TinyURL

https://medium.com/@narengowda/url-shortener-system-design-3db520939a1c

**Traffic:**

Consider we will have 30M service calls per month (1M calls/day). If we are going to keep our service for 5 years, our service will generate about 1.8B records.

**URL length :**

Shortened URL can be combinations of numbers(0–9) and characters(a-Z) of length 7.

**Data capacity modeling :**

1. Considering average long URL size of 2KB ie for 2048 characters
2. short URL size of about 17 Bytes for 17 character
3. created\_at — 10 bytes
4. expiration\_length\_in\_minutes — 10 bytes
5. which gives a total of 2.037 K Bytes

So have 30 M active users so total size = 30000000 \* 2.031 = 60780000 KB = 60.78 GB per month

In a Year 0.7284 TB and in 5 year 3.642 TB of data

Think about the number of reads and writes happens to the system!!!

**Shortening logic :**

Given a long URL, how can we find hash function F that maps URL to a short alias