



IBM Innovate 2014 Keynote

An Ecosystem of Innovation: Creating Cognitive Apps Powered by IBM Watson and IBM Bluemix

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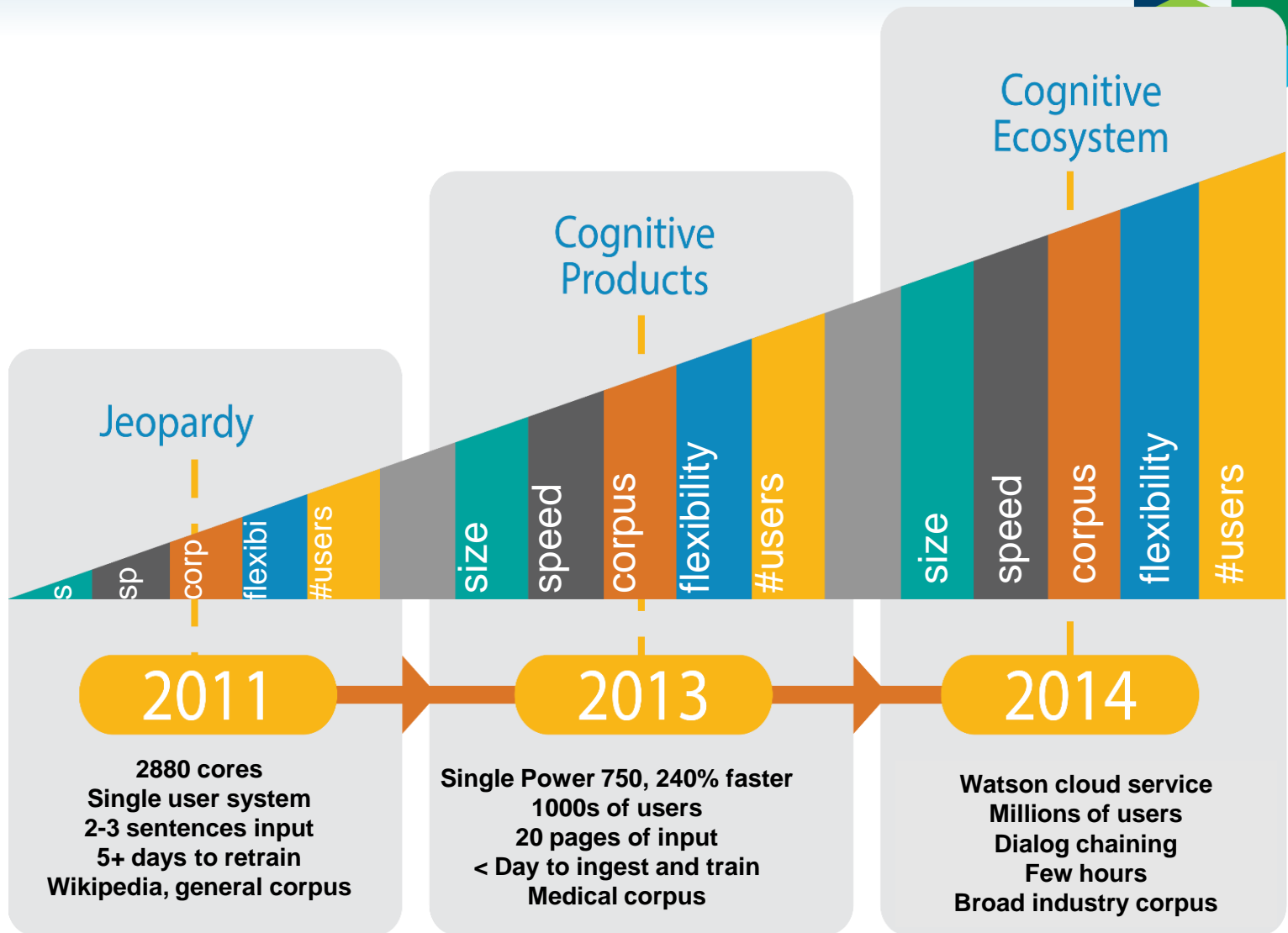
Topics

- What is Watson?
- How Watson works?
- Watson Ecosystem & Watson Developer Cloud
- How do I start my journey?
- Recap & Q&A

On February 14, 2011
IBM **WATSON**
made history



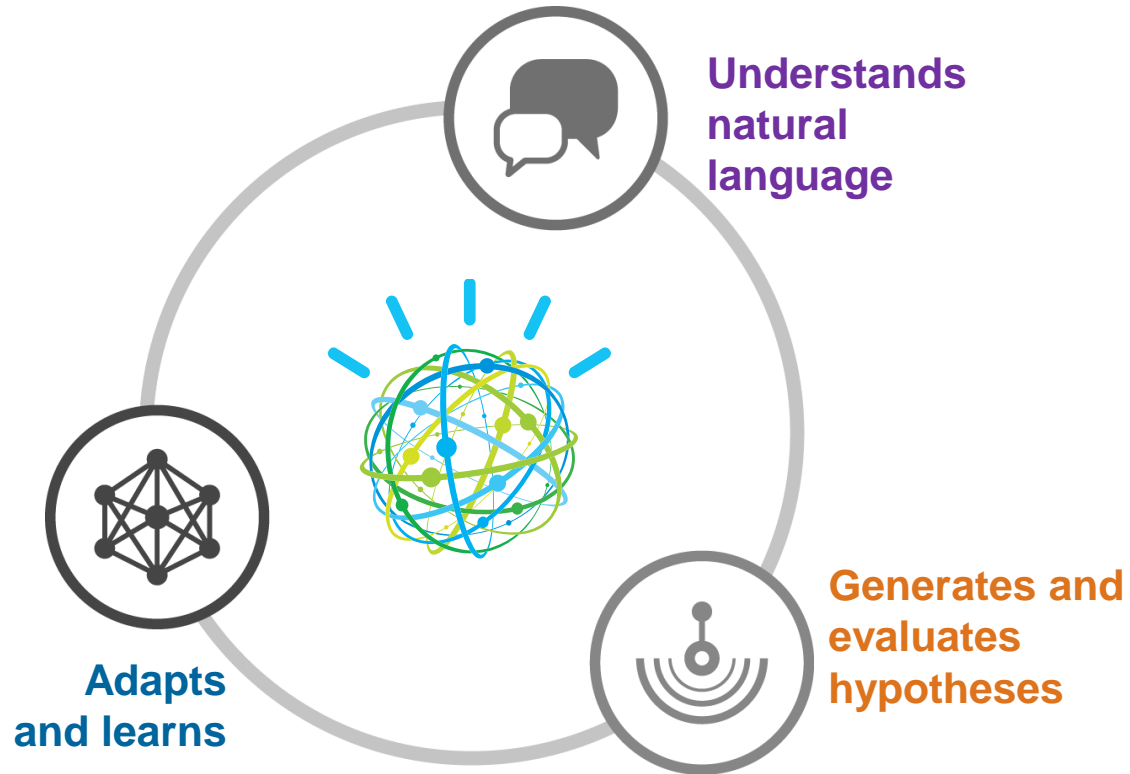
Bringing Watson technology to market



Watson is Cognitive Computing



- Watson understands me.
- Watson engages me.
- Watson learns and improves over time.
- Watson helps me discover.
- Watson establishes trust.
- Watson has endless capacity for insight.
- Watson operates in a timely fashion.



Consider this Natural Language Question

*A restaurant in
Chicago?*

Several critics have raved about Zhivago and what a masterpiece it was. Was it shown in Russia in 2001?

*Are we talking about
Art or Sculpture or
Movie or Food?*

*Plain Number (or)
a Temporal
Reference?*

Keyword search and expert systems are not able to recognize the subtleties, idiosyncrasies, and ambiguities inherent in common human language

This is how Watson would respond with Movies related content ingested as Corpus



Watson
Engagement Advisor

Joseph: Several critics have raved about Zhivago and what a masterpiece it was. Was it shown in Russia in 2001?

Watson:
The film left an indelible mark on popular culture and fashion, and to this day remains an extremely popular film: Maurice Jarre's score-particularly "Lara's Theme"-became one of the most famous in cinematic history. Over the years, the film's critical reputation has gained in stature, and today Doctor Zhivago is considered to be one of Lean's finest works and is highly critically acclaimed, along with Lawrence of Arabia , Brief Encounter , The Bridge on the River Kwai , and A Passage to India. As with the novel itself, the film was banned in the Soviet Union. It was not shown in Russia until 1994. Review aggregator Rotten Tomatoes gives the film an 85% 'Fresh' rating.

Reference | Other possible responses

51% Medium

Useful Not Useful Comment

Type your question here. Use the same wording as you would use to ask a person.

Ask

With a level of confidence

... and other possible answers

... and Evidence

Deep natural language processing is NOT keyword search



Watson is not about rules-based search or speech processing

- Traditional systems use keyword and synonym matching to find documents
- Expert systems need rules to demonstrate expertise
- These systems trade off precision for accuracy outside of what they are programmed to recognize

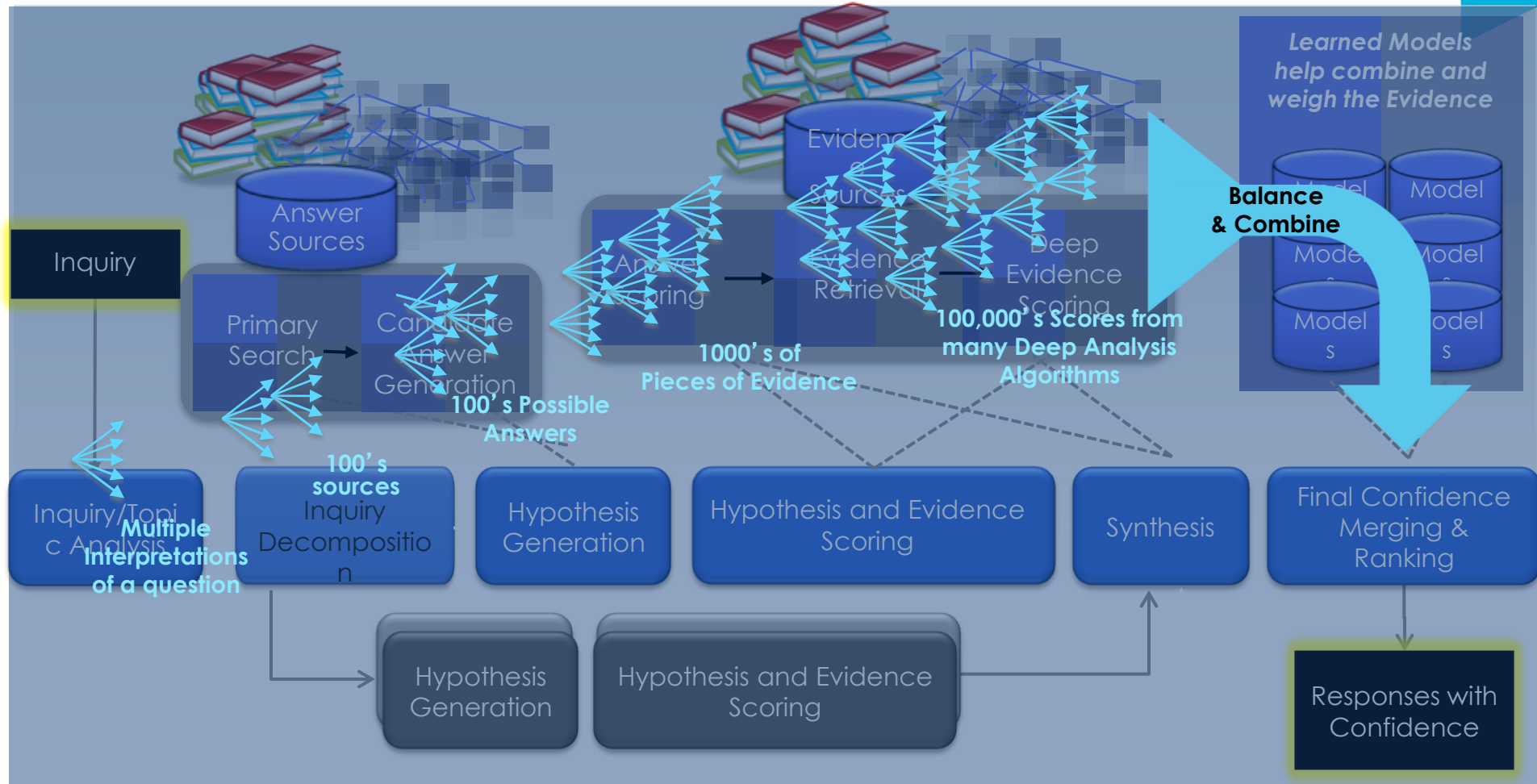
Cognitive systems, like humans, know how to apply **context**, fill in the gaps, resolve **ambiguity** and **uncertainty**, and **accurately** interpret **language**



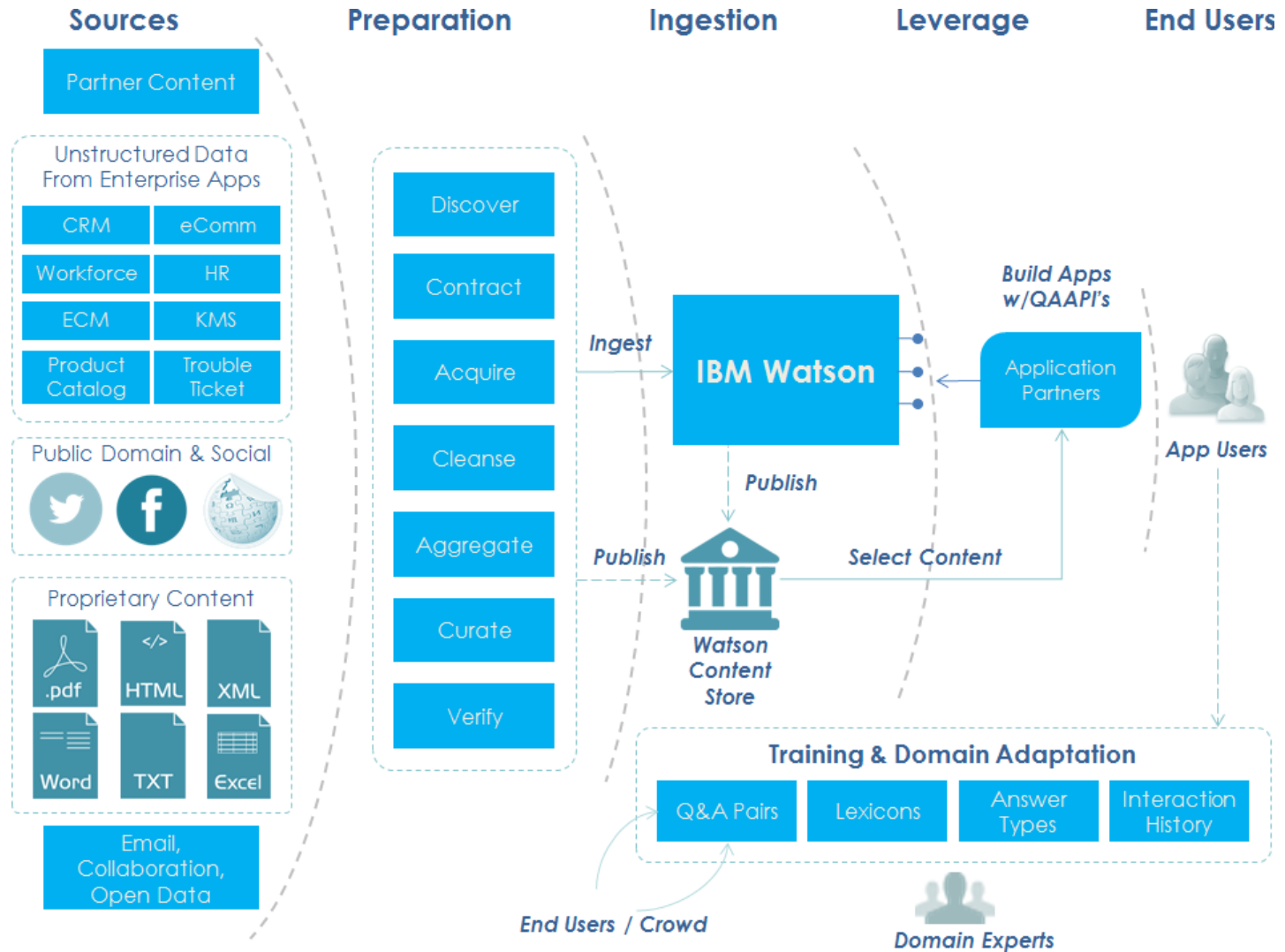
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How Watson works: DeepQA Architecture



Building a Watson based app – How does it all come together?



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Bringing Watson to Market



Transforming industries and professions with services-led engagements.



Advancing cognitive computing across the enterprise with repeatable **solutions**.



Bringing the cognitive experience to market through an **ecosystem** of partners.

Watson Ecosystem



Startups



Enterprise



Universities

\$100M

Planned equity
investments
in Ecosystem

2400+

Ecosystem Partner
Applications

400

Mobile Developer Challenge
applications,
25 semi-finalists

7

Universities partnering to
deliver cognitive curriculum
in fall 2014

Watson Ecosystem: A cognitive marketplace



The IBM Watson Ecosystem brings the cognitive capabilities of Watson to the **cloud**, allowing third parties to harness Watson's cognitive capabilities. The ecosystem is comprised of **three** key components:



Watson Developer Cloud delivers **the tools, methodologies, software** developer kits and API(s) for ISVs to build the next generation of cognitive applications.



Watson Content Store brings together **sources of free and fee data**, including general knowledge, industry-specific content, and subject matter expertise.



Watson Talent Hub helps bridge ISVs' **resource gaps** by providing a marketplace for critical cognitive, big data, UI, and mobility skills.

What does a partner get through the IBM Watson Ecosystem



- Use the **Watson Developer Cloud**
 - Use the **Watson Experience Manager** and other tools
 - API to access the Q&A service to Watson
 - Documentation
 - Ability to enrich Watson using content and train and test an application
 - Customizable user interface to embed in an application
 - Guidelines on using Watson elements in the application
- **Obtain or provide** content in the Watson Content Store for use in applications
- **Access** to a network of partners, customers, content and talent through the IBM Watson Ecosystem
- Use of a **collaborative** community including IBM's technical, marketing and sales

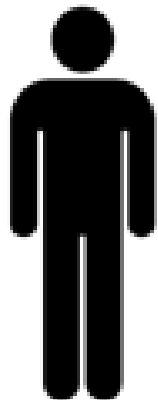
What is the cost to be part of the IBM Watson Ecosystem?



Process for building your “Powered by Watson” app



Access Watson Developer Cloud
using *Watson Experience Manager*



Develop app
“Powered by Watson”
using APIs



Enrich Watson
with content



Train Watson
using tools and
experts



Test app
*functional and
non-functional*

Deploy application

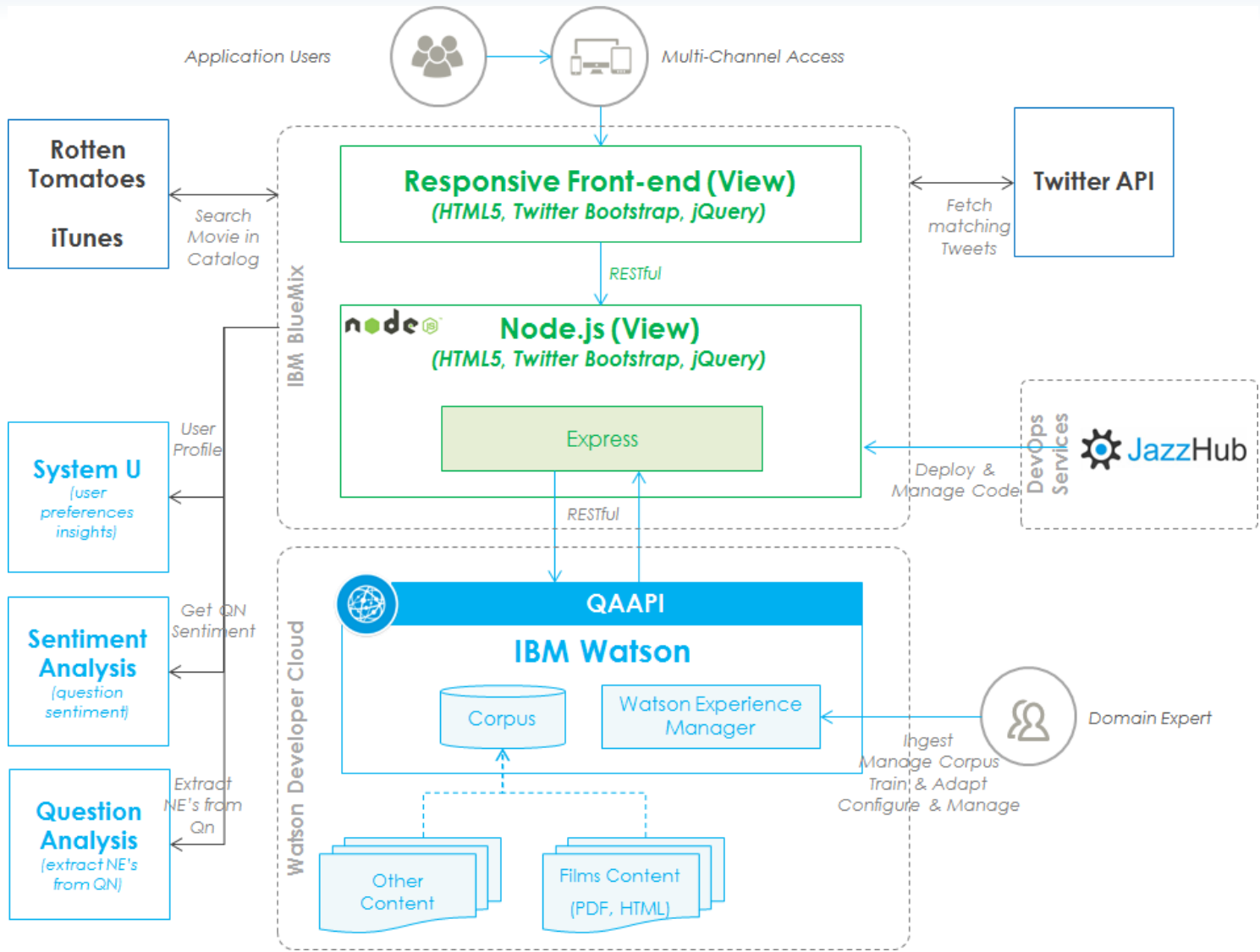




What is Watson Films?

- Demo application, hosted in IBM Bluemix, that demonstrates how to integrate & interact with Watson using QAAPI and other cognitive services + 3rd party services
- Allows end users to ask questions in natural language about films and film making in general
- Watson is ingested with following content,
 - Wikipedia about the list of the top 100 greatest American films of all time per the American Film Institute (HTML format)
 - “The Essential Reference Guide for Filmmakers” from Kodak (PDF)
- Extracts terms / movie names from the question
- Twitter API’s to fetch tweets about the movie extracted from the question.
- Shows the sentiment of the (extracted) tweets about the movie
- Shows a heat map of tweets about movies happening across the globe
- Searches if the extracted movie is available on iTunes and Rotten Tomatoes
- Used structured data about movie box office to answer appropriate questions
- Generate insights on customer preferences based on digital footprint

Architecture of Watson Films



Fork the Application from IBM JazzHub



<https://hub.jazz.net/project/dimascio/WatsonFilmsDW>

***Note:** The application made available in IBM JazzHub is a stripped down version of the what was shown as demo. The application in IBM JazzHub essentially contains core functionality and the view code needed to integrate with Watson QA API and render the results.*

Mobile Developer Challenge Semi-finalists - Examples



Fashion Red Ant

A sales trainer that lets employees easily identify individual customers' likely interests.

Retail CrayonData

Helps consumers simplify choices in every aspect of life.

Microfinance Xoriant

Lets rural customers access microfinance organization and related data on the go.

Fitness BrightMinded

A virtual personal trainer that follows users through all aspects of their fitness experience.

Cities Ontodia

Concierge service lets users ask detailed questions about local government and private resources.

Education Majestyk Apps

A cognitive companion that improves education.

Agriculture Strategia Tecnologia

Helps family farmers get answers to their questions about agriculture.

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How do I start my journey with IBM Watson?



1. What is the **business value** to the “*Powered by Watson*” application you intend to build?
2. Does the application draw upon the **unique characteristics and capabilities of a cognitive** offering?
3. Has the **content that will fuel the application** been identified and can it be secured/licensed for the intended use?

The best use cases...

✓ Have a question and answer interaction pattern, with questions posed in **natural language**

✓ Seek answers and insights from a defined content repository comprised largely of **unstructured data**

✓ Need **transparency and supporting evidence** for confidence weighted responses to questions and queries

Phase 1: Engage



- 1** Join IBM Partner World at <http://ibm.com/PartnerWorld>
- 2** Analyze use case for Watson business and technical synergy
- 3** Submit Watson Ecosystem application and receive acceptance
<https://ibm.biz/watsonecosystemapply>
- 4** Obtain access to the Watson Developer Cloud through the Watson Experience Manager

Where can I go to learn more?

Learn:

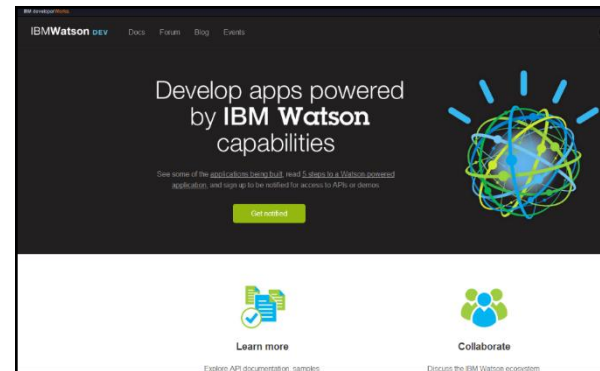
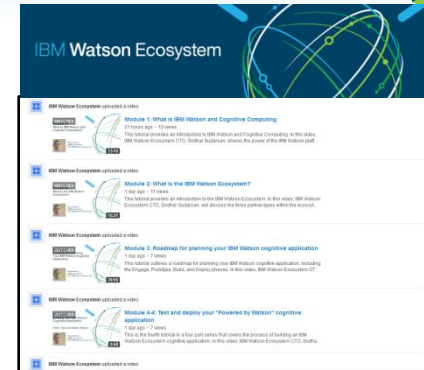
<https://ibm.biz/watsonecosystem-youtube>

Share:

<https://ibm.biz/watsondeveloper>

Apply:

<https://ibm.biz/watsonecosystemapply>



Some Interesting Links



- <http://www.ibmwatson.com>
- Apply to the Watson Ecosystem program
 - <http://www.ibm.com/smarterplanet/us/en/ibmwatson/ecosystem.html>
- Developer Q&A Forum
 - <https://www.ibmdw.net/watson/>
- Watson Developer Cloud Enterprise
 - http://www.ibm.com/smarterplanet/us/en/ibmwatson/assets/pdfs/Watson_Developer_Cloud_Enterprise_Final.pdf
- Growing social dialogue
 - Twitter: @IBMWatson
 - LinkedIn: Watson Advocates Group
 - Facebook: facebook.com/ibmwatson

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Recap & Summary

- Watson is a type of **Cognitive System**
- What makes Watson different are **three** powerful technologies
 - natural language
 - hypothesis generation, and
 - evidence based learning
- Before IBM Watson can answer user questions content must be **ingested** into a **corpus** to formulate correct answers
- Watson produces **multiple** answers and each of them contains a probabilistic **confidence** and supporting **evidence**
- Adapting Watson to a new domain is done through **Training**
- **Integrating** with Watson can be via RESTful **QA API** (or) embedding Watson UI
- **IBM Watson Ecosystem** is composed of mutually benefiting, interconnected partners to collaborate and create the next generation of cognitive apps.
- **IBM Watson Developer Cloud** provides developers access to technology, tools and APIs, including training and ways to develop and test applications built with Watson.





Questions

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