

# Technical Disclosure Commons

---

Defensive Publications Series

---

10 Dec 2024

## ACTION ITEM MANAGEMENT ACROSS VIRTUAL COLLABORATION MEETINGS AND SPACES

Chidambaram Arunachalam

Gonzalo A Salgueiro

Paul Anholt

Hazim Dahir

Follow this and additional works at: [https://www.tdcommons.org/dpubs\\_series](https://www.tdcommons.org/dpubs_series)

---

### Recommended Citation

Arunachalam, Chidambaram; A Salgueiro, Gonzalo; Anholt, Paul; and Dahir, Hazim, "ACTION ITEM MANAGEMENT ACROSS VIRTUAL COLLABORATION MEETINGS AND SPACES", Technical Disclosure Commons, (December 10, 2024)

[https://www.tdcommons.org/dpubs\\_series/7639](https://www.tdcommons.org/dpubs_series/7639)



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.

## ACTION ITEM MANAGEMENT ACROSS VIRTUAL COLLABORATION MEETINGS AND SPACES

### AUTHORS:

Chidambaram Arunachalam  
Gonzalo A Salgueiro  
Paul Anholt  
Hazim Dahir

### ABSTRACT

The concept of sharing key points and identifying action items based on a discussion in a virtual collaboration meeting is the most effective way of documenting the decisions made and tasks assigned during the meeting. However, meeting summaries including AI based summaries, does not provide information on whether the action items were already completed during the meeting. Proposed herein are techniques to determine completion of action items related to a specific topic based on conversations, real-time media, file share events across related virtual collaboration spaces and virtual meetings.

### DETAILED DESCRIPTION

Sharing key points and identifying action items based on a discussion in a virtual collaboration meeting drives accountability and ensures progress of the topic being discussed in the meeting. Previously, a meeting host would spend time after the meeting creating the meeting summary and action items. In recent times, meeting key points and action items are automatically available using generative artificial intelligence (AI) as part of AI based meeting summaries.

Generally, the AI based meeting summaries list the complete set of action items identified during the meeting but do not provide information on whether the action items were already completed during the meeting. The participants of a virtual meeting continue their discussions offline in virtual collaboration spaces. Currently, the collaboration system does not correlate to the discussions in virtual meetings with virtual collaboration spaces and hence it is difficult for the meeting host to determine whether some action items were completed during the offline discussions or did the participant inform that the action item was completed in the virtual collaboration space discussions. This leads to meeting hosts asking participants about action item status in a subsequent virtual meeting or having to manually follow-up with participants to determine action item status. To overcome these issues, proposed herein are techniques to

automatically determine action item completion across virtual meetings and virtual collaboration spaces.

In enterprise companies, education institutions, hospitals, virtual meetings are typically scheduled from calendaring systems or from custom scheduling systems. A meeting invite could be a one-time event or recurring meeting series. Another mechanism of scheduling meetings that is gaining popularity is scheduling meetings in the context of an existing messaging collaboration space. The collaboration space is created in the context of a business object such as support case, project, patient case etc. The moderators of the collaboration space schedule meetings right from the space when live discussion is required. All such meetings are associated with the space in which they are scheduled.

The proposed techniques introduce a novel method that is applied across multiple systems such as a collaboration platform, a collaboration client application, action items management system and calendaring or scheduling system. Action items management system is an application that could be integrated with collaboration platforms. The application leverages the critical capabilities offered by the platform (collaboration events, real-time media, conversation transcripts) to provide additional value to consumers of the collaboration platform. An end user authorizes the action item management system to get notified when a meeting or meeting series is scheduled. Similarly, the moderator of a collaboration space can authorize the action item management system to be associated with the given space and get access to the data associated with the space and with all the meetings associated with the space.

Figure 1 illustrates the proposed method in detail, and the steps are described as follows:

1. When an action item management system gets notified of a single meeting or a meeting series create event, it sends a subscription to the collaboration platform to receive all events and data associated with the specific “meeting ID.” This includes meeting start event, end event, meeting start date/time changes, real-time streaming of transcript and even real-time forking of audio and video streams.

2. When the action item management system is authorized by a moderator of a collaboration space, the system sends a subscription to the collaboration platform to receive all participant conversational messages, file share events associated with the space and to get notified when a new meeting is scheduled within the space, or an upcoming meeting is updated. When the

system gets notified that a new meeting is scheduled, it then subscribes for meeting specific events using the specific “meeting ID” as discussed in step #1.

3. When end users or moderators send messages or share files within the spaces of interest, the collaboration platform notifies the action item management system about events such as a new message sent, a new file shared, an existing message edited/deleted, or an existing file deleted. The action item management system then retrieves details of the corresponding message or files. When a meeting of interest is started, the collaboration platform automatically starts sending real-time transcripts to the action item management system based on the subscription processed in step #1. It could even split real-time audio and video streams.

4. The action item management system sends the messages and meeting transcripts to a multi-model large language model (LLM) module to identify new action items discussed in the conversation along with action item owner(s).

5. When a new action item is identified, the system checks whether an action item table for the given context exists, including space ID or meeting ID. If none exists, it uses the space ID or the meeting ID of the meeting series as context ID to create a new action item table and adds the action item to it.

6. After the incoming message or transcript is processed for new action item, the system retrieves the existing set of action items and leverages a multi-model LLM module to determine whether any of the existing action items has been completed. It then marks them as complete along with details such as who completed it and when it was completed along with any comments.

7. The system could also leverage content generated from real-time media streams such as video clips as input to the multi-model LLM module.

8. The system could also convert a file share event into a message such as, “User ABC shared a file named Idea proposal.ppt with title set to “Idea 1” with authors as U1 and U2”. The multi-model LLM module could then consider this auto-generated text to determine whether a new action needs to be created, or an existing action item needs to be marked as complete.

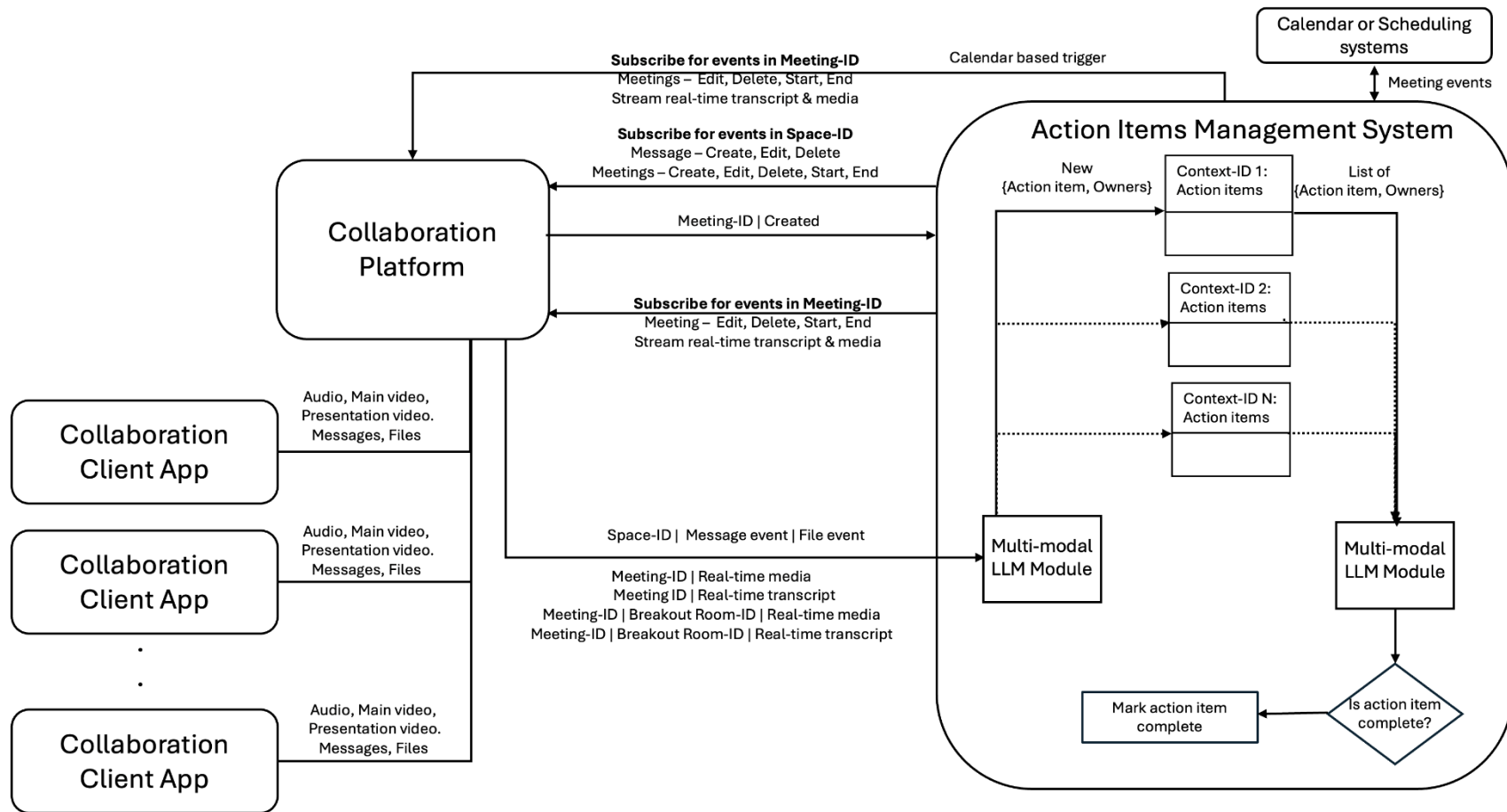


Figure 1. Interaction between Collaboration Platform and Action Item Management System

The action items management system described in Figure 1 can be implemented as part of an ecosystem which includes collaboration platforms that are used to securely create multi-user virtual spaces in the context of a business object. The system can actively monitor the participants added to these spaces and automatically remove them if they are not authorized based on support entitlement policies. It can perform other tasks such as exporting the conversation transcript.

The proposed techniques can be applied in a variety of business contexts. Technical support and ideation scenarios of such business contexts are provided below as examples.

Example 1: Action items with individual ownership

Figure 2 illustrates an example scenario in which a virtual collaboration space (space-1) is created in the context of a support case. In this example scenario, customer administrator users (U1, U2), support engineer (U3), and customer end users (U4, U5) are the participants of space-1. The administrator user U3 opens a support ticket, requests to add users U1, U2, U4 in all communications with respect to the case and chooses virtual collaboration space as their communication preference. The support CRM system creates a virtual collaboration space in the context of the support case by using collaboration cloud system APIs. The support CRM system adds users U1, U2, U3, U4 and the support engineer (U5) assigned to the case. The collaboration space is associated with the support case. The support case number is stored as metadata of the collaboration space and is also included in the title of the collaboration space.

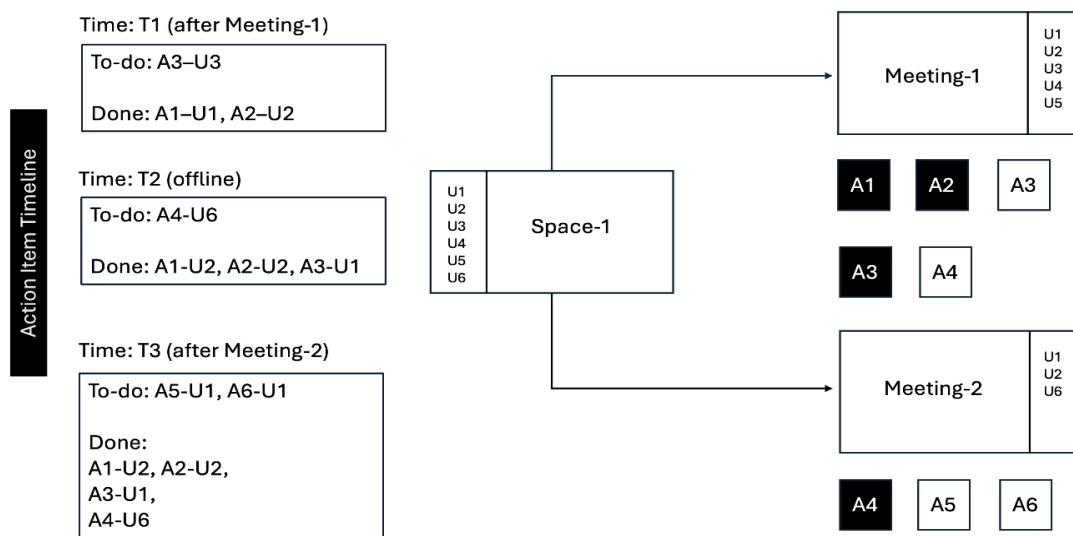


Figure 2: Automated Action Item Management System

The implementation of the proposed technique in the example scenario of ‘Action items with individual ownership’ is described in the following steps:

1. Support engineer has an initial discussion with customer in the virtual space and they decide to start a virtual meeting for live troubleshooting in the network. Support engineers gets consent from the customer and authorizes the action item management system or application to get access to events and data associated with the space and all related meetings. The action item management system uses space ID, in this example “Space-1” as the context ID to track all the action items.

2. Support engineer initiates a virtual meeting right from the virtual space. The meeting is launched in the context of this virtual space. The meeting title also includes the support case number.

3. The users U1, U2, U3, U4 and U5 join the session and start troubleshooting.

4. During the meeting, the support engineers request U1 to collect diagnostics log bundles from network devices and U2 to collect network packet capture. Support engineer guides U1 and U2 in regard.

5. Support engineer makes a commitment to analyze the diagnostics data and share next steps within, say 1 business day.

6. The action item management system detects three action items (A1, A2 and A3).

7. The collaboration platform generates the meeting summary and lists three action items, as illustrated in Table 1A below.

8. The action item management system also automatically determines that the first two tasks have already been completed during the meeting itself and lists the actions items A1 and A2 as complete. These action items are shown in Figure 2 as Time: T1 (after Meeting-1) with A1 and A2 highlighted to show that they are complete.

Action Item ID	Title	Owner	Status	Due Date	Completed Date
A1	Collect logs from two network devices	U1	Done	N/A	5 <sup>th</sup> April 2024
A2	Collect network packet capture	U2	Done	N/A	5 <sup>th</sup> April 2024
A3	Review diagnostics data and share next steps	U3	Not started	8 <sup>th</sup> April 2024	N/A

Table 1A: Example 1- Meeting Summary including Action Items

9. The action item management system could also automatically create these action items within the CRM system and update it accordingly.

10. The support engineer performs the analysis and shares the findings and next steps offline in the virtual collaboration space and then recommends a software update to mitigate the issue and adds the professional services engineer (U6) to the collaboration space.

11. The support engineer informs the details and requests the professional services engineer to perform an upgrade. Customer administrator U1 provides U6 permission to perform the upgrade during a live meeting Meeting-2. The professional services engineer schedules a meeting right from the same collaboration space for date and time T3.

12. The action item management system analyzes the conversations in the virtual collaboration space and automatically determines that action item A3 is complete and also creates a new action item A4 with a specific due date. The action item list associated with the collaboration space and support case as shown below in Table 1B.

Action Item ID	Title	Owner	Status	Due Date	Completed Date
A1	Collect logs from two network devices	U1	Done	N/A	5 <sup>th</sup> April 2024
A2	Collect network packet capture	U2	Done	N/A	5 <sup>th</sup> April 2024
A3	Review diagnostics data and share next steps	U3	Done	8 <sup>th</sup> April 2024	6 <sup>th</sup> April 2024
A4	Perform software upgrade on network device N1	U6	Not started	12 <sup>th</sup> April 2024	N/A

*Table 1B: Example 1 - Updated Meeting Summary including Action Items after Step #12*

13. The customer users U1, U2 and professional service engineer U6 joins Meeting-2. Professional services engineer completes the upgrade during the scheduled maintenance window. Then the engineer requests customer user U1 to monitor and give confirmation to close the case.

14. The action item management system automatically correlates that Meeting-2 is associated with Space-1 and support case Case-1 and hence creates action items associated with the space and case. A subset of the current action item list is shown below in Table 1C.

Action Item ID	Title	Owner	Status	Due Date	Completed Date
A4	Perform software upgrade on network device N1	U6	Done	12 <sup>th</sup> April 2024	12 <sup>th</sup> April 2024
A5	Monitor whether the problem is completely resolved	U1	Not started	16 <sup>th</sup> April 2024	N/A
A6	Provide confirmation to close support case	U1	Not started	16 <sup>th</sup> April 2024	N/A

Table 1C: Example 1 - Updated Meeting Summary including Action Items after Step #14

15. The customer administrator monitors and confirms that everything is good in the collaboration virtual space, space-1. The user also requests support engineer to close the case and thanks for assistance.

16. Support engineer closes the case.

17. Action item management system analyzes the conversations and marks action items A5 and A6 as completed, shown in Table 1D below.

Action Item ID	Title	Owner	Status	Due Date	Completed Date
A5	Monitor whether the problem is completely resolved	U1	Done	16 <sup>th</sup> April 2024	16 <sup>th</sup> April 2024
A6	Provide confirmation to close support case	U1	Done	16 <sup>th</sup> April 2024	16 <sup>th</sup> April 2024

Table 1D: Example 1 - Updated Meeting Summary including Action Items after step #17

Example 2: Action items with group ownership

Figure 3 illustrates an example scenario in which a collaboration space is created in the context of an ideation challenge. The participants of this collaboration space include ideators, the team organizing the ideation challenge event and the judges. Virtual meetings are created in the context of the collaboration space, for example “Space-1”. In this example and Figure 3, the short forms U – User, O – Organizer, J – Judge and B – Business leader are used.

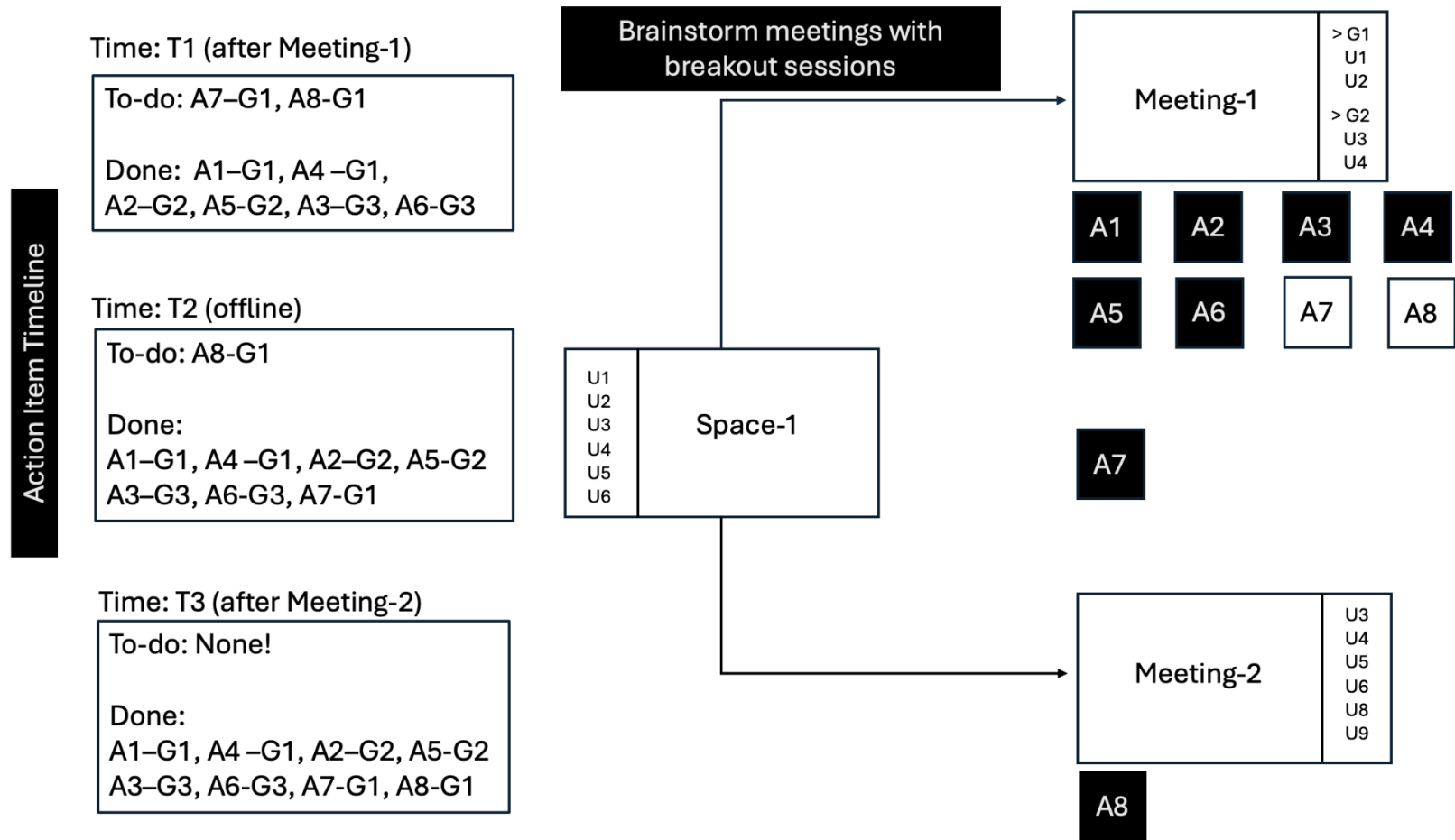


Figure 3: Automated Group based Action Item Management in Brainstorm related Virtual Spaces and Meetings

The implementation of the proposed technique in the example scenario of ‘Action items with group ownership’ is described in the following steps:

1. The organizers of the ideation challenge create a collaboration “Space-1” and authorizes the action item management system to access all events and data associated with space and all the meetings associated with this space. The action item management system uses “Space-1” as the context-ID to track all the action items.

2. The organizer O1 schedules the first meeting “Meeting-1” in which all ideators are invited.

3. During the meeting, after introducing the ideation topics, the organizers request participants to form teams with each team consisting of a sub-set of participants interested on a specific topic.

4. The organizers form breakout rooms for each team to facilitate brainstorming.

5. The participants join the breakout room. For example: users U1 and U2 join group Breakout room #1, users U3 and U4 join group Breakout room #2, and users U5 and U6 join group Breakout room #3.

6. During the breakout session, the action item management system identifies that participants must prepare for an idea proposal based on the initial conversation among the members within breakout room. It creates action items, automatically forms a group of “owners” – G1, G2 and G3 and assigns the action item to the owners:

a. G1 consists of U1 and U2.

b. G2 consists of U3 and U4.

c. G3 consists of U5 and U6.

7. At a later point during the breakout session, the system identifies that participants in the breakout room must pitch the idea to the judges. The current list of action items associated with the Space-1 is shown below in Table 2A.

Action Item ID	Title	Owner	Status	Due Date	Completed Date
A1	Prepare idea proposal	G1	In-progress	N/A	N/A
A2	Prepare idea proposal	G2	In-progress	N/A	N/A
A3	Prepare idea proposal	G3	In-progress	N/A	N/A
A4	Pitch idea to judges	G4	Not started	N/A	N/A
A5	Pitch idea to judges	G5	Not started	N/A	N/A
A6	Pitch idea to judges	G6	Not started	N/A	N/A

*Table 2A: Example 2 - Meeting Summary including Action Items*

8. Later during the breakout session, the system identifies that participants have prepared their idea proposal. Hence the system automatically marks the action item as complete, as shown in Table 2B.

Action Item ID	Title	Owner	Status	Due Date	Completed Date
A1	Prepare idea proposal	G1	Complete	N/A	19 <sup>th</sup> Apr 2024
A2	Prepare idea proposal	G2	Complete	N/A	19 <sup>th</sup> Apr 2024
A3	Prepare idea proposal	G3	Complete	N/A	19 <sup>th</sup> Apr 2024
A4	Pitch idea to judges	G4	Not started	N/A	N/A
A5	Pitch idea to judges	G5	Not started	N/A	N/A
A6	Pitch idea to judges	G6	Not started	N/A	N/A

*Table 2B: Example 2 - Updated Meeting Summary including Action Items after step #8*

9. After brainstorming is complete, participants leave their breakout room and join the main meeting.

10. Judges J1, J2 and J3 join the session.

11. U1 presents the idea to the judges. The system detects that action item A4 “Pitch idea to judges” is now complete since U1 belongs to group “G1”.

12. Similarly, U4 from G2 and U5 from G3 present the pitches and the system marks the corresponding action items as complete. The updated action items are as shown in Table 2C.

Action Item ID	Title	Owner	Status	Due Date	Completed Date
A4	Pitch idea to judges	G4	Complete	N/A	19 <sup>th</sup> Apr 2024, 2:30 PM EST
A5	Pitch idea to judges	G5	Complete	N/A	19 <sup>th</sup> Apr 2024, 3:05 PM EST
A6	Pitch idea to judges	G6	Complete	N/A	19 <sup>th</sup> Apr 2024, 3:45 PM EST

Table 2C: Example 2 - Updated Meeting Summary including Action Items after step #12

13. The judges select the idea presented by G1 and request them to prepare a detailed return of investment (ROI) and present to business leaders B1 and B2. The system automatically creates action item A7 and A8 and gets it assigned to G1.

14. Meeting-1 ends.

15. After a few days, U1 and U2 share an update in the collaboration space with the ROI details. The system detects that update and marks the action item A7 as complete (Table 2D).

Action Item ID	Title	Owner	Status	Due Date	Completed Date
A7	Prepare detailed ROI	G1	Complete	N/A	25 <sup>th</sup> April 2024 11:00 AM EST
A8	Present to business leaders	G1	Not started	N/A	N/A

Table 2D: Example 2 - Updated Meeting Summary including Action Items after step #15

16. The ideation organizers schedule a separate virtual meeting “Meeting-2” in the context of the collaboration space “Space-1”. The ideation organizers O1 and O2 invite ideators U1, U2 and business leads B1 and B2 to “Meeting-2”.

17. During Meeting-2, U2 presents the ROI to business leaders. The system identifies that Meeting-2 is related to the “Space-1” and hence looks up associated action items. It finds “A8” and marks it as complete (Table 2E).

Action Item ID	Title	Owner	Status	Due Date	Completed Date
A7	Prepare detailed ROI	G1	Complete	N/A	25 <sup>th</sup> April 2024 11:00 AM EST
A8	Present to business leaders	G1	Complete	N/A	2 <sup>nd</sup> May 8:45 AM EST

Table 2E: Example 2 - Updated Meeting Summary including Action Items after step #17

The proposed techniques can add meeting summaries and action items as described in the examples above. The action items management system uses the following method to determine the presence of an action item and completion of an action item:

1. The action items management system application is first associated to a messaging space created in the context of a business object. The system receives events and retrieves conversation transcripts from collaboration platform as shown in Figure 1. The conversation transcript contains one or more messages exchanged in a message space or the transcribed text of the voice message exchanged in a virtual meeting among the participants.

2. The action items management system retrieves the conversation transcript of a messaging space at periodic intervals and at specific events of interest (e.g., add participant, remove participant). If the system has already retrieved transcript from this space in the past, it only retrieves the delta – new messages since the last transcript import.

3. The participants in the messaging space start the conversation.

4. The action items management system retrieves the conversation transcript based on the triggers mentioned in Step #2. It creates a first dynamic LLM prompt to identify the list of action items within the transcript. A sample prompt #1 is as shown below:

"You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving {{ticket-ID}}, {ticket title}}. This conversation happened in a {{messaging space | virtual meeting}}.

Current time is {{ISO Time stamp}}

Identify the list of action items or tasks. Some action items or tasks may get completed during the conversation itself.

Include action items and tasks that do not have a specific due time.

Each action item or task must have a specific title, description, and name of the owner. The due date or due time is optional.

Start action item number from {N} using the following format:

Action item ID:

Title:

Description:

Owner:

Due Date:"

The bracketed ({{{}}}) variables in the sample prompt above are replaced with actual values and is then sent to the LLM along with the conversation transcript including:

- a. Details about the business object (e.g., support ticket ID and title)
- b. The place where the conversation happened
- c. Current time in ISO timestamp.
- d. Starting index of action item ID.

This makes it easy to assign unique ID to the action items as and when they are detected by LLM across different conversation transcript.

5. The LLM identifies the list of action items along with owner and due date (if mentioned).

6. The action items management system then adds the new action items identified by LLM to the list of action items associated with the business object (e.g., support ticket).

7. The action items management system then creates a second dynamic LLM prompt to identify the list of existing action items that were completed as part of the conversation between the participants in the messaging space or meeting. A sample prompt #2 is shown below:

“You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving {{{ticket-ID}}, {ticket title}} along with a list of open action items. This conversation happened in a {{{messaging space | virtual meeting}}}.

Current time is {{{ISO Time stamp}}}.

Following are list of open action items:

Action Item ID:

Title:

Description:

Owner:

Due Date:

An action item is considered not completed if any of the conditions #1, #2 and #3 are true.

Condition #1 - The action item owner acknowledges to perform the task.

Condition #2 - The action item owner gives commitment to perform the task.

Condition #3 - The action item owner intends to perform the task.

An action item is considered completed if any of the conditions #4 is true.

Condition #4 - The action item owner has finished doing the task.

Provide the completion status of all action items and the reason for status. For completed action items, include action item ID, name of the user who completed the action and completion timestamp. If the exact completion time isn't mentioned, then provide the completed date."

The bracketed ({{}}) and underlined variables in the prompt are replaced with actual values and is then sent to the LLM along with the conversation transcript including:

- a. Details about the business object (e.g., support ticket ID and title)
- b. The place where the conversation happened
- c. Current time in ISO timestamp.
- d. The list of open action items associated with the business object

It is important to note that the prompt has specific instructions on what action items are NOT considered completed in order to avoid false positives. The LLM is also asked to provide a reason for the action item to be considered complete, as shown in sample prompt #2.

8. The action items management system marks the status of action items determined as completed by LLM as “Completed”. The system could also dynamically post the completed action items list to the moderators of the space or action item owners.

9. Similarly, when a virtual meeting scheduled in the context of this business object, the action items management system retrieves the conversation transcript of a meeting when the meeting ends or at specific periodic intervals if the meeting runs long. If the system has already retrieved transcript from this virtual meeting in the past, it only retrieves the delta – new messages since the last transcript import.

10. The action items management executes the steps from #4 - #7 to determine new action items and completed action items.

11. The action items management system marks the status of action items determined as completed by LLM as “Completed”. The system could also dynamically post the completed action items list to the meeting hosts of the space or action item owners.

12. The action items management system executes the steps #4 - #11 whenever there is a new message of interest in the message space or when a virtual meeting of interest happens in the context of the business object.

The proposed technique is implemented as a sample scenario described in Figure 2 using six different conversation transcripts of which 4 belong to message space and two belong to virtual meetings. The conversation transcript, the corresponding prompts, new actions items and completed action items are provided in the Appendix. The proposed system was able to correctly detect action item completions 90% of the time for this sample scenario.

The conversation transcripts are labelled and described as:

1. Transcript of messaging space created with customer a1, a2 and support engineer e1 as participants. The participants decide to join a virtual meeting to troubleshoot the problem in real-time. The action item management app is associated with this space.
2. Transcript of the troubleshooting meeting with customer a1, a2 and support engineer e1 as participants created. Diagnostics data was collected during the meeting. e1 takes an action to analyze and share findings.
3. Transcript of the messaging space since the last import created. Support engineer e1 shares the analysis findings and recommends upgrading to resolve a software issue. Professional services engineer e2 is added to the messaging space. A second meeting is scheduled by e2 to perform the upgrade during a maintenance window.
4. Transcript of the maintenance window meeting in which the upgrade was performed by e2. Customer a1 takes action to monitor for the next couple of days.
5. Transcript of the messaging space since the last import created. Professional services engineer e2 shares an update about the upgrade and next steps.
6. Transcript of the messaging space since the last import created. Customer a1 informs that everything is working fine and requests support engineer e1 to close the support case.

The LLM prompts, new action items and completed action items are described as:

1. Prompt #1 along with contents of transcript #1 is sent to LLM to identify new action items. Action items 1, 2, 3, 4 and 5 are created.
2. Prompt #1 along with contents of transcript #2 is sent to LLM to identify new action items. Action items 6 and 7 are created. Prompt #2 containing the list of open action items is sent to LLM to identify status of action items. None of the action items are completed.

3. Prompt #1 along with contents of transcript #4 is sent to LLM to identify new action items. Action items 8, 9, 10 and 11 are created. Prompt #2 containing the list of open action items is sent to LLM to identify status of action items. Action items 6, 7, 8, 9 and 11 are completed.

4. Prompt #1 along with contents of transcript #4 is sent to LLM to identify new action items. Action items 12, 13 and 14 are created. Prompt #2 containing the list of open action items is sent to LLM to identify status of action items. Action items 10, 12, 13 are completed.

5. Prompt #1 along with contents of transcript #5 is sent to LLM to identify new action items. Action items 15 and 16 are created. Prompt #2 containing the list of open action items is sent to LLM to identify status of action items. None of the action items are completed.

6. Prompt #1 along with contents of transcript #6 is sent to LLM to identify new action items. Action item 17 is created. Prompt #2 containing the list of open action items is sent to LLM to identify status of action items. Action items 14, 15, 16 and 17 are completed.

Additionally, using the proposed techniques LLM prompts are defined to consistently determine new action items and completed action items within the correlated messaging space and virtual meeting transcripts. The correlation concept includes:

- Correlating action items across related messaging spaces and meetings created in the context of a particular topic of interest (topic could be a project, a support case, a patient – healthcare consultation etc.). The related meetings and spaces could be:

- a. Traditional meeting series. The title of the meetings #1, #2 ... #N are the same.

- b. Meetings and spaces that have different titles but are related to a specific business object or topic (e.g., all the meetings have the same support case number in the title). The business object identifier could be in the title or is available as a metadata associated with the messaging space or virtual meeting. Determining action items completion based on meetings with customer, meeting with engineering team, meeting with high touch operations manager.

- c. Meetings that are identified to be related based on the participants of the meeting and topic discussed within the meeting.

Example #1: The titles of meeting #1, meeting #2 ... meeting #N are different, but the participants are the same and conversation transcript is a continuation of a previous discussion.

Example #2: The meeting titles are different, but they are created in the context of a particular business objects (e.g. a support case). Determining action items completion based on meetings with customer, meeting with engineering team, meeting with High touch operations manager.

In summary, the proposed techniques include attributes such as:

1. Automatic extraction, determination and tracking of action item completion with individual and group ownership.
2. Identification and formation of a virtual group of users who co-own an action item.
3. Correlation of related meetings and spaces and grouping action items that belong to the same context. This enables continuity of action item tracking across multiple related meetings and spaces. For example:
  - a. Correlating all meetings in the context of a business object (e.g., support case);
  - b. Correlating all meetings in the context of ideation campaign or brainstorm session; or
  - c. Correlating all recurring meetings either between two individual users or a group of users (e.g., 1:1 meetings or team meeting series).

Accordingly, the proposed techniques can be used by independent action item or task management systems or tightly integrated within collaboration platforms. The proposed techniques are useful for a diverse set of users across multiple industries.

## Appendix

### Transcript #1

```
{
  "conversations":
  [
    {
      "spaceId": "abcd12345",
      "lastMessageDate": "2024-08-27T09:08:00.400+00:00",
      "messages":
      [
        {
          "id": "m1001",
          "roomId": "room1",
          "personId": "a1",
          "personEmail": "a1@example1.com",
          "text": "Inbound callers are reporting no audio and intermittent call disconnects in
the contact center",
          "roomType": "GROUP",
          "created": "2024-08-27T09:00:01.400+00:00"
        },
        {
          "id": "m1002",
          "roomId": "room1",
          "personId": "a1",
          "personEmail": "a1@example1.com",
          "text": "We need to get this fixed soon since it is impacting our business and our
representatives aren't able to help our customers.",
          "roomType": "GROUP",
          "created": "2024-08-27T09:00:20.400+00:00"
        }
      ]
    }
  ]
}
```

```
{
  "id": "m1003",
  "roomId": "room1",
  "personId": "e1",
  "personEmail": "e1@example2.com",
  "text": "Hi a1, I will be the engineer working with you to resolve this issue. Can you please explain the network topology and call flow in which the call disconnects are observed?",
  "roomType": "GROUP",
  "created": "2024-08-27T09:05:01.400+00:00"
},
{
  "id": "m1004",
  "roomId": "room1",
  "personId": "a1",
  "personEmail": "a1@example1.com",
  "text": "Hi e1, Sure. Please see the above diagram for network topology. The call flow is SIP Provider --> Device-name --> CVP --> CUCM --> IP Phone.",
  "roomType": "GROUP",
  "created": "2024-08-27T09:05:30.400+00:00"
},
{
  "id": "m1005",
  "roomId": "room1",
  "personId": "e1",
  "personEmail": "e1@example2.com",
  "text": "Thank you. Can you please let me know sample calling and called numbers of the call disconnects?",
  "roomType": "GROUP",
  "created": "2024-08-27T09:06:00.400+00:00"
},
{
```

```

    "id": "m1006",
    "roomId": "room1",
    "personId": "a1",
    "personEmail": "a1@example1.com",
    "text": "Calls coming to 1-123-456-7890 are getting dropped or getting no audio",
    "roomType": "GROUP",
    "created": "2024-08-27T09:06:45.400+00:00"
  },
  {
    "id": "m1007",
    "roomId": "room1",
    "personId": "e1",
    "personEmail": "e1@example2.com",
    "text": "Thanks. I would like to access the device to take a look at the calls. Can you
please join a meeting?",
    "roomType": "GROUP",
    "created": "2024-08-27T09:07:30.400+00:00"
  },
  {
    "id": "m1008",
    "roomId": "room1",
    "personId": "a1",
    "personEmail": "a1@example1.com",
    "text": "Sure.",
    "roomType": "GROUP",
    "created": "2024-08-27T09:07:40.400+00:00"
  },
  {
    "id": "m1009",
    "roomId": "room1",

```

```
"personId": "e1",  
"personEmail": "e1@example2.com",  
"text": "Please join https://xxx.com/meet/e1",  
"roomType": "GROUP",  
"created": "2024-08-27T09:08:00.400+00:00"  
}  
]  
}  
]  
}
```

## **Transcript #1 LLM Prompts and Results**

### **Prompt #1**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls". This conversation happened in a messaging space.

Current time is 2024-08-27T09:08:05.400Z

Identify the list of action items or tasks. Some action items or tasks may get completed during the conversation itself.

Include action items and tasks that don't have a specific due time.

Each action item or task must have a specific title, description, and name of the owner. The due date or due time is optional.

Start action item number from 1.

Using the following format:

Action item ID:

Title:

Description:

Owner:

Due Date:

### **Gen AI output 1**

Action Items List

Action Item 1:

Title: Provide Network Topology Diagram

Description: a1@example1.com needs to provide the network topology diagram to e1@example2.com to help diagnose the issue with call disconnects.

Owner: a1@example1.com

Due Date: Not specified

Action Item 2:

Title: Join Meeting

Description: a1@example1.com needs to join the meeting hosted by e1@example2.com to discuss and troubleshoot the call issues in real-time.

Owner: a1@example1.com

Due Date: Not specified

Action Item 3:

Title: Access Device

Description: e1@example2.com needs to access the device to investigate the call issues such as dropped calls and no audio.

Owner: e1@example2.com

Due Date: Not specified

Action Item 4:

Title: Provide Sample Calling and Called Numbers

Description: a1@example1.com needs to provide sample calling and called numbers for the calls that are disconnecting to e1@example2.com for further analysis.

Owner: a1@example1.com

Due Date: Not specified

Action Item 5:

Title: Troubleshoot Call Issues

Description: e1@example2.com needs to troubleshoot the reported issues of no audio and intermittent call disconnects using the provided network topology and sample call data.

Owner: e1@example2.com

Due Date: Not specified

These action items are designed to address and resolve the reported issues in a systematic manner.

## **Prompt #2**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls" along with a list of open action items.

Current time is 2024-08-27T09:38:50.400+00:00.

Following are list of open action items:

Action Item ID: 1

Title: Provide Network Topology Diagram

Description: a1@example1.com needs to provide the network topology diagram to e1@example2.com to help diagnose the issue with call disconnects.

Owner: a1@example1.com

Due Date: Not specified

Action Item ID: 2

Title: Join Meeting

Description: a1@example1.com needs to join the meeting hosted by e1@example2.com to discuss and troubleshoot the call issues in real-time.

Owner: a1@example1.com

Due Date: Not specified

Action Item ID: 3

Title: Access Device

Description: e1@example2.com needs to access the device to investigate the call issues such as dropped calls and no audio.

Owner: e1@example2.com

Due Date: Not specified

Action Item ID: 4

Title: Provide Sample Calling and Called Numbers

Description: a1@example1.com needs to provide sample calling and called numbers for the calls that are disconnecting to e1@example2.com for further analysis.

Owner: a1@example1.com

Due Date: Not specified

Action Item ID: 5

Title: Troubleshoot Call Issues

Description: e1@example2.com needs to troubleshoot the reported issues of no audio and intermittent call disconnects using the provided network topology and sample call data.

Owner: e1@example2.com

Due Date: Not specified

An action item is considered not completed if any of the conditions #1, #2, #3 and #4 are true.

Condition #1 - The action item owner acknowledges to perform the task.

Condition #2 - The action item owner gives commitment to perform the task.

Condition #3 - The action item owner intends to perform the task.

Condition #4 - The action item owner agrees to perform the task.

An action item is considered completed if any of the conditions #5 is true.

Condition #5 - The action item owner has finished doing the task.

Provide the completion status of all action items and the reason for status. For completed action items, include action item ID, name of the user who completed the action and completion timestamp. If the exact completion time isn't mentioned, then provide the completed date.

## **Gen AI output 2**

**\*\*Action Item ID: 1 - Provide Network Topology Diagram\*\***

- **\*\*Status:\*\*** Completed

- **\*\*Reason:\*\*** a1@example1.com provided the network topology diagram to e1@example2.com as indicated in the transcript at 2024-08-27T09:05:30.400+00:00.

- **\*\*Completion Details:\*\*** Completed by a1@example1.com on 2024-08-27.

**\*\*Action Item ID: 2 - Join Meeting\*\***

- **\*\*Status:\*\*** Completed

- **\*\*Reason:\*\*** a1@example1.com agreed to join the meeting hosted by e1@example2.com as indicated in the transcript at 2024-08-27T09:07:40.400+00:00.

- **\*\*Completion Details:\*\*** Completed by a1@example1.com on 2024-08-27.

**\*\*Action Item ID: 3 - Access Device\*\***

- **\*\*Status:\*\*** Not Completed

- **\*\*Reason:\*\*** Although e1@example2.com expressed the intention to access the device and requested a meeting for it, there is no confirmation that access was granted or that the task was completed.

**\*\*Action Item ID: 4 - Provide Sample Calling and Called Numbers\*\***

- **\*\*Status:\*\*** Completed

- **\*\*Reason:\*\*** a1@example1.com provided sample calling and called numbers to e1@example2.com as indicated in the transcript at 2024-08-27T09:06:45.400+00:00.

- **\*\*Completion Details:\*\*** Completed by a1@example1.com on 2024-08-27.

**\*\*Action Item ID: 5 - Troubleshoot Call Issues\*\***

- **\*\*Status:\*\*** Not Completed

- **Reason:** There is no indication in the transcript that e1@example2.com has completed troubleshooting the reported issues using the provided network topology and sample call data.

## Transcript #2

```
{
  "conversations":
  [
    {
      "meetingId": "m12345",
      "lastMessageDate": "2024-08-27T09:30:50.400+00:00",
      "messages":
      [
        {
          "id": "m2001",
          "personId": "e1",
          "personEmail": "e1@example2.com",
          "text": "Hi a1, Thanks for joining. Can you please connect to the device and share
your screen?",
          "created": "2024-08-27T09:12:00.400+00:00"
        },
        {
          "id": "m2002",
          "personId": "a1",
          "personEmail": "a1@example1.com",
          "text": "Sure. Let me connect to it.",
          "created": "2024-08-27T09:12:30.400+00:00"
        },
        {
          "id": "m2003",
          "personId": "e1",
```

```

    "personEmail": "e1@example2.com",
    "text": "Have requested control. Please approve when you get a chance.",
    "created": "2024-08-27T09:13:30.400+00:00"
  },
  {
    "id": "m2004",
    "personId": "a1",
    "personEmail": "a1@example1.com",
    "text": "All set.",
    "created": "2024-08-27T09:14:00.400+00:00"
  },
  {
    "id": "m2005",
    "personId": "e1",
    "personEmail": "e1@example2.com",
    "text": "Let me look at the show call active voice brief command.",
    "created": "2024-08-27T09:14:22.400+00:00"
  },
  {
    "id": "m2006",
    "personId": "e1",
    "personEmail": "e1@example2.com",
    "text": "A number of these calls are short-duration calls and RTP packets flowing
between the service provider and device are missing. We need to get packet capture to determine
whether there is actual audio in the media stream.",
    "created": "2024-08-27T09:16:01.400+00:00"
  },
  {
    "id": "m2007",
    "personId": "e1",

```

```
"personEmail": "e1@example2.com",
  "text": "a1, please collect basic debugs from and packet capture from the switch that
is connected to the service provider simultaneously?",
  "created": "2024-08-27T09:16:50.400+00:00"
},
{
  "id": "m2008",
  "personId": "a1",
  "personEmail": "a1@example1.com",
  "text": "My colleague a2 can get the packet capture from the switch and I can collect
SIP debugs from device. Can you stay in the meeting while we get this done just in case we have
data collection related questions?",
  "created": "2024-08-27T09:17:20.400+00:00"
},
{
  "id": "m2009",
  "personId": "e1",
  "personEmail": "e1@example2.com",
  "text": "Sure. Happy to wait and assist as needed.",
  "created": "2024-08-27T09:17:40.400+00:00"
},
{
  "id": "m2010",
  "personId": "a1",
  "personEmail": "a1@example1.com",
  "text": "What debug do you need?",
  "created": "2024-08-27T09:18:00.400+00:00"
},
{
  "id": "m2011",
  "personId": "e1",
```

```

    "personEmail": "e1@example2.com",
    "text": "debug ccsip messages, debug ccsip info, debug voip rtp events, debug voip
ccapi inout",
    "created": "2024-08-27T09:18:10.400+00:00"
  },
  {
    "id": "m2012",
    "personId": "a2",
    "personEmail": "a2@example1.com",
    "text": "a1, I have got the wireshark network capture ready to go. Just tell me when
you want to start it.",
    "created": "2024-08-27T09:22:20.400+00:00"
  },
  {
    "id": "m2013",
    "personId": "a1",
    "personEmail": "a1@example1.com",
    "text": "Good. Lets go a2. Stop it after 4 minutes. That should be enough time since
we are seeing a number of short-duration calls. The debugs are enabled and are being logged.",
    "created": "2024-08-27T09:22:30.400+00:00"
  },
  {
    "id": "m2014",
    "personId": "a2",
    "personEmail": "a2@example1.com",
    "text": "Have started the network capture!",
    "created": "2024-08-27T09:23:00.400+00:00"
  },
  {
    "id": "m2015",
    "personId": "a2",

```

```
"personEmail": "a2@example1.com",
"text": "a1, going to stop the capture now!",
"created": "2024-08-27T09:27:00.400+00:00"
},
{
  "id": "m2016",
  "personId": "a1",
  "personEmail": "a1@example1.com",
  "text": "Thanks a2. I have also got the debug logs.",
  "created": "2024-08-27T09:27:20.400+00:00"
},
{
  "id": "m2017",
  "personId": "a1",
  "personEmail": "a1@example1.com",
  "text": "e1, where do you want us to upload the files?",
  "created": "2024-08-27T09:27:30.400+00:00"
},
{
  "id": "m2018",
  "personId": "e1",
  "personEmail": "e1@example2.com",
  "text": "You both can share the files in this messaging space. It will automatically
get uploaded to the case.",
  "created": "2024-08-27T09:27:40.400+00:00"
},
{
  "id": "m2019",
  "personId": "a1",
  "personEmail": "a1@example1.com",
```

```

    "text": "Nice. Here is the debug log file.",
    "created": "2024-08-27T09:28:40.400+00:00"
  },
  {
    "id": "m2020",
    "personId": "a2",
    "personEmail": "a2@example1.com",
    "text": "Have uploaded the packet capture file as well",
    "created": "2024-08-27T09:29:40.400+00:00"
  },
  {
    "id": "m2021",
    "personId": "e1",
    "personEmail": "e1@example2.com",
    "text": "Thanks a1 and a2. I will analyze the data and get back to you in about an
hour. We can disconnect from the meeting and continue the conversation in the messaging
space.",
    "created": "2024-08-27T09:30:01.400+00:00"
  },
  {
    "id": "m2022",
    "personId": "a1",
    "personEmail": "a1@example1.com",
    "text": "That works. Thanks. Bye.",
    "created": "2024-08-27T09:30:20.400+00:00"
  },
  {
    "id": "m2023",
    "personId": "a2",
    "personEmail": "a2@example1.com",

```

```
"text": "Bye",  
  "created": "2024-08-27T09:30:40.400+00:00"  
},  
{  
  "id": "m2024",  
  "personId": "e1",  
  "personEmail": "e1@example2.com",  
  "text": "Bye",  
  "created": "2024-08-27T09:30:50.400+00:00"  
}  
]  
}  
]  
}
```

## **Transcript #2 LLM Prompts and Results:**

### **Prompt #1**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls". This conversation happened in a virtual meeting.

Current time is 2024-08-27T09:35:50.400+00:00

Identify the list of action items or tasks. Some action items or tasks may get completed during the conversation itself.

Include action items and tasks that don't have a specific due time.

Each action item or task must have a specific title, description, and name of the owner. The due date or due time is optional.

Start action item number from 6.

Using the following format:

Action item ID:

Title:

Description:

Owner:

Due Date:

### **Gen AI output 1**

Action item ID: 6

Title: Analyze Debug and Packet Capture Data

Description: e1 to analyze the debug log and packet capture data provided by a1 and a2 to determine the cause of the "No audio on inbound calls" issue.

Owner: e1@example2.com

Action item ID: 7

Title: Follow-up on Analysis

Description: e1 to provide an update on the analysis of the debug and packet capture data within an hour.

Owner: [e1@example2.com](mailto:e1@example2.com)

## **Prompt #2**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls" along with a list of open action items.

Current time is 2024-08-27T09:38:50.400+00:00.

Following are list of open action items:

Action Item ID: 4

Title: Access Device

Description: e1@example2.com needs to access the device to investigate the call issues such as dropped calls and no audio.

Owner: e1@example2.com

Due Date: Not specified

Action Item ID: 5

Title: Troubleshoot Call Issues

Description: e1@example2.com needs to troubleshoot the reported issues of no audio and intermittent call disconnects using the provided network topology and sample call data.

Owner: e1@example2.com

Due Date: Not specified

Action item ID: 6

Title: Analyze Debug and Packet Capture Data

Description: e1 to analyze the debug log and packet capture data provided by a1 and a2 to determine the cause of the "No audio on inbound calls" issue.

Owner: e1@example2.com

Action item ID: 7

Title: Follow-up on Analysis

Description: e1 to provide an update on the analysis of the debug and packet capture data within an hour.

Owner: e1@example2.com

An action item is considered not completed if any of the conditions #1, #2 and #3 are true.

Condition #1 - The action item owner acknowledges to perform the task.

Condition #2 - The action item owner gives commitment to perform the task.

Condition #3 - The action item owner intends to perform the task.

An action item is considered completed if any of the conditions #4 is true.

Condition #4 - The action item owner has finished doing the task.

Provide the completion status of all action items. For completed action items, include action item ID, name of the user who completed the action and completion timestamp. If the exact completion time isn't mentioned, then provide the completed date.

## **Gen AI output 2**

#### Completion Status of Action Items:

\*\*Action Item 4: Access Device\*\*

- \*\*Status:\*\* Not completed

- **Reason:** e1@example2.com requested access and control to the device, but there is no confirmation of completion.

**Action Item 5: Troubleshoot Call Issues**

- **Status:** Not completed

- **Reason:** e1@example2.com is still in the process of troubleshooting, as indicated by ongoing discussions and requests for data.

**Action Item 6: Analyze Debug Log and Packet trace File**

- **Status:** Not completed

- **Reason:** e1@example2.com has received the debug log and packet capture file but has only committed to analyze the data and provide an update within an hour.

**Action Item 7: Follow-up on Analysis**

- **Status:** Not completed

- **Reason:** e1@example2.com has committed to providing an update after analysis within an hour, but the hour has not yet passed since the commitment was made.

**Transcript #3**

```

{
  "conversations":
  [
    {
      "spaceId": "abcd12345",
      "lastMessageDate": "2024-08-27T10:40:30.400+00:00",
      "messages":
      [
        {
          "id": "m3001",
          "roomId": "room1",
          "personId": "e1",
          "personEmail": "e1@example2.com",
          "text": "Hi a1 and a2, I have completed the log analysis. This issue is caused by a software bug in which the incoming RTP packets are getting dropped. The bug ID is CSCab12345. We can implement a workaround to avoid this issue. It would be good to upgrade the device to the software version 25.1.2.",
          "roomType": "GROUP",
          "created": "2024-08-27T10:20:01.400+00:00"
        },
        {
          "id": "m3002",
          "roomId": "room1",
          "personId": "a1",
          "personEmail": "a1@example1.com",
          "text": "Oh ok. Let's implement the workaround. We have a professional services engineer e2. Can you bring him up to speed and add to this space?",
          "roomType": "GROUP",
          "created": "2024-08-27T10:25:01.400+00:00"
        }
      ]
    }
  ]
}

```

```

{
  "id": "m3003",
  "roomId": "room1",
  "personId": "e1",
  "personEmail": "e1@example2.com",
  "text": "Sure. Let me add e2 to this space. Please follow the steps documented in the
above file to implement the workaround.",
  "roomType": "GROUP",
  "created": "2024-08-27T10:25:30.400+00:00"
},
{
  "id": "m3004",
  "roomId": "room1",
  "personId": "a1",
  "personEmail": "a1@example1.com",
  "text": "Thanks. Let me review the steps and ask if there any clarifications.",
  "roomType": "GROUP",
  "created": "2024-08-27T10:26:30.400+00:00"
},
{
  "id": "m3005",
  "roomId": "room1",
  "personId": "e1",
  "personEmail": "e1@example2.com",
  "text": "Sounds good.",
  "roomType": "GROUP",
  "created": "2024-08-27T10:26:40.400+00:00"
},
{
  "id": "m3006",

```

```

    "roomId": "room1",
    "personId": "e1",
    "personEmail": "e1@example2.com",
    "text": "Welcome e2. ",
    "roomType": "GROUP",
    "created": "2024-08-27T10:30:01.400+00:00"
  },
  {
    "id": "m3007",
    "roomId": "room1",
    "personId": "e1",
    "personEmail": "e1@example2.com",
    "text": "Hi a1, I have discussed with e2 and she agrees that software upgrade is the
right path forward. Please let us know when we can schedule the upgrade.",
    "roomType": "GROUP",
    "created": "2024-08-27T10:30:30.400+00:00"
  },
  {
    "id": "m3008",
    "roomId": "room1",
    "personId": "a1",
    "personEmail": "a1@example1.com",
    "text": "12th April 2024 10:00 PM EST works fine for the upgrade. btw, I have
implemented the workaround and the calls are working fine.",
    "roomType": "GROUP",
    "created": "2024-08-27T10:35:01.400+00:00"
  },
  {
    "id": "m3009",
    "roomId": "room1",

```

```
"personId": "e1",
"personEmail": "e1@example2.com",
"text": "That's great to know.",
"roomType": "GROUP",
"created": "2024-08-27T10:37:01.400+00:00"
},
{
  "id": "m3010",
  "roomId": "room1",
  "personId": "e1",
  "personEmail": "e1@example2.com",
  "text": "e2, Please upgrade the device on 12th April 2024 10:00 PM EST and let us
know of the results. I will keep the case open until the upgrade is successfully completed.",
  "roomType": "GROUP",
  "created": "2024-08-27T10:39:01.400+00:00"
},
{
  "id": "m3011",
  "roomId": "room1",
  "personId": "e2",
  "personEmail": "e2@example2.com",
  "text": "Sure. I am submitting the change management request and work with
Network ops team to get it approved and scheduled. I will also send a meeting invite to a1 so that
he can join the maintenance window.",
  "roomType": "GROUP",
  "created": "2024-08-27T10:40:01.400+00:00"
},
{
  "id": "m3012",
  "roomId": "room1",
  "personId": "e1",
```

```
"personEmail": "e1@example2.com",  
"text": "Thanks e2. Have a great day everyone.",  
"roomType": "GROUP",  
"created": "2024-08-27T10:40:30.400+00:00"  
}  
]  
}  
]  
}
```

## **Transcript #3 LLM Prompts and Results:**

### **Prompt #1**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls". This conversation happened in a virtual meeting.

Current time is 2024-08-27T10:42:30.400+00:00

Identify the list of action items or tasks. Some action items or tasks may get completed during the conversation itself.

Include action items and tasks that don't have a specific due time.

Each action item or task must have a specific title, description, and name of the owner. The due date or due time is optional.

Start action item number from 8.

Using the following format:

Action item ID:

Title:

Description:

Owner:

Due Date:

### **Gen AI output 1**

Action item ID: 8

Title: Submit Change Management Request

Description: Submit a change management request and coordinate with the Network Operations team to get it approved and scheduled for the device upgrade.

Owner: e2@example2.com

Action item ID: 9

Title: Schedule and Send Meeting Invite

Description: Schedule a meeting for the maintenance window and send an invite to a1 to ensure their presence during the device upgrade.

Owner: e2@example2.com

Action item ID: 10

Title: Perform Device Upgrade

Description: Upgrade the device on the specified date and time, and report the results back to the team.

Owner: e2@example2.com

Due Date: 2024-04-12T22:00:00-05:00

Action item ID: 11

Title: Monitor Workaround Implementation

Description: Monitor the effectiveness of the implemented workaround until the permanent upgrade is completed.

Owner: a1@example1.com

## **Prompt #2**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls" along with a list of open action items.

Current time is 2024-08-27T10:43:00.400+00:00

Following are list of open action items:

Action Item ID: 4

Title: Access Device

Description: e1@example2.com needs to access the device to investigate the call issues such as dropped calls and no audio.

Owner: e1@example2.com

Due Date: Not specified

Action Item ID: 5

Title: Troubleshoot Call Issues

Description: e1@example2.com needs to troubleshoot the reported issues of no audio and intermittent call disconnects using the provided network topology and sample call data.

Owner: e1@example2.com

Due Date: Not specified

Action item ID: 6

Title: Analyze Debug and Packet Capture Data

Description: e1 to analyze the debug log and packet capture data provided by a1 and a2 to determine the cause of the "No audio on inbound calls" issue.

Owner: e1@example2.com

Action item ID: 7

Title: Follow-up on Analysis

Description: e1 to provide an update on the analysis of the debug and packet capture data within an hour.

Owner: e1@example2.com

Action item ID: 8

Title: Submit Change Management Request

Description: Submit a change management request and coordinate with the Network Operations team to get it approved and scheduled for the device upgrade.

Owner: e2@example2.com

Action item ID: 9

Title: Schedule and Send Meeting Invite

Description: Schedule a meeting for the maintenance window and send an invite to a1 to ensure their presence during the device upgrade.

Owner: e2@example2.com

Action item ID: 10

Title: Perform Device Upgrade

Description: Upgrade the device on the specified date and time, and report the results back to the team.

Owner: e2@example2.com

Due Date: 2024-04-12T22:00:00-05:00

Action item ID: 11

Title: Monitor Workaround Implementation

Description: Monitor the effectiveness of the implemented workaround until the permanent upgrade is completed.

Owner: a1@example1.com

An action item is considered not completed if any of the conditions #1, #2 and #3 are true.

Condition #1 - The action item owner acknowledges to perform the task.

Condition #2 - The action item owner gives commitment to perform the task.

Condition #3 - The action item owner intends to perform the task.

An action item is considered completed if any of the conditions #4 is true.

Condition #4 - The action item owner has finished doing the task.

Provide the completion status of all action items and the reason for status. For completed action items, include action item ID, name of the user who completed the action and completion timestamp. If the exact completion time isn't mentioned, then provide the completed date.

## **Gen AI output 2**

Here is the completion status of all action items:

**\*\*Action Item ID: 4 - Access Device\*\***

- **\*\*Status:\*\*** Not Completed

- **\*\*Reason:\*\*** There is no indication that e1@example2.com has accessed the device or completed this task.

**\*\*Action Item ID: 5 - Troubleshoot Call Issues\*\***

- **\*\*Status:\*\*** Not Completed

- **\*\*Reason:\*\*** There is no indication that e1@example2.com has completed troubleshooting the reported issues.

**\*\*Action Item ID: 6 - Analyze Debug and Packet Capture Data\*\***

- **\*\*Status:\*\*** Completed

- **\*\*Completion Details:\*\*** Completed by e1@example2.com on 2024-08-27

- **\*\*Reason:\*\*** e1@example2.com has completed the log analysis and identified the issue as a software bug.

**\*\*Action Item ID: 7 - Follow-up on Analysis\*\***

- **\*\*Status:\*\*** Completed

- **\*\*Completion Details:\*\*** Completed by e1@example2.com on 2024-08-27

- **\*\*Reason:\*\*** e1@example2.com provided an update on the analysis, identifying the software bug and suggesting a workaround.

**\*\*Action Item ID: 8 - Submit Change Management Request\*\***

- **\*\*Status:\*\*** Completed

- **Completion Details:** Completed by e2@example2.com on 2024-08-27
- **Reason:** e2@example2.com confirmed submission of the change management request and coordination with the Network Operations team.

**Action Item ID: 9 - Schedule and Send Meeting Invite**

- **Status:** Completed
- **Completion Details:** Completed by e2@example2.com on 2024-08-27
- **Reason:** e2@example2.com confirmed sending a meeting invite to a1 for the maintenance window.

**Action Item ID: 10 - Perform Device Upgrade**

- **Status:** Not Completed
- **Reason:** The upgrade is scheduled for 2024-04-12, which is in the future relative to the current date.

**Action Item ID: 11 - Monitor Workaround Implementation**

- **Status:** Completed
- **Completion Details:** Completed by a1@example1.com on 2024-08-27
- **Reason:** a1@example1.com has implemented the workaround and confirmed that the calls are working fine.

**Transcript #4**

```

{
  "conversations":
  [
    {
      "meetingId": "m56789",
      "lastMessageDate": "2024-08-30T22:27:10.400+00:00",
      "messages":
      [
        {
          "id": "m4001",
          "personId": "e2",
          "personEmail": "e2@example2.com",
          "text": "Hi a1, Thanks for joining. How was your day?",
          "created": "2024-08-30T22:05:30.400+00:00"
        },
        {
          "id": "m4002",
          "personId": "a1",
          "personEmail": "a1@example1.com",
          "text": "It was good. Just need to finish up the upgrade and go to sleep!",
          "created": "2024-08-30T22:05:40.400+00:00"
        },
        {
          "id": "m4003",
          "personId": "e2",
          "personEmail": "e2@example2.com",
          "text": "Yes! Do you have any questions about the methods of procedure for the
upgrade that I shared a few days ago",
          "created": "2024-08-30T22:05:50.400+00:00"
        }
      ]
    }
  ]
}

```

```

    },
    {
      "id": "m4004",
      "personId": "a1",
      "personEmail": "a1@example1.com",
      "text": "No, I am good. Let's start the upgrade",
      "created": "2024-08-30T22:06:01.400+00:00"
    },
    {
      "id": "m4005",
      "personId": "e2",
      "personEmail": "e2@example2.com",
      "text": "Sure. Let me connect to the device.",
      "created": "2024-08-30T22:06:15.400+00:00"
    },
    {
      "id": "m4006",
      "personId": "e2",
      "personEmail": "e2@example2.com",
      "text": "Have started the upgrade process now and it should be done in about 10
minutes.",
      "created": "2024-08-30T22:08:30.400+00:00"
    },
    {
      "id": "m4007",
      "personId": "a1",
      "personEmail": "a1@example1.com",
      "text": "Cool",
      "created": "2024-08-30T22:08:45.400+00:00"
    },
  },

```

```
{
  "id": "m4008",
  "personId": "e2",
  "personEmail": "e2@example2.com",
  "text": "Upgrade is complete! a1, can you please make test calls and confirm that
everything is working as expected.",
  "created": "2024-08-30T22:21:45.400+00:00"
},
{
  "id": "m4009",
  "personId": "a1",
  "personEmail": "a1@example1.com",
  "text": "Sure. Let me switchover the inbound call routing such that calls will come
to this device after I make a couple of test calls.",
  "created": "2024-08-30T22:21:55.400+00:00"
},
{
  "id": "m4010",
  "personId": "e2",
  "personEmail": "e2@example2.com",
  "text": "I have also removed the workaround. Let me monitor the calls and check
whether they stay connected without getting dropped in a short-duration.",
  "created": "2024-08-30T22:22:05.400+00:00"
},
{
  "id": "m4011",
  "personId": "e2",
  "personEmail": "e2@example2.com",
  "text": "a1, the calls are staying for more than 3 minutes consistently",
  "created": "2024-08-30T22:26:30.400+00:00"
},
```

```

{
  "id": "m4012",
  "personId": "a1",
  "personEmail": "a1@example1.com",
  "text": "Nice, I have also made several calls and there was bi-directional audio in all
the call.",
  "created": "2024-08-30T22:26:40.400+00:00"
},
{
  "id": "m4013",
  "personId": "e2",
  "personEmail": "e2@example2.com",
  "text": "Great, please monitor the system for a couple of days and also solicit
feedback from the contact center team. If everything is good, we can inform e1 and request to
close the support case",
  "created": "2024-08-30T22:26:50.400+00:00"
},
{
  "id": "m4014",
  "personId": "a1",
  "personEmail": "a1@example1.com",
  "text": "Sounds good. Good Night!",
  "created": "2024-08-30T22:27:00.400+00:00"
},
{
  "id": "m4015",
  "personId": "e2",
  "personEmail": "e2@example2.com",
  "text": "Good Night, Bye!",
  "created": "2024-08-30T22:27:10.400+00:00"
}

```

] }  
] }  
}

## **Transcript #4 LLM Prompts and Results:**

### **Prompt #1**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls". This conversation happened in a virtual meeting.

Current time is 2024-08-30T22:29:10.400+00:00

Identify the list of action items or tasks. Some action items or tasks may get completed during the conversation itself.

Include action items and tasks that don't have a specific due time.

Each action item or task must have a specific title, description, and name of the owner. The due date or due time is optional.

Start action item number from 12.

Using the following format:

Action item ID:

Title:

Description:

Owner:

Due Date:

### **Gen AI output 1**

Action item ID: 12

Title: Monitor System Post-Upgrade

Description: Monitor the calls to ensure they stay connected without getting dropped and check for the presence of bi-directional audio.

Owner: e2@example2.com

Action item ID: 13

Title: Solicit Feedback from Contact Center Team

Description: Gather feedback from the contact center team regarding the call quality and functionality after the recent changes.

Owner: a1@example1.com

Action item ID: 14

Title: Request to Close Support Case

Description: If monitoring and feedback confirm that the issue is resolved, inform e1 to close the support case.

Owner: e2@example2.com

## **Prompt #2**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls" along with a list of open action items.

Current time is 2024-08-30T22:30:10.400+00:00

Following are list of open action items:

Action Item ID: 4

Title: Access Device

Description: e1@example2.com needs to access the device to investigate the call issues such as dropped calls and no audio.

Owner: e1@example2.com

Due Date: Not specified

Action Item ID: 5

Title: Troubleshoot Call Issues

Description: e1@example2.com needs to troubleshoot the reported issues of no audio and intermittent call disconnects using the provided network topology and sample call data.

Owner: e1@example2.com

Due Date: Not specified

Action item ID: 10

Title: Perform Device Upgrade

Description: Upgrade the device on the specified date and time, and report the results back to the team.

Owner: e2@example2.com

Due Date: 2024-04-12T22:00:00-05:00

Action item ID: 12

Title: Monitor System Post-Upgrade

Description: Monitor the calls to ensure they stay connected without getting dropped and check for the presence of bi-directional audio.

Owner: e2@example2.com

Action item ID: 13

Title: Solicit Feedback from Contact Center Team

Description: Gather feedback from the contact center team regarding the call quality and functionality after the recent changes.

Owner: a1@example1.com

Action item ID: 14

Title: Request to Close Support Case

Description: If monitoring and feedback confirm that the issue is resolved, inform e1 to close the support case.

Owner: [e2@example2.com](mailto:e2@example2.com)

An action item is considered not completed if any of the conditions #1, #2 and #3 are true.

Condition #1 - The action item owner acknowledges to perform the task.

Condition #2 - The action item owner gives commitment to perform the task.

Condition #3 - The action item owner intends to perform the task.

An action item is considered completed if any of the conditions #4 is true.

Condition #4 - The action item owner has finished doing the task.

Provide the completion status of all action items and the reason for status. For completed action items, include action item ID, name of the user who completed the action and completion timestamp. If the exact completion time isn't mentioned, then provide the completed date.

## **Gen AI output 2**

Based on the conversation and the conditions provided, here is the completion status of each action item:

**\*\*Action Item ID: 4 - Access Device\*\***

- **\*\*Status:\*\*** Not Completed

- **\*\*Reason:\*\*** There is no explicit confirmation from e1@example2.com about accessing the device to investigate the issues.

**\*\*Action Item ID: 5 - Troubleshoot Call Issues\*\***

- **\*\*Status:\*\*** Not Completed

- **\*\*Reason:\*\*** There is no explicit confirmation from e1@example2.com about troubleshooting the reported issues using the network topology and sample call data.

**\*\*Action Item ID: 10 - Perform Device Upgrade\*\***

- **Status:** Completed
- **Completion Details:** Completed by e2@example2.com on 2024-08-30T22:21:45.400+00:00
- **Reason:** e2@example2.com confirmed the completion of the upgrade process.

**Action Item ID: 12 - Monitor System Post-Upgrade**

- **Status:** Completed
- **Completion Details:** Completed by e2@example2.com on 2024-08-30T22:26:30.400+00:00
- **Reason:** e2@example2.com confirmed that calls are staying connected for more than 3 minutes consistently, indicating successful monitoring post-upgrade.

**Action Item ID: 13 - Solicit Feedback from Contact Center Team**

- **Status:** Completed
- **Completion Details:** Completed by a1@example1.com on 2024-08-30T22:26:40.400+00:00
- **Reason:** a1@example1.com confirmed that they made several calls with bi-directional audio, indicating that feedback was solicited and positive.

**Action Item ID: 14 - Request to Close Support Case**

- **Status:** Not Completed
- **Reason:** Although e2@example2.com mentioned the possibility of closing the support case if monitoring and feedback are positive, there is no confirmation that the case has been requested to be closed yet.

These statuses are based on the latest conversation and the conditions for determining whether an action item is completed or not.

**Transcript #5**

```

{
  "conversations":
  [
    {
      "spaceId": "abcd12345",
      "lastMessageDate": "2024-08-31T23:07:30.400+00:00",
      "messages":
      [
        {
          "id": "m5001",
          "roomId": "room1",
          "personId": "e2",
          "personEmail": "e2@example2.com",
          "text": "Hi e1, I have completed the upgrade process and it went fine. We verified
that the calls are working correctly.",
          "roomType": "GROUP",
          "created": "2024-08-30T22:30:30.400+00:00"
        },
        {
          "id": "m5002",
          "roomId": "room1",
          "personId": "e2",
          "personEmail": "e2@example2.com",
          "text": "a1 is going to monitor the system. He will provide an update by end of 2nd
September 2024 whether the issue is completely resolved and give confirmation to close the
case.",
          "roomType": "GROUP",
          "created": "2024-08-30T22:35:30.400+00:00"
        },
      ]
    }
  ]
}

```

```
{
  "id": "m5003",
  "roomId": "room1",
  "personId": "e1",
  "personEmail": "e1@example2.com",
  "text": "Thanks e2 for the update! Glad to know that the upgrade was smooth. I will
wait for a1's update.",
  "roomType": "GROUP",
  "created": "2024-08-31T23:07:30.400+00:00"
}
]
}
]
}
```

## **Transcript #5 LLM Prompts and Results:**

### **Prompt #1**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls". This conversation happened in a virtual meeting.

Current time is 2024-08-31T23:09:30.400+00:00

Identify the list of action items or tasks. Some action items or tasks may get completed during the conversation itself.

Include action items and tasks that don't have a specific due time.

Each action item or task must have a specific title, description, and name of the owner. The due date or due time is optional.

Start action item number from 15.

Using the following format:

Action item ID:

Title:

Description:

Owner:

Due Date:

### **Gen AI output 1**

Action item ID: 15

Title: Monitor System Post-Upgrade

Description: a1 will monitor the system to ensure that the recent upgrade has completely resolved the issue of no audio on inbound calls.

Owner: a1

Due Date: 2024-09-02

Action item ID: 16

Title: Confirm Resolution and Case Closure

Description: a1 will confirm whether the issue is fully resolved post-monitoring and provide confirmation to close the case.

Owner: a1

Due Date: 2024-09-02

## **Prompt #2**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls" along with a list of open action items.

Current time is 2024-08-31T23:09:35.400+00:00.

Following are list of open action items:

Action Item ID: 4

Title: Access Device

Description: e1@example2.com needs to access the device to investigate the call issues such as dropped calls and no audio.

Owner: e1@example2.com

Due Date: Not specified

Action Item ID: 5

Title: Troubleshoot Call Issues

Description: e1@example2.com needs to troubleshoot the reported issues of no audio and intermittent call disconnects using the provided network topology and sample call data.

Owner: e1@example2.com

Due Date: Not specified

Action item ID: 14

Title: Request to Close Support Case

Description: If monitoring and feedback confirm that the issue is resolved, inform e1 to close the support case.

Owner: e2@example2.com

Action item ID: 15

Title: Monitor System Post-Upgrade

Description: a1 will monitor the system to ensure that the recent upgrade has completely resolved the issue of no audio on inbound calls.

Owner: a1

Due Date: 2024-09-02

Action item ID: 16

Title: Confirm Resolution and Case Closure

Description: a1 will confirm whether the issue is fully resolved post-monitoring and provide confirmation to close the case.

Owner: a1

Due Date: 2024-09-02

An action item is considered not completed if any of the conditions #1, #2 and #3 are true.

Condition #1 - The action item owner acknowledges to perform the task.

Condition #2 - The action item owner gives commitment to perform the task.

Condition #3 - The action item owner intends to perform the task.

An action item is considered completed if any of the conditions #4 is true.

Condition #4 - The action item owner has finished doing the task.

Provide the completion status of all action items and the reason for status. For completed action items, include action item ID, name of the user who completed the action and completion timestamp. If the exact completion time isn't mentioned, then provide the completed date.

## **Gen AI output 2**

Based on the provided conversation and the conditions for determining the completion status of action items, here is the status of each:

**\*\*Action Item ID: 4 - Access Device\*\***

- **\*\*Status:\*\*** Not Completed

- **\*\*Reason:\*\*** There is no indication that e1@example2.com has accessed the device or completed the task.

**\*\*Action Item ID: 5 - Troubleshoot Call Issues\*\***

- **\*\*Status:\*\*** Not Completed

- **\*\*Reason:\*\*** There is no indication that e1@example2.com has started or completed troubleshooting the call issues.

**\*\*Action item ID: 14 - Request to Close Support Case\*\***

- **\*\*Status:\*\*** Not Completed

- **\*\*Reason:\*\*** The action item depends on the feedback from a1, which is due by September 2, 2024. Since a1 has not yet provided the update, this task cannot be considered completed.

**\*\*Action item ID: 15 - Monitor System Post-Upgrade\*\***

- **\*\*Status:\*\*** In Progress

- **\*\*Reason:\*\*** e2@example2.com confirmed that a1 is going to monitor the system and will provide an update by the end of September 2, 2024. This indicates that a1 has acknowledged and intends to perform the task.

**\*\*Action item ID: 16 - Confirm Resolution and Case Closure\*\***

- **\*\*Status:\*\*** Not Completed

- **\*\*Reason:\*\*** This action item is dependent on the completion of the monitoring (Action Item ID: 15) and the subsequent confirmation from a1, which is expected by September 2, 2024. Since this confirmation has not yet been provided, the task is not completed.

These statuses are based on the latest updates and the conditions specified for determining completion.

**Transcript #6**

```

{
  "conversations":
  [
    {
      "spaceId": "abcd12345",
      "lastMessageDate": "2024-09-02T14:10:30.400+00:00",
      "messages":
      [
        {
          "id": "m6001",
          "roomId": "room1",
          "personId": "a1",
          "personEmail": "a1@example1.com",
          "text": "Hi e1, device is working fine and there have been no reports of call drops or
no audio issues. Please go ahead and close the case. Thanks to you and e2 for your assistance.",
          "roomType": "GROUP",
          "created": "2024-09-02T14:00:01.400+00:00"
        },
        {
          "id": "m6002",
          "roomId": "room1",
          "personId": "e1",
          "personEmail": "e1@example2.com",
          "text": "That's great! Thanks for the update a1! Let me go ahead and close the case.
Have a great day.",
          "roomType": "GROUP",
          "created": "2024-09-02T14:05:30.400+00:00"
        },
        {

```

```
"id": "m6003",  
  "roomId": "room1",  
  "personId": "e2",  
  "personEmail": "e2@example2.com",  
  "text": "Thanks for the update a! Glad to know that issue is resolved.",  
  "roomType": "GROUP",  
  "created": "2024-09-02T14:10:30.400+00:00"  
}  
]  
}  
]  
}
```

## **Transcript #6 LLM Prompts and Results:**

### **Prompt #1**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls". This conversation happened in a virtual meeting.

Current time is 2024-09-02T14:012:30.400+00:00

Identify the list of action items or tasks. Some action items or tasks may get completed during the conversation itself.

Include action items and tasks that don't have a specific due time.

Each action item or task must have a specific title, description, and name of the owner. The due date or due time is optional.

Start action item number from 17.

Using the following format:

Action item ID:

Title:

Description:

Owner:

Due Date:

## **Gen AI output 1**

Action item ID: 17

Title: Close Case T12345

Description: Close the troubleshooting case T12345 as the issue of "No audio on inbound calls" has been resolved.

Owner: e1@example2.com

## **Prompt #2**

You are an action items manager. You are given transcript of a conversation between customers, partners, engineers in the context of troubleshooting and resolving T12345, "No audio on inbound calls" along with a list of open action items.

Current time is 2024-09-02T14:012:32.400+00:00

Following are list of open action items:

Action item ID: 14

Title: Request to Close Support Case

Description: If monitoring and feedback confirm that the issue is resolved, inform e1 to close the support case.

Owner: e2@example2.com

Action item ID: 15

Title: Monitor System Post-Upgrade

Description: a1 will monitor the system to ensure that the recent upgrade has completely resolved the issue of no audio on inbound calls.

Owner: a1

Due Date: 2024-09-02

Action item ID: 16

Title: Confirm Resolution and Case Closure

Description: a1 will confirm whether the issue is fully resolved post-monitoring and provide confirmation to close the case.

Owner: a1

Due Date: 2024-09-02

Action item ID: 17

Title: Close Case T12345

Description: Close the troubleshooting case T12345 as the issue of "No audio on inbound calls" has been resolved.

Owner: e1@example2.com

An action item is considered not completed if any of the conditions #1, #2 and #3 are true.

Condition #1 - The action item owner acknowledges to perform the task.

Condition #2 - The action item owner gives commitment to perform the task.

Condition #3 - The action item owner intends to perform the task.

An action item is considered completed if any of the conditions #4 is true.

Condition #4 - The action item owner has finished doing the task.

Provide the completion status of all action items and the reason for status. For completed action items, include action item ID, name of the user who completed the action and completion timestamp. If the exact completion time isn't mentioned, then provide the completed date.

## **Gen AI output 2**

Based on the conversation transcript and the conditions for action item completion, here are the completion statuses:

**\*\*Action item ID: 14 - Request to Close Support Case\*\***

- **\*\*Status:\*\*** Completed

- **Reason:** e1 has been informed by a1 to close the support case as the issue is resolved.
- **Completion Details:** Completed by a1 on 2024-09-02T14:00:01.400+00:00

**Action item ID: 15 - Monitor System Post-Upgrade**

- **Status:** Completed
- **Reason:** a1 has monitored the system and confirmed that there are no issues post-upgrade.
- **Completion Details:** Completed by a1 on 2024-09-02T14:00:01.400+00:00

**Action item ID: 16 - Confirm Resolution and Case Closure**

- **Status:** Completed
- **Reason:** a1 has confirmed the resolution of the issue and has provided confirmation to close the case.
- **Completion Details:** Completed by a1 on 2024-09-02T14:00:01.400+00:00

**Action item ID: 17 - Close Case T12345**

- **Status:** Completed
- **Reason:** e1 has closed the case as instructed by a1 after confirming the issue was resolved.
- **Completion Details:** Completed by e1 on 2024-09-02T14:05:30.400+00:00

All action items related to troubleshooting case T12345 have been completed as per the provided conversation logs.