

携程ES跨集群搜索实践

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数据量

- 2千亿条/天
- 70T/天
- 300+ 索引/天
- 450 节点, 230 服务器
- 4万+ shard

大集群痛点

- meta信息太多, 全量更新压力大, 经常超时
- 单节点过载, 影响整个集群的状态更新
- master切换时无法响应, 集群不能正常工作

我们的需求

- 对用户透明
- 满足并发量 (5千万/天)
- 不侵入ES, 多版本兼容, 不影响日后升级

指导思想

- 尽量不造轮子 (nginx + cross-cluster-search + ESProxy)
- 满足需求就可以, 不需要更加高大上
- 不做数据处理, 只做权限验证+请求转发
- 结构最好清楚明了, 便于日后维护

cross cluster search feature

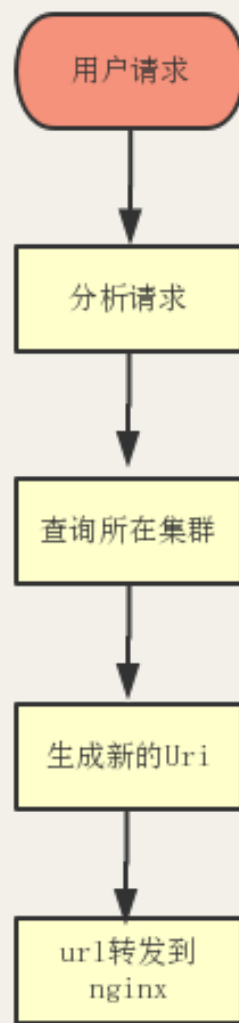
- [<https://www.elastic.co/guide/en/elasticsearch/reference/current/modules-cross-cluster-search.html>]

```
search:
  remote:
    cluster_one: ①
      seeds: 127.0.0.1:9300
    cluster_two: ②
      seeds: 127.0.0.1:9301
```

利弊分析

- 利: 解决上述痛点
- 弊: 更复杂的架构,带来更多可能的隐患, 额外的开发和运维成本

架构简介



Proxy配置

```
ES_CLUSTERS = [  
    {  
        "name": "myCluster-1",  
        "url": "http://admin:password@es-1.ops.ctripcorp.com",  
        "ELASTICSEARCH_REAL": "esinternal-myCluster-1"  
    },  
    {  
        "name": "myCluster-2",  
        "url": "http://admin:password@es-2.ops.ctripcorp.com",  
        "ELASTICSEARCH_REAL": "esinternal-myCluster-2"  
    }  
]  
ES_CROSS_SEARCH_CLUSTER_REAL = 'cross_search' # path configured in nginx
```

Nginx配置一览

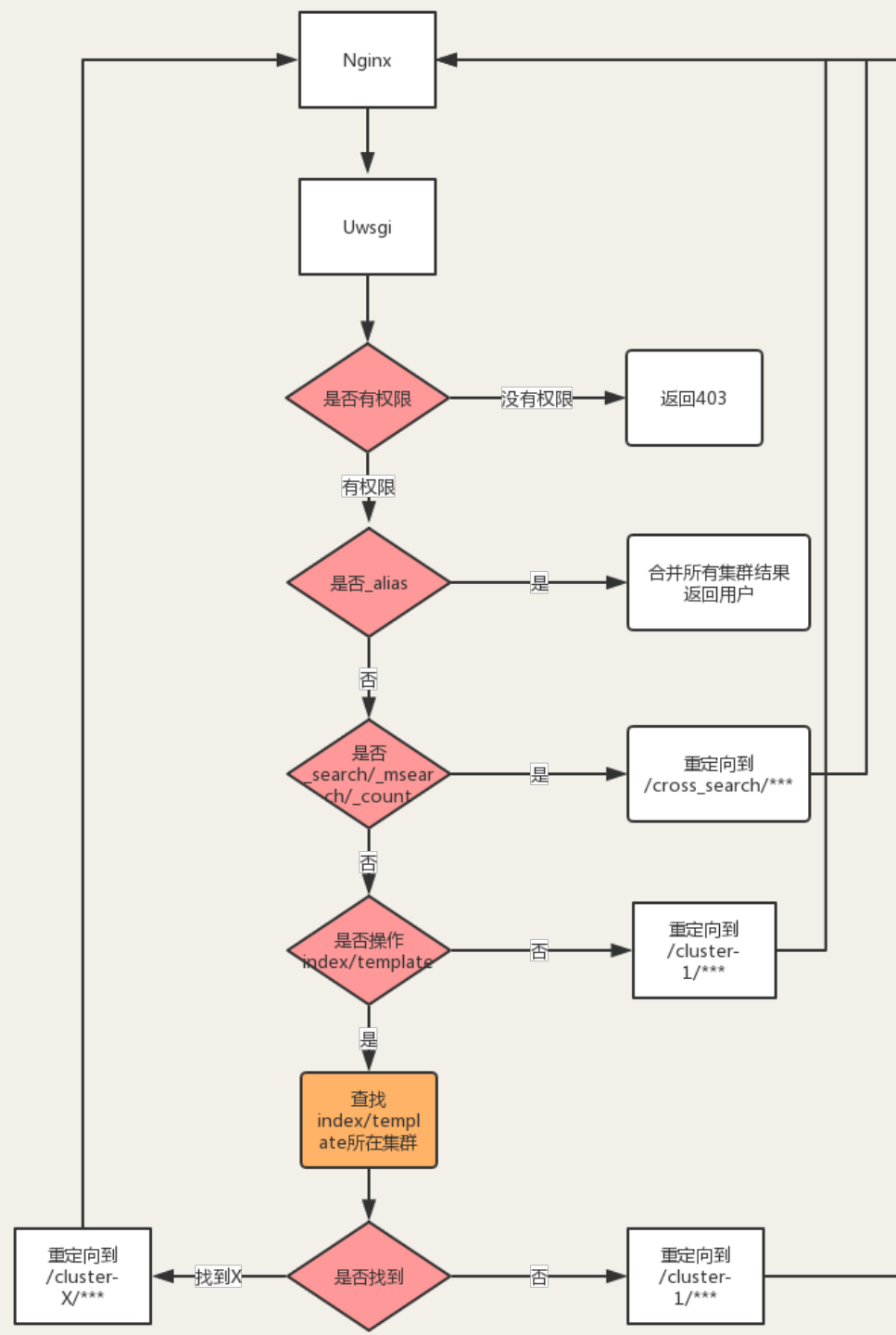
```
upstream cross_search {  
    4 server 10.10.100.2:8080;  
    server 10.10.100.3:8080;  
    server 10.10.100.4:8080;  
    keepalive 15;  
}
```

```
upstream myCluster-1 {  
    4 server 10.11.100.2:8080;  
    server 10.11.100.3:8080;  
    server 10.11.100.4:8080;  
    keepalive 15;  
}
```

```
upstream myCluster-2 {  
    server 10.12.100.2:8080;  
    server 10.12.100.3:8080;  
    server 10.12.100.4:8080;  
    keepalive 15;  
}
```

```
location ~* ^/((index.html)|(login)|(logout)) {  
    uwsgi_pass unix:///var/data/uwsgi-esproxy.sock;  
}  
location / {  
    1 alias /opt/kibana3/src/;  
    index index.html;  
}  
location /elasticsearch/ {  
    1 uwsgi_pass unix:///var/data/uwsgi-esproxy.sock; 2  
}  
location /cross_search/ {  
    3 internal;  
    proxy_pass http://cross_search/k3_proxy_internal/;  
}  
location /esinternal-myCluster-1/ {  
    3 internal;  
    proxy_pass http://myCluster-1/k3_proxy_internal/;  
}  
location /esinternal-myCluster-2/ {  
    internal;  
    proxy_pass http://myCluster-2/k3_proxy_internal/;  
}
```

架构全景



项目不足

- 太多转发
- 配置偏复杂

一些注意点

- 其中一个集群挂掉, cross-cluster-search会不可用
- ignore_unavailable

QA



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<https://elasticsearch.cn/>