Watson Work Launch Series
Developing for Watson Workspace

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Chat Tools Evolution

Chat Room
- Allows users to chat with groups in real-time.

IM Platforms
- Tools which allowed users to chat one-on-one or in groups, exchanges files.

Chat Room
- Allows users to chat in real-time.

Enterprise IM

Social Chat
- Allow users to message friends on the social network.

Mobile Chat
- Allow users to send texts, pictures, video/audio – all for free, appealing to consumers who are tired of paying for Text/SMS.

Ephemeral Chat
- Tools where pictures and videos are taken, shared, then discarded.

UC Platforms
- Tools that integrate chat, voice/audio, web & video conferencing.

Enterprise Persistent Chat
- Enterprise collaboration software allows teams to communicate easily and efficiently with a Group Persistent Chat.

Cognitive Conversation Platform
- This solution allows users to extract intelligence from conversations using cognitive platforms.
What is Watson’s role in Workspace?

*Watson adds intelligence to your conversations*

**Workspace** is a cognitive messaging app that turns the spotlight on the most relevant conversations. Watson automatically highlights key insights to minimize loss of time and focus.

- Manage the information overload
- Take action in context
What is Watson’s role in Workspace?

*Watson adds intelligence to your conversations*

**Workspace** builds up a cognitive & semantic rich graph so developers can create apps that augment your conversations.

Use cognitive in the apps that you use every day.

**Workspace** API's allow developers to inject cognitive capabilities into other business apps.

**Workspace** can be trained to understand your business vernacular via the integration of **Watson Conversation**.

Interact with smarter apps & bots.

Understand your business conversations.
A messaging app. with built-in cognitive capabilities

Are you faced with information overload and pressured to be “on” all the time?

Workspace turns on **spotlights** across your conversations and surfaces the most relevant information so you can stay current.
Turn the spotlight on what matters with “moments”

Moments are logical groupings of conversations

Pre-trained intents (ex: actions) are identified

Optional custom intents (ex: sales opportunities) – maintained in Watson Conversation – can also be identified

Individual insights are being identified and promoted

IBM’s statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM’s sole discretion.
A cognitive messaging platform to run your interactive apps

Do you find yourself being often interrupted in your work flow?

Workspace automatically highlights key insights and allows users to take action in context to minimize loss of time and focus.
Create engaging and cognitive apps

Create an app. (bot)

• Personalized user interactions and dialogs

Make it cognitive

• Bring your own training model from Watson Conversation to identify custom intents (optional)

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Identifying & taking actions (1/4)

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Identifying & taking actions (2/4)

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The user selects an action from these that are being recommended by the system.
Identifying & taking actions (3/4)

3 = the user dialogues with the bot/application and selects what to share with the team.
Identifying & taking actions (4/4)

4 = the system shares the selected messages with the team
Identifying intents... how does this work?

As soon as you create a new message ...
Workspace calls Watson Work API's

Workspace underlines the relevant insights

Analyzes the message and the history

Calls other Watson services (Conversation, NLU)

Checks for optional custom intents from Watson Conversation

Stores the message cognitive data

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API’s to add cognitive collaboration outside of Workspace

Headless services can be implemented natively or as plug-ins

Examples in productivity tools: Microsoft Outlook plug-in, Eclipse plug-ins, etc.
A few ideas for using Workspace API’s in your business apps

- **Insurance claim**
  Data entry triggers action identification. Summaries are used by new participants.

- **Health services**
  A tele-health application summarizes conversations to avoid unnecessary ER admissions for diabetes patients.

- **Customer support**
  Automated actions and responses in emails helps customer service expedite requests.

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**Actions, questions, and custom intents are identified**

**Recommended actions can be taken in context**

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Every message in Workspace can be automatically tagged with cognitive data:

• What language is this?
• What sentiment has been detected?
• Are there recognized entities (ex: company, location)?
• Who is the subject in this sentence?
Cognitive annotations can help:

- Developers create smarter apps more quickly
- Organizations better understand their business (ex: trend analysis)

A few ideas:

- Track sentiment in a conversation to highlight changes in the tone
- Translate messages in real-time
- Monitor specific topics (ex: company names) to trigger automated actions
IBM Watson is a set of cognitive technologies

Watson Workspace
- Built-in cognitive services (ex: actions, summaries) optimized and trained for collaboration work streams
- Built-in conversation interface (and 3rd party plug-ins)
- Built-in repository for trend analysis & personalization
- Enabled for customization via other Watson technologies

Build with Watson
Enable cognitive computing features in your app using IBM Watson’s Language, Vision, Speech and Data API’s

Products
Watson products and apps can help illuminate insights and bring the power of cognitive computing to your organization

Built with Watson
Stories of how cognitive computing is transforming our world

Understand
imagery, language, and other unstructured data like people

Reason
by forming hypotheses to infer and extract ideas.

Learn
with each interaction to continuously develop and sharpen expertise

Interact
with people: see, talk and hear with humans in a relatable way
Watson Work Platform Vision

IBM Watson Workspace
Conversational Collaboration

IBM Watson Work Services
- Detect Intent
- Identify Topics
- Learn Business Dialect
- Summarize

Cognitive APIs
Understand Business Conversation

Integrate with Applications
- Integrate with Applications
- Enrich with Information

Take Action
- Take Action

Interact with Users
- Interact with Users

Applications
Email, Social, Voice/Video...
Sales, Talent, Marketing...

Industries
Healthcare, Retail,
Financial Services...

Conversational Collaboration

Industries and Applications for various verticals:
- Healthcare,
- Retail,
- Financial Services...
- Email,
- Social,
- Voice/Video...
- Sales,
- Talent,
- Marketing...

Email, Social, Voice/Video...
Sales, Talent, Marketing...
How to use the platform: two options

**OPTION**

Creating Apps to extend Watson Workspace

**EXAMPLE**

Creating Apps to extend Watson Workspace

**OFFERINGS**

- **WATSON WORKSPACE ESSENTIALS (9/26)** – per user per month
- **WATSON WORKSPACE ESSENTIALS (9/26)** – per user per month
- **WATSON WORKSPACE SERVICES (future)** – other usage metrics

**Services to add cognitive and collaboration to your own apps**

- Bryan J. Sarver
  - June 12, 2012 at 3:22 PM
  - Agent, Math Software
  - IBM Watson Services

- Dr. Lisa Goodlett
  - June 12, 2012 at 10:05 AM
  - Physician, IBM Watson Services

- Michael Albertson
  - June 12, 2012 at 9:26 AM
  - Mechanic, IBM Watson Services

- Philip Albertson
  - June 12, 2012 at 10:13 AM
  - Mechanic, IBM Watson Services

- Mark Ketterer
  - June 12, 2012 at 9:23 PM
  - IBM Watson Services

- Jake’s Towing and Transportation
  - June 12, 2012 at 9:26 AM
  - Service Helpdesk

- Super Duper Car Rentals
  - June 12, 2012 at 10:15 AM
  - Car Rental Helpdesk

- Bryan, look to let you know that the additional costs of the repairs and the extension of the car rental is fully covered by your policy. We are working with Philip to get your car back to you as soon as possible.
What are Watson Work Services?

A set of cognitive services that understand conversations and context, surfaced through a rich set of APIs.
How does Workspace work?

1. **Submit a Message**
   - User sends a message into a space

2. **Cognitive Analysis**
   - Workspace shares the message with Watson

3. **Message Created**
   - App Webhook called for message created

4. **Cognitive Annotation**
   - Asynchronously, Watson annotates the message

5. **Annotation Added**
   - App Webhook called for message created
“This messages looks negative with a score of 0.898547” (sentiment)

“This messages is a question: Where can I download the file?” (focus - question)

“There is a new moment starting here by John about - Site Vulnerability - with keywords: malicious, code, injection” (moment)

“It appears the user is talking about sales opportunity, maybe he wants CRM Sales information (action fulfillment)” (focus – action)
IBM Watson Work Services

Programming Model
The programming model today is based on the concept of "Apps" as participants in a specific contextual conversation to integrate the conversation into other services and other services into the conversation.
Use cases to focus

• **Awareness.** Reflecting in a conversation incidents, events, etc taking place:
  - a sale is closed
  - a trouble ticket is opened

• **Efficiency.** Taking action in external systems from within a conversation helps maintain focus:
  - query sales opportunities
  - open a trouble ticket

• **Intelligence.** Detecting possible actions and making suggestions:
  - A customer support conversation might require escalation based on tone, how many open questions are detected, etc.
What can Apps do in IBM Watson Workspace?

1. **Contribute content to conversations**: Messages, files, and annotations on messages based on events taking place outside a conversation: A sale is closed

2. **Listen to conversations in real time and act based on their content using Watson Natural Language Conversation and classification capabilities**. Acting includes initiating flows to fulfill intended actions inferred from conversations or explicitly being called by users via slash commands. Detect and query report on information from outside the conversation: opportunities for a client

3. **Read conversation cognitive analysis such as summarizations**

4. **Read space attributes such as title, membership changes, dates**}

   Ensure the right participants are engaged conversation
Contribute content to conversations

1. via GraphQL mutations
   1. createSpace
   2. addSpaceMembers / removeSpaceMembers
   3. createMessage (beta)
   4. createTargetedMessage (beta)
   5. addMessageFocus (beta)

2. via REST APIs
   1. POST /v1/spaces/{spaceld}/messages (prefer new CreateMessage)
   2. POST /v1/spaces/{spaceld}/files
Listen to conversations in real time
Listen to conversations in real time: Scenarios

1. Take action in external system

2. Analyze and annotate ongoing conversation with detected intents and actions

3. Converse privately with end user and contribute outcome back into the main conversation:
   1. Via user executing suggested actions on a message
   2. Via an explicit /command

4. Take action inside IBM Watson Workspace
   1. Contribute content to current or other conversations
   2. Make participant changes (i.e. invite others)
Action Fulfillment Flow

1. Identify intents and associated possible actions to take on messages
2. User initiates/triggers flow either via clicking on message or via /command if an explicit action independent of specific message is requested
3. Client provides Action Fulfillment UI area
4. App responds to flow via messages targeted exclusively to this user containing text, Cards and buttons
5. User can respond back to App via clicks on buttons (more ways to respond are planned…)
6. App and/or user can still contribute to main conversation
7. User ends flow by closing Action Fulfillment UI area

• Tutorial: https://developer.watsonwork.ibm.com/docs#action-fulfillment
Read Conversation Cognitive Analysis

1. Moment (beta)

```java
```

**Fields**

- `live`: Boolean
- `startTime`: Date
- `endTime`: Date
- `priority`: UserPriorityStatus
- `created`: Date
- `updated`: Date
- `id`: ID!
- `keyMessage`: Message
- `mentioned(first: Int)`: [Mentioned]
- `messages(oldestTimestamp: Long, mostRecentTimestamp: Long, annotationType: String, before: String, after: String, first: Int, last: Int): MessageCollection`
- `summaryPhrases(first: Int)`: [SummaryPhrase]
- `participants(first: Int)`: [MomentParticipant]
- `space`: Space
- `createdBy`: Person
- `updatedBy`: Person
App Identity

• Create Apps that listen and contribute messages with their own identity.

• Create Apps that leverage OAuth2 to authorize as a user.
Learning the Programming Model

Welcome to Watson Work Services

What can you build?

The Watson Work Services platform can support apps in Watson Workspace, or you can make them available on their own. That's great, but what's next? You can build apps that can:

- Send IBM Watson Challenge into a voice
- Listen & respond to events automatically via on-premises services
- Allow users to initiate actions using conversational text

We can also have apps that can help you set up your app, such as workspaces, conversations and interactions. If you can suggest actions, recognize sentiment, or provide expertise, you can see how the system understands the object associated with specific dimensions and industries.

Docs
https://developer.watsonwork.ibm.com/

API Explorer

Open Source
https://github.com/watsonwork
Implementing the Programming Model

- Registering App
- Coding Apps based on APIs
- Hosting Apps
  - If listening to events in real time
- Discovery of Apps
  - Sharing Apps;
  - Submission for review and publishing in catalog;
- Provisioning
  - Authorizing (adding to Space)
  - Configuring Apps to act in a Space conversation and/or authorizing an App to act as user with a reduced scope of permissions
• Focus on workspace.ibm.com extensibility via Apps now

• Apps can use and benefit from IBM Cognitive services for Summarization, Natural Language Processing and Natural Language Classification

• Apps add value to a conversation via content contributions and message analysis via focus annotations optionally utilizing individual Action Fulfillment work flows with its users

• Apps derive value from a conversations and spaces via web-hooks

• Apps do not extend IBM Watson Workspace UI, rather UI is coded to react to Apps contributions and to user gestures