

# MOVE-10: Darwin or Big Bang?



A Darwinian Case Study of a WebSpeed®  
Application's Evolution

SMAT-Team Tobago

**We Are The Temporary Extension of  
Your Development Department**

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PROGRESS SOFTWARE  
**Exchange**  
2006

# Agenda



- **Overview – Modernization Questions**
- **Version 0 (Prototype, Legacy Code)**
  - WebSpeed
- **Version 1 (some UI/BL separation)**
- **Version 2 (Business Logic GUI ready)**
  - OpenEdge® Reference Architecture
  - ProDataSets
- **Wrap-Up**

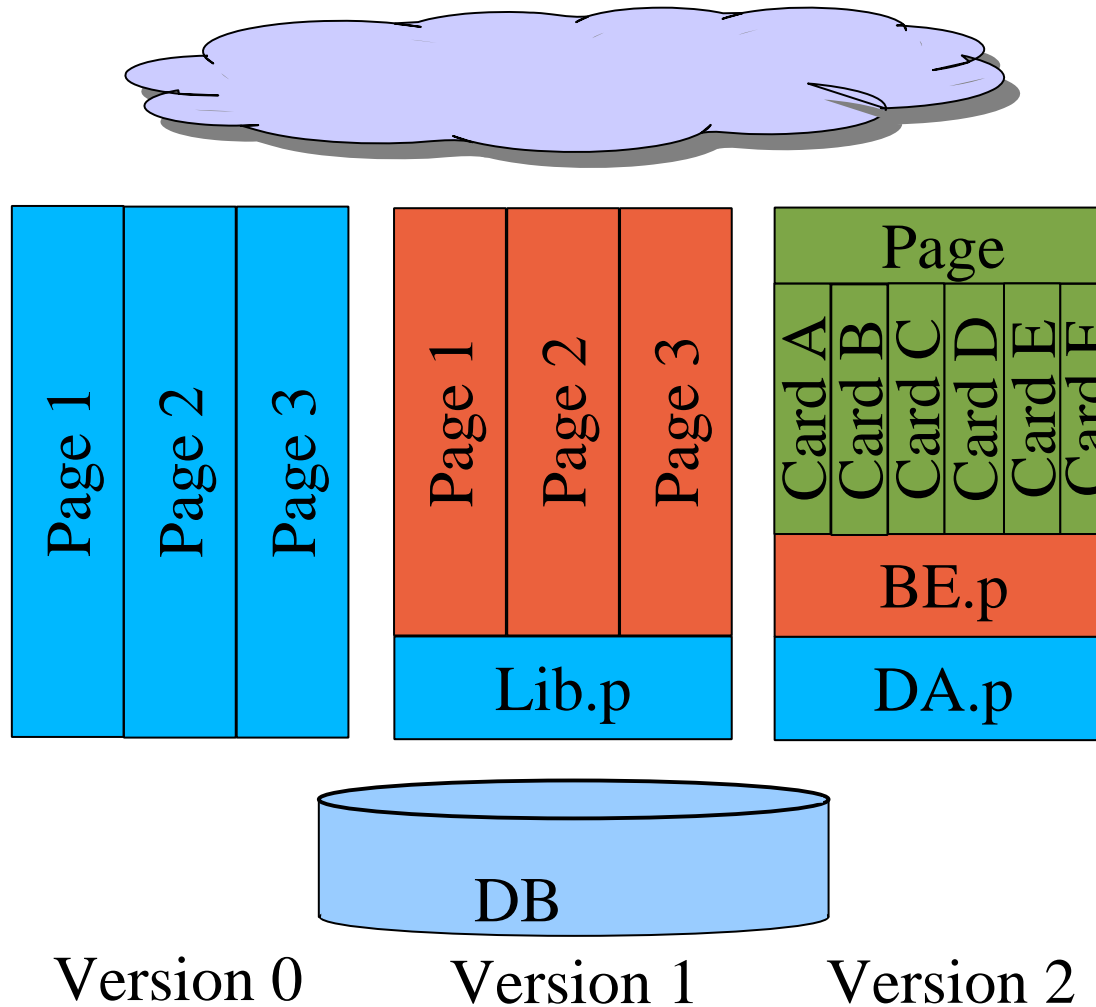
# Goals For This Session



“Application Modernization is a fact of life, and a never ending battle - but also a never ending opportunity to make it better...”

- Show real-life example of step-by-step modernization
- Provide seeds for thought
- Encourage you to try it too

# Architecture Overview – Layers



# Three Modernization Main Questions



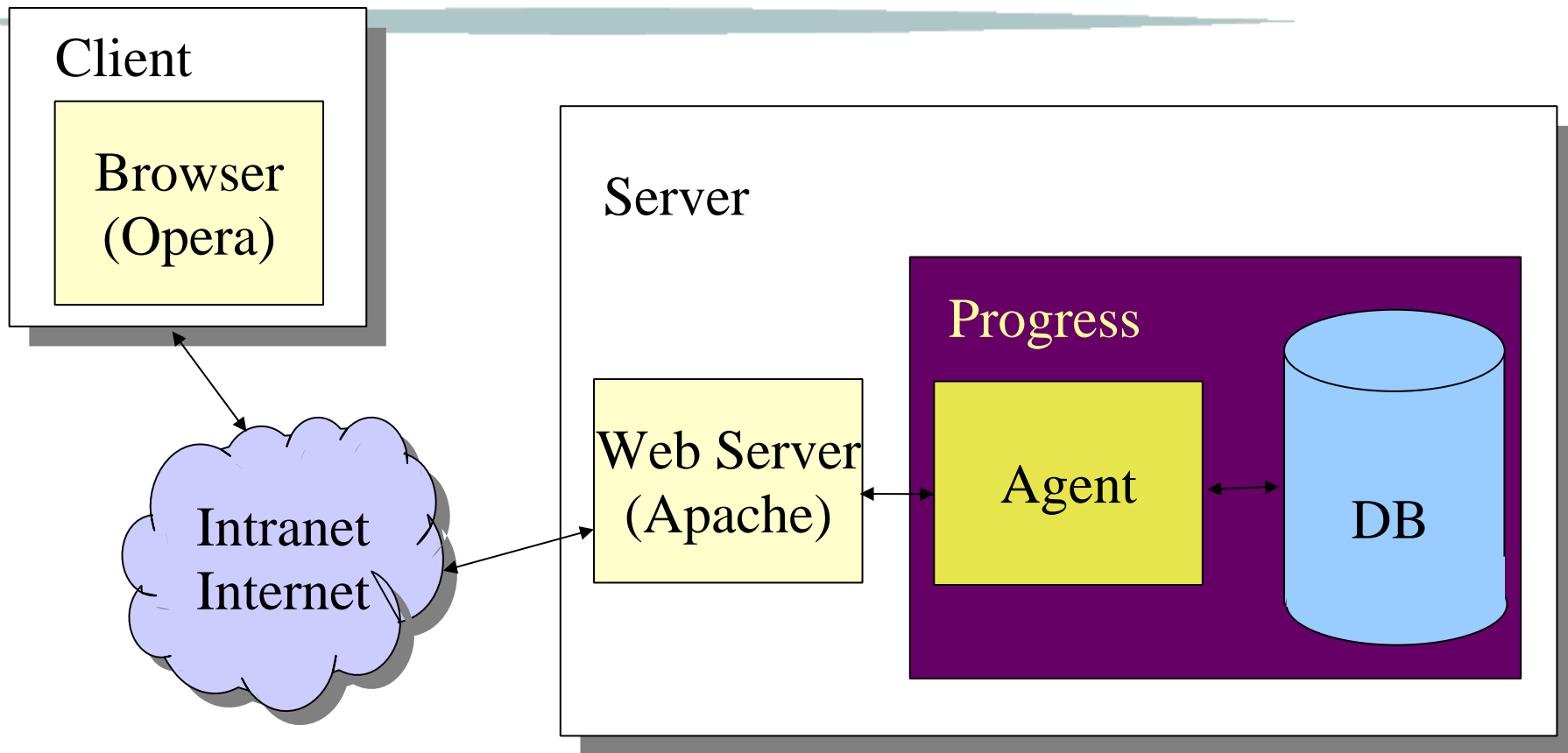
- How to reuse as much as possible of the existing application?
- How to integrate programs of the old and the new architecture within one application, so they can run in parallel?
- How to design the new architecture, so future modernization efforts can be implemented easily, and with maximum code-reuse?

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# WebSpeed Architecture



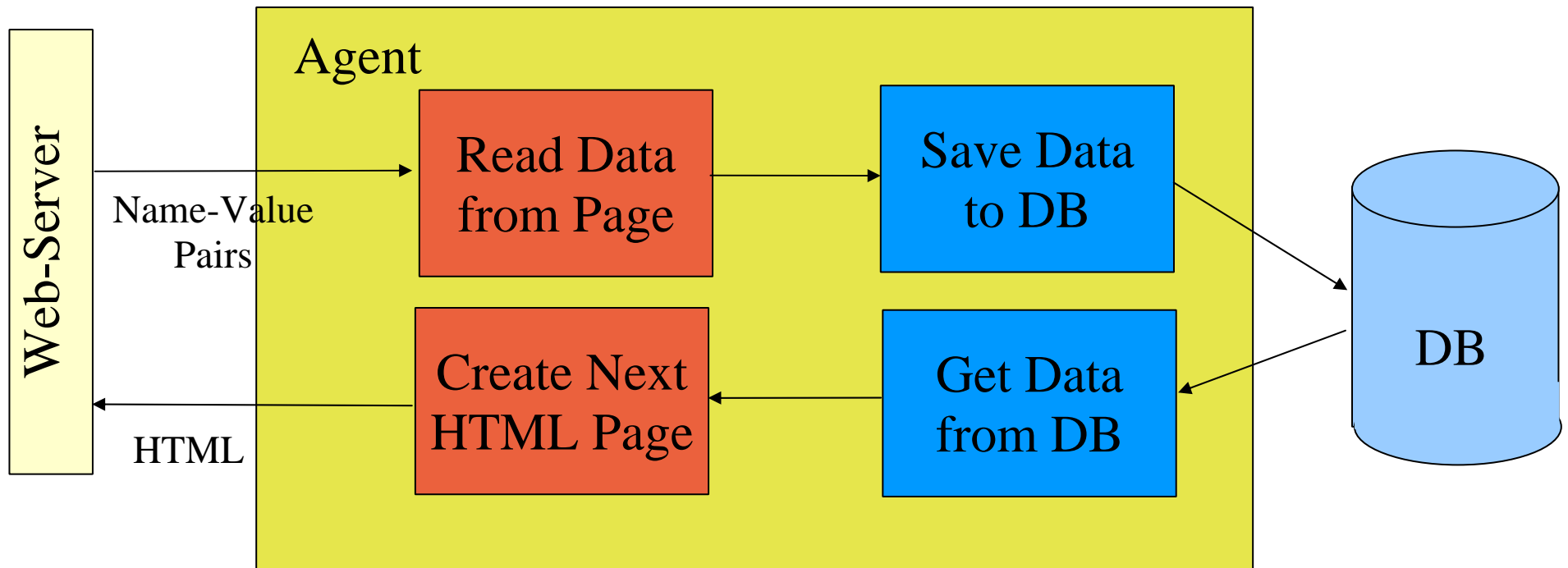
# Seed of Thought

A decorative graphic of a sun with a curved horizon line and several triangular rays pointing upwards, located in the top right corner of the slide.

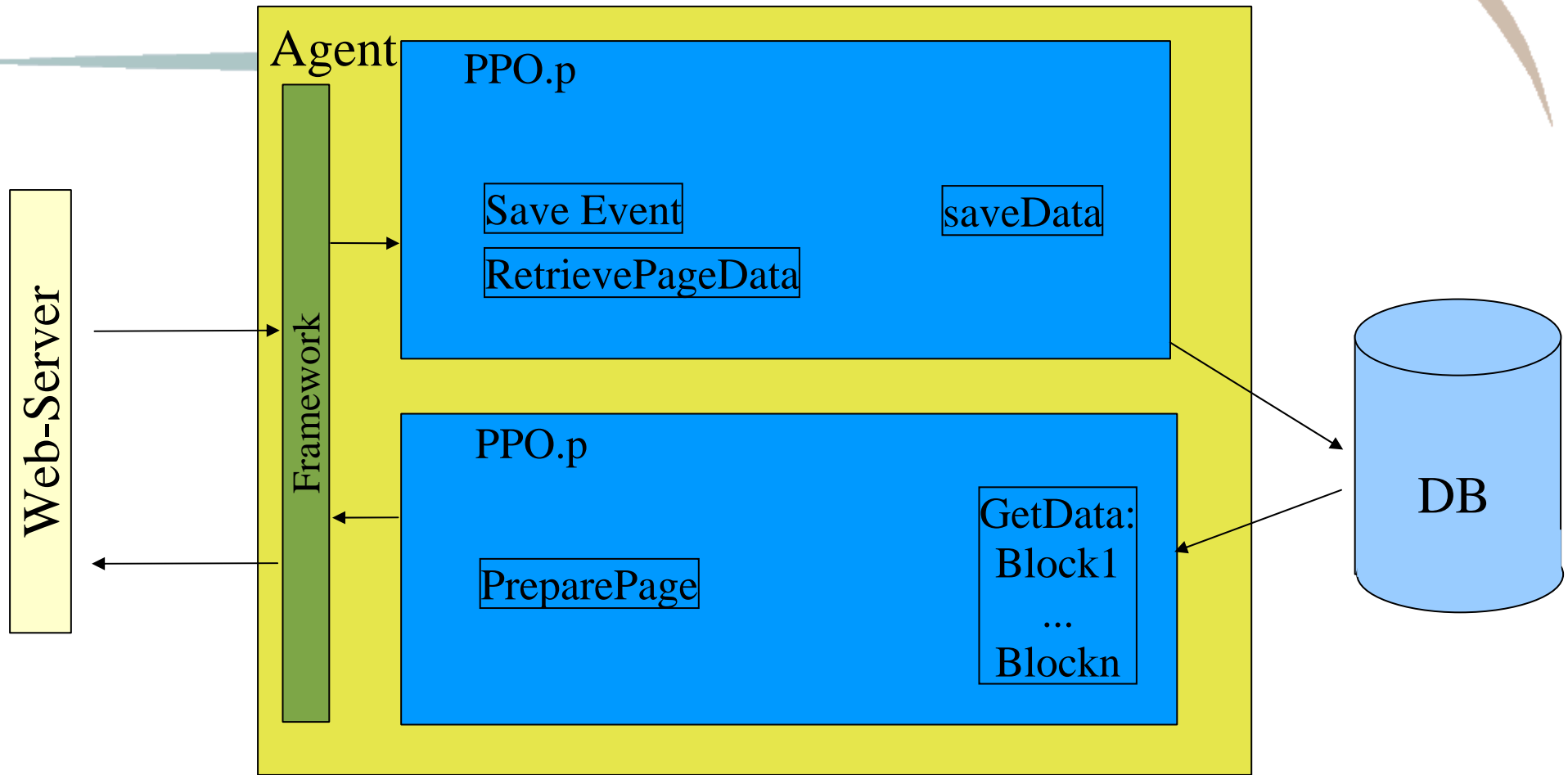
- 3 Event-types submit a page:
  - View (first request [menu], refresh, change in filter values, request details...)
  - Print (providing what and how to print)
  - Save (providing data to save, Ids to delete)
- Posting page can be
  - Same as next page (next instance, save&refresh,...)
  - Different from next page (browser->viewer,...)



# WebSpeed Round Trip



# Architecture Overview – Version 0

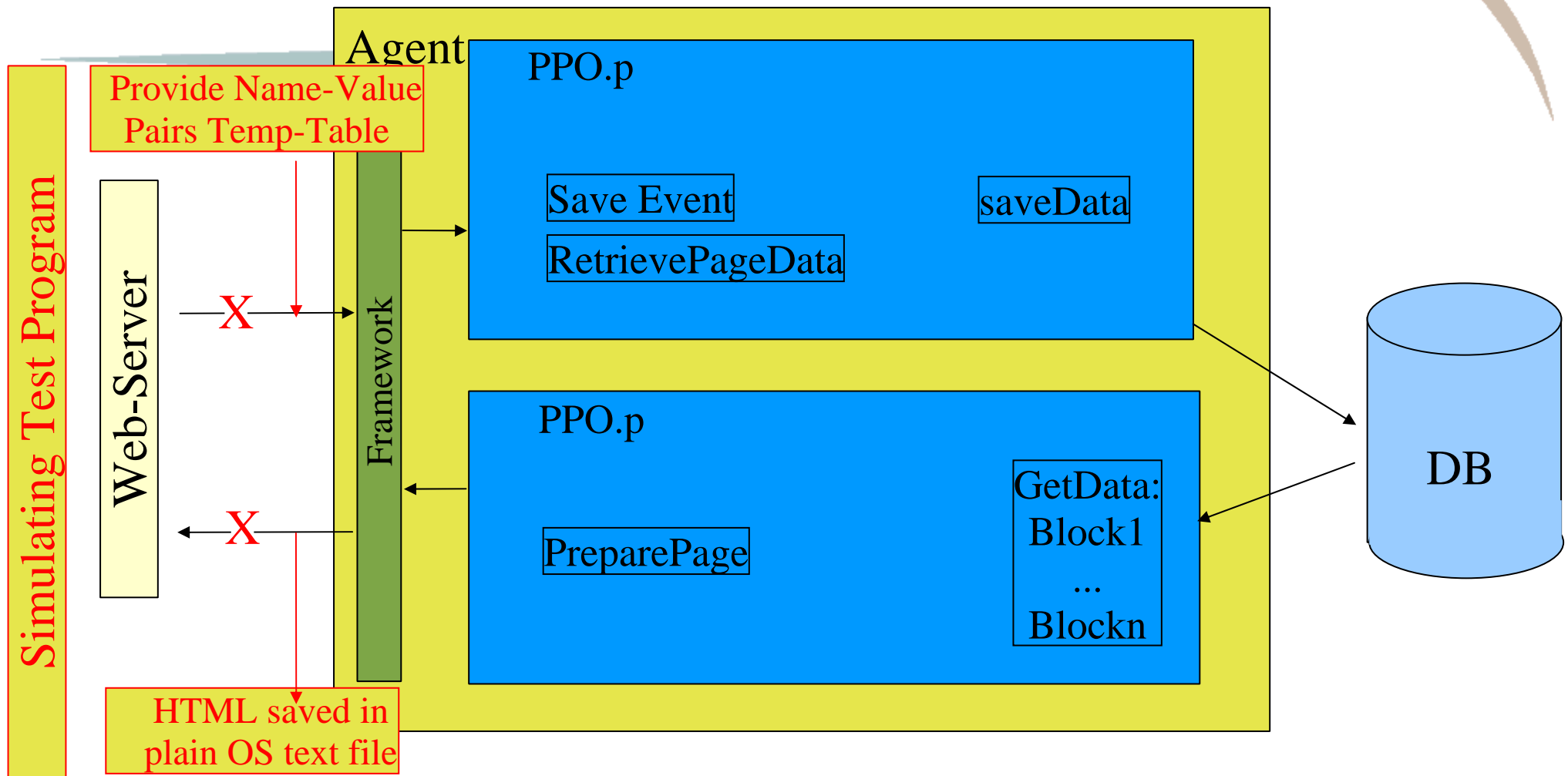


# Main-Issues – Version 0



- Duplication of code
  - Drop-downs, pages with similar data, ...
- Fields as parameters
- No specialization is possible
- GUI module would require reprogramming and further code-duplication
- QA: several steps testable only in one block

# Architecture Overview – Version 0



# Seed of Thought

A decorative graphic in the top right corner consisting of a thick, curved line forming an arc, with several triangular rays of varying lengths extending upwards from the arc.

- Testing step by step makes life much easier
  - Prototyping and development
  - Debugging
  - Maintenance

# Agenda



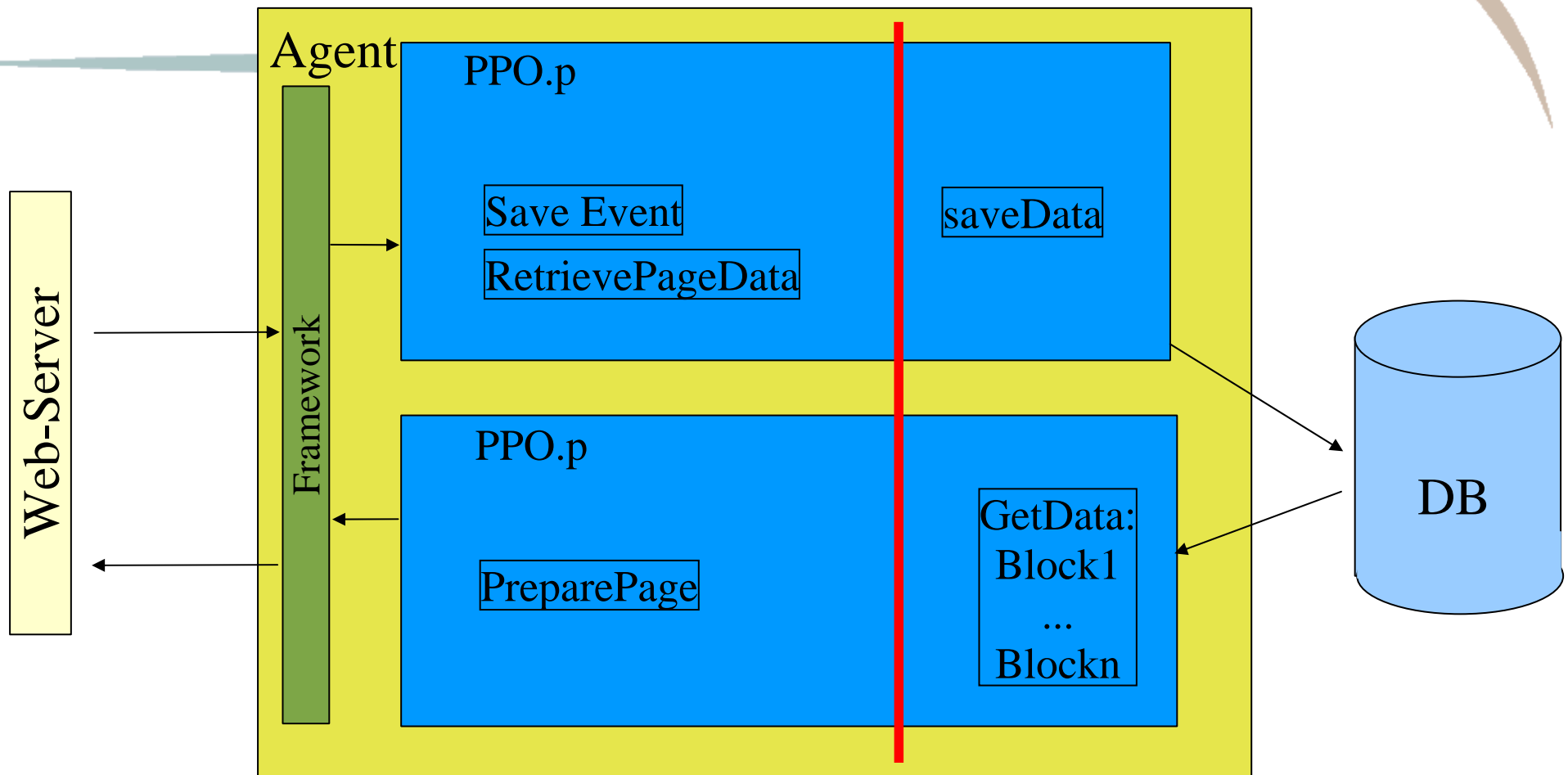
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# Main-Adjustments – Version 1

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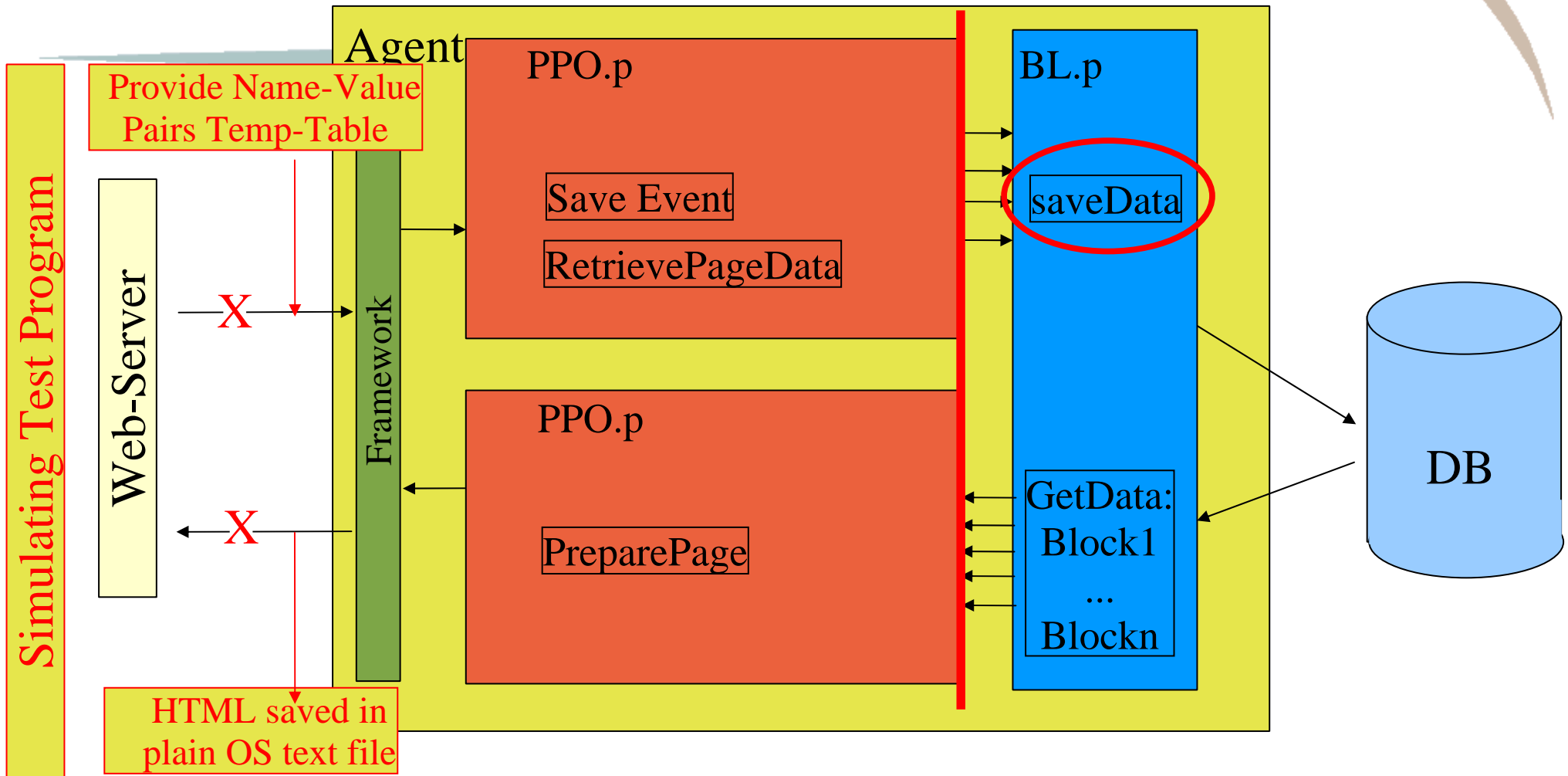
- 
- **Data layer**
  - **Minor UI enhancement**

# Version 0 – Version 1: Data-Layer





# Architecture Overview – Version 1



# Improvements



- Separated DB access from Front-End specifics
  - Allow programmer's specialization (“backend” - “frontend”)
  - Programs less cluttered → easier debug-able and maintainable
- Test DB-Access separately
- Use Temp-Tables, instead of single parameters
  - adding/deleting fields impacts end-points only, but not the plumbing

# Seed of Thought

A decorative graphic in the top right corner consisting of a thick, curved brown line that forms an arc, with several smaller, solid brown triangles of varying sizes pointing upwards from the arc, resembling a stylized sun or a rising moon.

- 
- Specialization allows average programmer to become an Expert

# Main Issues – Version 1



- Back-end not GUI ready
- Performance
  - Drop-Downs
  - Extensive use of static temp-table parameters
  - Replace function of editor **EXTREMELY** slow
- Front-End
  - UI data structure <> DB data structure
  - Component-ize pages (code reuse)

# Agenda



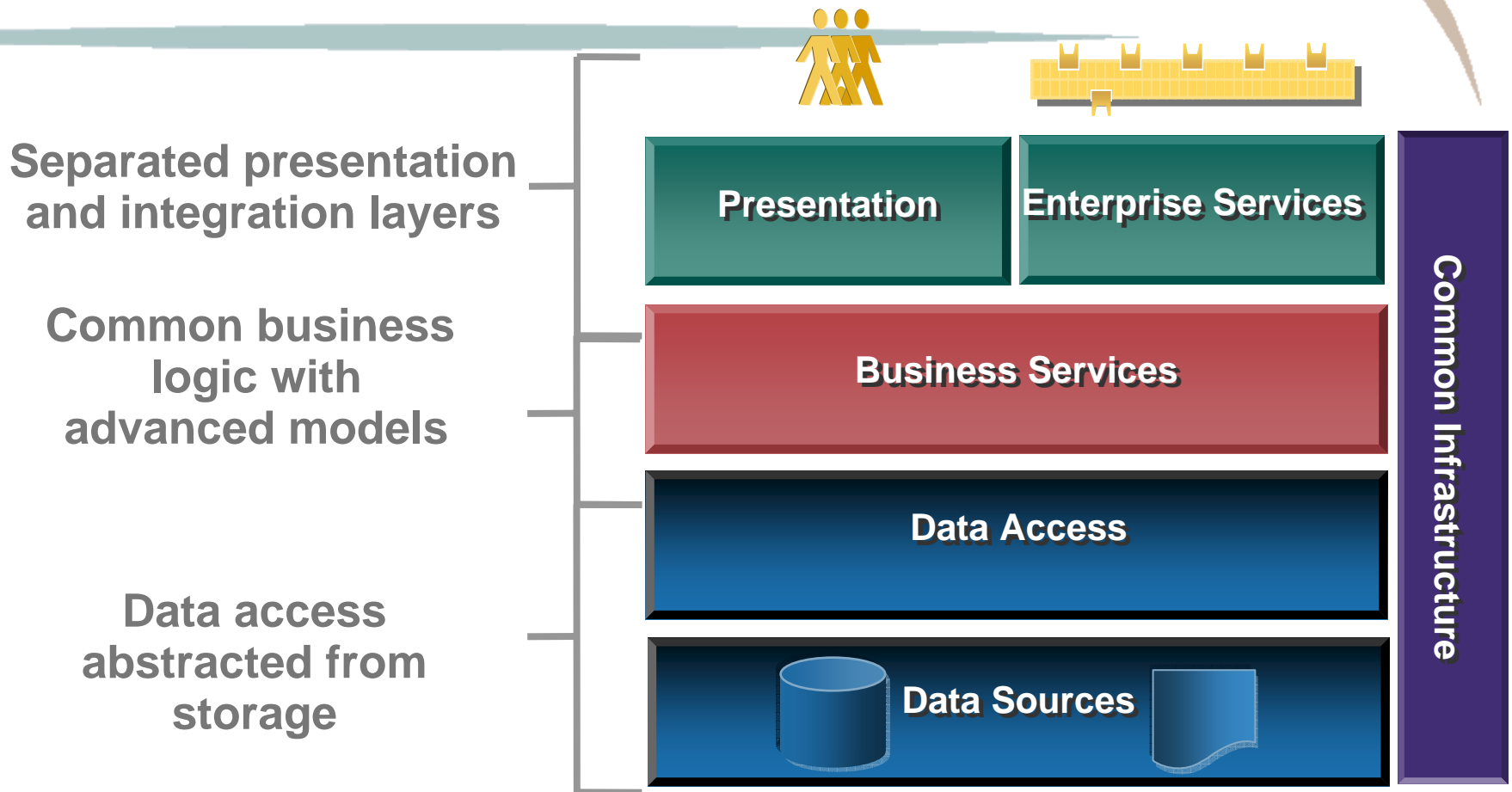
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# Main Adjustments – Version 2

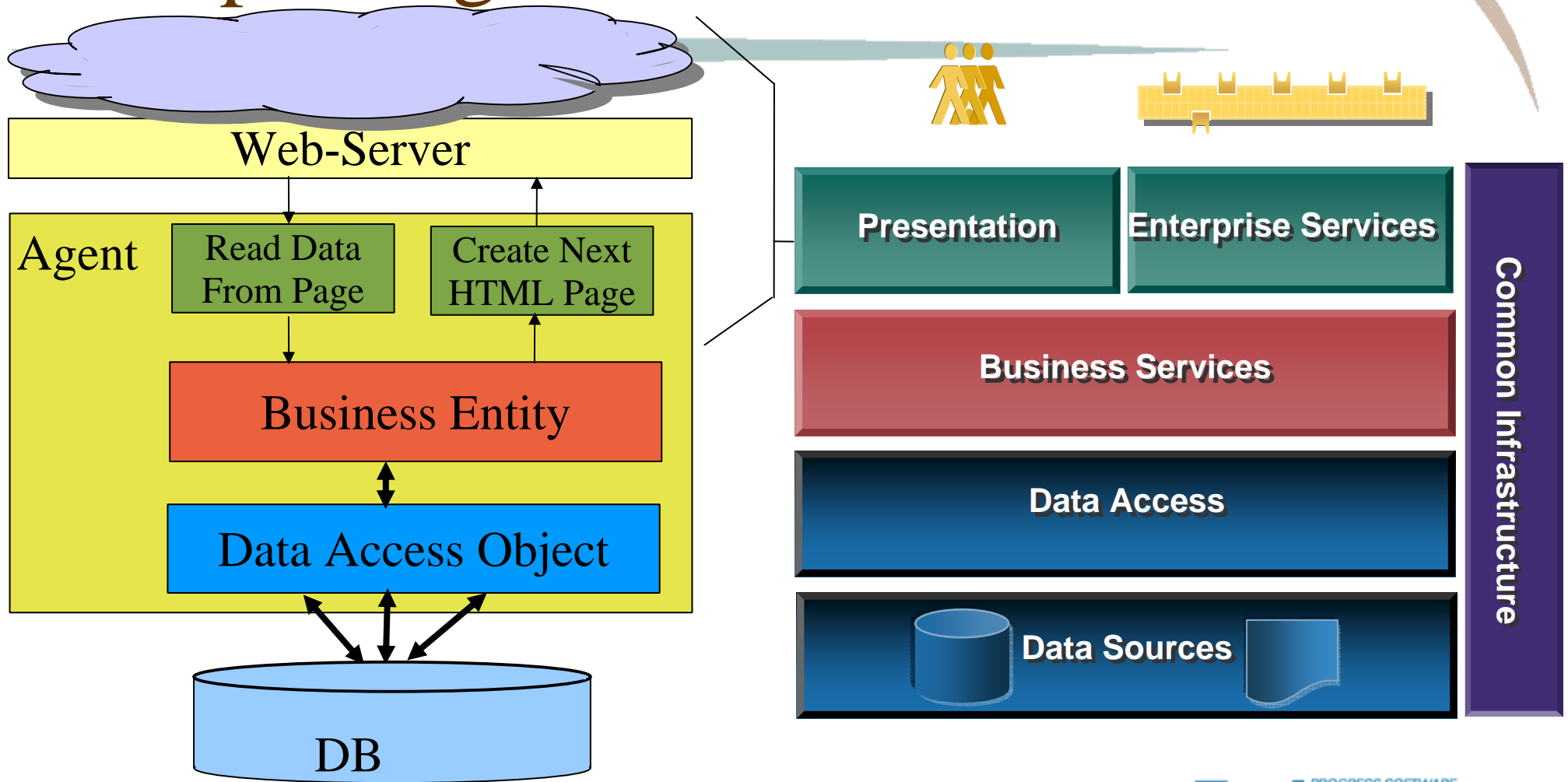


- 
- Open Edge Reference Architecture
  - ProDataSets
  - Card-oriented UI (vs. page-oriented before)

# OpenEdge Reference Architecture

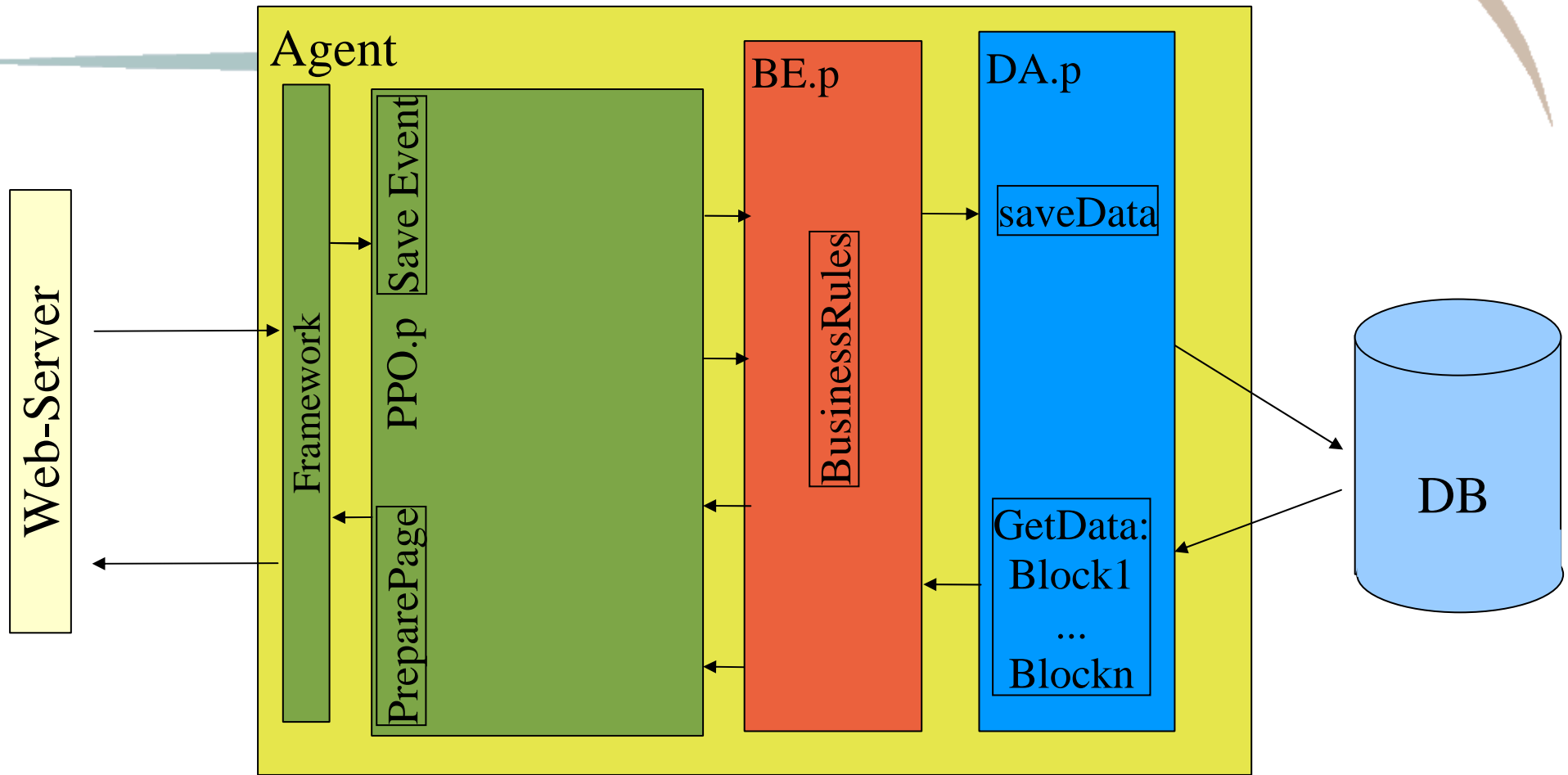


# WebSpeed Implementing The OpenEdge Reference Architecture





# Architecture Overview – Version 2



# Issues With WebSpeed

- Did record change since page was prepared?
  - Additionally sending complete record to page
    - So it can be retrieved as “before image” record
  - Storing before-images in context DB
  - Using “version” field
- Total disconnect between preparing page and next post
  - ProDataSet content lost
  - No before-image temp-table possible
  - Standard ProDataSet update feature can't be used

# Seed of Thought



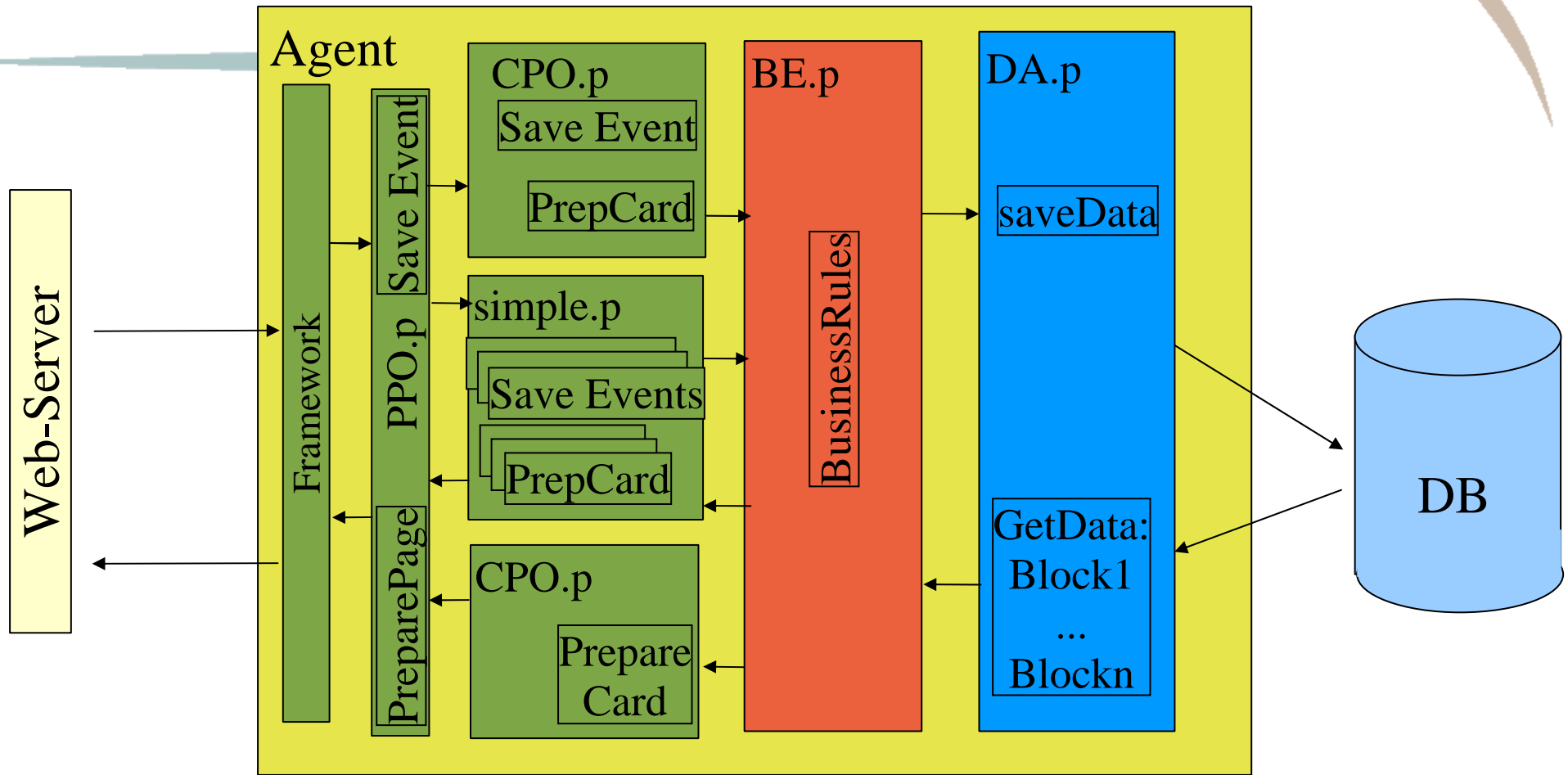
- WebSpeed is “Batch-Client” - WebService too
  - Plumbing and best practices for WebSpeed are useful for WebServices too
- Context Management
  - Sophisticated system -> John Sadd's white paper on PSDN

# ProDataSet Related Adjustments



- PageProcessObject
  - Plumbing changed to use ProDataSet
  - Use of data the same as before!
- DataAccessObject
  - SaveData procedures the same
  - GetData procedures:
    - used as call-back procedures for TT
    - Parameter handling different; rest the same!

# Architecture Overview – Version 2



# Card-Oriented System



- 
- Single program for all simple cards
  - Use replace on string instead of editor
  - Cards generic enough to be used in multiple pages

# Improvements



- Back-end ready for GUI
- Improved overall performance
  - Codes and other semi-static data cached
  - Javascript for Drop-Downs and Menues
  - BY-REFERENCE for data-structure parameters
- Moved to cards as process-unit (instead of whole page)

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# Outlook – Version 3



- Improving Standards – the “How”
  - Performance
    - More “Profiler” work
  - Productivity
    - More code-generation
- Expanding Functionality – the “What”
  - Add GUI for certain functionalities
  - Move larger existing parts to the new architecture

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# Questions?

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# Thank you



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