Introduction to MEAN

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Traditional Web Development

- Stack
  - HTTP: Apache/Nginx
  - Server runtime: PHP/Servlet
  - Data storage: MySQL
- (Almost) all code runs on the server
- Browser is a passive HTML/CSS rendering engine

After AJAX

- Most code runs in the browser as JavaScript
  - Server has gradually transformed to "back-end service" that provide persistence and transaction support
- Benefits
  - Better user experience
  - Less load on the server (leading to better server scalability)

Challenges in AJAX Development

- Increasing complexity in the JavaScript code
- Impedance mismatch
    - JavaScript on client, PHP/Java on server
    - JSON for data transport, relation for data storage

Developer "Wishlist"

- Q: Can we use JavaScript for both client and server developm
- Q: Can we use JSON as the data model for storage engine?
- Q: Any way to reduce complexity of client-side development

Modern Full-Stack Web Development

- Data Engine: MongoDB
- Server Runtime: Node.js and its "packages" (e.g., Express)
- Client Runtime: Angular/React/Vue, …