
# 一种可视化爬虫技术的分享

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# Background



Pyspider

Scrapy 1.1

Requests


Beautiful Soup

More...

# Demand



We need...

# Demand

- Simple
- Convenient
- Stable
- High performance

# Technology Stack

前端
技术栈




后端
技术栈

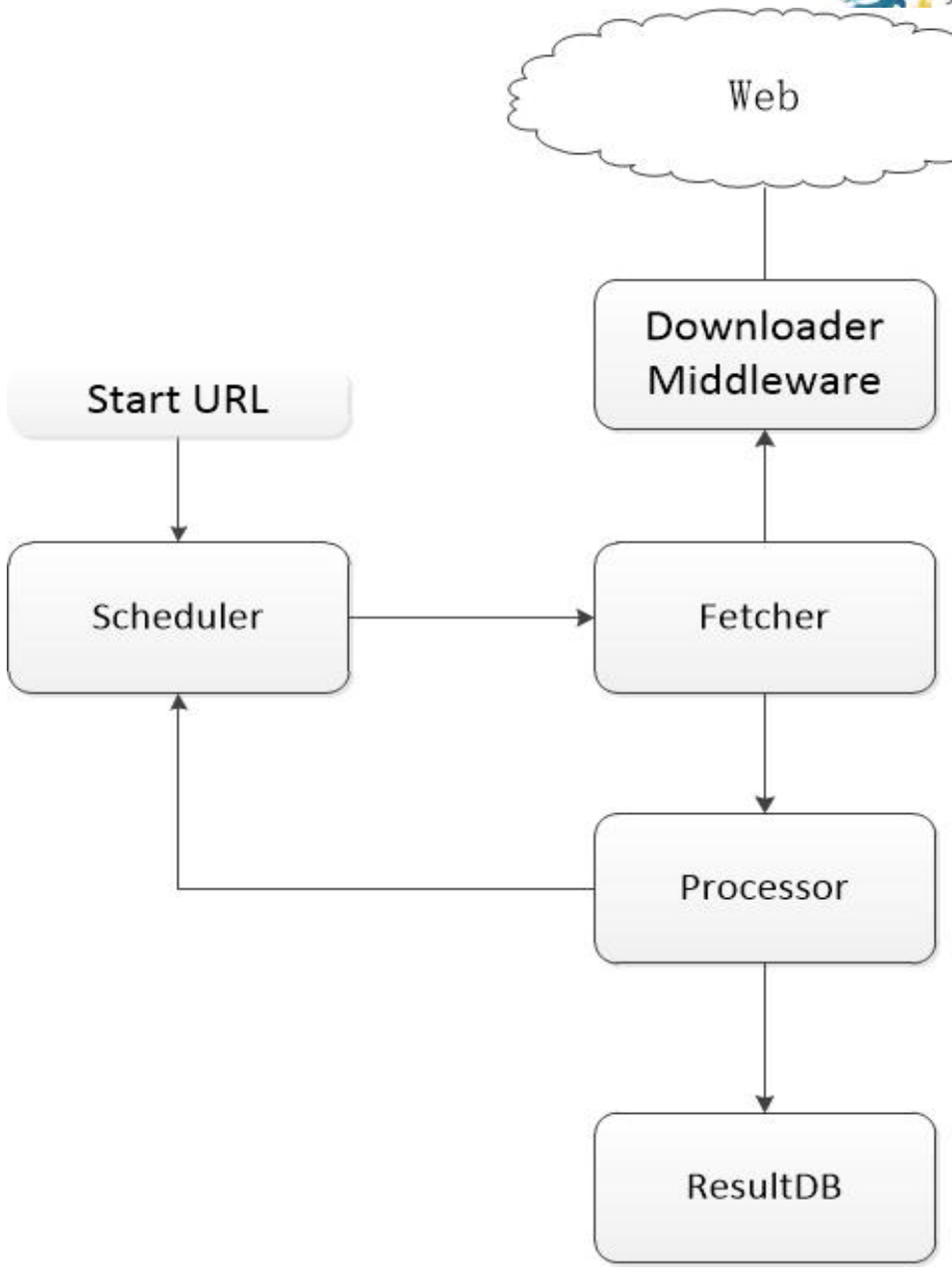






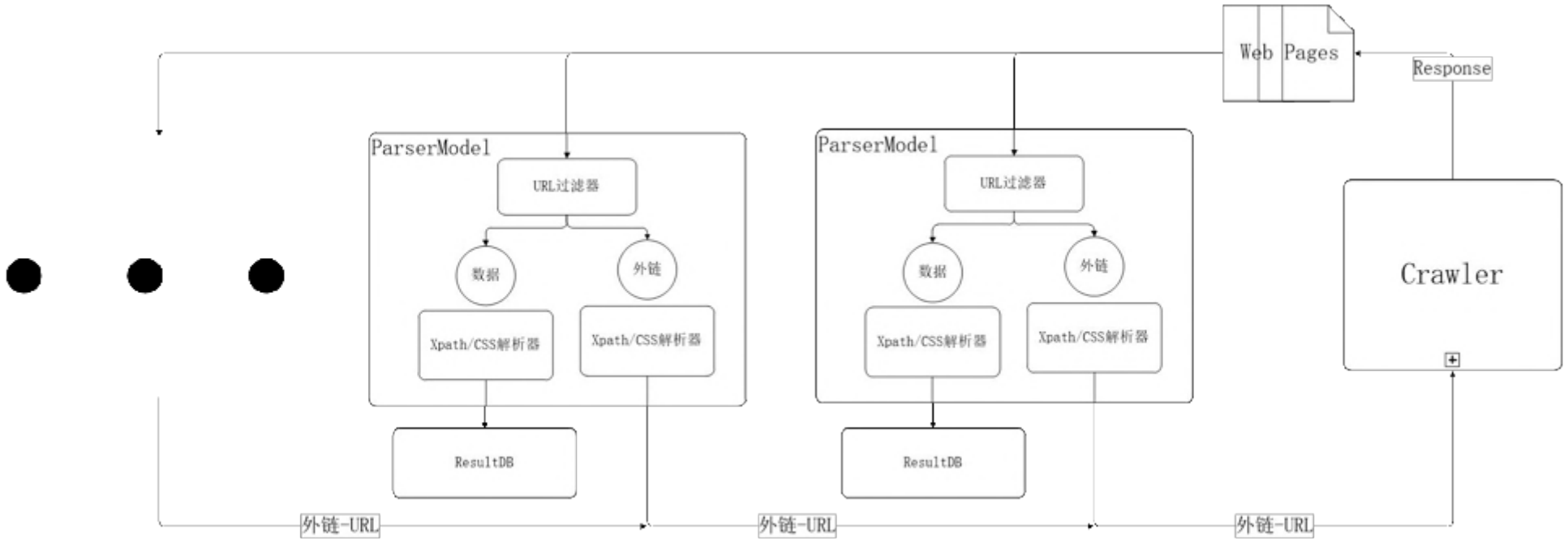
# Crawler

- Scheduler:
  - Bloom filter
- Fetcher:
  - Tornado、PhantomJS
- DownloaderMiddleware:
  - Proxy、Cookies、User-Agent
- Processor:
  - ParserModel、cx-extractor
- Database:
  - Redis、MongoDB



# Crawler Visual Logic

- Start URL (入口)
- Parser Config (解析规则文件)
- Crawler Config (采集周期、JS模拟、Cookies等)



# ParserModel

- 常见的Web开发模式：MVC、MVP、MTV、MVVM .....

爬虫解析模块

↓

抽取网页数据

↓

获取model层数据

↓

Web开发的逆向工程

# ParserModel

- 自古爬虫和Web开发是一家...

# ParserModel

```
489                 self.python_script, url) for url in urls]
490         return urls, outlink_attrs
491
492     def parser_model(self, xml):
493         '''
494         解析模块，将xml-pattern文件解析成配置文件
495         '''
496         try:
497             soup = BeautifulSoup(xml, "xml")
498         except Exception:
```

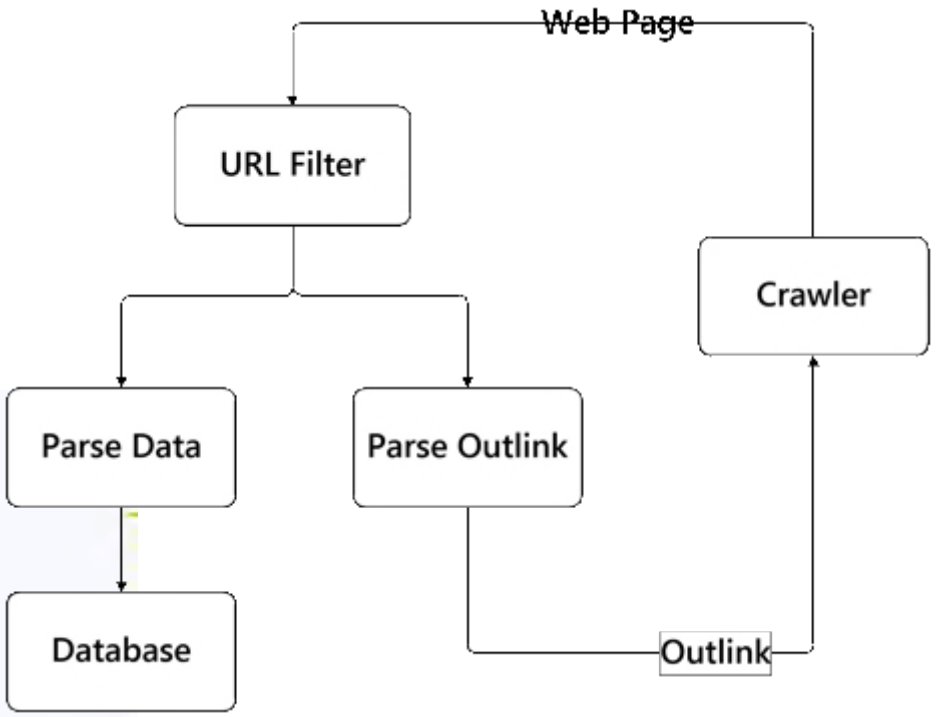
导入配置文件

```
503
504         # 解析
505         for website in websites:
506             fields_result = []
507             outlinks_result = []
508             # URL匹配,不匹配则跳过
509             if len(self.url_filter(website)):
510                 continue
511             # 数据解析
512             data_object = website.find("data-object")
513             if data_object:
514                 fields = data_object.findAll("field")
515                 fields_result = [self.get_field(field) for field in fields]
516             # 链接解析
517             outlink = website.find("outlinks")
518             if outlink:
519                 entities = outlink.findAll("entity")
520                 outlinks_result = [self.get_outlink(entity) for entity in entities if self.get_outlink(entity)]
521             yield fields_result, outlinks_result
522
```

URL匹配

数据解析

外链解析



# ParserModel

- URL Filter
  - regular match、HTML DOM Similarity
- Parse Data
  - CSS selector、XPath parser、regular match expression、character slice、text extractor...
- Parse Outlink
  - CSS selector、XPath parser、URL normalization、Javascript extractor

# URL Filter

Django路由规则
匹配

```
8   urlpatterns = [
9       url(r'^projects/$', project.projects),
10      url(r'^project/(\d+)/$', project.project_detail),
11      url(r'^project/(\d+)/templates/$', project.templates),
12      url(r'^project/(\d+)/template/(\d+)/$', project.template_detail),
13      url(r'^project/(\d+)/tasks/$', project.tasks),
14      url(r'^project/(\d+)/img/(\d+)/$', project.img),
15      url(r'^project/(\d+)/performance/', project.performance),
```

一个逆向的MVC框架...


逆向

http://daily.zhihu.com/story/\d+

# URL Filter

PyCon China 2016

## 基于HTML DOM结构树的相似性判别

```
<!doctype html>


<html lang="zh-CN">
<head>
<meta charset="utf-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1">
<title>让孩子参与照顾临终老人，会不会太残酷？</title>
<meta name="apple-itunes-app" content="app-id=639087967, app-argument=zhihudaily://story/8794980">
<meta name="viewport" content="user-scalable=no, width=device-width">
<link rel="stylesheet" href="/css/share.css?v=5956a">

<script src="http://static.daily.zhihu.com/js/modernizr-2.6.2.min.js"></script>
<link rel="canonical" href="http://daily.zhihu.com/story/8794980" />
<base target="_blank">
<script type="text/javascript">
if (localStorage && localStorage.getItem('hideDownloadBanner') !== 'true') {
document.documentElement.className += ' show-download-banner';
}
</script>
</head>
<body>

<div class="global-header">
<div class="main-wrap">
```

```
<!doctype html>


<html lang="zh-CN">
<head>
<meta charset="utf-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1">
<title>水是生命，卫生是尊严，那这水费，该怎么收才合理？</title>
<meta name="apple-itunes-app" content="app-id=639087967, app-argument=zhihudaily://story/8792845">
<meta name="viewport" content="user-scalable=no, width=device-width">
<link rel="stylesheet" href="/css/share.css?v=5956a">

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<div class="global-header">
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```

# Parse Data

- lxml
- PyQuery
- Thrift
- cx-extractor (Java)
- SelectorGadget (javascript插件)

# Parse Data

```
126
127     def xpath_parser(self, expression):
128         '''xpath解析方法'''
129         try:
130             express_result = self.etree.xpath(expression)
131         except:
132             logging.error(u"xml解析文件存在错误!xpath表达式存在错误.")
133             raise AttributeError("xml_file is Error!")
134         return express_result
135
136     def css_parser(self, expression):
137         '''css解析方法'''
138         query_tree = PyQuery(self.etree)
139         try:
140             express_result = query_tree(expression)
141         except:
142             logging.error(u"xml解析文件存在错误!css表达式存在错误.")
143             raise AttributeError("xml_file is Error!")
144         return express_result
145
146     def text_extractor(self, content):
147         '''解析网页正文'''
148         extractor = thriftpy.load(u"../classifier.thrift",
149                                   module_name="classifier_thrift")
150         classifier_client = make_client(extractor.Classifier, '192.168.73.1', 8090)
151         return classifier_client.extractor(content)
152
```

利用lxml的xpath方法解析

CSS选择器调用了PyQuery

cs_extractor的jar包运算结果通过thriftpy通信传递

# Parse Outlink

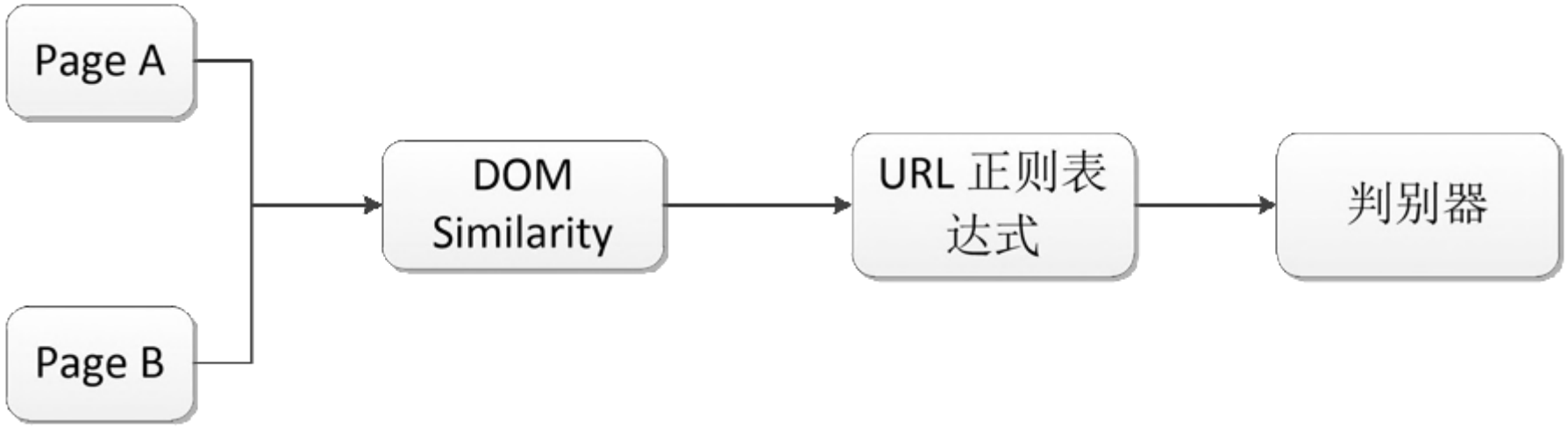
- lxml
- PyQuery
- werkzeug

```
>>> url_fix(u'http://de.wikipedia.org/wiki/Elf (Begriffsklärung)')
'http://de.wikipedia.org/wiki/Elf%20%28Begriffskl%C3%A4rung%29'
```


Useease Spider Man
获取帮助?
test01
模板编辑
首页 > 任务管理 > 模板编辑
插件下载
链接筛选
数据解析
外链获取
新增数据解析
新闻来源
新闻内容
标题
返回上一级
http://news.163.com/16/0805/16/BTNJ2QOR0001124J.html
转入
網易新闻
网易首页
应用
网易考拉
LOFTER
BoBo
网易首页 > 新闻中心 > 国内新闻 > 正文
山东高速路客车与货车相撞 已致9人死1
2016-08-05 16:56:42 来源: 齐鲁网(济南)
0
易信
（原标题：山东高速客车被撞翻下高速伤亡不明）

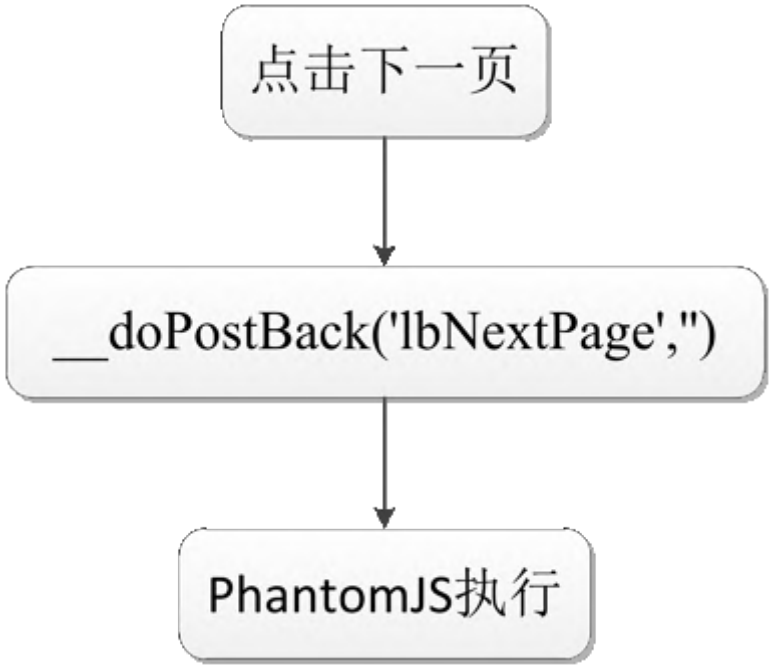
# Prospect

- URL Filter
  - 机器学习：通过选择两个页面，计算HTML DOM相似度，再通过多个相似页面计算URL正则表达式，构建判别器。



# Prospect

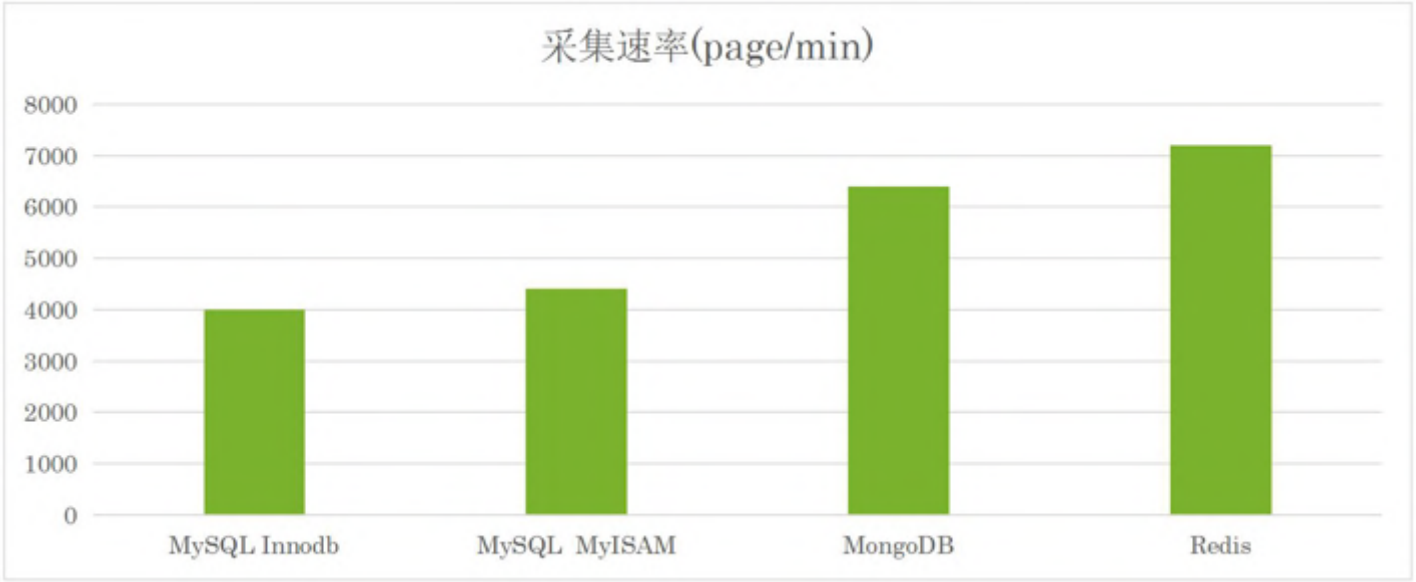
- Parse Outlink
  - 桌面插件：通过对浏览器Hooking截获javascript执行代码块。




可行性探讨？

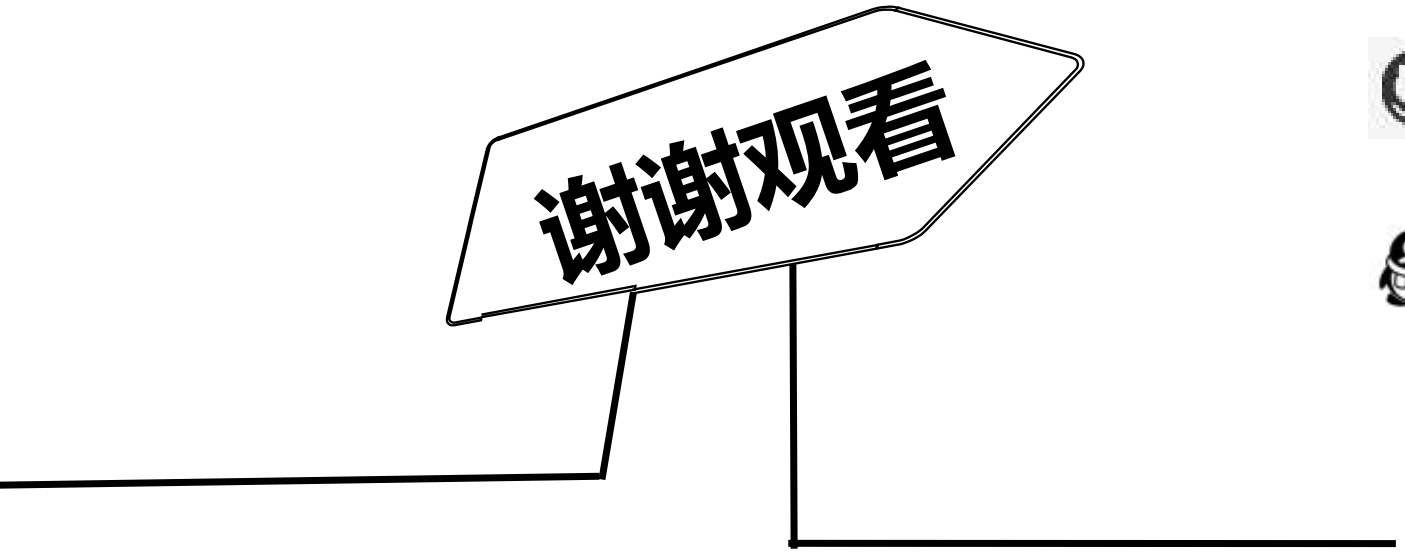
# Database Choice and Test

- 测试环境：
- 机器：Intel(R) Xeon(R) CPU E5-2620 0 @ 2.00GHz
- 内存：28G



# Product Show

- 网址：http://spiderman.useease.com:9000/




Luck_Sugar

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