

# SoarQnA

Access to external knowledge stores

LIFE BEFORE GOOGLE:  
A SHORT STORY

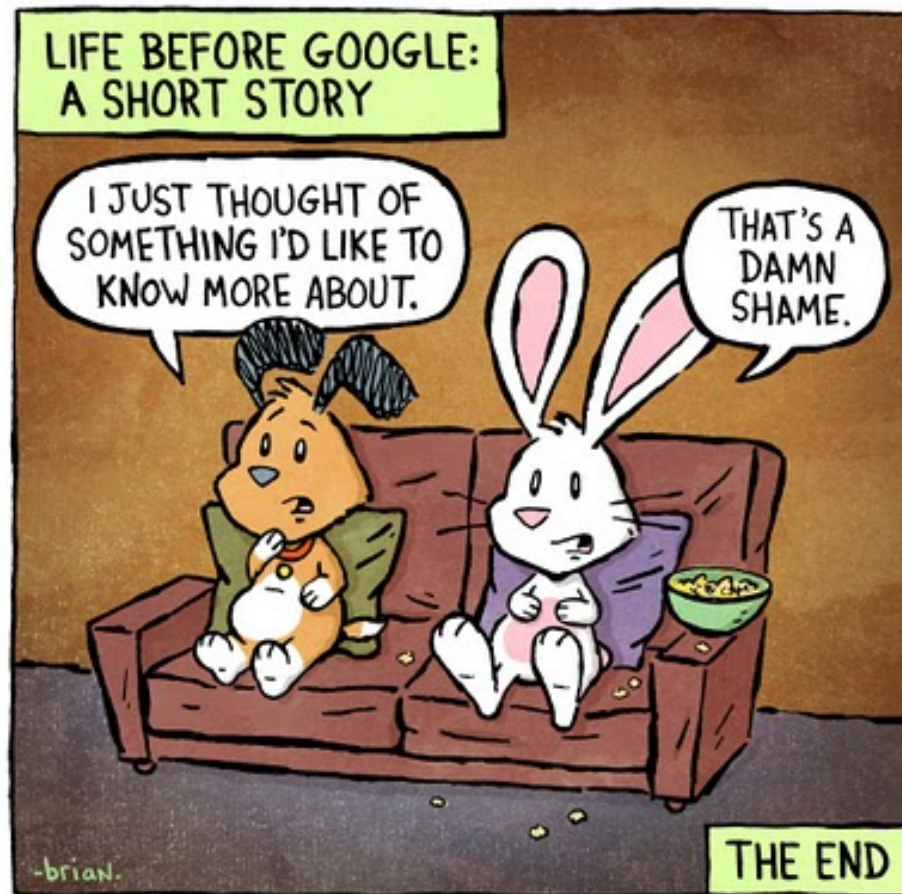
I JUST THOUGHT OF  
SOMETHING I'D LIKE TO  
KNOW MORE ABOUT.

THAT'S A  
DAMN  
SHAME.

-brian.

SHOEBOXBLOG.COM

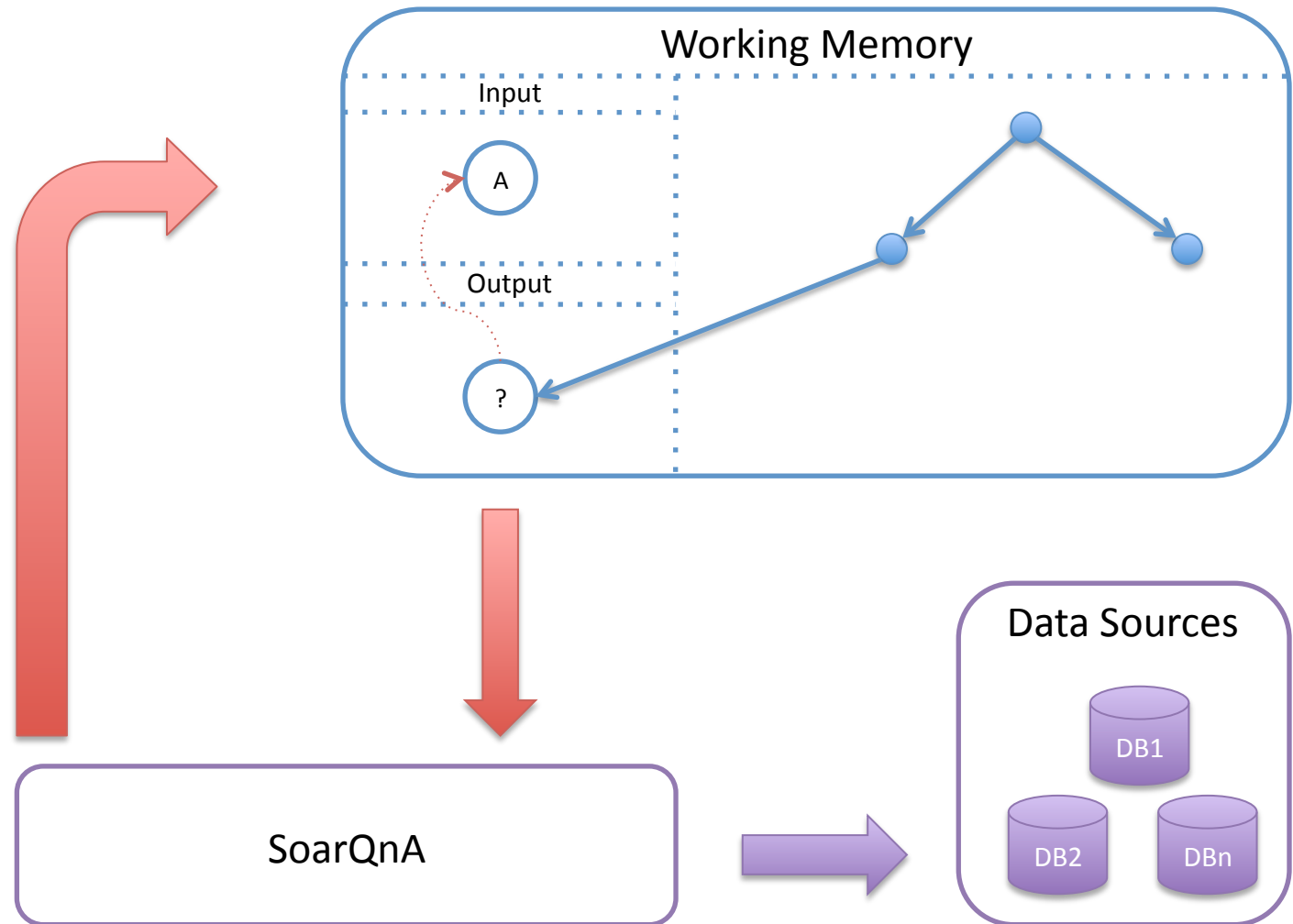
THE END



# Objectives

- Efficient
- Quick development/prototyping
- Simple, unified agent interface independent of
  - Data format/source
  - Query type/complexity
- Broadly applicable

# Architecture Overview



# Components

- Data source drivers
- Data source descriptor
- Agent interface
- IO hooks

# Data Source Driver

## Interface

- Unique name
- Required connection parameters
- Execute query
  - Maintain query state between subsequent requests
- Next
- Clean

## Examples

- Database (JDBC)
  - SQL
- Web (REST)
  - XML via Xquery
  - JSON via jaql?
  - RDF via SPARQL?
- Cyc (SubL)?
- Custom/computational?
  - Wolfram Alpha (extends Web)?

# Data Source Descriptor

- Unique identifier
  - String name
- Connection information
  - Driver, instance parameters
- Available queries
  - Name, parameterized query language

# Agent Interface

## Output

- qna-query
  - source (identifier)
  - query (name)
  - parameter(s)
    - Attribute=param-name
    - Value=parameter
  - results (all | incremental)
  - cursor (uid | nil)
- qna-next/dispose
  - cursor (uid)
  - status (success | failure)

## Input

- qna-resultset
  - source (identifier)
  - query (name)
  - cursor (uid)
  - result
    - feature(s)
      - Attribute=key
      - Value=value
    - next (result | uid | nil)
- qna-sources



# IO Hooks

- Listens for commands on output, provides feedback and appropriate results on input
- Available with minimal modification to any Soar system

# Examples

- Six degrees of Kevin Bacon
  - IMDB (files, dbms, web)
- The traveling grad student problem
  - Google Maps (web), GIS (dbms, web), GPS/WiFi
  - Weather: wunderground (web), Wolfram Alpha (web)
- Poetry
  - Rhyming: Wolfram Alpha (web)
- Diet
  - Calories/vitamins: Wolfram Alpha (web)
- Custom interface
  - Colors: Wolfram Alpha (web)
- Translation
  - Language: Google Translate (web)
  - # -> words: Wolfram Alpha (web)
  - Barcode: Wolfram Alpha (web)

Coming to the next Soar Workshop