

End-to-End SIP Session-ID at IETF85

draft-jones-insipid-session-id-01

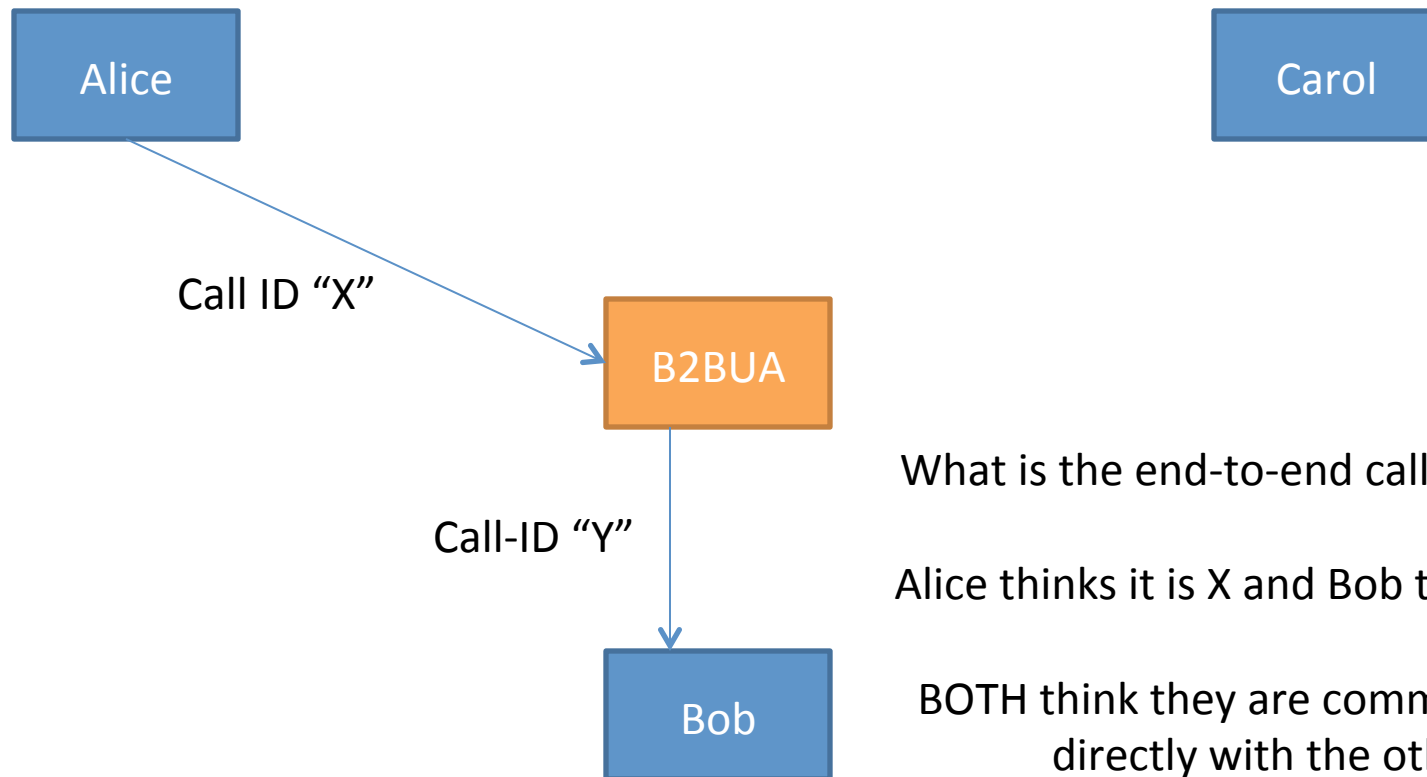
5 November 2012

James Polk, Paul Jones
Gonzalo Salgueiro, Chris Pearce

Why an E2E Session-ID?

- Identify issues in the network (debugging)
- Track sessions as they move (e.g., transfer)
- ~~Associate media flows with a session by inserting the Session ID into RTCP, RSVP (shhhh!), or other protocols~~
- Enable monitoring or recording of sessions (with proper end-to-end identification)
- Associate sessions that are related (e.g., participants in a multipoint conference or part of a targeted single or multi-party session to be recorded)

Illustrating the Problem: Alice and Bob via B2BUA or SBC



What is the end-to-end call identifier?

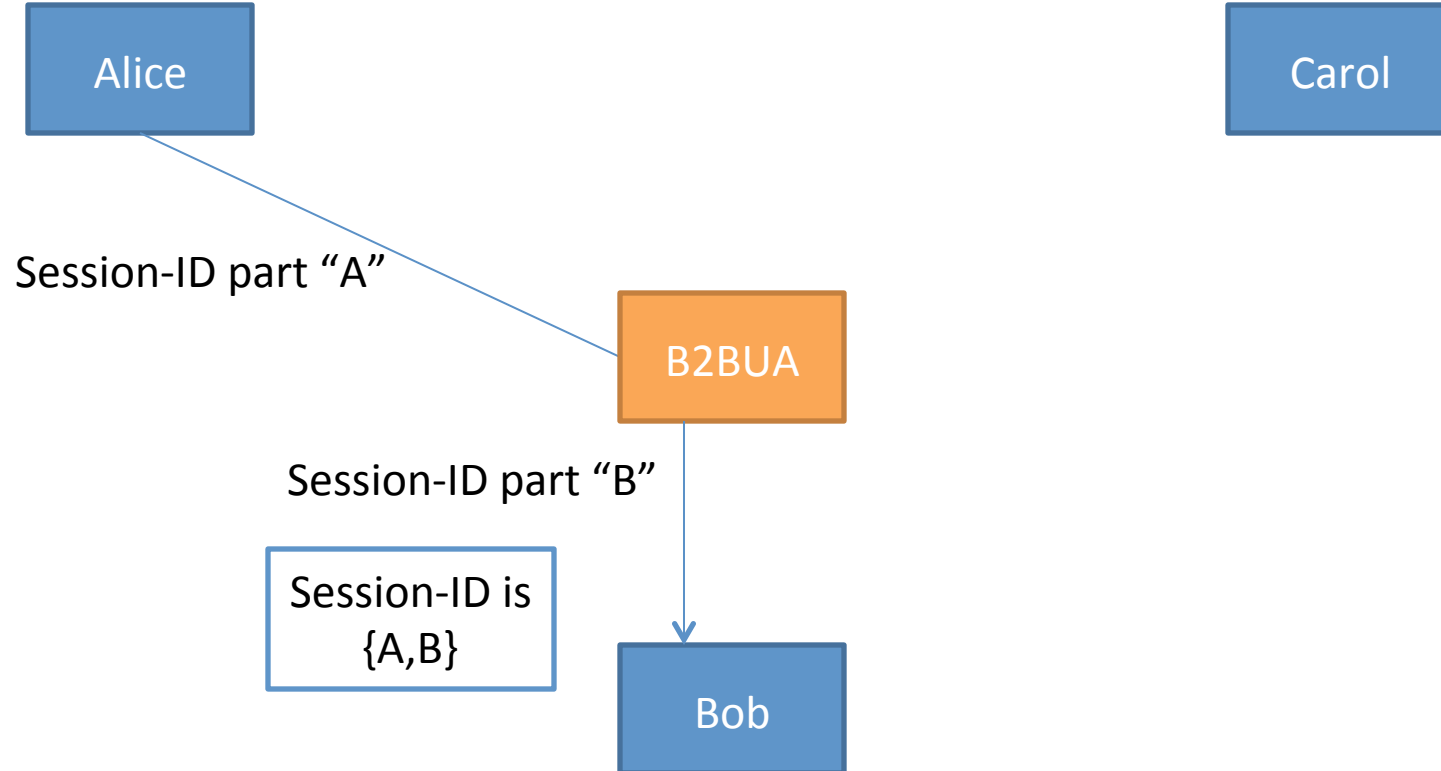
Alice thinks it is X and Bob thinks it is Y.

BOTH think they are communicating
directly with the other

Let Each Endpoint Contribute

- Rather than having the calling device or called device assign a Session-ID, let each assign part of the end-to-end Session-ID
- We then include both values in header-value

The New Session ID



UUID A=0xaeffa652b22911dfa81f12313a006823

UUID B=0xbe11afc8b22911df86c412313a006823

Session-ID Construction

- Session-ID is two RFC 4122 defined 32-byte UUIDs (or “half-keys”).
- Several choices to make
 - Chose Hex over base64
 - Seemed to be a byte savings issue exclusively
 - Half key ordering (fixed size keys, with separator)
 - Chose
 - Sender always is the first UUID,
 - remote UUID is prefaced with “rcvr=” (or “remote=”)
 - All parts known to a entity are included in transmission

ABNF Proposed in -01

```
Session-ID = "Session-ID" HCOLON sess-id  
            ( SEMI rcvr-uuid )  
            *( SEMI generic-param )
```

```
sess-id     = 32(DIGIT / %x61-66) ;32 chars of [0-9a-f]
```

```
rcvr-uuid   = "rcvr" EQUAL 32(DIGIT / %x61-66)
```

ABNF for -02

session-id = "Session-ID" HCOLON local-uuid
* (SEMI sess-id-param)

local-uuid = sess-uuid

remote-uuid = sess-uuid

sess-uuid = 32 (DIGIT / %x61-66) ;32 chars of [0-9a-f]

sess-id-param = remote-param / generic-param

remote-param = "remote" EQUAL remote-uuid

Basic Session-ID Construction with 2 UUIDs

Session-ID

---	Alice	B2BUA	Bob	Carol
{A}		-----INVITE----->		
{A}			-----INVITE----->	
{B,A}			<----200 OK-----	
{B,A}		<----200 OK-----		
{A,B}		-----ACK----->		
{A,B}			-----ACK----->	
			<=====RTP=====>	

Basic Call Transfer using REFER (1/2)

Session-ID

	---	Alice	B2BUA	Bob	Carol
			<=====RTP=====>		
{B,A}			<---reINVITE---		
{B,A}			<---reINVITE---		
{A,B}			-----200 OK---->		
{A,B}			-----200 OK---->		
{B,A}			<-----ACK-----		
{B,A}			<-----ACK-----		
{B,A}			<-----REFER-----		
{B,A}			<-----REFER-----		
{A,B}			-----200 OK---->		
{A,B}			-----200 OK---->		
{B,A}			<-----ACK-----		
{B,A}			<-----ACK-----		
{A,B}			-----NOTIFY---->		
{A,B}			-----NOTIFY---->		
{B,A}			<-----200 OK-----		
{B,A}			<-----200 OK-----		

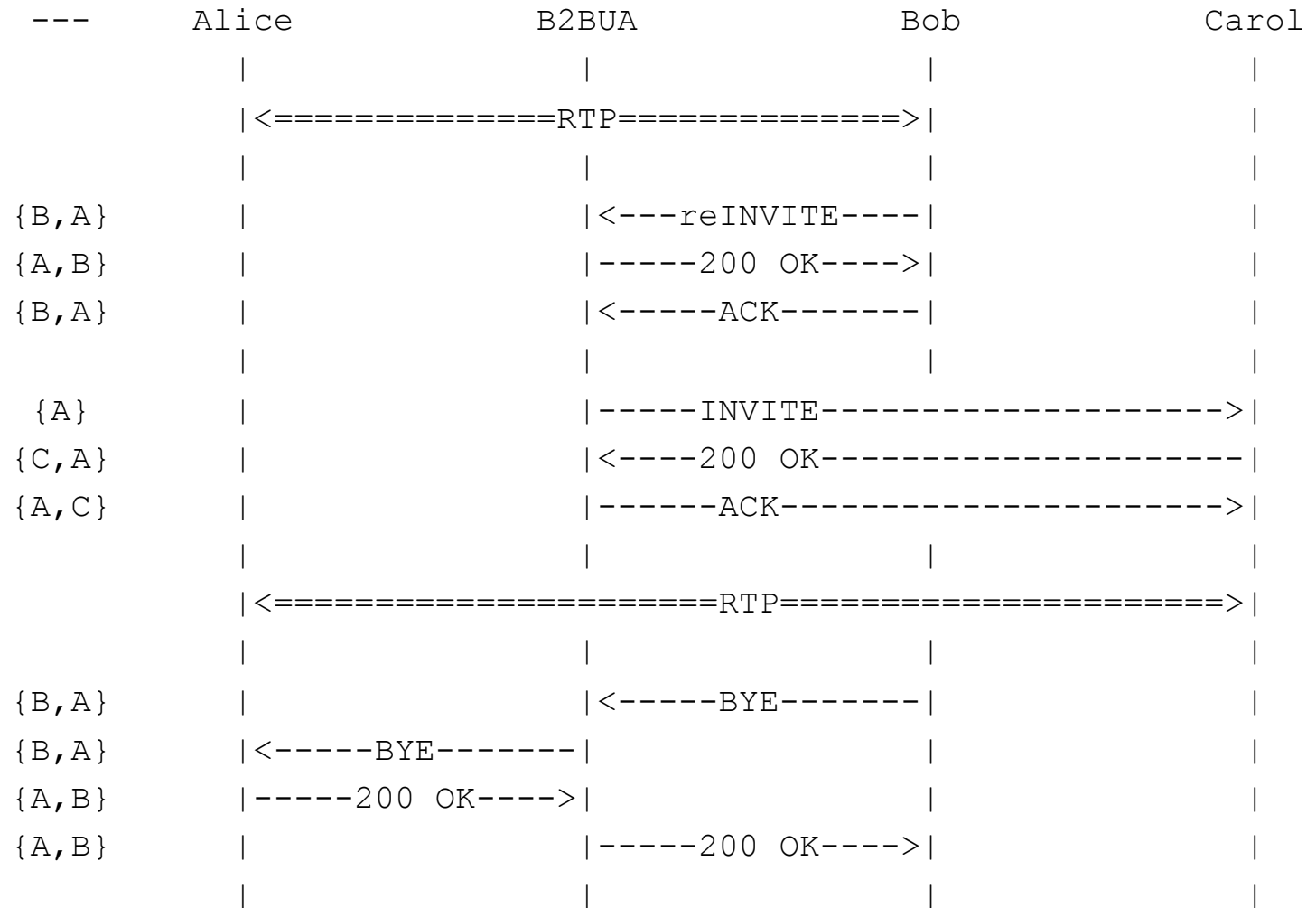
Basic Call Transfer using REFER (2/2)

Session-ID

	Alice	B2BUA	Bob	Carol
{A}	-----INVITE----->			
{A}		-----INVITE----->		
{C,A}		<-----200 OK-----		
{C,A}	<-----200 OK-----			
{A,C}	-----ACK----->			
{A,C}		-----ACK----->		
	<=====RTP=====>			
{A,B}	-----NOTIFY----->			
{A,B}		-----NOTIFY----->		
{B,A}		<-----200 OK-----		
{B,A}	<-----200 OK-----			
{B,A}		<-----BYE-----		
{B,A}	<-----BYE-----			
{A,B}	-----200 OK----->			
{A,B}		-----200 OK----->		

Basic Call Transfer using reINVITE

Session-ID



Single Focus Conferencing

Session-ID	Conference			
---	Alice	Focus	Bob	Carol
{A}	-----INVITE----->			
{M1,A}	<---200 OK-----			
{A,M1}	-----ACK----->			
	<====RTP=====>			
{M',A}	<---reINVITE----			
{A M'}	-----200 OK---->			
{M',A}	<-----ACK-----			
{B}		<----INVITE-----		
{M2,B}		-----200 OK---->		
{B,M2}		<-----ACK-----		
		<=====RTP=====>		
{M' B}		----reINVITE--->		
{B M'}		<----200 OK-----		
{M' B}		-----ACK----->		
{C}		<-----INVITE-----		
{M3,C}		-----200 OK---->		
{C,M3}		<-----ACK-----		
		<=====RTP=====>		
{M' C}		-----reINVITE--->		
{C M'}		<-----200 OK-----		
{M' C}		-----ACK----->		

Single Focus Conferencing using WebEx

Session-ID	Conference			
---	Alice	Focus	Bob	Carol
	<** HTTPS *****>			
	Transaction			
{M}	<----INVITE-----			
{A M}	-----200 OK---->			
{M A}	<-----ACK-----			
	<=====RTP=====>			
		<** HTTPS *****>		
		Transaction		
{M}		-----INVITE---->		
{B M}		<----200 OK-----		
{M B}		-----ACK----->		
		<=====RTP=====>		
		<***** HTTPS *****>		
		Transaction		
{M}		-----INVITE----->		
{C M}		<-----200 OK-----		
{M C}		-----ACK----->		
		<=====RTP=====>		

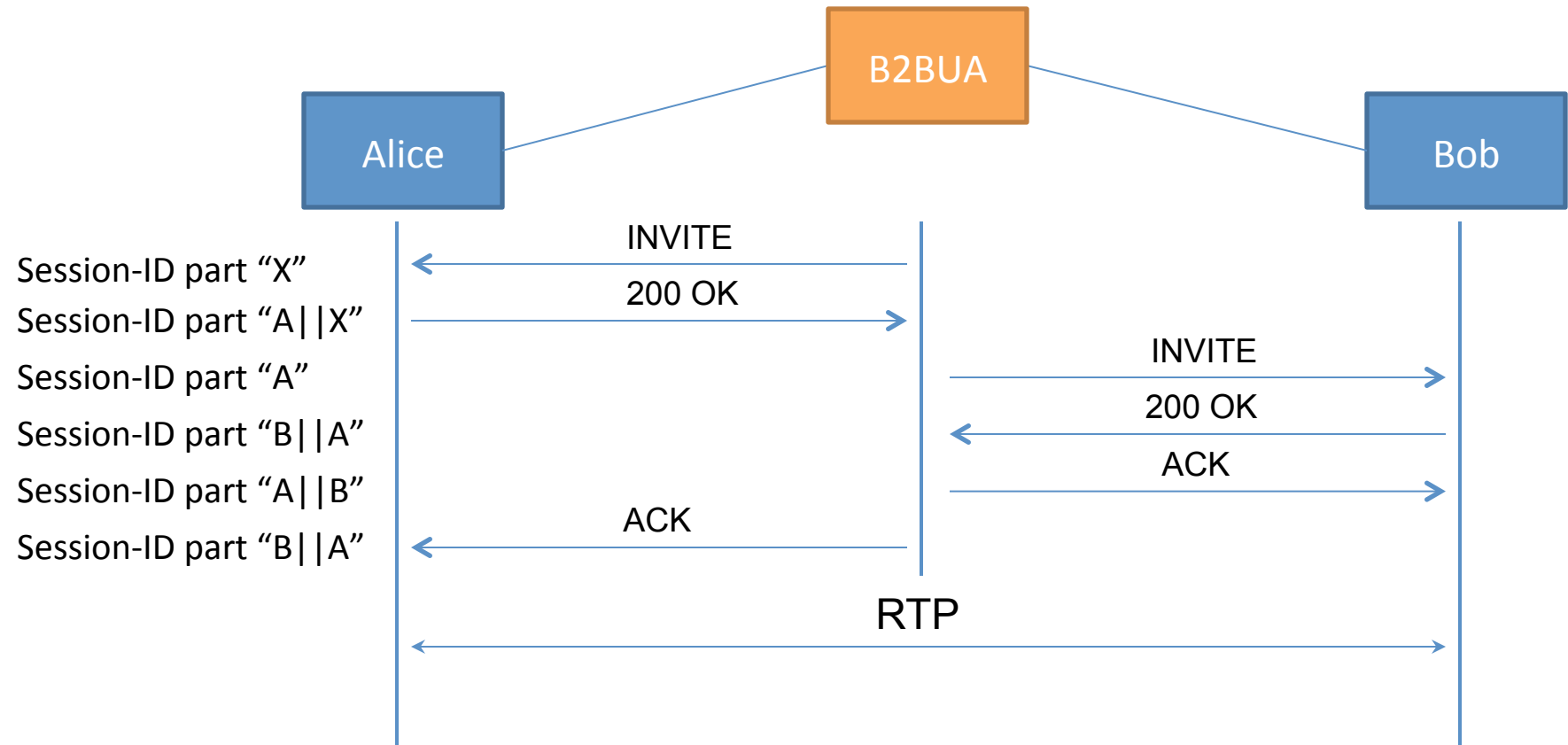
Basic 3PCC for two UAs

Session-ID

---	Alice	B2BUA	Bob	Carol
{X}	<-----INVITE-----			
{A,X}	-----200 OK----->			
{A}		-----INVITE----->		
{B,A}		<---200 OK-----		
{B,A}	<-----ACK-----			
{A,B}		-----ACK----->		
	<=====RTP=====>			

New 3PCC and Session-ID

3PCC from B2BUA to Alice and Bob



Issue with lack of UUID from Either Side (?)

- What <Charles> suggested is as follows:
 - Request from Alice through intermediary to Bob.
 - Intermediary creates and inserts in request on behalf of Alice if not there.
 - Response from Bob through intermediary to Alice.
 - Intermediary creates and inserts in response on behalf of Bob if not there

Question – does it matter which of many intermediaries does this insertion?

Backwards Compatibility (1/2)

- Current implementations are based on individual draft that does not construct a Session-ID in the same way.
- Goal to not break existing implementations, while not sacrificing new functionality
-

Backwards Compatibility (2/2)

- New Interoperability section focuses on the following:
 - old calling old (should work fine)
 - new calling new (should work fine)
 - old calling new (interesting issues)
 - new calling old (more interesting issues)
- More work needed in this section.
- Please send text!!

Known Open Issues (1/2)

- Fix ABNF
- Could show a multiple-focus conferencing scenario
- Need RTCP text if there is an RTCP requirement.
- Need more text covering when and when not to allow intermediaries to insert UUIDs.
 - Including what to do if a intermediary figures out one UA is not Session-ID aware.

Known Open Issues (2/2)

- Get more info about version 0 reactions for greater interoperability
 - BTW we don't want to use the term “version 0”

Next Steps

- Is this ready to be adopted?