group, went through each and every item and validated whether the requirement was supported by each vendor. In most cases, where both vendors did not support a particular requirement, we still tested the action to validate this "non-support." From that perspective, this was probably the most productive interop of all the events.

Since there were only two participants at this interop, we will need at least one more interoperability event to fully identify what needs to be removed from these drafts. Now that we have a complete set of matrices as well as test scenarios and scripts, we can fully define what works and doesn't work. I have included the notes from the other three events at the end of this document for comparison.

This document will highlight the key findings from this exercise. The matrix spreadsheet with all items noted is attached to this report. The spreadsheet shows what is and is not supported by the

two participants. Based on past interops, and discussions held at this meeting we have ascertained the following:

?   Most vendors are not doing Journals. It appears we can probably remove any VJOURNAL items from all drafts without significant ramifications.

?   Recurring and repeating meetings still have a bit of mystery and ambiguity associated with them. This was obvious during testing and is well documented and discussed on the various lists. We talked about the differences between recurring and repeating meetings and we look to see this discussed further on all the mailing lists.

?   VTODO's are not supported by either vendor and there were problems in past interops. This may be something that can be removed and added back as another draft that just pertains to VTODOs.

The next page identifies the items that are supported by both vendors and the items not supported on the three drafts. Note - there are 201 specific items in RFC 2445, 74 items in RFC 2446, and 14 items in RFC 2447. Any item not shown on the summary page means only one of the two vendors during this interoperability event supports that item.

I created a table that counts the number of items supported and not supported by both vendors as well as a breakdown of how many of each item each vendor does or does not support. I also created a table that shows the specific items supported by both vendors and a table showing the specific items NOT supported by both vendors.

In summary, we are farther along than we were during the first interop. But we have a ways to go. There was discussion at this interop about opening a new mailing list to work on simplification of these drafts in order to improve/enhance interoperability opportunities.

The results for both vendors showed the following:

Draft	Items Supported	Items Not Supported
RFC 2445	114	26
RFC 2446	15	5
RFC 2447	8	5

By Vendor, the numbers look like this:

Draft	Items Supported	Items Not Supported
Vendor 1		
RFC 2445	132	69
RFC 2446	35	39
RFC 2447	9	5
Vendor 2		
RFC 2445	137	64
RFC 2446	45	29
RFC 2447	8	6

IDENTIFICATION OF SPECIFIC ITEMS ON THE DRAFTS

Items supported by BOTH vendors:

iCalendar - RFC 2445 - 114 items out of 201

2.3 International Considerations
4.1 Content Lines
4.2 Property Parameters
4.2.12 Participation Status
4.2.19 Time Zone Identifier
4.2.20 Value Data Types
4.3.3   Calendar User Address
4.3.5   Date-Time
4.3.10 Recurrence Rule
4.3.11 Text
4.3.12 Time
4.3.14 UTC Offset
4.4 iCalendar Object
4.6 Calendar Components
4.6.1 Event Component
4.6.2 To-do Component
4.6.5 Time Zone Component
4.7 Calendar Properties
4.7.2 Method
4.7.3 Product Identifier
4.7.4 Version
4.8.1.4 Comment
4.8.1.5 Description
4.8.1.6 Geographic Position
4.8.1.7 Location
4.8.1.10 Resources
4.8.1.12 Summary
4.8.2.1 Date/Time Completed
4.8.2.2 Date/Time End
4.8.2.4 Date/Time Start
4.8.2.7 Time Transparency
4.8.3.1 Time Zone Identifier
4.8.3.2 Time Zone Name
4.8.3.3 Time Zone Offset From
4.8.3.4 Time Zone Offset To
4.8.4.1 Attendee
4.8.4.2 Contact
4.8.4.3 Organizer
4.8.4.4 Recurrence ID
4.8.4.7 Unique Identifier

4.8.5.1 Exception Date/Times
4.8.5.4 Recurrence Rule
4.8.6.1 Action
4.8.7.2 Date/Time Stamp
4.8.7.4 Sequence Number
4.8.8.2 Request Status
6 Recommended Practices

iTIP - RFC 2446 - 15 items out of 74

3.1 Common Component Restrictions
3.2.2 VEVENT REQUEST
3.2.2.1 Rescheduling an Event
3.2.2.2 Updating or Reconfirmation of an Event
3.2.3 VEVENT REPLY
3.2.4 VEVENT ADD
3.2.4 VEVENT CANCEL
3.6 Status Replies
3.7.2 Attendee Property Considerations
5 Application Protocol Fallbacks

iMIP - RFC 2447 - 8 items out of 14

2.3 [RFC-822] Addresses
2.4 Content Type (all)
2.5 Content-Transfer-Encoding
2.6 Content-Disposition

Items NOT supported by BOTH vendors:

iCalendar - RFC 2445 - 26 of 201 items
4.1.1 List and Field Separators
4.2.6 Directory Entry Reference
4.3.5   Date-Time
4.3.9 Period of Time
4.6.3 Journal Component
4.6.5 Time Zone Component
4.8.4.3 Organizer
4.8.4.5 Related To
4.8.6.3 Trigger
4.8.7.4 Sequence Number

iTIP - RFC 2446 - 5 of 74 items

3.1 Common Component Restrictions
3.2.2.6 Forwarding to An Uninvited CU

iMIP - RFC 2447 - 6 of 16 items

Section 3 - security considerations

PREVIOUS INTEROP RESULTS

CALCONNECT I - APRIL 2000

On April 11 and 12, 2000, CalConnect Spring was held in Boston. It was graciously hosted by MIT and chaired by Bob Mahoney.
The following companies and representatives were in attendance:

Tom Ransdell, Lotus,
Dan Gurney, Iris/Lotus,
John Sun, iPlanet,
Ki Wong, iPlanet,
Katia Hage, Microsoft,
Colin DuPlantis, Critical Path,
Bob Mahoney, MIT,
Paul Hill, MIT.

Pat Egen sat at home with a broken leg, and assisted (poorly) from the sidelines.

The following products and versions were tested:

EventCenter Version 3.0 (Critical Path)
Outlook 2000 and Outlook Express 5.0 (Microsoft)
iPlanet - internal unreleased alpha version iCS 5.0, server and client (Netscape)
Organizer (Lotus)

First off, thanks to everyone for their efforts. There was consensus that all participants have a lot of work to do, and that another testing event should be held in the fall. A west coast location was suggested, although some interest was also expressed for New Orleans or San Antonio. All participants felt that great progress would be made in the coming months.

Little interoperability has occurred so far. Repeating events and canceled events seem to be causing problems. Parsers are working OK but the actual generation of the data objects is very inconsistent.

Problems found with recurrence included the following:
- one vendor always generates and expects rrules, but cannot handle rdates.
- two vendors always generate rdates and cannot currently handle rrules.
- one vendor handles rrules but cannot handle exceptions.

There was a brief discussion about redesigning recurrence. Some useful alternatives were suggested but the developers also seemed to be willing to live with the current specification. They did feel that word-smithing would help. This will be brought back to the list in more detail for some review.

The biggest complaints are currently with iMIP and the MIME handling. "iMIP under-constrains what may be emitted by a data source; this requires a client to handle every possible case" which is perceived as a heavy burden by the developers.

Regarding MIME: "(multipart mixed vs. multipart alternative vs. text-alternative vs.attachments ...)" - the developers would be happier if there fewer options, or perhaps some stronger assertions in the draft. This too will be put on the list.

There has been virtually no interoperability testing of alarms yet. There were some side issues relating to alarms, which will be brought back to the list.

There has been virtually no testing of conformance with line lengths yet.

A number of minor problems with blank spaces, terminating lines, and MIME boundaries were observed and are in the process of being fixed by the implementors.

No tester has fully implemented Journals. One vendor has the support in the parser but no support in the front end, so they cannot be generated or displayed by the product. All of the implementors indicate that supporting Journals is intended and that no obstaclesare seen, they are just lower on the priority list so far.

There has been no testing of signed or encrypted objects. This should be a major goal of the next testing event.

Some progress is better than no progress. Look for additional activity on the list as we post some of the items referenced above. CalConnect Fall will be announced later in the year.

Respectfully submitted,

Pat Egen and Bob Mahoney

CALCONNECT II - APRIL 2001

IETF CALSCH Working Group Interoperability Testing . Held Wed. April 11, 2001 - Fri. April 13, 2001 - 8:30 a.m. - 6:00 p.m.

This second interop test was held at Stanford University in Palo Alto, CA . Stanford gratiously donated the use of their facilities and network in order to help further the movement of our standards. This interop focused on iCalendar, iTIP and iMIP. The testing matrix can be found on www.calsch.org.

The first day Pat Egen, IETF CALSCH working group co-chair introduced everyone and established the ground rules as well as let everyone know the network logistics within Stanford and to her server at www.egenconsulting.com.

The participants were:

George Babics, Steltor: georgeb@steltor.com
Alan Davies, Steltor: aland@steltor.com
Tom Ransdell, Iris: transdell@iris.com
Anita Paci, Iris: apaci@iris.com
John Sun, Netscape: jsun@netscape.com
Malika Parekh, Netscape: malika@netscape.com
Pat Egen pregen@egenconsulting.com

Products and released tested:

Steltor:
CorporateTime Server 6.0 Alpha
CorporateTime Outlook Connector 3.0
CorporateTime Native Client 6.0 Alpha
CorporateTime iMIP/iTIP Alpha Helper Application

Lotus/Iris:
Lotus Domino and Notes Release RNext

iPlanet:
Calendar Server Version 5.next

These notes are "homogenized" - in other words, names of vendors have been removed so you can't tell who is who. Once the draft moves forward, we will post which vendor supports which component. For purposes of this document, I will call them Vendor 1, Vendor 2 and Vendor 3. I have also included a section with general notes as related by each vendor.

Vendor 1 notes/results

Overall there was good interoperability. In general the vendors were able to interoperate. They were able to invite, reply, reschedule, and cancel to single instance meetings. There was some problems with the timezones that were used in recurrence rules, as a result only minimal testing was done with events with multiple occurrences. Finally, even though Microsoft was not there, some interoperability was done with Outlook.

iTIP Methods	Vendor 1 Send/Accept	Vendor 2 Send/Accept	Vendor 3 Send Accept
Request (Single Instance Event)	yes yes	yes yes	yes yes
Request (Multiple Instance Event without RRULE)	yes yes	yes yes	yes yes
Request (Multiple Instance Event with RRULE)	yes yes	no no	no yes
Reply	yes yes	yes yes	no yes
Add	no yes*	no yes*	no no
Cancel	yes yes	yes yes	yes ?
Counter	no yes*	? ?	no no
Decline-Counter	no yes*	? ?	no no
Refresh	no yes	yes yes*	no no
Publish	no yes*	no yes*	no yes

Components			
VEVENT	yes yes	yes yes	yes yes
VJOURNAL	no no	no no	no no
VTODO	no no	yes yes*	no yes*
VTIMEZONE	yes yes	no no	no yes
VALARMS	no yes*	no yes*	no no

Notes: * = untested
Notes: "no" indicates that a vendor was unable to support a feature due to not implementing it, bugs, or due to misinterpretation of the RFCs

Other Things That Worked:
? Vendor1 was able to invite using recurrence rules
? Vendor2 was able to delegate
? Vendor2 was able to send VTODOs

What did not work:
? Vendor 2 was unable to support more than one instance on the same day
? No one supported sending floating time events
? Vendor 2 did not support event durations less than fifteen minutes
? Vendor 3 did not support slash format in rdates
? Vendor 2 was unable to send a response if RSVP was false (point for future discussion about meaning of RSVP)
? Vendor 3 did not escape any of their special characters

? Some of Vendor 2's lines were longer than permitted in iCalendar

<u>Vendor 2 notes/results</u>

Sending --- in this font; *Receiving --- in italics;*

iCalendar Method	Vendor 2 supported	Test with Vendor 1	Test with Vendor 3
Event Publish	yes	not tested	not tested
Event Publish	yes	not tested	not tested
Event Request	---	---	---
New Event	---	---	---
non repeating	yes	**tested**	**tested**
non repeating	yes	**tested**	**tested**
RRULE repeating no exceptions	yes	**tested**	**tested**
RRULE repeating no exceptions	yes	**tested**	**tested**
RRULE with EXRULE	will not create	not tested	not tested
RRULE with EXRULE	yes	not tested	not tested
RRULE with EXDATES	will not create	not tested	not tested
RRULE with EXDATES	yes	not tested	not tested
RDATES repeating no exceptions	yes	not tested	not tested
RDATES repeating no exceptions	yes	not tested	not tested
RDATES with EXRULE	will not create	not tested	not tested
RDATES with EXRULE	yes	not tested	not tested
RDATES with EXDATES	will not create	not tested	not tested
RDATES with EXDATES	yes	not tested	not tested
with attachment	yes	not tested	not tested
with attachment	yes	not tested	not tested
Broadcast	---	---	---
non repeating	yes	**tested**	not tested
non repeating	yes	**tested**	?
RRULE repeating no exceptions	yes	not tested	not tested
RRULE repeating no exceptions	yes	not tested	not tested
RRULE with EXRULE	will not create	not tested	not tested
RRULE with EXRULE	yes	not tested	not tested
RRULE with EXDATES	will not create	not tested	not tested
RRULE with EXDATES	yes	not tested	not tested
RDATES with no exceptions	yes	not tested	not tested
RDATES with no exceptions	yes	not tested	not tested
RDATES with EXRULE	will not create	not tested	not tested
RDATES with EXRULE	yes	not tested	not tested
RDATES with EXDATES	will not create	not tested	not tested
RDATES with EXDATES	yes	not tested	not tested
with attachment	yes	not tested	not tested
with attachment	yes	not tested	not tested
Reschedule	---	---	---

Non repeating	yes	not tested	not tested
Non repeating	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Individual event of repeat set	yes	not tested	not tested
Individual event of repeat set	yes	not tested	not tested
Update	---	---	---
Non repeating	yes	not tested	not tested
non repeating	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Individual event of repeat set	yes	not tested	not tested
Individual event of repeat set	yes	not tested	not tested
Event Reply	---	---	---
Accept	---	---	---
Non repeating	yes	**tested**	**tested**
Non repeating	yes	**tested**	**tested**
Repeating all	yes	**tested**	**tested**
Repeating all	yes	**tested**	**tested**
Individual event from repeat set	yes	not tested	not tested
Individual event from repeat set		not tested	not tested
Decline	---	---	---
Non repeating	yes	?	?
Non repeating	yes	?	?
Repeating all	yes	?	?
Repeating all	yes	?	?
Individual event from repeat set	yes	not tested	not tested
Individual event from repeat set	yes	not tested	not tested
Delegate	---	---	---
Non repeating	yes	not tested	not tested
Non repeating	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Individual event from repeat set	yes	not tested	not tested
Individual event from repeat set	yes	not tested	not tested
Event Refresh Request	---	---	---
Non repeating	yes	not tested	not tested
Non repeating	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Event Counter	---	---	---
Non repeating	yes	not tested	not tested
Non repeating	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Repeating all	yes	not tested	not tested
Individual event from repeat set	yes	not tested	not tested
Individual event from repeat set	yes	not tested	not tested

Event DeclineCounter	yes	not tested	not tested
Event DeclineCounter	yes	not tested	not tested
Event Add	Not Supported	not tested	Not tested
Event Add	Not Supported	not tested	not tested
Event Cancel	---	---	---
Cancel Non repeating	yes	tested	tested
Cancel Non repeating	yes	tested	tested
Cancel Repeating all	yes	tested	tested
Cancel Repeating all	yes	tested	tested
Cancel Individual event from repeat set	yes	not tested	not tested
Cancel Individual event from repeat set	yes	not tested	not tested
Remove individual from non repeating	yes	not tested	not tested
Remove individual from non repeating	yes	not tested	not tested
Remove individual from entire repeat set	yes	not tested	not tested
Remove individual from entire repeat set	yes	not tested	not tested
Remove individual from individual event of RS	yes	not tested	not tested
Remove individual from individual event of RS	yes	not tested	not tested
ToDo Publish	yes	not tested	not tested
ToDo Publish	yes	not tested	not tested
ToDo Request	---	---	---
New ToDo	---	---	---
Non repeating	yes	not tested	not tested
Non repeating	yes	not tested	not tested
RRULE repeating no exceptions	yes		
RRULE with EXRULE	will not create		
RRULE with EXDATES	will not create		
RDATE repeating no exceptions	yes		
RDATES with EXRULE	will not create		
RDATES with EXDATES	will not create		
Reschedule	---	---	---
Non repeating	yes		
Repeating all	yes		
Individual event of repeat set	yes		
Update	yes		
ToDo Reply	---	---	---
Accept	---	---	---
Non repeating	yes		
Repeating all	yes		
Individual event from repeat set	yes		
Decline	---	---	---
Non repeating	yes		
Repeating all	yes		
Individual event from repeat set	yes		
ToDo Add	no		

ToDo Cancel	---	---	---
Cancel Non repeating	yes		
Cancel Repeating all	yes		
Cancel Individual event from repeat set	yes		
Remove individual from non repeating	yes		
Remove individual from entire repeat set	yes		
Remove individual from individual event of RS	yes		
ToDo Refresh Request	yes		
ToDo Counter	---	---	---
Non Repeating	yes		
Repeating all	yes		
Individual event from repeat set	yes		
ToDo DeclineCounter	yes		
FreeBusy Publish	not yet		
FreeBusy Request	not yet		
FreeBusy Reply	not yet		
VJournal Publish	no planned support		
VJournal Add	no planned support		
VJournal Cancel	no planned support		
Status Reply	not yet		

Some issues found were UID problems and then in timezone problems.

The only other interesting problem was distinguishing between removing a person and canceling. From my point of view we did not end up doing a lot of testing. I am including a table of what we support and what we tested. The table is not completed except for EVENTS

Other Issues encountered while doing ICAL testing at CalConnect2.

1. Sent to a Bcc user via Location Doc: "Through xxxx Server/MIME format"; Person Doc: "Prefers MIME". The Bcc user receives an invitation with all of the Typical Workflow actions. Error: S/he should only have the "Add to Calendar" action.
2. Reschedule notices are not displaying invitee response actions.
3. Invitations from a French Vendor 3 client are received with no subject or date/time fields.
4. Cancellation notices being received as Updates from vendor 1. Upon opening notice, you get the correct pop-up indicating that the meeting has been cancelled and the entry is removed from the Calendar. However, the "Update Calendar" button is not hidden, and if you click on it it will recreate the entry.
5. Cancellation of a repeating meeting from Vendor 3 doesn't remove entries from Calendar.
6. Custom repeats from Vendor 3 (rdates) only display the first date in the "Repeat Options" dialog in invitee's Calendar entry.

Vendor 3 Results:

Comments fromVendor 3 .

1) Vendor 2 and Vendor 1 can retrieve EVENT REQUEST messages from Vendor 3 Server - But they would prefer that the Vendor 3 IMIP messages come in the "multipart/mixed" MIME format. We have included this item in our bug list.
2) We tried to import a REPLY from the other vendors. We were able to import Vendor 2's REPLY . However, we could not import Vendor 1's REPLY messages. This was because they were inserting the Recurrence-ID in the event REPLY message even though it was a non-recurring VEVENT. Also, we had a bug in handling RSVP. We were saving the change in the RSVP value of the attendee, which caused a UI bug. (In our User Interface, the attendee was moved to an INFORM)
3) Vendor 1 and 2 can receive our recurring EVENT REQUEST invitations.
4) We can import Vendor 1 and 2's recurring REPLY messages. However, we get the same number of e-mails as instances (i.e. 60 replies (messages) to 1 recurring event)
5) We can import CANCEL messages from Vendor 1
6) Vendor 2 could not import our mail messages from a Spanish or French user. – Vendor 1 can display them OK using the Eudora mail program.
7) We can import a recurring REQUEST from Vendor 2
8) Vendor 4 created an event. They sent two REQUEST messages, sequence=0, sequence=1, the first one sent RECURRENCE-ID, the second one did not. This is Vendor 1's bug, and they may have fixed it.

What about others:
1. No one implemented ADD.
2. No one tested COUNTER or DECLINECOUNTER

The Vendor 3 team is working on fixing Calconnect-related bugs and will include the fixes in future releases.

Chair Comments

This interop compared to the first one was a world of difference. Many many more things worked and we were able to spend more time testing elements.

While Vendor 2 shows a lot "Untested", after reading notes, I believe many of these items were indeed tested. We have developed a new testing form that will be used on the next interop test. I know one vendor felt we had not done enough testing - I think he really wanted to prove it all works. Well, most of it did! We still have a ways to go, but for the first time, everyone feels that we have made progress and there is a light at the end of the tunnel. The best part of the interop was the interactions between the attendees. That will help ongoing efforts tremendously. Everyone wants to do the next interop within the next 6-9 months. We don't want to wait too long now that we have momentum.

By Patricia Egen

CALCONNECT III - VIRTUAL INTEROP
September 2002

Vendors and Products:
Oracle Collaboration Suite - Calendar Server 9.0.4 Alpha
Oracle Outlook Connector 3.3
Oracle CorporateTime Native Client 6.1 Alpha
Oracle CorporateTime iMIP/iTIP Helper Application
KOrganizer - CVS for 3.1
Lotus Notes/Domino - Ver 6.0
Novell NIMS

Vendor1 Notes
? If the ical-attachment is send MIME-encoded, in a form that affects it's plaintext appearence (in the mail), Vendor1 can't read it properly/at all. This occured only with Vendor4-products.
? Vendor1 doesn't send timezone information when dealing with recurring events.
? "UNTIL" in RRULE isn't set as correct UTC-value
? Vendor1 can't deal with ical-attachments
? Almost all other bugs that occured are fixed already

Other Problems:
? Vendor2's Client didn't send "Organizer"-information in their REPLY-messages as requestred in RFC 2445 3.2.3 some more I can't remember, and which may be fixed already

Communication with Vendor3 had no problems.
Communication with Vendor2 had only the one above mentioned REPLY-problem.
Communication with Vendor4 is very limited (see MIME-problem).

Personal note:
It's unluky, that we had some technical problems, that handicaped communication,and stole a lot of time. So testing was limited to some basics of

Results:
We were not able to test as much as in the previous calconnect, which was more productive. We mostly tried creating and replying to events, thus the methods that were tested were REQUEST and REPLY.

```
Event With One Occurrence Created By Vendor4:
-----------------------------------------
                              | Vendor4 | Vendor2 | Vendor1       | Vendor3 |
------------------------------+---------+---------+---------------+----+
Able To Process REQUEST       |  Yes    |  Yes    |   Yes         |  Yes   |
------------------------------+---------+---------+---------------+----+
Able To Send REPLY to REQUEST |  Yes    |  Yes    |   Yes         |  Yes    |
------------------------------+---------+---------+---------------+----+
Able To Process REPLY         |  Yes    |  Yes    |   Yes         |  Yes    |
------------------------------+---------+---------+---------------+----+
```

```
Event With One Occurrence Created By Other Vendor:
--------------------------------------------------

                                    | Vendor4 | Vendor2 |   Vendor1    | Vendor3 |
------------------------------------+---------+---------+--------------+---------+
Vendor4 Able To Process REQUEST     |   Yes   |   Yes   |     Yes      |   Yes   |
------------------------------------+---------+---------+--------------+---------+
Vendor4 Able To Send REPLY to REQUEST |  Yes   |   Yes   |     Yes      |   Yes   |
------------------------------------+---------+---------+--------------+---------+
Vendor Able To Process REPLY        |   Yes   |   Yes   |     Yes      |   Yes   |
------------------------------------+---------+---------+--------------+---------+
Event With an RRULE Created By Vendor4:
---------------------------------------

                                    | Vendor4 | Vendor2 |   Vendor1    | Vendor3 |
------------------------------------+---------+---------+--------------+---------+
Able To Process REQUEST             |   Yes   |   Yes   |      No      |   Yes   |
------------------------------------+---------+---------+--------------+---------+
Able To Send REPLY to REQUEST       |   Yes   |   Yes   |      No      |   Yes   |
------------------------------------+---------+---------+--------------+---------+
Able To Process REPLY               |   Yes   |   Yes   |      No      |   Yes   |
------------------------------------+---------+---------+--------------+---------+


Event With an RRULE Created By Other Vendor:
--------------------------------------------

                                    | Vendor4 | Vendor2 |   Vendor1    | Vendor3 |
------------------------------------+---------+---------+--------------+---------+
Vendor4 Able To Process REQUEST     |   Yes   |   Yes   |      No      |   Yes   |
------------------------------------+---------+---------+--------------+---------+
Vendor4 Able To Send REPLY to REQUEST |  Yes   |   Yes   |      No      |   Yes   |
------------------------------------+---------+---------+--------------+---------+
Vendor Able To Process REPLY        |   Yes   |   Yes   |      No      |   Yes   |
------------------------------------+---------+---------+--------------+---------+
```

Miscellaneous:
? We had some success with CANCEL and updates (REQUEST). However, we do not remember with which vendors. Vendor3 had success processing a VEVENT that we sent to it that had different character set in it. Some vendors were also able to process a REQUEST we sent that had multiple RDATEs.
? Vendor2 had trouble with line folding, multipart/mixed, and they required that attendees have a common name ("CN").
? Vendor1 had trouble with quoted-printable, and had a DTSTART in UTC for events with RRULEs. According to iCalendar, when a DTSTART is used with a recurrence rule, it must be specified local time.

Vendor 3 Notes:

Microsoft and 2 others were scheduled to participate but did not show up. Unfortunately we had some technical issues testing w/Vendor4 folks and there were some server uptime issues inhouse that increased the testing lag on our end.

The Good News:
We were successfully able to do non-repeating and repeating meeting testing with all implementations. We were able to both send and receive invitations to single instance and repeating meetings just fine. We were also able to send attachments along with each type of invitation and they were at least received correctly by the other testers (although some did not know how to deal with multipart MIME data yet for assorted reasons).

Particular notes relating to specific implementations:

Vendor4:
Vendor4 did not send us any tests with attachments so we were not able to fully test that feature inbound to Notes.

Vendor 1:
Vendor 1 is not multipart MIME savy given how it is wired into the mail client (via scripting). As such it has limitations on it that prevented it from dealing with any attachments we sent. This is not a failure of the test but a restriction of the receiving client.

Vendor2:
Vendor2 was able to send back multiple responses to both the single and repeating instances; to Accept, Decline and Tentatively Accept. We were able to properly detect this status change and render it on our end.

The Not-so-good News:

The testing done was more at an vendor to vendor level than a pure IETF "RFC Conformance" test (where we test the explicit MUST/SHOULD/MAY/etc requirements). We need to find a way to identify all of the IETF requirements and map them to vendor to vendor tests that we generally do (or provide some matrix of what we must test to satisfy the IETF requirements for an interop event).

We did not attempt any VTODO (aka Tasks) or VJOURNAL interop testing. Per IETF rules, if we do not get any implementations that support them then we must remove them from the standard in the future (but no timeframe for this removal is clear).

Particular notes relating to specific implementations:

Vendor4:
Vendor4 attempted to invite a Vendor3 user to a single instance of a repeating set by sending the correct iCalendar message that uniquely identified the single instance. We misconverted it to be a single instance meeting that repeated at the original date/time (which was before the actual instance date/time so thats not so good).

Vendor1:
Vendor1 had some small issues with adhering to the RFCs. Guenter was very active in either fixing or explaining them. For example, Vendor1 sends back ALL invitees on a REFRESH request but RFC 2446 expressly states that only the requestors ATTENDEE info is allowed. As a result, we incorrectly identify the "Request for Update" as being from the 1st listed ATTENDEE rather than from the actual requestor.

Vendor2:
Vendor2 does not have full featured workflow support in yet. They do not support delegation, counter proposals or anything associated with them. While they do support the basic accept,

decline and tentative acceptances, the other iTIP messages are ignored or not supported so trying them against an invitation from VENDOR2 results in an undetermined state or loss of workflow (at least from the non-VENDOR2 POV).
We did not receive any Vendor2 originating workflow, they simply responded to the ones we sent out. As such, we do not know how well we interoperate with them when they are the Organzier of an event or repeating event. I was not able to find out if this was because we did not have enough testing time or if they are unable to originate iCalendar workflow just yet

Chair Summary:

Multipart support/formatting seems to be a source of confusion still given the discussions held during the interop and on the chats. This should NOT be a repeat issue but since its come up again we need to draft some guidelines for the 'proper' multipart bundling of iCalendar above and beyond the flat ASCII messages.

By the next event we plan to have a formalized testing matrix and plan that we can all use to do interop testing. There needs to be some kind of mapping between what the IETF is looking for relating to standards acceptance and what we implementors are looking for such as feature C&S workflow level interop.

I'm working on making an understandable matrix of the MUST/SHOULD/MAY/etc clauses in the RFCs and what they mean for testing. Given our pending release schedules I did not have time to complete this lately. Hopefully I can get it done after some hard earned time off and before we spin up again.

Submitted by Pat Egen