MapDB
Career in opensource

MapDB

- Opensource Java database engine
  - Java collections backed by database storage
  - History
  - Future
- Making living as maintainer of opensource library
  - Lifestyle
  - Consulting
  - Monetization

MapDB

- MapDB provides Java Maps, Sets, Lists, Queues and other collections backed by off-heap or on-disk storage. It is a hybrid between java collection framework and embedded database engine. It is free and open-source under Apache license.
- www.mapdb.org
- github.com/jankotek/mapdb

MapDB

- History
  - Started in 1999 under name Java Database Manager
  - JDBM 1.0 release in 2006
  - I took over in 2010, renamed project
  - Couple of releases since (JDBM 1, MapDB 1.0, 2.0)
  - Last stable release 6 years ago, now practically unmaintained
    - Working on new version (I promise)

MapDB

- Code example

```
DB db = DBMaker.memoryDB().make();
ConcurrentMap map = db.hashMap("map").make();
map.put("something", "here");
```

Off-heap Map with expiration

```
DB db = DBMaker
    .newMemoryDirectDB()
    .asyncWriteEnable()
    .make();
Map<Long,String> cache = db
    .createHashMap("cache")
    .expireStoreSize(cacheSizeInGB)
    .keySerializer(Serializer.LONG)
    .valueSerializer(Serializer.STRING_ASCII)
    .make();
```

MapDB

- Alternative to Java heap
  - Avoid garbage collection
  - Partitioning

    Java Map can have keys in memory, values on disk
  - Data stored in more compact format
    - TreeMap<Long, String>
      - Long[] is replaced by long[]
      - String is replaced by byte[] for ASCII etc…
- POJOs in DB
  - Parsing tree for large documents (AST in Idea, XML nodes, DOM…)

MapDB

Persistence for java collections

  - Keep memory status between JVM restarts
  - Memory mapped files

- Transactions for java collections
  - Software Transactional Memory (STM), in Clojure
  - Per thread transactions with isolation
    - Solves concurrency

MapDB future

- Fully written in Kotlin
  - Target Android, Native, JavaScript…?
- Refactor to mimic Google Guava
  - Builders vs Makers
  - BidiMaps, MultiMaps…
- Split into smaller projects → Better maintainability
- Integration with other projects (Protobufs, Netty, Vertx...)

MapDB Future

- Simplify concurrency
  - Java8 Spliterator & Parallel Streams
- Redesign storage
  - Fixed page → Reduce write amplification
  - In-page buffers
- Serializers as a state mutators
  - Each change is serializable into log

Community

- Building social circle
    - Development community is surprisingly small
- Community driven development vs dictator
- Stable development & predictability
    - Response time, support, release schedule
- Community replaces marketing

Make living

- Community monetization
  - Github donations
- Consulting
  - Project modifications
- Customer support
  - Prepaid retainer
  - Issues

How much open

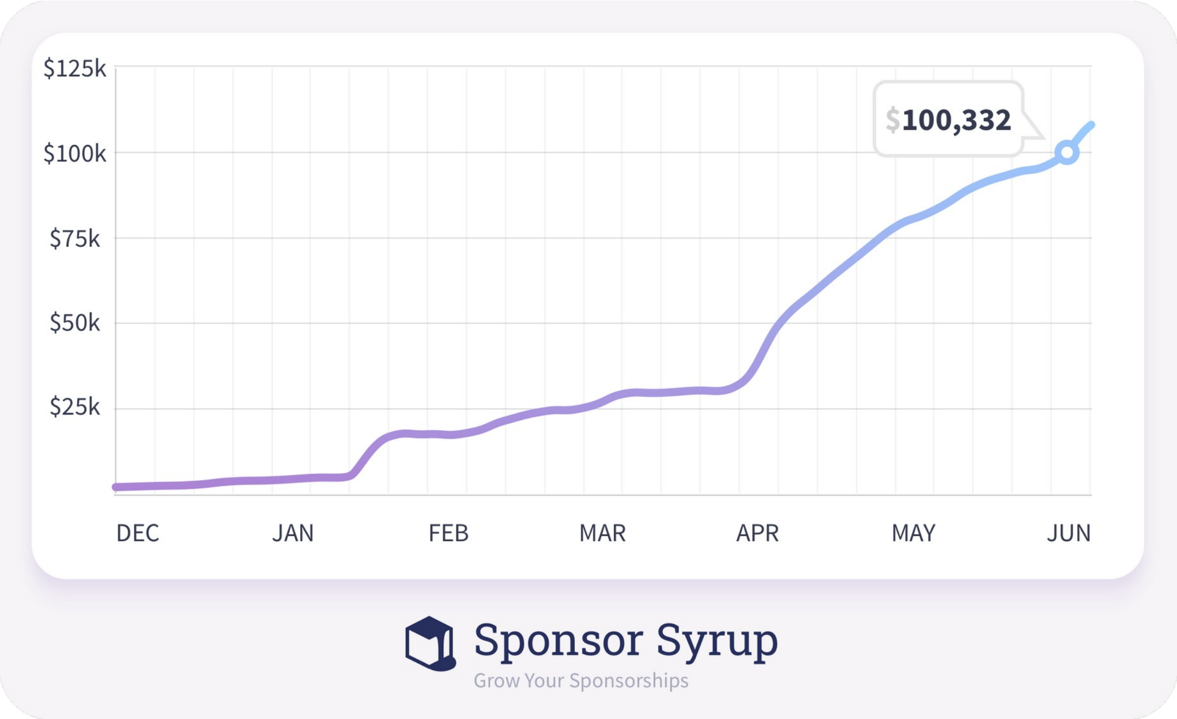
- Opensource monetization models face chalenges
  - Elastic Searrch forked by Amazon
- Keep something hidden
  - Expertise
  - Documentation, Unit tests
- Selling project in future (github repo, domain, code rights...)
- Source available
  - Signal messenger, Vivaldi browser, Windows OS...

Innovation & Career

- New challenges you get exposed to
  - Startups that use your project
  - New technologies – medical research, crypto…
    - OVLT telescope
    - Ethereum & Cardano
- Most people jump jobs to get better pay anyway
  - You have one stable project
- Career growth is tied to your project

Github Sponsors

- Caleb Porzio, Livewire author



Go Crazy

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