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Using JavaScript/HTML5 Rich Clients with Java EE 7

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Agenda

- JavaScript/HTML5 Rich Client Landscape
- Java EE 7
- Java EE + JavaScript

JavaScript/HTML5 Rich Clients Rising?

- The thin client vs. rich client debate is pretty old...
- Server-side web frameworks have ruled for a while
 - JSF, Struts, Spring MVC
- AJAX was a mild shift to the client
 - PrimeFaces, GWT, Vaadin
- Rich clients powered by JavaScript/HTML5 appear to be making a comeback?
 - Improving JavaScript engines (V8, *Monkey)
 - Better tools (jQuery, MV* frameworks, Chrome, FireFox)
 - Standards advancement (CSS3, HTML5, WebSocket, HTML Components...)

Perhaps not a Slam Dunk?

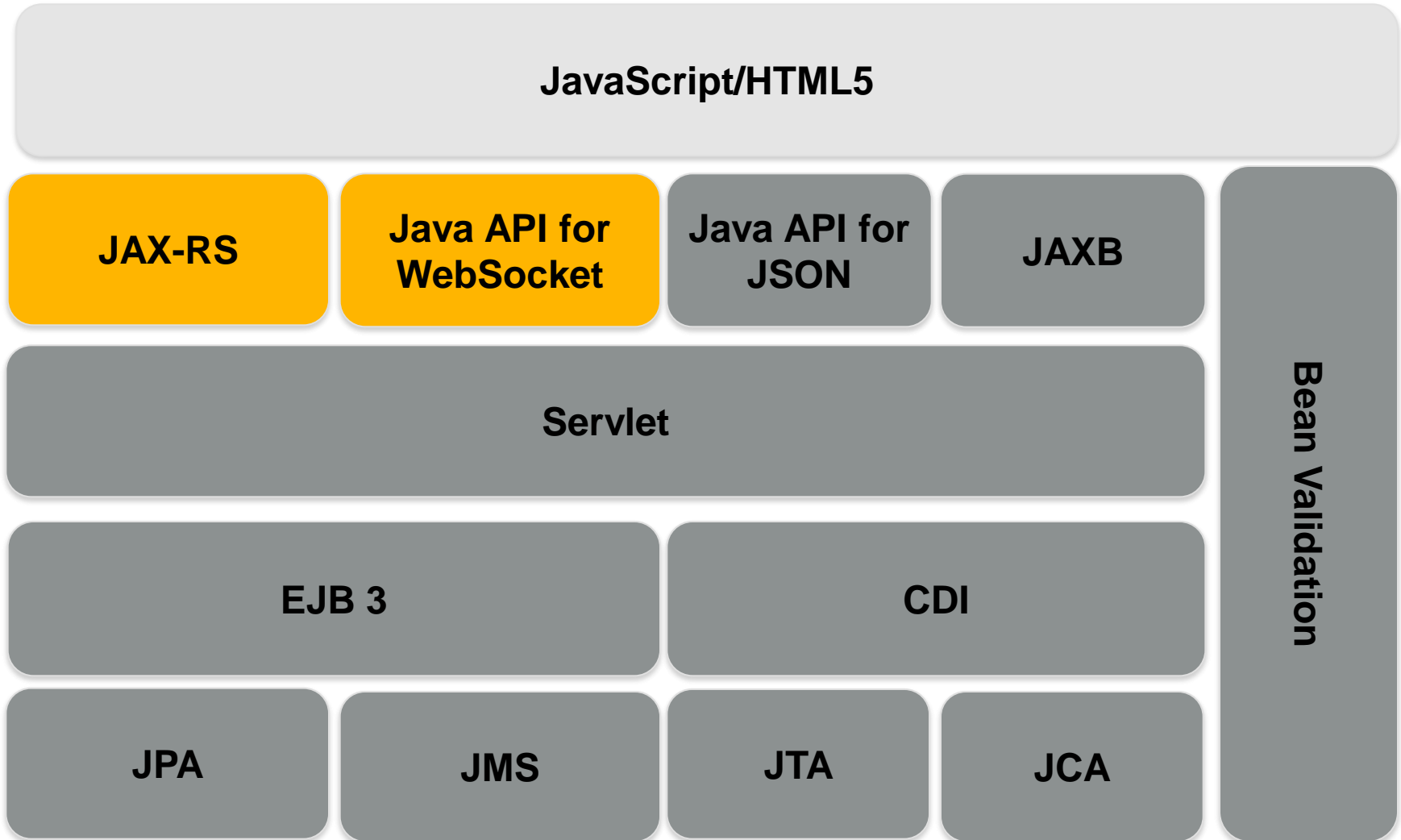
- Richer clients clearly better at some things
 - Highly dynamic, interactive interfaces
 - Complex, feature-rich UIs
 - “Single page applications” (“Applets” 😊)
- But perhaps not a panacea
 - Heavily form/workflow driven applications
 - Server-side rendering still a better bet for performance, reliability, security, accessibility, SEO?
 - JavaScript/HTML development is not without it’s pains...
 - Server-side frameworks are a strong incumbent
- Co-existence in the short and long term?
 - Islands of rich client functionality within server-centric UIs?
 - Different strokes for different folks?

My Big Fat Rich-Client Architecture

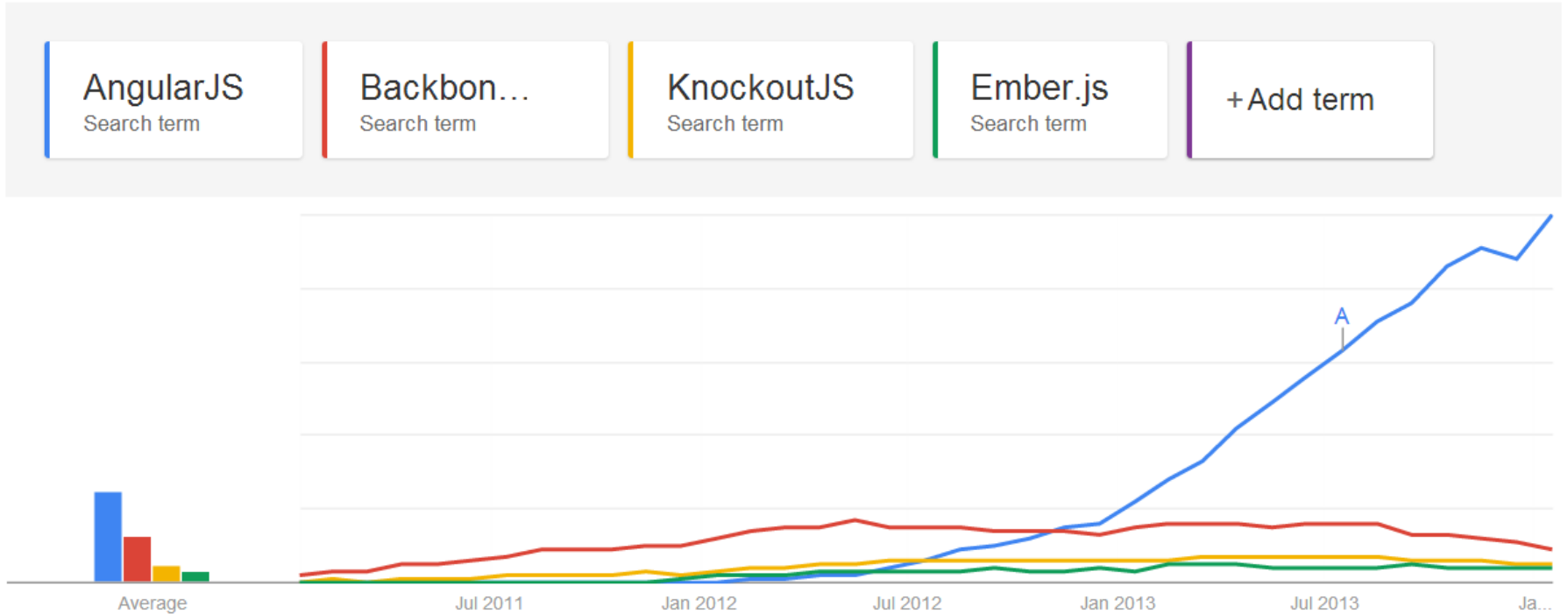
- Very similar to client/server architecture of lore
 - Client responsible for UI rendering, basic input validation, logic and state
 - Server responsible for business logic, domain model, persistence
 - Web/HTTP is glue that connects client and server
- Typical communication protocols
 - REST for majority of cases
 - WebSocket when full-duplex communication is needed
 - JavaScript tools support REST well, but not WebSocket (yet)
- The typical (ideal?) data interchange format is JSON

Java EE is a great server-side platform for this architecture!

Java EE + JavaScript



JavaScript Movers and Shakers



Java EE + JavaScript Example



<https://github.com/m-reza-rahman/javaee-javascript>

Summary

- JavaScript/HTML5 clients gaining traction as opposed to server-side web frameworks
- Communication between the client and server happens via JSON over REST or WebSocket
- Java EE well positioned as a JavaScript rich client backend, especially with JAX-RS, the Java API for WebSocket and JSON-P
- You can use the demo code as a starting point to exploring the emerging space
- Most importantly, have fun!

Resources

- AngularJS Tutorial
 - <https://docs.angularjs.org/tutorial>
- Java EE Tutorials
 - <http://docs.oracle.com/javaee/7/tutorial/doc/home.htm>
- Digging Deeper
 - <http://docs.oracle.com/javaee/7/firstcup/doc/home.htm>
 - <https://glassfish.java.net/hol/>
 - <http://cargotracker.java.net>
- Java EE 7 Transparent Expert Groups
 - <http://javaee-spec.java.net>
- Java EE 7 Reference Implementation
 - <http://glassfish.org>
- The Aquarium
 - <http://blogs.oracle.com/theaquarium>

