

ALL YOUR API



ARE BELONG TO US

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APIs to power Social Gaming

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**KIXEYE** Canada

PAYMENTS - PLATFORM - KIXEYE.COM



Building a respectable API under fire

# An Adventure!



starring

The Good

The Bad

&

The Ugly

**The Enrichment Center regrets to inform you  
that this next test is impossible.  
Make no attempt to solve it.**

## **The Goal**

- ★ Social graph search
- ★ Chat
- ★ Identity (incl. game aliases)
- ★ Player profiles
- ★ Friends and following
- ★ Leaderboards
- ★ Messaging
- ★ Avatars
- ★ Live marketing channel
- ★ Online presence
- ★ Player search
- ★ User account management
- ★ Real-time player game stats
- ★ Community management (incl. bans)
- ★ Groups & Alliances
- ★ Authentication
  - OAuth2
  - Facebook Connect
  - Google Auth
- ★ Game launch canvas
- ★ Geo-location
- ★ Name validation
- ★ Email validation
- ★ Closed beta invite control
- ★ Newsfeed
- ★ Gifting
- ★ Forums
- ★ Payments

<https://api.kixeye.com/api/v2/docs/>

**Fear not! I will inspire you all by charging  
blindly on!**

## **Tail Winds**

- ★ **Small team of Rockstar Developers**
- ★ **Positive culture + optimism**
- ★ **Given a goal, not direction**
- ★ **Known traffic patterns**
  - **~30MM active players**
  - **~120k CCU playing games**
  - **~10k - 30k CCU active on web  
property**
- ★ **User experience trumps consistency**
- ★ **Time to market trumps cost**
- ★ **Over provisioning**

**The right man in the wrong place can make all the difference in the world.**

## **The Good**

- ★ **ReST**
- ★ **JSON Schema v4**
  - Validation
  - zSchema
- ★ **Swagger**
  - Live interactive docs
- ★ **Mongo**
  - easy JSON storage
- ★ **Promises**
  - Error handling guarantees
  - Bluebird
- ★ **Elasticsearch**
  - use strict schema
  - ngrams
  - DisMax
- ★ **Measure all the things!**
  - Graphite & StatsD
  - ready fire fire fire...
- ★ **Websockets**
  - SockJS
- ★ **Easy to grok, fork and patch repos in github**
- ★ **CLS (continuation local storage)**
  - performance plus
  - encourages reusable functions
- ★ **Automated unit testing by response code**
- ★ **3 tiers (Transport, Logic, Persistence)**
- ★ **URI based caching**
  - Varnish
  - Memcached
  - focus on problem #1

# War, war never changes.

## The Bad

- ★ Compressed timelines
- ★ Dynamic requirements
- ★ Mongo
  - unique constraints limited on sharded collections
  - access pattern outgrew DDS
  - storing relationships
  - write scaling
  - background indexing
- ★ Load balancing socket.io
- ★ Performance of overhead of Q
- ★ V8
  - gc
  - Poor live profiling tooling
- ★ Excessive calls from builds to GitHub
- ★ npm
  - flakey, requires a mirror
- ★ CLS
  - requires a lot of shims or context is lost
- ★ Jasmine
  - fails and just keeps on going
  - beware the async setup collision

**I am the vanguard of your destruction.**

## **The Ugly**

- ★ **Natural key based load balancing (The Aggregator)**
- ★ **Back pressure**
- ★ **Memory leaks**
  - Thrift JS - oneway void - Flume
  - Default error handling in libs
  - Q long stack traces
- ★ **Insane default configuration in libs**
- ★ **Supernodes**
  - \$in
- ★ **Reactive cascade failure**
  - Default retry
  - true exponential back off with no cap
  - Node Zookeeper heartbeat timeout
  - gc behaviour under stress
  - load rebalancing





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