

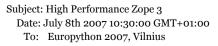
## Lovely Systems is building Webapplications that **can scale**.

We're using **Zope3**.

During the last year we had several **Problems** to solve.

Open Source and the Python Community are important for us.

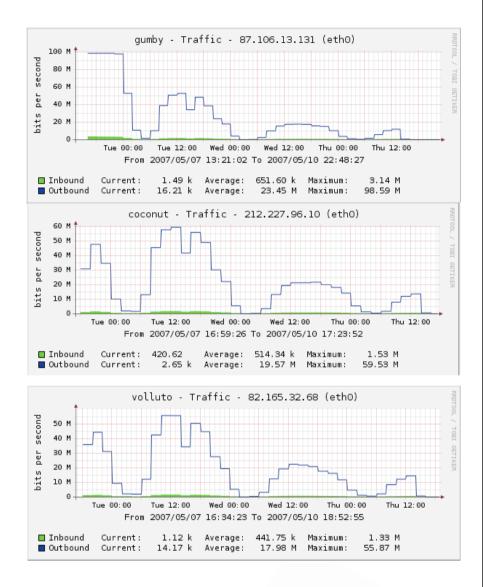
We'd like to share Code and Experience with you.





## #1: peak traffic\*





Subject: High Performance Zope  ${\bf 3}$ 

Date: July 8th 2007 10:30:00 GMT+01:00

To: Europython 2007, Vilnius



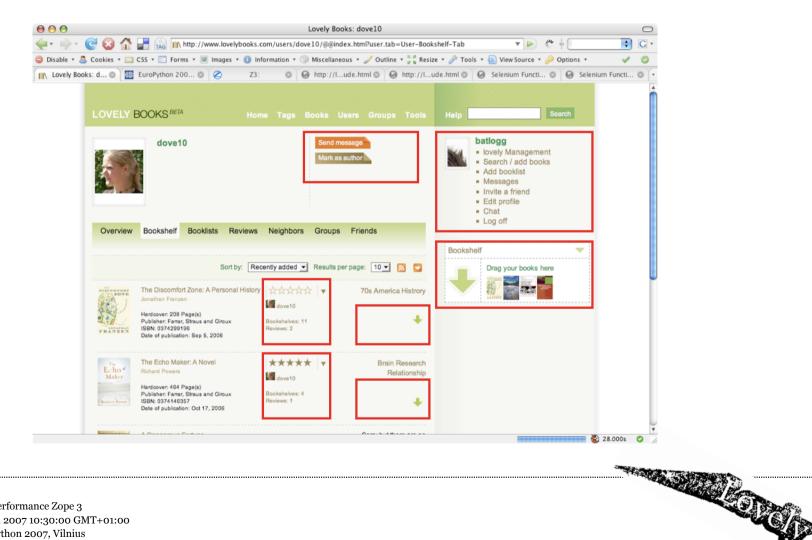
#### #2: parallel writes

```
File "/home/zope-media/videoportal/zh/zope/ZE(
  File "/home/zope-media/videoportal/zh/zope/ZE(
    return self.storage.loadEx(oid, version)
  File "/home/zope-media/video/vol/lib/python/te
   data = self.load(oid, version)
  File "/home/zope-media/video/vol/lib/python/te
    raise POSException.ConflictError(oid=oid)
ConflictError: database conflict error (oid 0x01
2007-02-07T16:34:36 INFO ZEO.StorageServer (2334)
waiting: 1.
waiting: 1.
2007-02-07T16:34:36 INFO ZEO.StorageServer (2334
```

#### #3: number of objects



#### #3: personalization



Subject: High Performance Zope 3

Date: July 8th 2007 10:30:00 GMT+01:00 To: Europython 2007, Vilnius

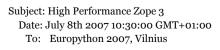
some Web 2.0 characteristics:

a lot of users are accessing the top items
with high bandwith

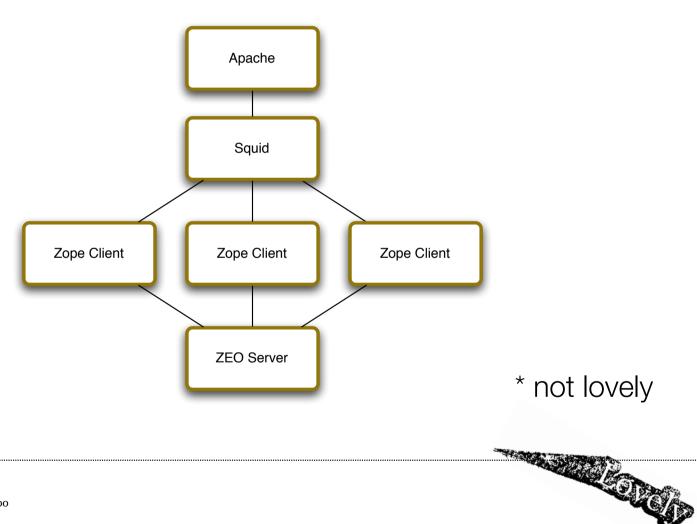
the "long tail" is being accessed constantly

high level of personalization,

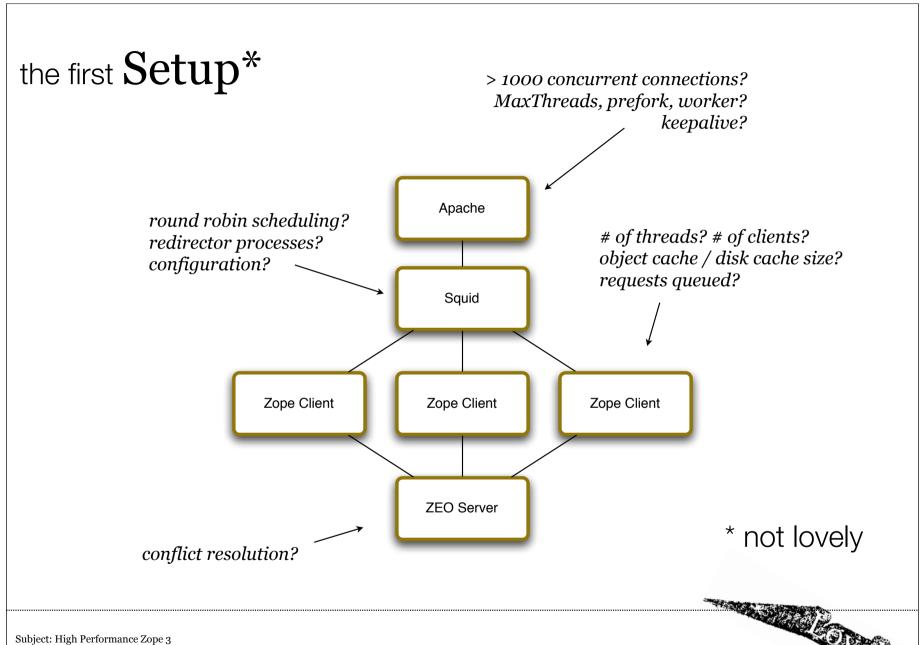
stale content for logged in users is no option



### the first $Setup^{*}$



\* not lovely



# Apache HTTP SERVER PROJECT

Concurrency Level: Time taken for tests:

1000 22.626078 seconds

1.143431 seconds

3292399 bytes

Complete requests: Failed requests:

Write errors:

10000

0

Non-2xx responses:

10000 may Level:

4690000 bytes Total transferred:

3190000 bytes

Requests per second: Time per request:

441.97 [#/sec] (mean)

Time per request:

HTML transferred:

Transfer rate:

2262.608 [ms] (mean)

202.42 [Kbytes/sec] received

1744249 bytes

1000

10000

10321

0

8745.61 [#/sec] (mean)

114.343 [ms] (mean)

2.263 [ms] (mean, across all concurrent 0.114 [ms] (mean, across all concurrent requests)

2811.71 [Kbytes/sec] received

Transfer rate:

Time per request:

202.42 [Kbytes/sec] received

2,263 [ms] (mean, across all concurrent

Subject: High Performance Zope 3

Date: July 8th 2007 10:30:00 GMT+01:00

To: Europython 2007, Vilnius



```
There is used from using greatest from optimization cannot considered.

If each or Photography responsible properties of the properties of
          B Squir curves the results of the external python method, so for desugging, set
Squir curves that reprince, think by you can see what is going an
anti-person think reprince, think by you can see what is going an
anti-person vices removes installabilisation day of all
   heterolackija nasovijakoja retiroviš kie ser janja se instalacijakoja nasovijakoja retiroviš kie serina janja se instalacijakoja retiroviš kie serina janja serina serina kie serina postajakoja nasovijakoja retiroviš kie serina janja serina serina postajakoja nasovijakoja retiroviš kie serina ja kie serina ja kie serina postajakoja nasovijakoja nasovijako
                                                                                                                                                                                                                                                                                                                                                                                                                   unite_mer_comess fromts velitalmellitale.out oller un_instant_fromts_vol-
come_mer_comess fromts velitalmellitale.out one oll
      A Dealerstly disoller squed from hendling drything also
halloure dank all
                                                                                                                                                                                                                                                                                                                                                                                                                      * MECTLA MON. 450/1222 20/12 240/19 CHCHE
                                                                                                                                                                                                                                                                                                                                                                                                                             A Control what equal courses. We must to have equal handle contest that is not
   Limit to entity of principles promote price and parties by endings.

Limit to entity of principles promote prices and the best down to end down to end down to end to end down to end to end down to end to e
                                                                                                                                                                                                                                                                                                                                                                                                                                    est stetuciontent erlantizages = 1 % (pagiguflanglissoless
                                                                                                                                                                                                                                                                                                                                                                                                                                    ect post_requests method POST
      brenes setupra ALL 1 11.2 K and thus for penessure only
                                                                                                                                                                                                                                                                                                                                                                                                                                       A 5) (OFTDDAM) Frevent sould from cothing items with items in the overy string A 27 this is encommented, book will treat a with 2 different owers strings A or 2 different with were cothing.
                                                                                                                                                                                                                                                                                                                                                                                                                                       hattered_pdl_typ= u_potentic_typ= u_thread titld reprive_titld $(coin_i_o) $(c
          unche_mar meriamoster@oal.ot
                                                                                                                                                                                                                                                                                                                                                                                                                                    A Explicitly disollow source from membling anything blue ma_loune damy all
          carBoune_our /vor/tog/squid
                                                                                                                                                                                                                                                                                                                                                                                                                                    A SPECIFE EFFECTS OF A BROWSER REFRESA
                                                                                                                                                                                                                                                                                                                                                                                106,62) ⊖ ⊖ ⊖ root@tpweb2apu02:/var/www/html (106,62)
                                                                                                                                                                                                                                                                                                                                                                                                                                    cope-media@toweb... root@tpweb2apu02:... lo
                                                                                                                                                                                                                                                                                                                                                                                                                                 I define the section age servers.
   A define purge requests oil ourse method PURSE
                                                                                                                                                                                                                                                                                                                                                                                                                                    COLPE_MON 1024 PM
MCCUMM_1839CC_1CCF 100000 KE
      but localmost_gualic arc 235.1F4.55.1EF/ESS.255.255.255
all occlaration_commune octomorum 127.6.4.1 localmost
and messaretem_posts specific 127.6.4.1 localmost
all occlaration_posts specific 127.6.4.1 localmost
all occlaration_posts orlands.reps //wites//www.mysite.com
collocalmost_graduoulum_posts with the collocalmost_graduoulum.
                                                                                                                                                                                                                                                                                                                                                                                                                                       seate_dir ata /oor/seest/seerd 6100 16 256
   ext onl_typestcadil statement typestcadil.tele.ret
ext onltypestcadil satoment typestcadil.tele.ret
ext com_arrers are 127.4.0.1
                                                                                                                                                                                                                                                                                                                                                                                                                                 Access_eccess_lay /ver/lay/squad/occess_lay
Anti-re_bookend_vides debinance bookend-vides
Anti-re_bookend_media_int debtomme bookend-media-int
Anti-re_bookend_media_int debtomme bookend-media-int
                                                                                                                                                                                                                                                                                                                                                                                                                                    course store los sons
                                                                                                                                                                                                                                                                                                                                                                                                                                 * SPECIFI THE RESERVENTER PROCESSE
          ica_occess oller oll
                                                                                                                                                                                                                                                                                                                                                                                                                                    hrefresh_potter= AFtp: 1008 285 18020
hrefresh_potter= Apopter: 1008 68 1600
Arefresh potter= 0 285 6120
   http_occess ollow seps_tervers perge

letts_occess ollow perge levelbook_public

letts_occess only perge

letts_occess only oll
                                                                                                                                                                                                                                                                                                                                                                                                                                           regotive_ttl 8
      contemperatures image vol.talbubl.tale.est allow in_bookerd_image_vol.out=m_more_pocess image.vol.talbubl.tale.est eary oil
```

```
Subject: High Performance Zope 3
Date: July 8th 2007 10:30:00 GMT+01:00
To: Europython 2007, Vilnius
```

```
backend books_de {
Maset backend.hosth===127.0.0.1":rr Comment
  set backend.port = "8110";
backend books_en {
  set backend.host = "127.0.0.1":
  set backend.port = "8210":
                                    Varnish 🏋
backend books_es {
  set backend.host = "127.0.0.1";
  set backend.port = "8310";
sub vcl_recv {
 if (req.http.host ~ "^www.lovelybooks.de$") {
   set req.backend = books_de;
 } elseif (reg.http.host ~ "^www.lovelybooks.co.uk$") {
    set rea.backend = books_en:
 } elseif (req.http.host ~ "^www.lovelybooks.com$") {
   set req.backend = books_en;
 } elseif (req.http.host ~ "^www.lovelybooks.es$") {
   set req.backend = books_es;
 } else {
   error 404 "Unknown virtual host";
                                       if (req.request == "GET" && req.http.cook
   -lookup:
 }
```

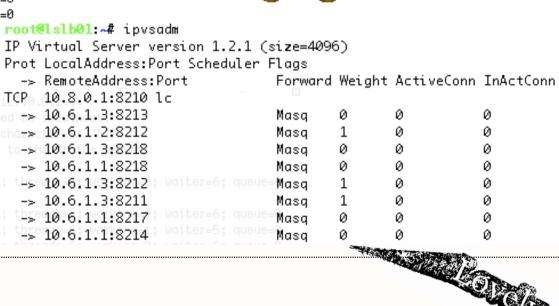
#### Round Robin.

versus Least open connections

Connected to localhost. Escape character is '^]'. Welcome to the Status Server

Trying 127.0.0.1...

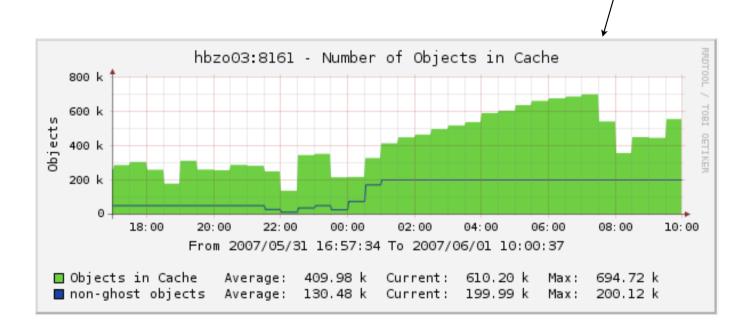
```
Threads: threads=6; working=0; waiter=6; queue=0
Threads: threads=6; working=0; waiter=6; queue=0
Threads: threads=6; working=1; waiter=5; queue=0
Threads: threads=6; working=0; waiter=6; queue=0
Threads: threads=6; working=0; waiter=6; queue=0
Threads: threads=6; working=1; waiter=5; queue=0
Threads: threads=6; working=0; waiter=6; queue=0
Threads: threads=6; working=0; waiter=5; queue=0
Threads: threads=6; working=0; waiter=6; queue=0
Threads: threads=6; working=0; waiter=6; queue=0
```



#### Monitor and trace your

#### Zope clients

# of threads? # of clients? object cache / disk cache size? requests queued?





#### Zope Corp's

tools help us a lot

number of db connections, cache stats

zc.z3monitor

zc.zodbactivitylog

logging and analysis of zodbactivity

call time, analysis

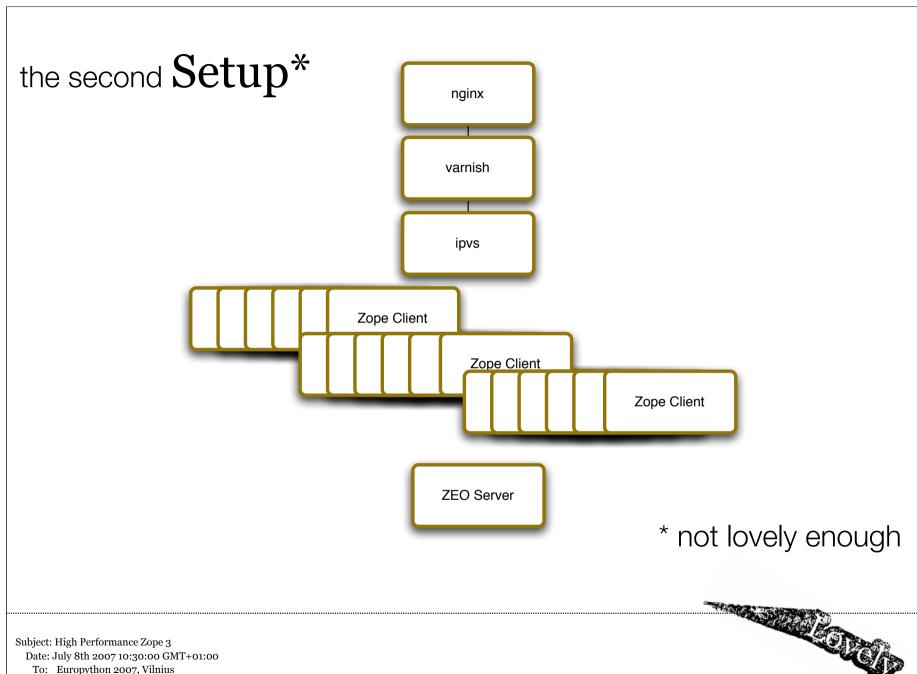
zc.zservertracelog

#### Findings and settings for

#### Lovely Applications

- we're CPU bound, so we use one thread per zope
- assign **enough** Disk Cache to your Zope (e.g. 2GB)
- make sure the object **cache** fits (e.g. 200k objects)





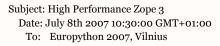
Date: July 8th 2007 10:30:00 GMT+01:00 To: Europython 2007, Vilnius

so far,

### no single line

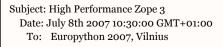
of code

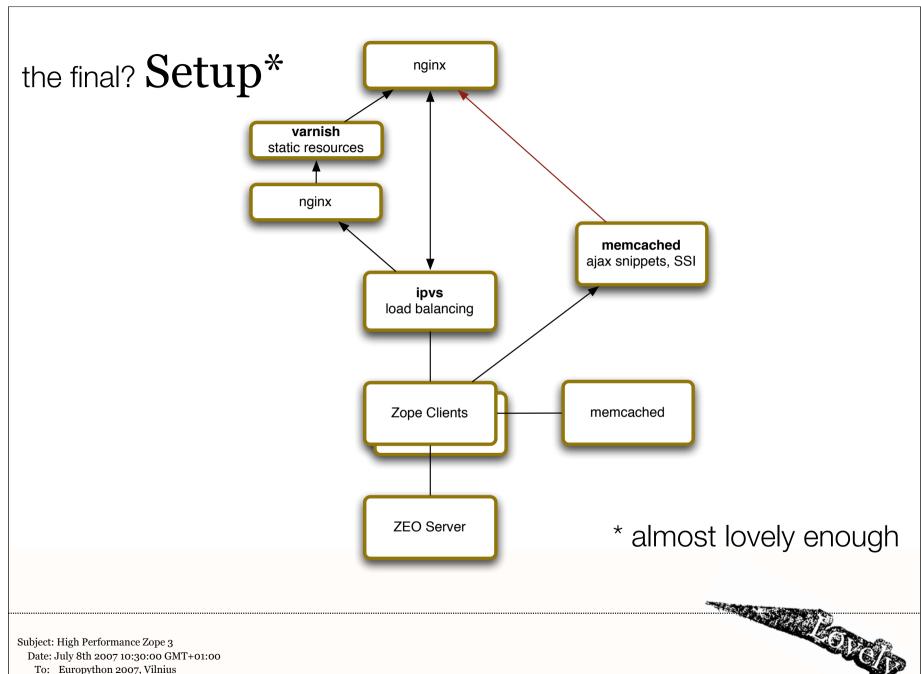
## now work on the code



# Tasks that are taking (potentially) longer need to be done deferred

#### lovely.remotetask





Date: July 8th 2007 10:30:00 GMT+01:00 To: Europython 2007, Vilnius

caching, SSI,...

### lovely.remoteinclude

Thanks for your attention

the lovely performance crisis team

Jürgen, Bernd, Bernd and Jodok

;-)









