



# BigPipe - e.weibo.com

@k1ic

chenkai116@gmail.com

- 热身
- 项目分析
- 流水线模式演示
- Q&A

- 热身
- 项目分析
- 流水线模式演示
- Q&A

热身

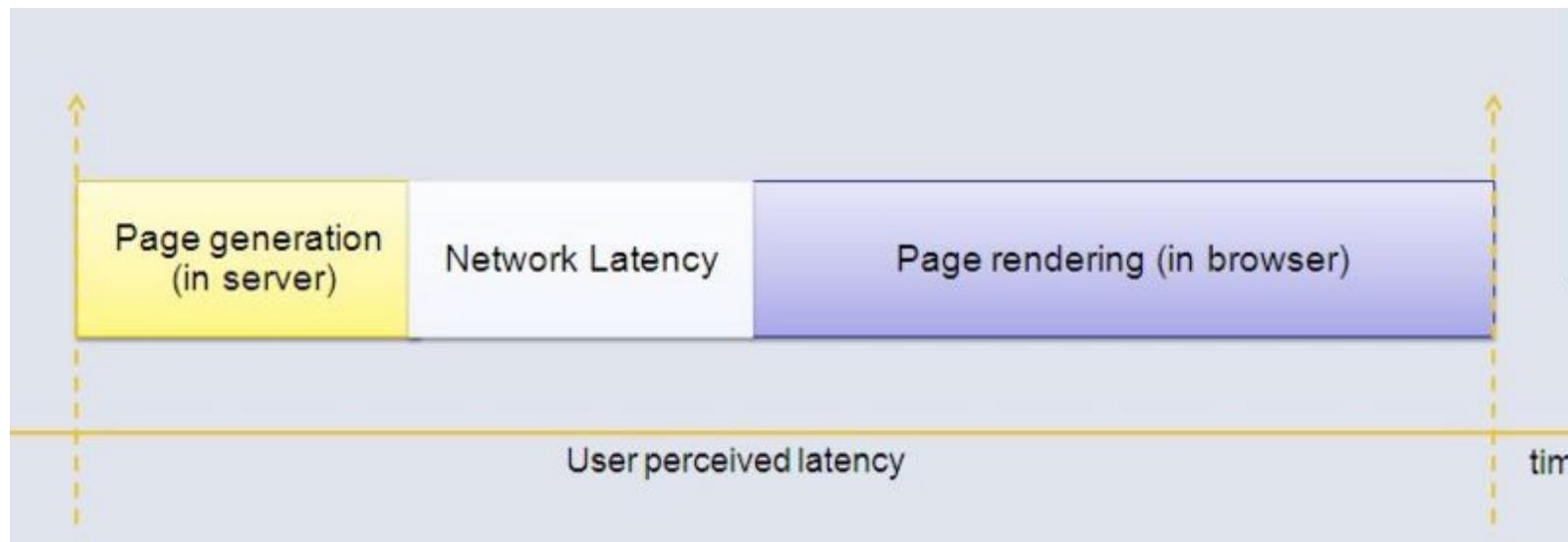


# Big Pipe

## BigPipe

- 页面分块
- 一次请求，多次推送
- 无需改变浏览器、服务器结构

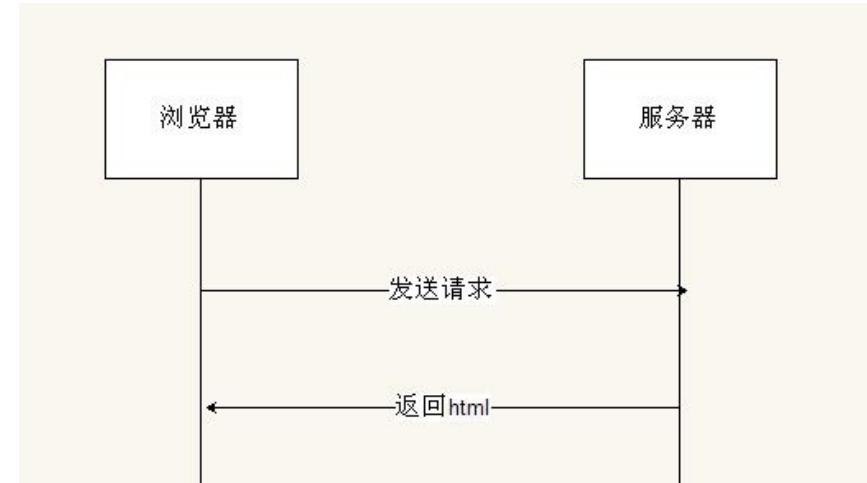
## 传统模式



## 传统模式

缺陷：

- 流程中的操作严格串行化，操作之间无法重叠。
- 服务器生成时，浏览器空闲，浏览器渲染页面时，服务器空闲，产生时间与性能浪费。
- 服务端运算耗时较多可能导致页面加载缓慢甚至超时。



# BigPipe模式



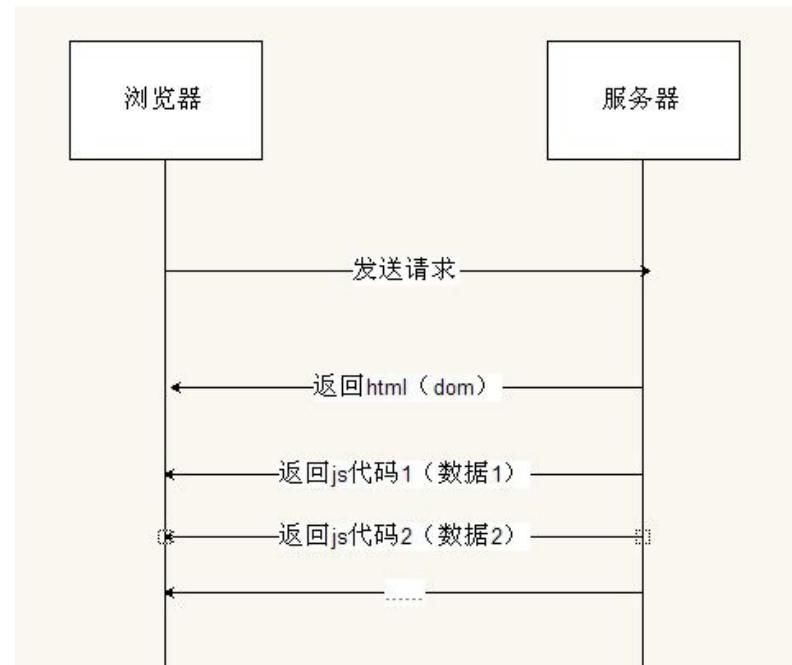
## BigPipe模式

优点：

- 页面逻辑与数据解耦合。
- 页面结构更加清晰，方便管理。
- 打破串行化机制，缩短请求生命周期。

缺点：

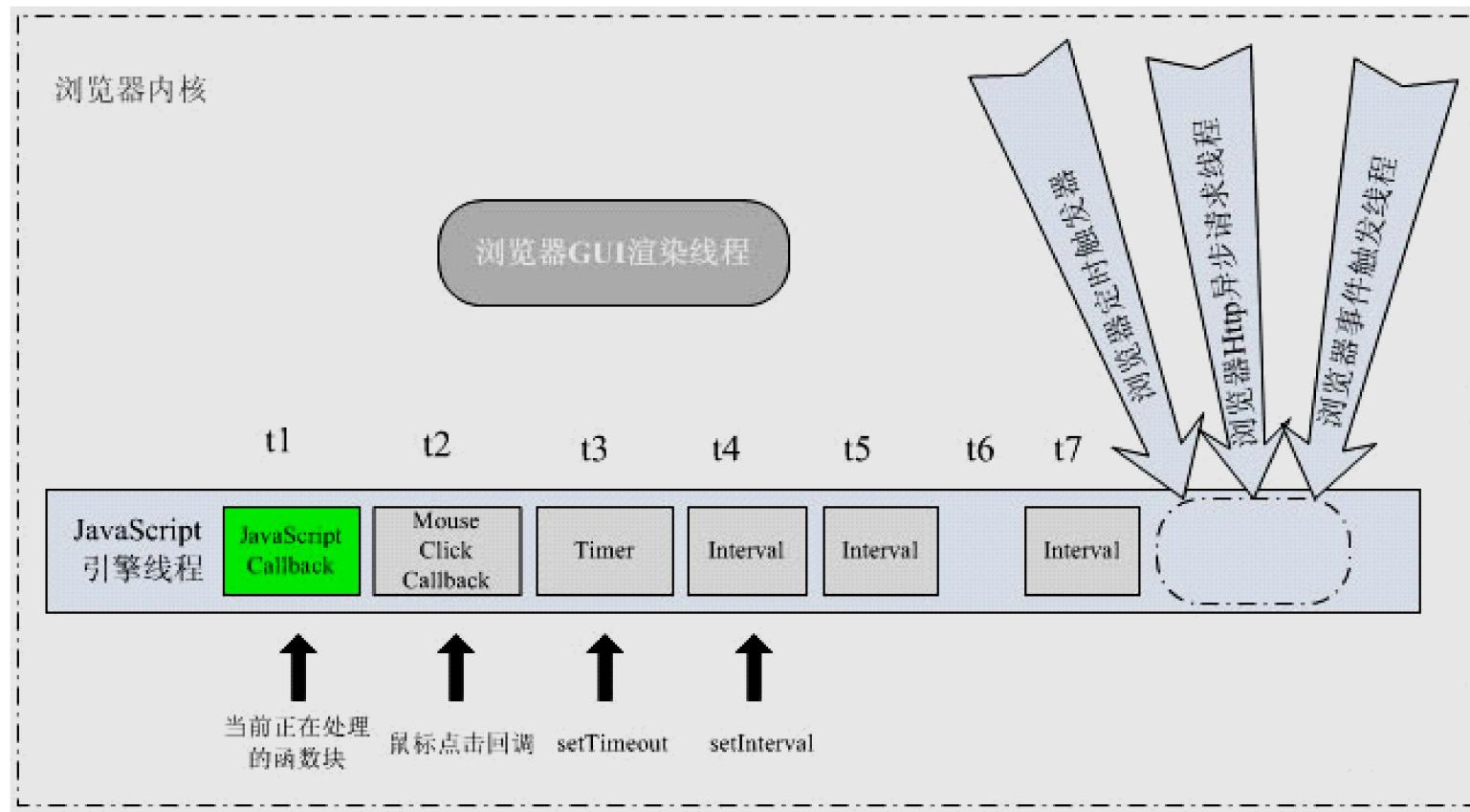
- SEO不友好。
- 浏览器兼容性（IE6）、客户端禁用js。
- PHP不支持多线程，pagelet生成无法并行化。



## BigPipe VS Ajax

- AJAX的核心是XMLHttpRequest，客户端异步向服务器端发送请求，然后将传送过来的内容动态添加到网页上。发送往返请求耗时无法避免。
- AJAX使页面交互更灵活，但对于同一个AJAX请求而言，浏览器和服务器的工作仍是串行化的。
- 大访问量站点AJAX带来额外请求和流量，增加服务器压力。

# 浏览器内核



## 浏览器内核

- GUI渲染线程
- JS引擎线程（单线程）
- 事件触发线程

注：GUI渲染线程与JS引擎互斥，当JS引擎执行时，  
GUI线程会被挂起，GUI更新被保存在一个队列中，  
JS引擎空闲时再执行。

- 热身
- 项目分析
- 流水线模式演示
- Q&A

# Apache Rewrite

依赖模块：

➤ mod\_vhost\_alias.so

虚拟主机动态配置

➤ mod\_rewrite.so

基于规则的地址重写

```
12659     RewriteEngine On
12660     RewriteRule ^/system/SINASRV_CONFIG$ /system/SINASRV_CONFIG [L]
12661         RewriteRule ^/system/SINASRV_CONFIG_NUM$ /system/SINASRV_CONFIG_NUM [L]
12662         RewriteCond %{REQUEST_URI} !(/system/dpool_check.php.*)
12663         RewriteRule ^/u/(\d{5,10})/?$ /eps/htdocs/index.php/home?uid=$1 [NC,QSA,NS,PT]
12664             ]
12664         RewriteRule ^/(\d{5,10})/?$ /eps/htdocs/index.php/home?uid=$1 [NC,QSA,PT,NS]
12665         RewriteRule ^/(\d{5,10})/profile/?$ /eps/htdocs/index.php/profile?uid=$1 [NC,
12665             QSA,NS,PT]
12666             RewriteRule ^/(\w{2,24})/profile/?$ /eps/htdocs/index.php/profile?domain=$1 [
12666             NC,QSA,NS,PT]
```

## 环境变量设置

依赖模块：

➤ mod\_setenvif.so 环境变量设置

```
12833     SetEnv WEIBO_ENV "test"
12834     SetEnv SINASRV_DATA_DIR "/[REDACTED]/*"
12835     SetEnv SINASRV_CACHE_DIR "/[REDACTED]/*"
12836     SetEnv SINASRV_PRIVDATA_DIR "/[REDACTED]/*"
12837     SetEnv SINASRV_APPLOGS_DIR "/[REDACTED]/*"
12838
12839     SetEnv SINASRV_DATA_URL "http://[REDACTED]"
12840     SetEnv SINASRV_CACHE_URL "[REDACTED]"
12841
12842
12843     SetEnv SINASRV_MEMCACHED_KEY_PREFIX "[REDACTED]"
```

## e.weibo.com

```
/data1/www/htdocs/e.weibo.com
```

```
.  
|-- daemon  
|-- eps  
|-- language  
|-- libraries  
|-- system  
`-- thirdpart
```

```
6 directories, 0 files
```

## e.weibo.com/eps

```
/data1/www/htdocs/e.weibo.com/eps
```

```
.  
|-- classes  
|-- config  
|-- htdocs  
|-- i18n  
|-- orm  
|--tpls  
`-- widget
```

```
7 directories, 0 files
```

e.weibo.com/eps/htdocs

```
/data1/www/htdocs/e.weibo.com/eps/htdocs
.
|-- aj
    '-- static
        |-- sysbusy.html
        |-- test.html
        '-- upimgback.html
|-- crossdomain.xml
|-- favicon.ico
|-- index.php
`-- proxy.html

2 directories, 7 files
```

# 入口文件 index.php

```
69     Swift_Dispatcher::add_plugin("before_route", new Plugin_IsRequestByUD());^M
70     if (strpos($uri, "/interface/external/") === false) {
71         Swift_Dispatcher::add_plugin("before_execute", new Plugin_CheckReferer());^M
72     }
73     $uri = rtrim($uri, '/');
74     if(strpos($uri, "/interface/") === false){
75         if(strstr($uri,"/reg/")){
76             Swift_Dispatcher::add_plugin("before_execute", new Plugin_Register());
77         }else{
78             Swift_Dispatcher::add_plugin("before_execute", new Plugin_CheckAuth());
79             Swift_Dispatcher::add_plugin("before_execute", new Plugin_GetViewer());
80             Swift_Dispatcher::add_plugin("before_execute", new Plugin_GetOwner());
81             //多版本控制，如企业版用户不能访问政府版的某些功能
82             Swift_Dispatcher::add_plugin("before_execute", new Plugin_Multiversion());
83         }^M
84         Swift_Dispatcher::add_plugin("before_execute", new Plugin_OfficialApp());^M
85         Swift_Dispatcher::add_plugin("before_execute", new Plugin_Language());^M
86         Swift_Dispatcher::add_plugin("before_execute", new Plugin_Skin());^M
87         Swift_Dispatcher::add_plugin("before_execute", new Plugin_Checknewuser());
88         //拦截/aj/widget/的请求，统一处理组件aj请求的分发
89         Swift_Dispatcher::add_plugin("after_route", new Plugin_Widget());
90     }else{^M
91         Swift_Dispatcher::add_plugin("before_execute", new Plugin_CheckInterfaceInfo());
92     }
93
94     Swift_Dispatcher::dispatch();^M
```

## dispatch( )方法

- url解析
- 路由选择
- 执行execute( )方法

```
130     public static function dispatch() {  
131         self::parse_uri();  
132         self::route();  
133         self::execute();  
134     }
```

## execute( )方法

- 生成控制器对象
- 执行相应的run( )方法

```
172     public static function execute() {  
173         // 避免触发auto_load以及在include_path中查找，提升安全性  
174         if (Swift_Core::auto_load(self::$controller_class) !== true) {  
175             throw new Swift_Exception_404(self::$uri);  
176         }  
177         $class = new ReflectionClass(self::$controller_class);  
178         if ($class->isAbstract()) {  
179             throw new Swift_Exception_Program('cannot create instances of abstract controller');  
180         }  
181     }  
182     self::$controller_obj = $class->newInstance();  
183     self::run_plugin("before_execute");  
184     $class->getMethod('run')->invoke(self::$controller_obj);  
185     self::run_plugin("after_execute");  
186     self::$controller_obj->__destruct();  
187 }
```

## run( )方法

- 创建页面对象
- 执行render\_page( )方法

```
10     public function run() {  
11         $page_name = "Page_Comment_Inbox";  
12         $this->render_page(new $page_name());  
13     }  
14 }
```

## render\_page( )方法的入参

### ➤ Page\_Comment\_Inbox对象（局部）

```
1  Page_Comment_Inbox Object {
2      [scripts:protected] => Array ( )
3      [styles:protected] => Array ( )
4      [tpl:protected] => page/comment/inbox.html
5      [is_skeleton:protected] => 1
6      [need_pl_base:protected] => 1
7      [new_user:protected] =>
8      [pldata:protected] => Array ( )
9      [name:private] => comments
10     [children:protected] => Array (
11         [pl_content_top] => Pl_Content_Top Object {
12             [tpl:protected] => pl/content/oldtop.html
13             [is_skeleton:protected] => 1
14             [pldata:protected] => Array ( )
15             [name:private] => pl_content_top
16             [children:protected] => Array ( )
17             [data:protected] => Array ( )
18             [scripts:protected] => Array ( )
19             [styles:protected] => Array ( )
20             [iterator:protected] =>
21                 )
22             [pl_leftNav_common] => Pl_LeftNav_Common Object {
23                 [styles:protected] => Array (
24                     [0] => appstyle/e/css/module/nav/ad
min_left_nav.css
25
26
27                 mon.js
28
29
30
31
32
33
34             [name:protected] => pl_leftNav_common
             [tpl:protected] => pl/leftnav/common.html
             [is_skeleton:protected] =>
             [location:protected] =>
             [pldata:protected] => Array ( )
             [name:private] => pl_leftNav_common
         )
     )
 }
```

## render\_page( ) 方法

- 选择模板引擎
- 创建渲染器对象
- 执行渲染器对象的render( )方法

```
67     public function render_page(Comm_Bigpipe_Pagelet $page_obj) {  
68         Comm_Bigpipe_Render::set_template_engine_class('WBSmarty');  
69         $render = Comm_Bigpipe_Render::create(Comm_Bigpipe_Render::detect_render_type()  
, $page_obj);  
70         $render->render();  
71     }
```

## render对象局部 ( 流水线模式 )

```
1 Comm_Bigpipe_StreamlineRender Object (
2     [defered_pagelets:protected] => Array ( )
3     [scripts:protected] => Array ( )
4     [skeleton_scripts:protected] => Array ( )
5     [styles:protected] => Array ( )
6     [pl_contents:protected] => Array ( )
7     [meta_data_chain:protected] => Array ( )
8     [exceptions:protected] => Array ( )
9     [pl:protected] => Page_Comment_Inbox Object (
10         [scripts:protected] => Array ( )
11         [styles:protected] => Array ( )
12         [tpl:protected] => page/comment/inbox.html
13         [is_skeleton:protected] => 1
14         [need_pl_base:protected] => 1
15         [new_user:protected] =>
16         [pldata:protected] => Array ( )
17         [name:private] => comments
18         [children:protected] => Array (
19             [pl_content_top] => Pl_Content_Top Object (
20                 [tpl:protected] => pl/content/oldtop.html
21                 [is_skeleton:protected] => 1
22                 [pldata:protected] => Array ( )
23                 [name:private] => pl_content_top
24                 [children:protected] => Array ( )
25                 [data:protected] => Array ( )
26                 [scripts:protected] => Array ( )
27                 [styles:protected] => Array ( )
28                 [iterator:protected] =>
29             )
        )
```

## render( ) 方法

- 创建模板引擎对象
- 执行预处理操作（具体操作跟渲染方式相关）
- 递归遍历pl对象（倒树状结构）
- 执行后续操作（具体操作跟渲染方式相关）

## render( ) 方法

```
209     public function render(){
210         if(!self::$template_engine_class){
211             throw new Comm_Bigpipe_Exception('Must set a template engine class first');
212         }
213         $this->template_engine = new self::$template_engine_class();
214         $this->prepare();
215         self::dfs($this->pl, array($this, 'enter'), array($this, 'leave'));
216         $this->closure();
217     }
```

## dfs( )方法 ( 流水线模式 )

```
113     static public function dfs($root, $callback_enter, $callback_leave) {
114         if(is_callable($callback_enter)){
115             call_user_func($callback_enter, $root);
116         }
117         foreach ($root->getIterator() as $node){
118             self::dfs($node, $callback_enter, $callback_leave);
119         }
120         if(is_callable($callback_leave)){
121             call_user_func($callback_leave, $root);
122         }
123     }
```

## dfs( )方法之enter ( 流水线模式 )

- 逐步Merge页面元数据内容，Page类可以覆盖Page\_abstract类中所提供的配置（需调用数据访问层）
- 逐步Merge页面骨架依赖的js脚本路径，该批js脚本会同页面骨架一起在“第一波”响应中发送到浏览器
- 当前pl不是根节点（顶层节点、plc节点、PI\_Content\_Top节点等），该pl对象，该节点和父节点的所有元数据存储到渲染器对象的defered\_pagelets数组

## dfs( )方法之enter ( 流水线模式 )

- 当前pl是根节点，该节点依赖的js、css 分别Merge 进渲染器对象的\$this->scripts和\$this->styles数组

```
16     protected function enter(Comm_Bigpipe_Pagelet $pl) {
17         $timer = $pl->get_name() . '_meta_data';
18         Comm_Log::timer_start($timer);
19         $this->meta_data_chain[] = $pl->get_meta_data();
20         Comm_Log::timer_end($timer);
21         if(!$pl->is_skeleton()){
22             $this->defered_pagelets[] = array($pl, $this->meta_data_chain);
23             return;
24         }
25
26         $pl->get_depends_scripts() AND $this->skeleton_scripts[$pl->get_name()] = $pl->
27         get_depends_scripts();
28         $this->scripts = array_merge($this->scripts, $pl->get_depends_scripts());
29         $this->styles = array_merge($this->styles, $pl->get_depends_styles());
30     }
```

## dfs( )方法之leave ( 流水线模式 )

- 当前pl节点是根节点（顶层节点、 plc节点、 PI\_Content\_Top节点等），如果是非顶层根节点，将该pl对象存储进渲染器对象的pl\_contents数组
- 如果是顶层节点，将该页面骨架依赖的css、js set进页面模板，并将该页面骨架flush到浏览器
- 释放渲染器对象保存的当前pl的元数据，防止覆盖其他pl元数据（元数据只能共享给自己的叶节点）

## dfs( )方法之leave ( 流水线模式 )

```
31     protected function leave(Comm_Bigpipe_Pagelet $pl){  
32         if($pl->is_skeleton()){  
33             $this->render_skeleton_pagelet($pl);  
34         }  
35         // meta_data只会对自己的子pl（自己的叶节点）共享（多级继承），而不会影响其它  
36         array_pop($this->meta_data_chain);  
37     }
```

## closure( )方法 ( 流水线模式 )

- 依次渲染剩余pagelets ( 由于PHP不支持多线程，只能一个一个依次输出 )，并以script脚本的形式flush出去
- 关闭DOM树

```
139     public function closure() {  
140         $this->render_skeleton_scripts();  
141         $this->render_defered_pagelets();  
142         //because we had moved the html close tag away, so we need patch it up finally.  
143         echo "\n<!-- logid:".Comm_Log::get_logid()." --!>\n";  
144         echo "</html>";  
145         $this->process_exceptions();  
146     }
```

## flush

- ob\_flush() 是刷新PHP自身的缓冲区
- flush() 只有在PHP做为apache的Module(handler或者filter)安装时,才有实际作用 , 它的作用是刷新Apache的缓冲区。

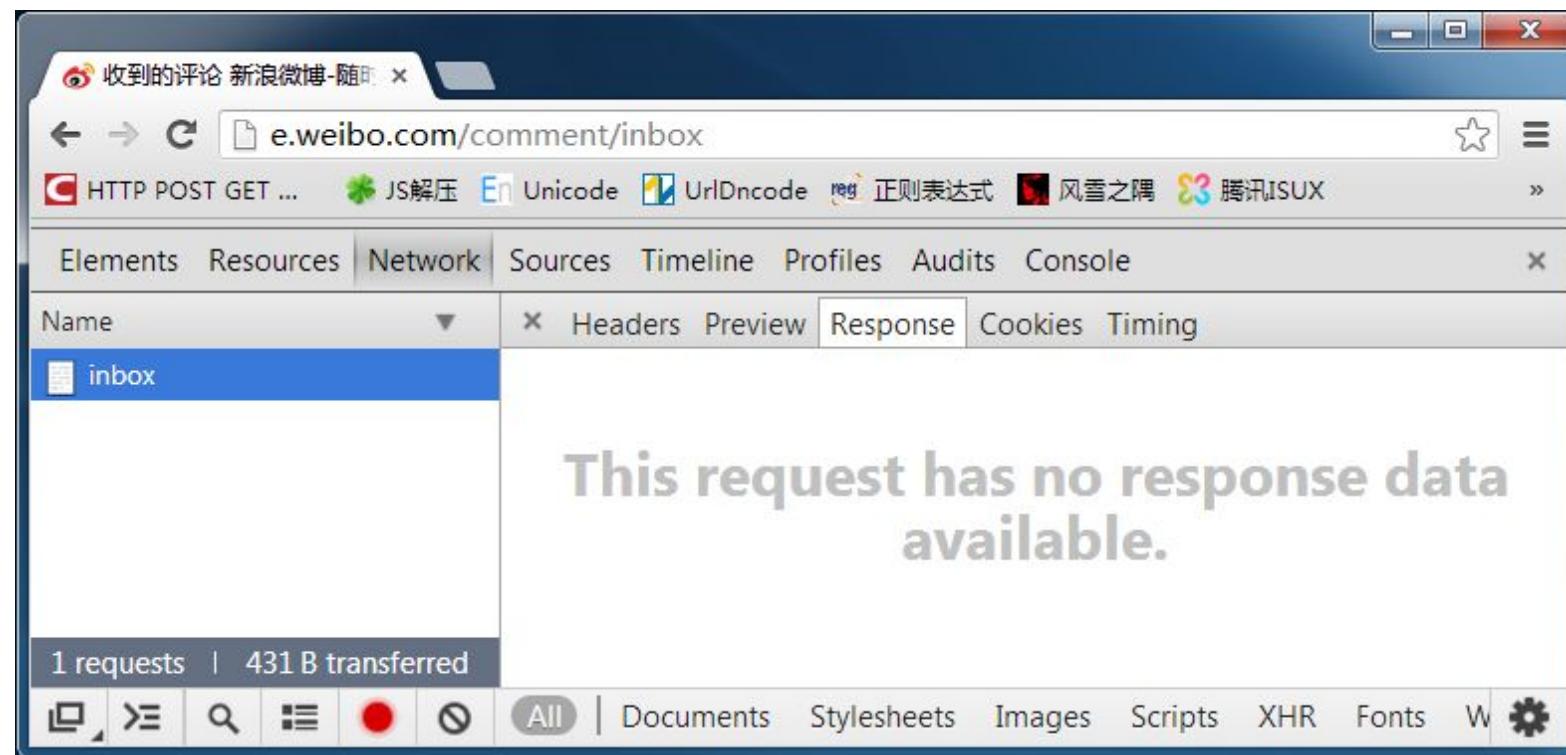
```
226     static protected function flush() {
227         if(ob_get_level()){
228             ob_flush();
229         }
230         flush();
231     }
```

- 热身
- 项目分析
- 流水线模式演示
- Q&A

## 流水线模式演示

```
8 class Controller_Comment_Inbox extends Controller {
9     public $authorize = self::MUST_LOGIN;
10    public function run() {
11        $page_name = "Page_Comment_Inbox";
12        exit;
13        $this->render_page(new $page_name());
14    }
15 }
```

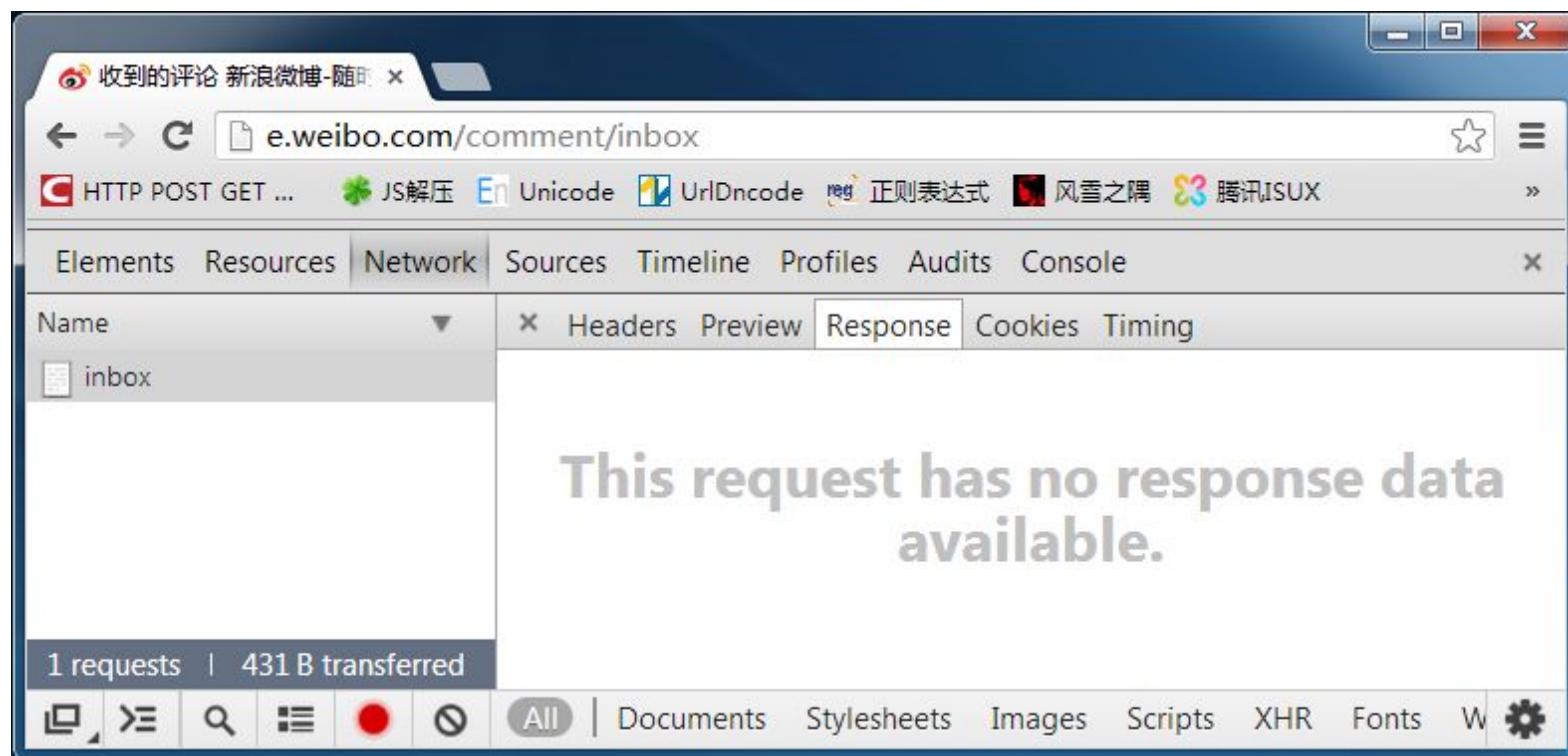
# 流水线模式演示



## 流水线模式演示

```
67     public function render_page(Comm_Bigpipe_Pagelet $page_obj) {
68         Comm_Bigpipe_Render::set_template_engine_class('WBSmarty');
69         $render = Comm_Bigpipe_Render::create(Comm_Bigpipe_Render::detect_re
    nder_type(), $page_obj);
70         exit;
71         $render->render();
72     }
```

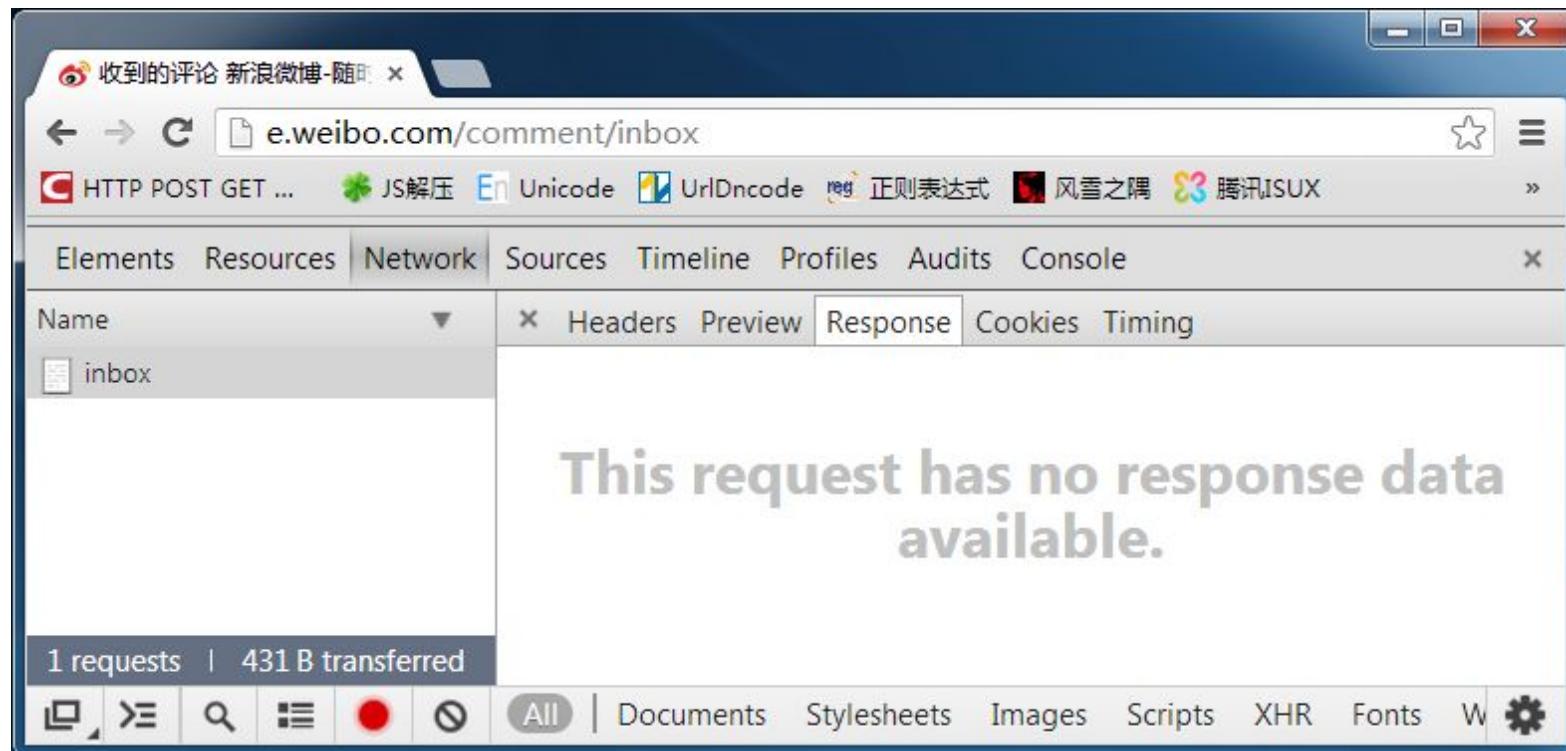
# 流水线模式演示



# 流水线模式演示

```
209     public function render(){
210         if(!self::$template_engine_class){
211             throw new Comm_Bigpipe_Exception('Must set a template engine cla
ss first');
212         }
213         $this->template_engine = new self::$template_engine_class();
214         $this->prepare();
215         exit;
216         self::dfs($this->pl, array($this, 'enter'), array($this, 'leave'));
217         $this->closure();
218     }
```

# 流水线模式演示



## 流水线模式演示

```
209     public function render(){
210         if(!self::$template_engine_class){
211             throw new Comm_Bigpipe_Exception('Must set a template engine cla
ss first');
212         }
213         $this->template_engine = new self::$template_engine_class();
214         $this->prepare();
215         self::dfs($this->pl, array($this, 'enter'), array($this, 'leave'));
216         exit;
217         $this->closure();
218     }
```

## 流水线模式演示

The screenshot shows the Network tab of the Chrome DevTools developer console. It displays a list of 15 parallel HTTP requests made to the URL `e.weibo.com/comment/inbox`. The requests include various CSS files, JavaScript files, and JSON data files. The requests are color-coded by initiator: blue for `inbox`, green for `frame`, orange for `gaea_1_19.js`, and red for `push_count.json` and `unread_count.json`. The table includes columns for Name, Method, Status, Type, Initiator, Size, Time, and Timings.

Name	Method	Status	Type	Initiator	Size	Time	Timings
inbox	GET	200	text...	Other	10.5 ...	730 ...	1 ms
out_frame.css?version=d879f4a53880e858	GET	200	text...	inbox:25	(fro...)	Pen...	1 ms
frame.css?version=d879f4a53880e858	GET	200	text...	inbox:26	(fro...)	Pen...	1 ms
WB_outframe.css?version=d879f4a53880e858	GET	200	text...	inbox:28	(fro...)	Pen...	1 ms
frame.css?version=d879f4a53880e858	GET	200	text...	inbox:30	(fro...)	Pen...	1 ms
index.css?version=d879f4a53880e858	GET	200	text...	inbox:30	(fro...)	Pen...	1 ms
pl_message_center.css?version=d879f4a53880e858	GET	200	text...	inbox:32	(fro...)	Pen...	1 ms
layer_custom_template.css?version=d879f4a53880e858	GET	200	text...	inbox:38	(fro...)	Pen...	1 ms
skin.css?version=d879f4a53880e858	GET	200	text...	inbox:38	(fro...)	Pen...	1 ms
gaea_1_19.js	GET	200	appl...	inbox:80	(fro...)	Pen...	1 ms
admin_topbar.css?version=d879f4a53880e858	GET	200	text...	inbox:87	(fro...)	Pen...	1 ms
enp_top.js?version=d879f4a53880e858	GET	200	appl...	inbox:88	(fro...)	Pen...	1 ms
base.js?version=d879f4a53880e858	GET	200	appl...	inbox:213	(fro...)	Pen...	1 ms
push_count.json?pid=-1&count=0&source=3818214747&status_t...	GET	200	appl...	gaea_1_1...	413 B	511 ...	1 ms
unread_count.json?target=api&unread_message=1&pid=-1&sour...	GET	200	appl...	gaea_1_1...	425 B	530 ...	1 ms

15 requests | 11.3 KB transferred | 4.98 s (onload: 816 ms, DOMContentLoaded: 816 ms)

# 流水线模式演示



# 流水线模式演示

The screenshot shows the Sina Weibo Enterprise Edition homepage ([e.weibo.com/comment/inbox](http://e.weibo.com/comment/inbox)). The page features a navigation bar with links to Management Home, Application Marketplace, Weibo University, and Service Provider Platform. Below the navigation is a search bar and a user profile section for 'jntest12'. The main content area contains several sections: 'Find People of Interest' (名人堂, 媒体汇, 品牌馆, 政务厅, 网站荟, 校园机构, 微博达人, 猜你喜欢), 'Interesting Content' (微话题, 风云榜, 微访谈, 微直播, 热门微博, 随便看看), 'Popular Applications' (微群, 游戏, 相册, 微音乐, 微活动, 投票, 微电台, 大屏幕), 'Mobile & Devices' (手机玩微博, 手机WAP版, 短信彩信发微博, iPhone客户端, Android客户端, Symbian客户端), and 'Certification & Cooperation' (申请认证, 开放平台, 企业微博, 连接网站, 广告服务). At the bottom, there are links for customer service, feedback, recruitment, and navigation, along with copyright information (Copyright © 1996-2013 SINA) and a 'Return to Top' button.

## 流水线模式演示

```
209     public function render(){
210         if(!self::$template_engine_class){
211             throw new Comm_Bigpipe_Exception('Must set a template engine cla
ss first');
212         }
213         $this->template_engine = new self::$template_engine_class();
214         $this->prepare();
215         self::dfs($this->pl, array($this, 'enter'), array($this, 'leave'));
216         $this->closure();
217         exit;
218     }
```

# 流水线模式演示



# 流水线模式演示

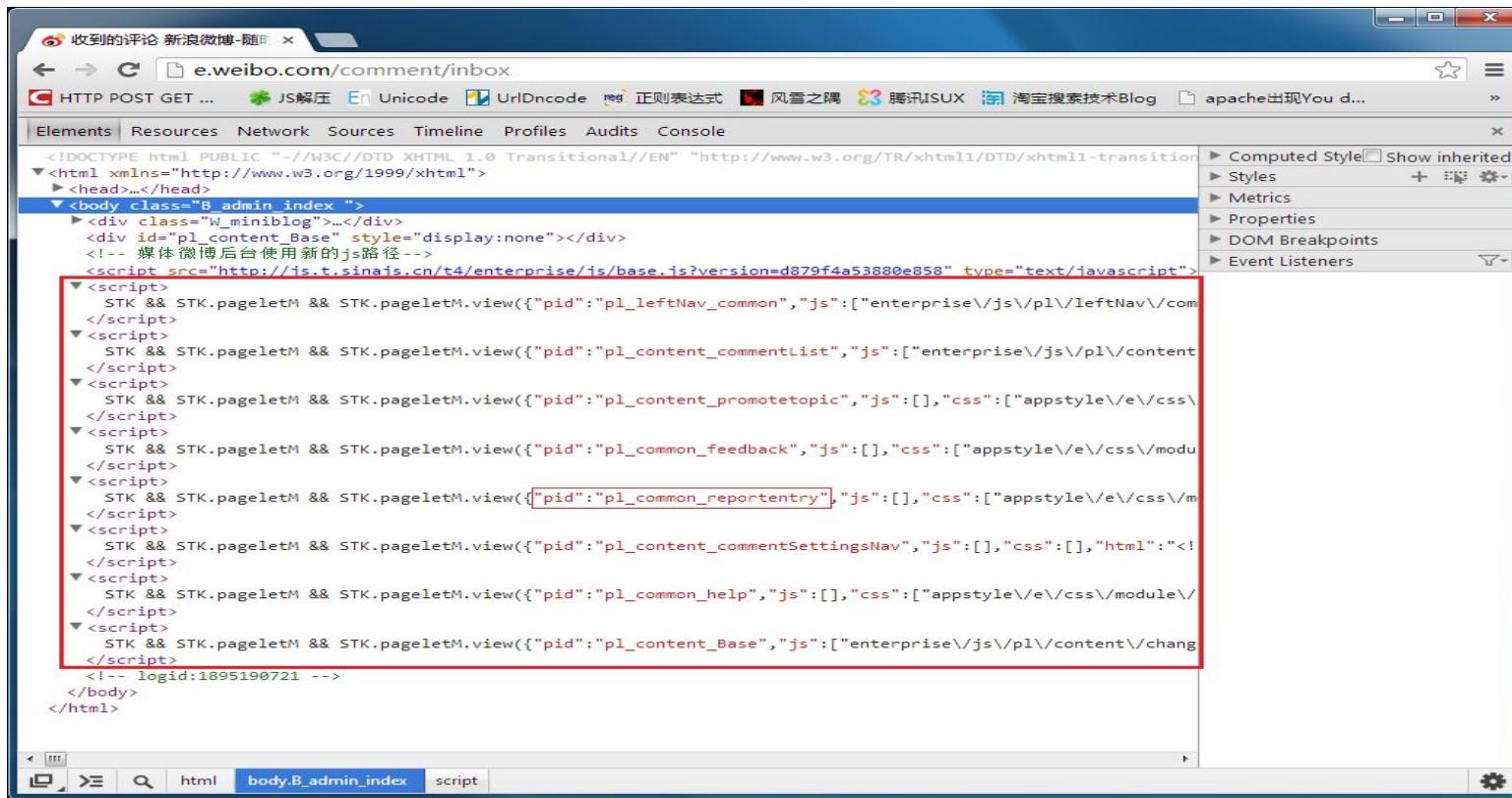
The screenshot shows the Network tab of the Chrome Developer Tools for the URL [e.weibo.com/comment/inbox](http://e.weibo.com/comment/inbox). The tab bar includes various developer tools like JS解压, Unicode, UrlDecode, 正则表达式, 风雪之隅, 腾讯ISUX, 淘宝搜索技术Blog, apache, and others. The Network table lists 40 requests:

Name	Method	Status	Type	Initiator	Size	Time	Time
pl_content_commentList.css?version=d879f4a53880e858	GET	200	text/css	base.js?version...	(from c...	Pending	green
topic_list.css?version=d879f4a53880e858	GET	200	text/css	base.js?version...	(from c...	Pending	green
common.js?version=d879f4a53880e858	GET	200	application/javascript	gaea_1.19.js:1	(from c...	1 ms	orange
push_count.json?_pid=-1&count=0&source=3818214747&status_type=0&callback=STK_137499067...	GET	200	application/javascript	gaea_1.19.js:1	412 B	537 ms	orange
changeLanguage.js?version=d879f4a53880e858	GET	200	application/javascript	gaea_1.19.js:1	(from c...	Pending	orange
transparent.gif	GET	200	image/gif	base.js?version...	(from c...	Pending	purple
1	GET	200	image/jpg	base.js?version...	(from c...	Pending	purple
tootha_org.gif	GET	200	image/gif	base.js?version...	(from c...	1 ms	purple
1	GET	200	image/jpg	base.js?version...	(from c...	Pending	purple
0	GET	200	image/jpg	base.js?version...	(from c...	Pending	purple
1	GET	200	image/jpg	base.js?version...	(from c...	Pending	purple
1	GET	200	image/jpg	base.js?version...	(from c...	Pending	purple
0	GET	200	image/jpg	base.js?version...	(from c...	Pending	purple
base.js?version=d879f4a53880e858	GET	200	application/javascript	gaea_1.19.js:1	(from c...	1 ms	orange
layer_verifycode.css?version=d879f4a53880e858	GET	200	text/css	base.js?version...	(from c...	Pending	green
editModule.js?version=d879f4a53880e858	GET	200	application/javascript	gaea_1.19.js:1	(from c...	Pending	orange
userCard.js?version=d879f4a53880e858	GET	200	application/javascript	gaea_1.19.js:1	(from c...	Pending	orange
suda.js?version=d879f4a53880e858	GET	200	application/javascript	base.js?version...	(from c...	Pending	orange
wbad.js?version=d879f4a53880e858	GET	200	application/javascript	base.js?version...	(from c...	Pending	orange
sendMessageMain.js?version=d879f4a53880e858	GET	200	application/javascript	gaea_1.19.js:1	(from c...	Pending	orange
layer_version_upgrade.css?version=d879f4a53880e858	GET	200	text/css	base.js?version...	(from c...	Pending	green
unread_count.json?target=api&unread_message=1&_pid=-1&source=3818214747&callback=STK_1...	GET	200	application/javascript	gaea_1.19.js:1	424 B	515 ms	orange
commentList.js?version=d879f4a53880e858	GET	200	application/javascript	gaea_1.19.js:1	(from c...	Pending	orange
a.gif?V=2.2.2&Cl=sz:1280x1024 dp:32 ac:Mozilla an:Netscape cpu:undefined pf:Win32 jv:1.3 ct:unko...	GET	200	image/gif	suda.js?version...	382 B	528 ms	purple

40 requests | 95.9 KB transferred | 6.89 s ( onload: 2.08 s, DOMContentLoaded: 2.08 s )

Icons at the bottom include: back, forward, search, refresh, All, Documents, Stylesheets, Images, Scripts, XHR, Fonts, WebSockets, Other, and a settings gear icon.

# 流水线模式演示



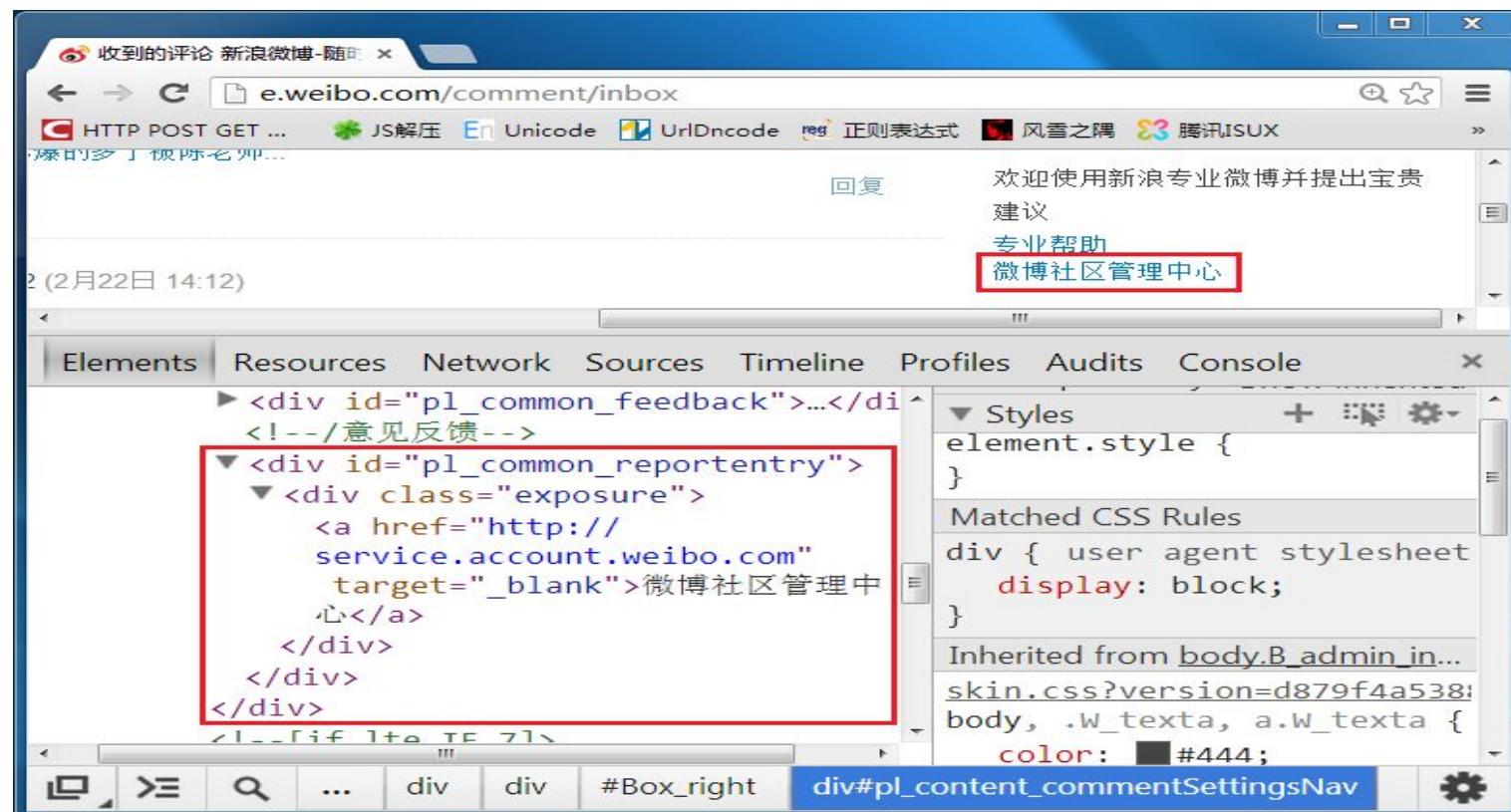
The screenshot shows the Chrome DevTools Elements tab for the URL [e.weibo.com/comment/inbox](http://e.weibo.com/comment/inbox). The DOM tree is displayed, with the `body` element selected. A large block of `<script>` tags, which represent the 'scripts' component of the page's modular structure, is highlighted with a red box. These scripts are used for various page components like left navigation, comment lists, and feedback sections. The right-hand panel of DevTools shows the Computed Style, Styles, Properties, DOM Breakpoints, and Event Listeners for the selected element.

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <head>...</head>
  <body class="B_admin_index">
    <div class="W_miniblog">...</div>
    <div id="pl_content_Base" style="display:none">...</div>
    <!-- 媒体微博后台使用新的js路径 -->
    <script src="http://is.t.sinajs.cn/t4/enterprise/is/base.js?version=d879f4a53880e858" type="text/javascript">
      STK && STK.pageletM && STK.pageletM.view({<span>pid:</span>"pl_leftNav_common",<span>js:</span>:[<span>"enterprise\\js\\pl\\leftNav\\com...</script>
      STK && STK.pageletM && STK.pageletM.view({<span>pid:</span>"pl_content_commentList",<span>js:</span>:[<span>"enterprise\\js\\pl\\content...</script>
      STK && STK.pageletM && STK.pageletM.view({<span>pid:</span>"pl_content_promotetopic",<span>js:</span>:[],<span>css:</span>:[<span>"appstyle\\e\\css\\...</script>
      STK && STK.pageletM && STK.pageletM.view({<span>pid:</span>"pl_common_feedback",<span>js:</span>:[],<span>css:</span>:[<span>"appstyle\\e\\css\\modu...</script>
      STK && STK.pageletM && STK.pageletM.view({<span>pid:</span>"pl_common_reportentry",<span>js:</span>:[],<span>css:</span>:[<span>"appstyle\\e\\css\\m...</script>
      STK && STK.pageletM && STK.pageletM.view({<span>pid:</span>"pl_content_commentSettingsNav",<span>js:</span>:[],<span>css:</span>:[],<span>html:</span>"<!</script>
      STK && STK.pageletM && STK.pageletM.view({<span>pid:</span>"pl_common_help",<span>js:</span>:[],<span>css:</span>:[<span>"appstyle\\e\\css\\module\\...</script>
    <script>
      STK && STK.pageletM && STK.pageletM.view({<span>pid:</span>"pl_content_Base",<span>js:</span>:[<span>"enterprise\\js\\pl\\content\\chang...</script>
    <!-- logid:1895190721 -->
  </body>
</html>
```

## 流水线模式演示

```
1 <script>
2     STK &&
3     STK.pageletM &&
4     STK.pageletM.view(
5         {
6             "pid":"pl_common_reportentry",
7             "js":[],
8             "css":["appstyle\/e\/css\/module\/list\/topic_list.css?version=a
1504b4433b6fe12"],
9             "html":
10                "<div class=\"exposure\">
11                    <a href=\"http:\/\/service.account.weibo.com\" target="
12                        _blank">
13                            \u5fae\u535a\u793e\u533a\u7ba1\u7406\u4e2d\u5fc3(微>
14                                博社区管理中心)
15                            <\u5316>
16                </a>
17            </div>\n"
18        }
19    )
20 </script>
```

## 流水线模式演示



## FaceBook BigPipe

```
32 <!-- BigPipe construction and first response -->
33 <script>var bigPipe = new (require("BigPipe"))({lid:0,"forceFinish":true});</script>
34 <script>bigPipe.onPageletArrive({"id":"first_response","phase":0,"jsmods":{},"is_last":true,"css":["veUjj","UmFO+","c6lUE","za92D","j1
35
36 <code class="hidden_elem" id="u_0_d"><!-- <div id="pagelet_main_column_personal" data-referrer="pagelet_main_column_personal_timeline
37 <script>bigPipe.onPageletArrive({"content":{"pagelet_timeline_main_column":{"container_id":"u_0_d"}}, "jsmods":{"require":[[{"TimelineC
38
39 <code class="hidden_elem" id="u_0_k"><!-- <div class="fbTimelineTopSectionBase _6-d _529n"><div id="pagelet_above_header_timeline" da
40 <script>bigPipe.onPageletArrive({"display_dependency":["pagelet_timeline_main_column"], "content":{"pagelet_main_column_personal":{"cor
41
42 <code class="hidden_elem" id="u_0_o"><!-- <div class="escapeHatchMinimal _4_g"><div class="_701 _51sh"><div class="_57fp" data-ft="&
43 <script>bigPipe.onPageletArrive({"display_dependency":["pagelet_main_column_personal"], "content":{"pagelet_escape_hatch":{"container_i
44
45 <script>bigPipe.onPageletArrive({"display_dependency":["pagelet_main_column_personal"], "content":{"pagelet_above_header_timeline":""},
46
47 <code class="hidden_elem" id="u_0_13"><!-- <span class="uiButtonGroup uiButtonGroupOverlay" id="u_0_p"><span class="firstItem lastIte
48 <script>bigPipe.onPageletArrive({"display_dependency":["pagelet_main_column_personal"], "is_last":true, "content":{"pagelet_timeline_pr
49
50 <code class="hidden_elem" id="u_0_16"><!-- <div class="fbTimelineSection fbTimelineCompactSection fbTimelineSectionTransparent" id="u
51 <script>bigPipe.onPageletArrive({"content":{"pagelet_timeline_recent":{"container_id":"u_0_16"}}, "jsmods":{"require":[[{"TimelineConter
52
53 <script>bigPipe.onPageletArrive({"append":"u_0_14_left", "display_dependency": ["pagelet_timeline_recent"], "content":{"pagelet_timeline_
54
55 <code class="hidden_elem" id="u_0_1x"><!-- <li class="fbTimelineUnit fbTimelineTwoColumn clearfix" data-side="1" data-fixed="1" data-
56 <script>bigPipe.onPageletArrive({"append":"u_0_14_left", "display_dependency": ["pagelet_timeline_recent", "pagelet_timeline_composer"], "
```

## FaceBook BigPipe

```
1 <code class="hidden_elem" id="u_0_d">
2     <!-- <div id="pagelet_main_column_personal" data-referrer="pagelet_main_column_personal_timeline"></div> -->
3 </code>
4 <script>
5     bigPipe.onPageletArrive({
6         "content": {
7             "pagelet_timeline_main_column": {"container_id": "u_0_d"}
8         },
9         "jsmods": {
10            "require": [
11                ["TimelineController",
12                 "init",
13                 []],
14                ["573126587", "timeline", {"has_fixed_ads": false, "one_column_minimal": true}]
15            ]
16        ],
17        "bootloadable": {},
18        "resource_map": {},
19        "js": ["OH3xD", "f7Tpb", "AVmr9", "\MWWQ", "nxD7O"],
20        "id": "pagelet_timeline_main_column",
21        "phase": 1
22    })
23 </script>
```

## FaceBook BigPipe

facebook 搜索人, 地方和东西

陈凯 搜索朋友 首页 \* 由赞助商赞助

Changhao Jiang  
(蒋长浩)

时间线 简介 照片 朋友 更多 ▾ 加为好友 关注 发消息

你认识 Changhao 吗?  
要查看他与朋友们分享了什么, 给他发送朋友请求。  
加为好友

朋友 - 683 (0位共同朋友)  
Ding Zhou 葛元恺 齐鑫  
Shan Lu 张力 Rong Yan

Changhao Jiang 分享了一个链接。  
6月6日 I like this song!  
查看翻译 Anna Kendrick Pitch Perfect You're Gonna Miss Me When I'm Gone Lyric Video YouTube  
ima miss you when im gone

300m Super Power Light supertorch.eu  
It's Not a Laser! 300m Performance Power Led with Special Lens! Very Surprised! Click Here

WOMEN on Facebook  
Thousands of local singles just one click away. Start now and find the date that fits you.  
马上使用 5,000,000 人使用过 Zoosk .

Like Tuner Cars? uti.edu  
Turn your love of fast cars into a career. Get hands-on automotive training at UTI.

最近  
2011年  
2010年

- 热身
- 项目分析
- 流水线模式演示
- Q&A

以微博之力 让世界更美！  
*[weibo.com](http://weibo.com)*