



**STABILIZING THE  
REGISTRY**



**C J SILVERIO**  
**DIRECTOR OF ENGINEERING, NPM**  
**@CEEJBOT**

**THIS IS THE STORY OF A  
PLUCKY PACKAGE REGISTRY  
NAMED NPM**

**SCALING PROBLEM  
MANIFESTING ITSELF AS A  
STABILITY PROBLEM**

**"SCALLING"  
CAPACITY TO MEET  
GROWING DEMANDS**

**"AT SCALE"**

**HUGE DEMAND & LOTS OF DATA**

**"STABILITY"  
NOT FALLING OVER  
UNDER NORMAL DEMAND**

**WHAT'S NORMAL DEMAND?**



**129K PACKAGES**

**239 GB PACKAGE TARBALLS**

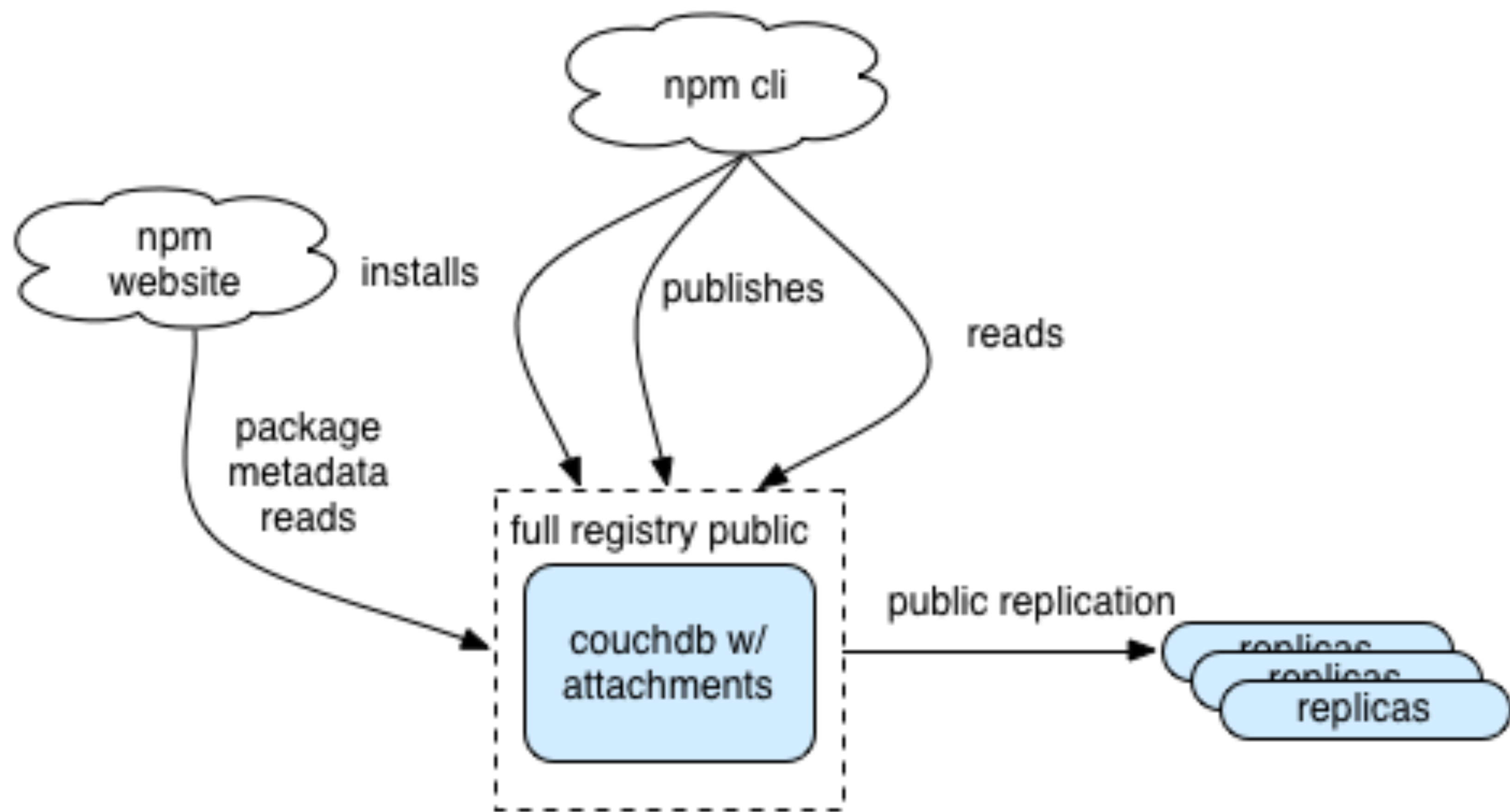
**40 MILLION PKG DLS/DAY**

**1500 REQ/SEC, PEAK 3200**

**"LEGACY"**

**ANYTHING YOU'VE PUT  
INTO PRODUCTION**

**THIS IS THE STORY OF  
A LEGACY SYSTEM  
BECOMING MORE FLEXIBLE**





**JANUARY 2013**

**20K PACKAGES**

**.5 MILLION DLS/DAY**



**OCT 2013**

**44K PACKAGES**

**108 MILLION DLS/MONTH**

**3.6 MILLION DLS/DAY**



A photograph of a car fire. A dark-colored car is heavily damaged and engulfed in flames. Firefighters in blue uniforms are visible in the background, one holding a hose. A crowd of people is gathered behind a barrier, watching the scene. The text "server's down" is overlaid in white, bold, sans-serif font across the center of the image.

**server's down**



**OUR PLUCKY LITTLE REGISTRY  
HAD TO CHANGE**

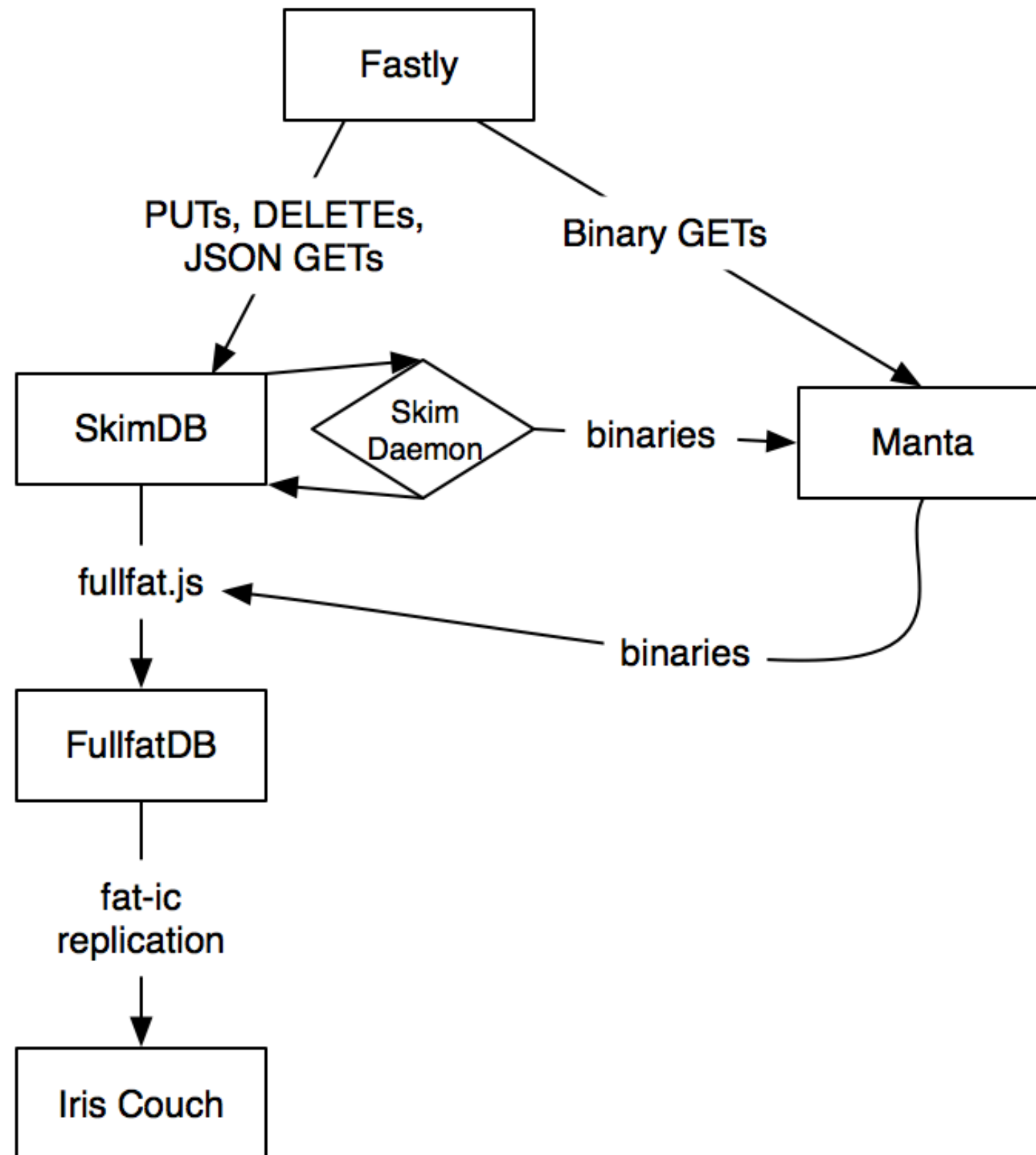


**STEP 1: CDN  
PUT FASTLY.COM  
IN FRONT OF THE REGISTRY**

**CACHE RULES  
EVERYTHING  
AROUND ME**

**STEP 2: TARBALLS**  
**GET THEM OUT OF COUCHDB**

**TARBALLS ARE HUGE!**  
**COUCH RUNS BETTER WITHOUT THEM**  
**BASE64 DECODING IS WORK.**





**JANUARY 2014**

**60K PACKAGES**

**6+ MILLION DLS/DAY**

**STEP 3: VISIBILITY**  
**ARE THINGS GOING WRONG?**  
**WHAT'S GOING WRONG?**

**REACTIVE MONITORING  
MONITOR DEEPLY  
FIX THINGS QUICKLY**



**PROACTIVE MONITORING  
SELF-HEALING  
(ALSO THINGS DON'T BREAK)**

**MONITORING IS UNIT TESTING  
ADD MONITORING AFTER  
EVERY OUTAGE**

**VISIBILITY IS A PREREQUISITE  
BUT NOT A SOLUTION**

**ACT ON WHAT MONITORING  
AND METRICS REVEAL**

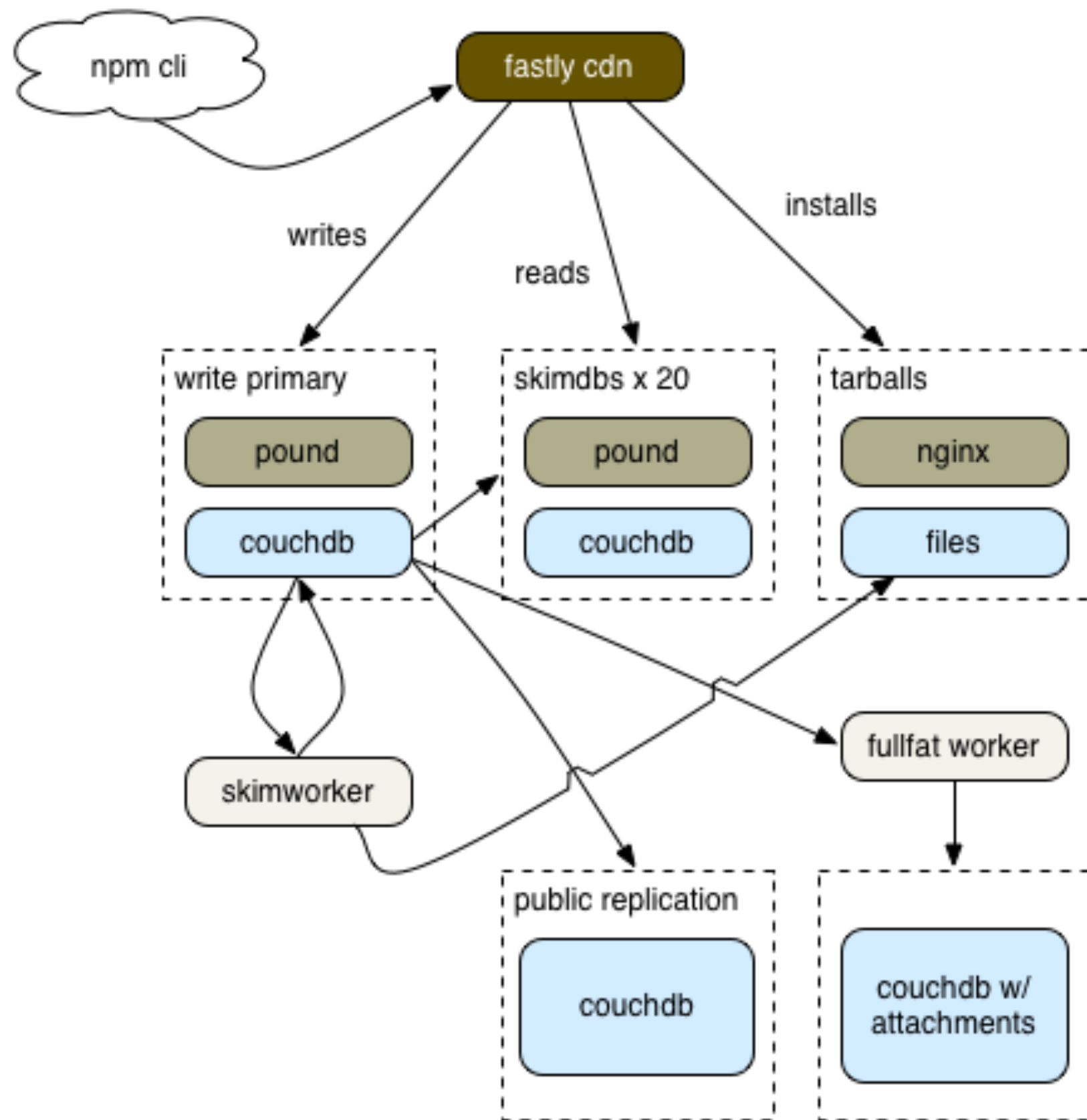
**STEP 4: REDUNDANCY  
SEVERAL COUCHDBS!  
READS, WRITES, & REPLICATION**

**FEWER RESPONSIBILITIES  
FOR EACH PIECE  
ISOLATES ERRORS**

**STEP 5: AUTOMATION**

**ANSIBLE**

**NO SERVER IS SPECIAL**



**JUNE 2014**  
**SUPERFICIALLY**  
**SIMILAR.**



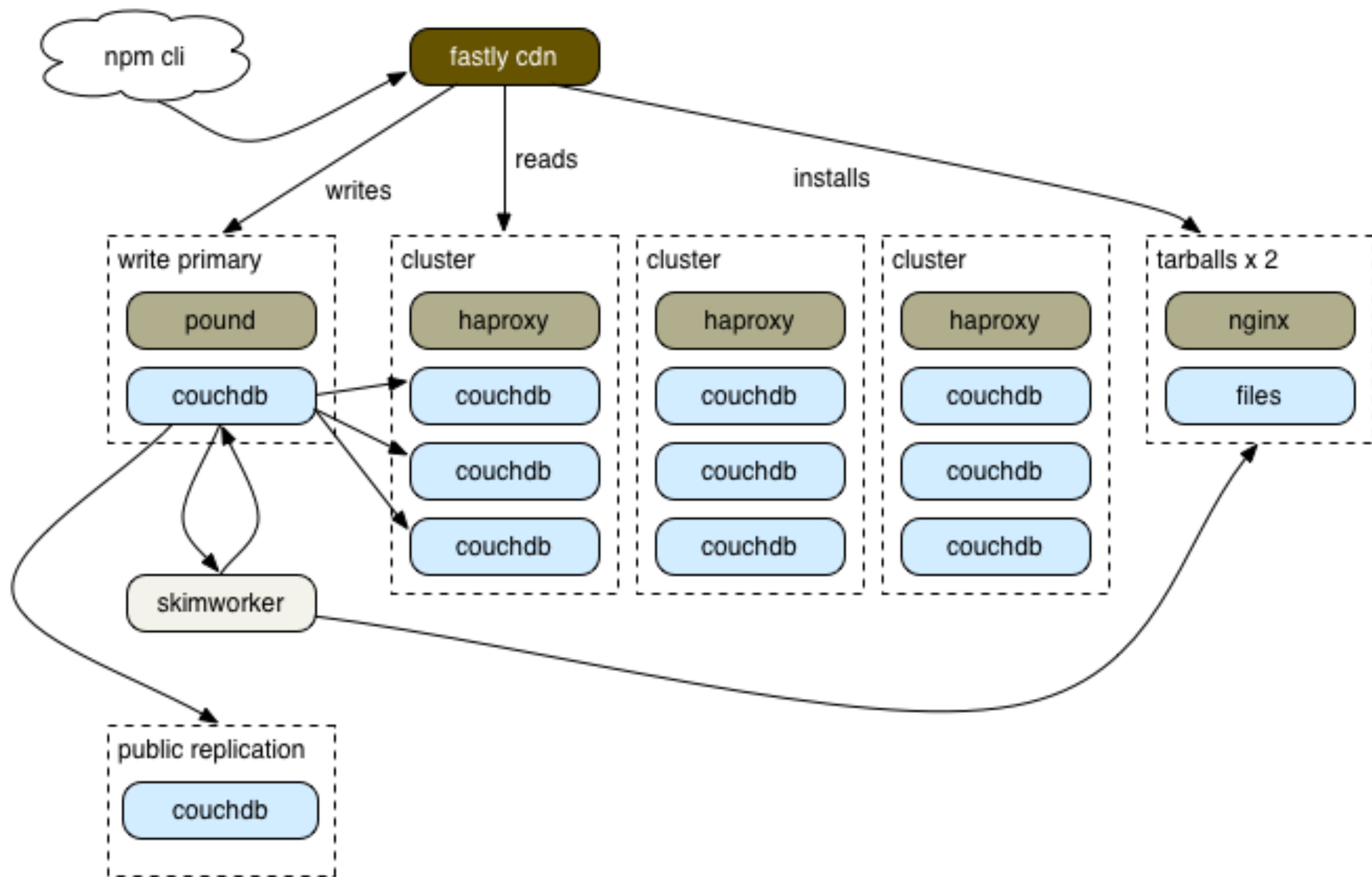


**JUNE 2014**

**80K PACKAGES**

**10 MILLION DLS/DAY**

**STEP 6: SIMPLIFICATION  
NOW THAT IT'S NOT ON FIRE  
WE CAN MODIFY AT LEISURE**





**NOV 2014**

**105K PACKAGES**

**28 MILLION DLS/DAY PEAK**

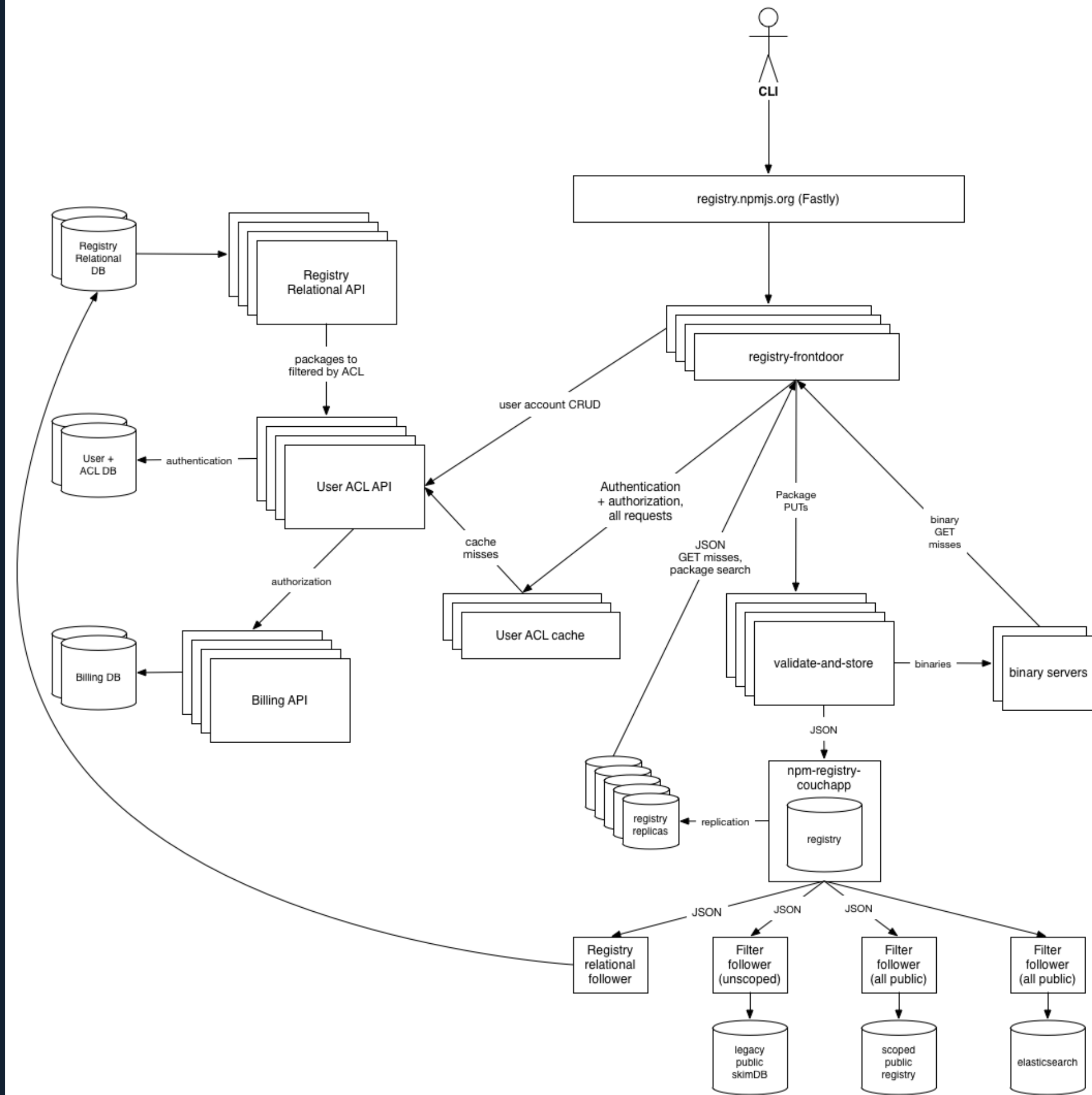
**50/50 AWS REGION SPLIT  
NO AWS-SPECIFIC MAGIC  
UBUNTU 14.04 TRUSTY**

**FASTLY: GEOLOC + VARNISH  
HAPROXY + COUCHDB  
NGINX + A FILESYSTEM**

**WHERE'S THE NODE?**

**REGISTRY 2**  
**ELECTRIC BOOGALOO**  
**WITH 500% MORE NODE**





**HAPROXY + NODE SERVICES  
COUCHDB → POSTGRES  
REDIS FOR CACHING  
NGINX + FILESYSTEM**

**MORE COMPLICATED**  
**MORE FLEXIBLE & REDUNDANT**  
**MORE SCALING DIALS TO TURN**

**EXCITED ABOUT POSTGRES  
AD-HOC QUERIES ARE FUN**

**SCALING NODE  
IS EXACTLY LIKE SCALING  
EVERYTHING ELSE**

**UNDERSTAND SYSTEM  
GET VISIBILITY  
COOL DOWN HOT SPOTS  
ADD REDUNDANCY**

# NPM CLIENT <3

```
npm install -g npm@latest
```

**NPM LOVES YOU**