Background

- RFC 6665 has deprecated reuse by SUBSCRIBE and REFER of an existing dialog established by another method when a subscription could be established.
- However, there are deployments that include B2BUAs that need to receive the REFER or SUBSCRIBE requests that are related to an INVITE established dialog
  - E.g. SBCs that change dialogs on either side and possibly modify other URIs as well
    - need to transpose Target-Dialog, Replaces, etc before reception by the remote UAS
  - Intermediate servers such conference servers that act as a UAS for a REFER that is targeted at a remote UAS in the conference or being invited to the conference.
  - If these requests are then sent outside of the INVITE created dialog then things don't work as intended or simply don't work at all.

Problem

- RFC 6665 mandates that when the remote target is a GRUU a request capable of creating a subscription MUST be sent outside of an existing dialog
  - SBC vendors are likely to modify the contact header fields so it doesn't indicate it is a GRUU (no gr parameter) and is targeted at the SBC instead of the remote UA in order to ensure that the request is sent within the INVITE created dialog and reaches the SBC
    - See List comment from Hadriel Kaplan
  - That means that dialog reuse continues
    - RFC 6665 effectively becomes a wasted effort to solve the issues caused by multiple dialog usages
  - Contact header field contents are being overwritten losing valuable end to end information
    - GRUU of remote UA, media feature tags

Potential Solutions

- What is needed is a means for an intermediary that needs to receive and manipulate or process mid session requests to indicate that mid session out of dialog requests that relate to the dialog of the session being established, to indicate a URI to be included in the Route header of such out of dialog requests so that the request will route by the intermediary.
  - Some proposed mechanisms
    - new SIP header field (e.g. OOD-Record-Route)
    - new rr-param(e.g. OOD-RR)
    - new URI parameter (e.g. OOD-RR) in Record-Route URI
    - new feature-capability indicator (e.g. sip.ood-route)
    - embed Route in the contact URI

new SIP header field

- OOD-Record-Route
  - contains the URI of the intermediary for routing out of dialog requests that relate to another dialog.
  - included by the intermediary in the dialog establishing INVITE requests and responses
  - UA would then include a Route header field containing the URI received in the OOD-Record-Route header field in any related out of dialog requests it sends

new rr-param

- OOD-RR
  - indicates that this is the URI of the intermediary for routing out of dialog requests that relate to another dialog.
  - included by the intermediary when including its URI in the Record-Route header field of the dialog establishing INVITE requests
  - UA would then include a Route header field containing the URI received in the Record-Route header field with the associated OOD-RR rr-param in any related out of dialog requests it sends

new URI param in Record-Route URI

- OOD-RR
    - Similar to new rr-param but the intermediary uses a URI parameter to indicate this is a URI that related out of dialog requests need to be routed by

new feature-capability indicator

- sip.ood-route
  - contains the URI of the intermediary for routing out of dialog requests that relate to another dialog.
  - included by the intermediary in the dialog establishing INVITE requests and responses
  - UA would then include a Route header field containing the URI received in the sip.ood-route feature capability indicator header field in any related out of dialog requests it sends

embed Route in the contact URI

- the Contact URI can contain embedded header fields
- the intermediary could embed a Route header field containing its own URI in the Contact URI.
- a claimed advantage of this approach is that there may be some backward compatibility with this mechanism with existing UAs
- however Brett Tate pointed out that RFC 3261 states that UAs should ignore any embedded Route headers in the URI
- a disadvantage of this approach is if the Contact URI is secured using SMIME or a similar means for detecting man in the middle attacks then tampering with the URI could lead to the UAS believing that the Contact URI has been maliciously tampered with.

Option tag

- A new SIP option tag will be needed
  - for a UA to indicate that it supports the new extension
  - so that the intermediary can decide to use the new mechanism
  - SIP OPTIONS method could be used by the intermediary to determine whether the UAS supports the extension before forwarding the dialog creating request
  - alternatively the intermediary might modify the dialog after discovering in a response whether the UAS supports the new extension or not.

Way forward?

- Is this a problem worth solving??
  - Or do we continue with B2BUAs modifying the contact and continued multiple dialog uses in many or most deployments?
- Which working group should be chartered to do this work
  - SIPCore?
  - STRAW?
  - ???
- Feedback on the potential solutions is also sought.