Firebase

❖ Real-time database
❖ Store & sync JSON format data between clients
❖ Native clients for Javascript, iOS, Android
❖ Can build client apps with realtime multi-user interactions with no backend
Demo of Firebase Console
Create a reference

```javascript
var myDataRef = new Firebase('https://g2po6p17hjm.firebaseapp.com/');
```
Write data

```javascript
myDataRef.set('User ' + name + ' says ' + text);
```

Replaces myDataRef location with specified data
Write objects

myDataRef.set({name: name, text: text});
Read data

```javascript
myDataRef.on('child_added', function(snapshot) {
  var message = snapshot.val();
displayChatMessage(message.name, message.text);
});
```
JSON tree

code

- JXz_OdI0YSEo278NpA
  - default
    - html
      - history
        - A0
          - a: "-JXz_YVDYjkgNnDv5MY"
          - o
            - O: "<html>\n\t<body>\n\t</body></html>
          - t: 1411963566962
    - js
      - history

- JXz_fu-YGP-Fa6iwjVT
  - default

- JXzbfH0KznOMeQbsxv
  - default

- JXzca2LyMSGLZXO9Y9xA
  - default

- JXzdCn2YU8GnNU-5Pef
  - default
    - html
    - js
Saving data

- set() - sets a location
- update() - updates some keys without replacing all data
- push() - add a list of data to a reference, generating a unique ID
Retrieving data

- Subscribe to a reference location. Any changes generate an event.
- `value`, `child_added`, `child_changed`, `child_removed`
Work queues

- Supports transactions - can atomically dequeue item for processing
- Enables sharing processing tasks across pool of clients
Status

- Commercial startup in 2011
- >200K users
- Free tier for small scale use, paid tiers for commercial-scale use
- Acquired by Google in Oct 2014
Competitors

- Traditional JSP, .NET, PHP, ... backend
- PubNub - provides realtime data streams
- Realtime.co - realtime messaging infrastructure
- socket.io - can build directly on top of WebSockets
Summary

- Enables pushing processing from backend to clients
- Enables social, collaborative apps to be built without a backend
- Best suited for shared global data where clients are using same version of data
- Not suitable for processing tasks where clients are untrusted or for complex queries on data