Mobile Architecture Review

March 19, 2013

Article request flow
(eg http://en.wikipedia.org/wiki/Foo)

Bits (JS/CSS/Images)

API

Client/browser

Squid cache

Mobile device?

Yes

Mobile redirector

No

Cached?

Yes

No

Mobile domain available?

No

Yes

App servers

Yes

Mobile Varnish caches

Legend

non-.m domain requests

.m domain requests

Client-side requests
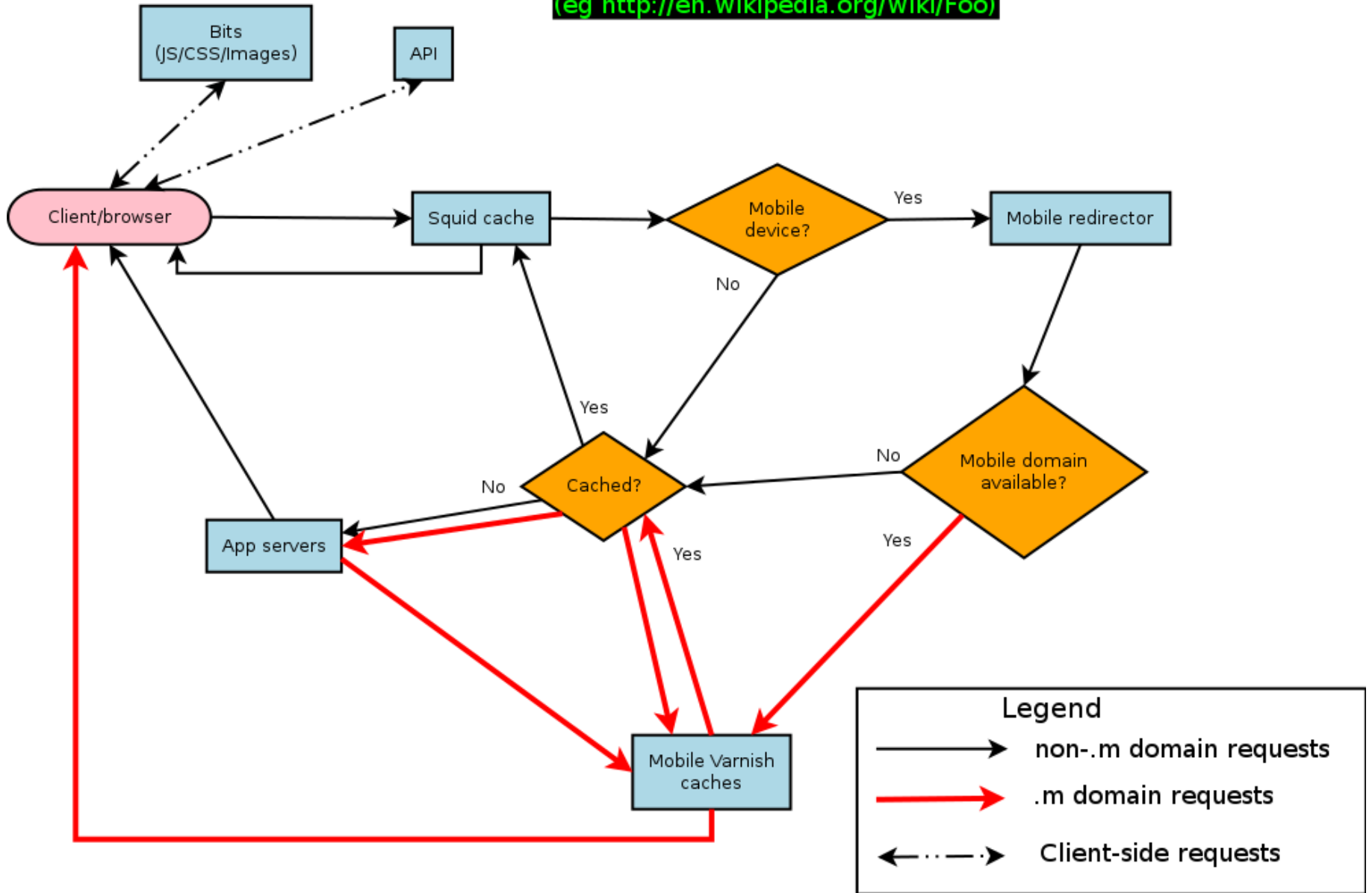
Vary HTTP header

- Accept-Encoding

- X-Device

- Cookie

- X-Carrier (Set by Varnish based on carrier ACLs)

- X-Subdomain (Used by ZeroRatedMobileAccess)

- X-Images (Set by ZeroRatedMobileAccess)

Cookies passed (Varnish bypass)

- ~ disable
  - disabling images
- ~ optin
  - alpha/beta opt-in
- ~ session
  - set by forms (CSRF protection) and login
- ~ forceHTTPS
  - set for logged in users
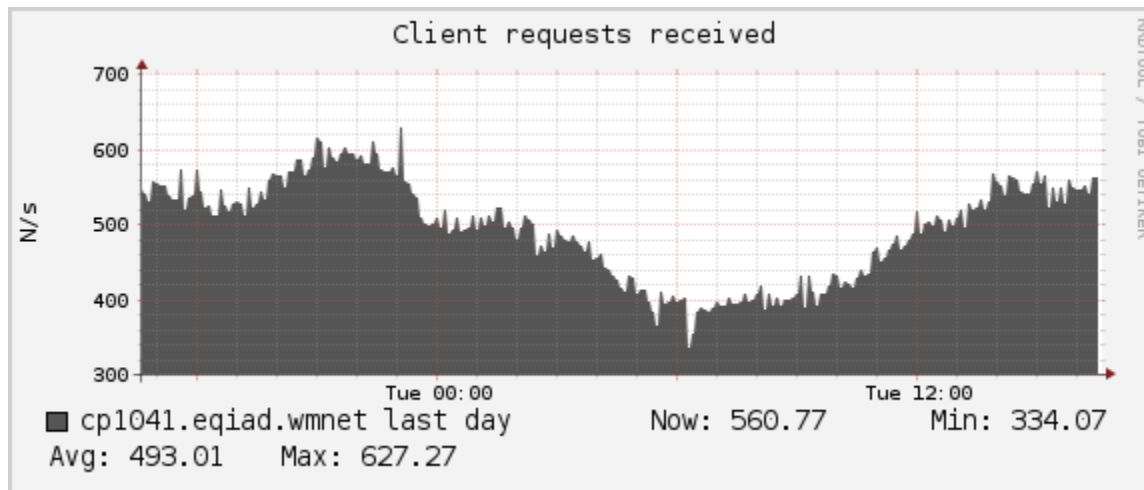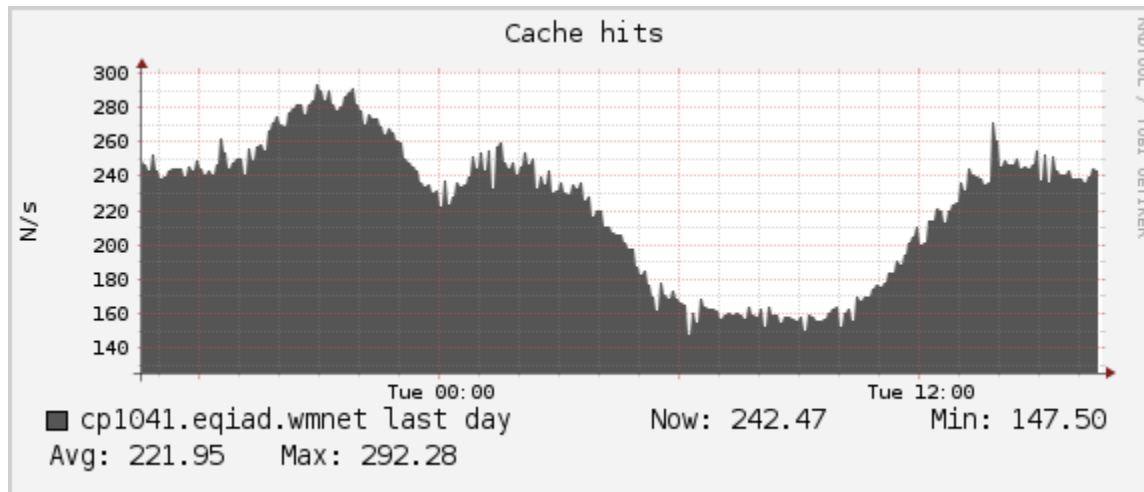- All others unset by Varnish

Cache TTLs

- s-maxage set by MediaWiki (same as desktop site)
  - 2,678,400s (31 days)
- Frontend Varnish (set by Varnish backend)
  - If s-maxage set, 300s (5 minutes)

Mobile Varnish cache flushes

- Much less frequently required post-deployment
- Still required when page HTML changes and changes are urgent

Mobile Varnish cache hit ratios

Mobile Varnish cache hit ratios

- cp1041: 222 hits / 493 reqs = 45%

- cp1042: 395 hits / 671 reqs = 59%

- cp1043: 314 hits / 500 reqs = 63%

- cp1044: 253 hits / 600 reqs = 42%

- Total average: 53%

Over past 24 hours (18 - 19 March, 2013), using average hits/reqs reported by http://ganglia.wikimedia.org

How to increase hit rate

- Remove variance on X-Device

  - Implement ESI?

  - Improved JS/CSS to send 'universal' HTML?

- Other suggestions?

Text Squid cache hit rate

89 - 94%*

* Rough avg estimate provided by Asher

Target mobile Varnish hit rate

?

Other performance focus-areas

- Continuing improvements to mobile resource loading

- Reassess WAP support
  - 0.03% of total traffic*
  - 0.24% of mobile traffic*

- Dynamic section loading

* http://stats.wikimedia.org/wikimedia/squids/SquidReportClients.htm

Potential Q4 roadmap

- Photo upload refinements
  - Directly to commons
  - Directly to commons + placed in an article
- Image galleries on articles
- Adding categories to images
- Upvote/downvote images
- Update out-of-date images on articles
- Article editing
- Nearby

http://www.mediawiki.org/wiki/Mobile/2013_strategy_planning

Urgent/Near-term concerns (ops and platform)

- Improving/replacing CentralAuth

  - Issues affecting mobile AND desktop (see [wikitech-l] Default policy for third-party cookies in Firefox)

- Open Street Map tile rendering

- Solr

- Increased usage of mobile contributory features

What we know we need from ops

- Support and recommendations in performance improvements
- OSM tile rendering on the cluster
- Support with Solr on the cluster
- Support in capacity planning as contributory features are added