RECURSION & JAVASCRIPT

WTF

I LOVE RECURSION



AS LONG AS THERE'S BEEN JAVASCRIPT, THERE HAVE BEEN ISSUES WITH RECURSION...

- ... of course, that hasn't been JavaScripts **only** problem as long as it has been around...

WHY?

- JavaScript is not tail call optimized

WHAT?

- Tail Call Optimized

TAIL CALL OPTIMIZATION

- JavaScript recursive functions need to keep track of where they were called from each time, so they can resume at the correct point
- Recursive functions stack up on each other
- The stack builds up and eventually you run out of memory

UNTIL THIS...

```
var processUserTracks = function (docTrack) {
  var dfd = Q.defer();

  function next(bookmark) {
    processUserTracksSearch(docTrack, bookmark).then(function (bookmark) {
      if (bookmark) { // keep searching if bookmark provided
        setTimeout(function () { // setTimeout prevents stack blowout with recursion.
          next(bookmark);
        }, 0);
        return;
      }
      dfd.resolve();
    }, function (err) {
      dfd.reject(err);
    })
  };
  next();

  return dfd.promise;
}
```

UNTIL THIS...

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}
```

WHAT?

- calling the function recursively from within a timeout will clear the stack
- … or at least that’s how he explained it.

SO...



TURNS OUT...

- Tail call optimization is part of the standard for ES6, yet has not been implemented by most platforms...
- iOS10 supports it
  - #appleFTW
- Node > 6.5 supports it
  - Only when running in “harmony” mode
  - run node using the ‘–harmony’ flag
- full table here: https://kangax.github.io/compat-table/es6/

SO...

THANK YOU! HERE'S A FUN GIF

