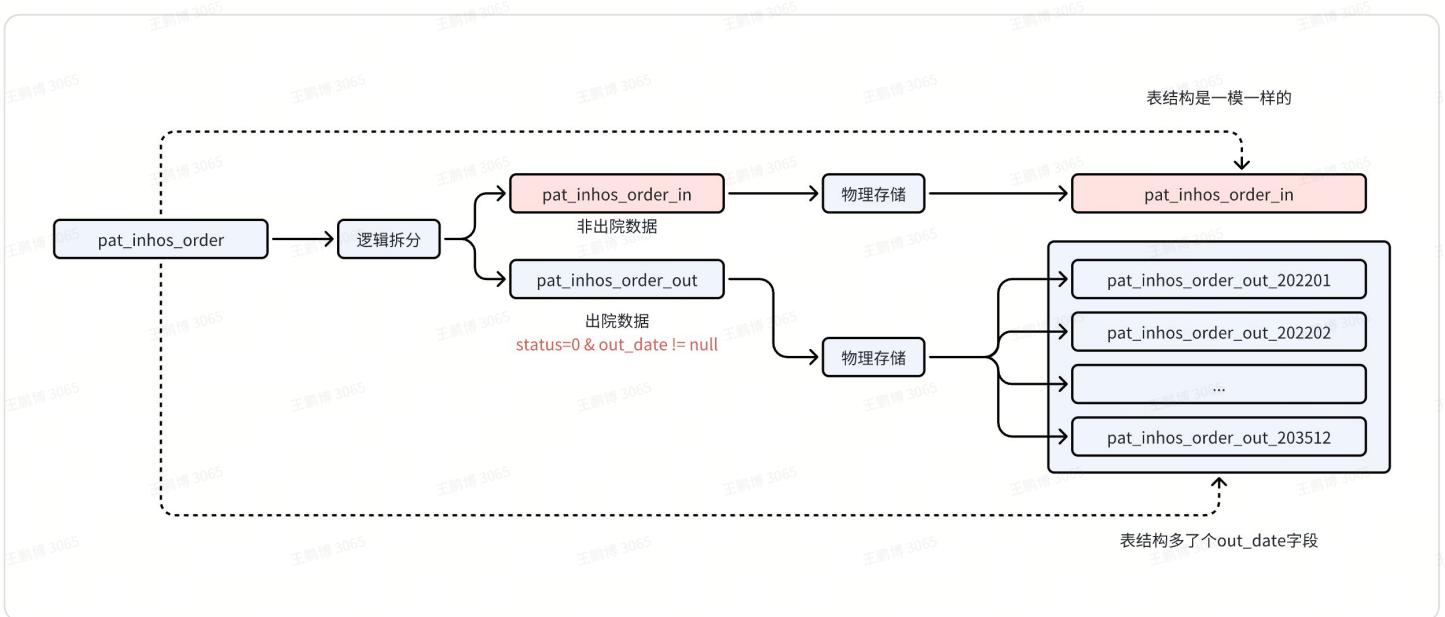


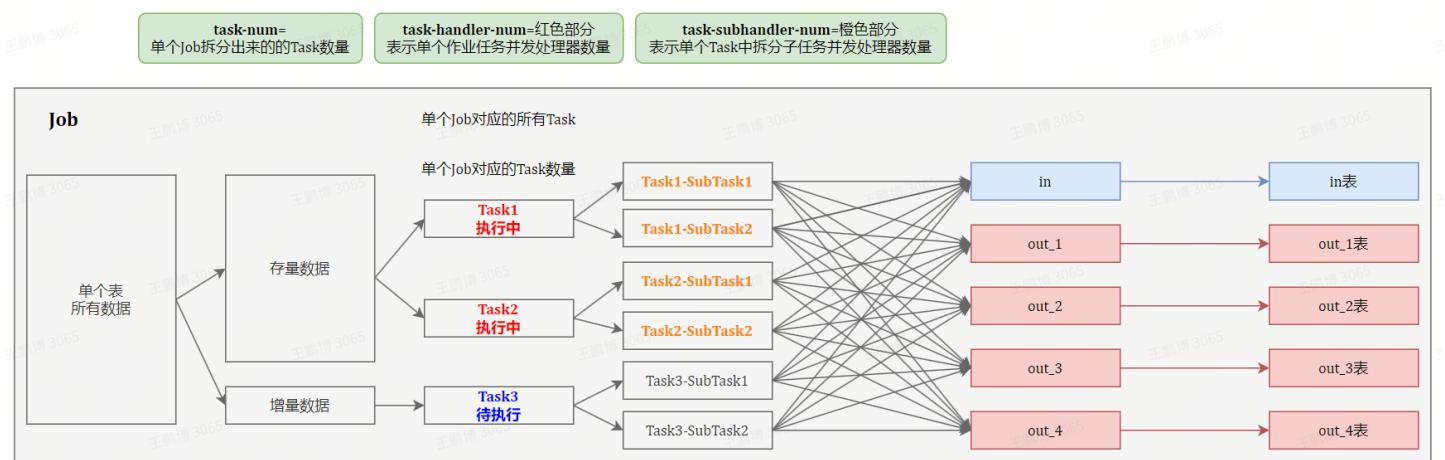
医嘱冷热发布方案-数据迁移v3_不停机迁移

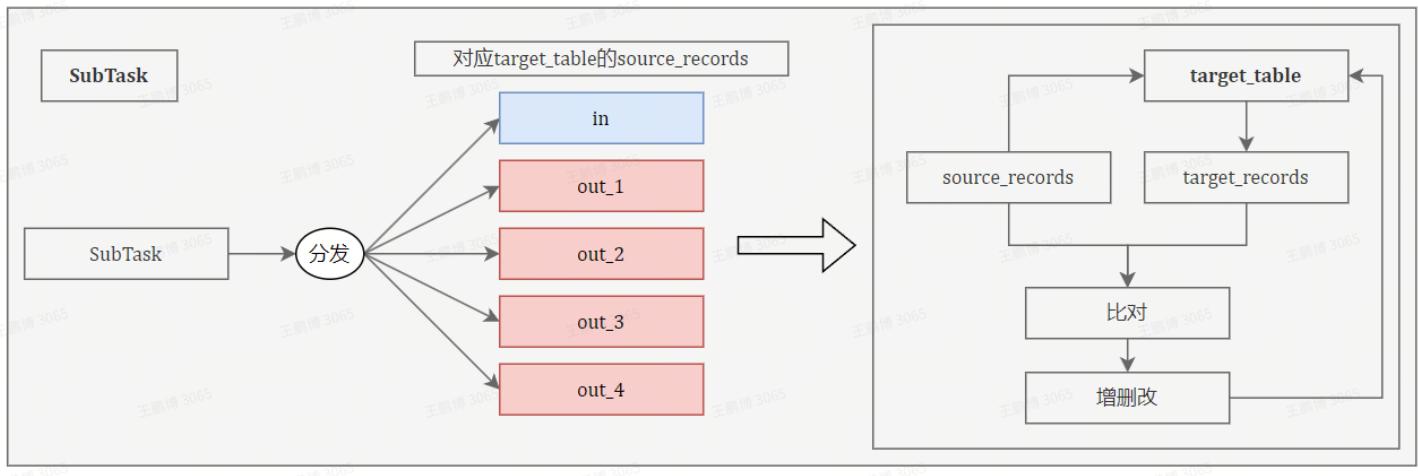
方案设计

拆分思路



迁移程序方案设计





数据迁移

环境

IP	部署软件
10.2.3.160	MySQL、Mongo、Prometheus
10.2.3.158	业务程序、迁移程序、Sharding-Proxy

前提

1. 整改同步程序

! 同步程序需要处理updateTime字段is not null，并且确保在数据迁移之前，已经上线修改后的同步程序！

同步程序需要处理updateTime字段is not null，并且确保在数据迁移之前，已经上线修改后的同步程序！

同步程序需要处理updateTime字段is not null，并且确保在数据迁移之前，已经上线修改后的同步程序！

2. 更新历史数据

1 -- 数据量: 33112780 耗时: 13min

```
2 update pat_inhos_order set update_time = create_time where update_time is null;
3 -- 数据量: 60421583 耗时: 3065
4 update pat_inhos_order_group set update_time = create_time where update_time is null;
5
6 select count(*) all_cnt from pat_inhos_order where update_time is null;
-- 0 (验证执行成功)
7 select count(*) all_cnt from pat_inhos_order_group where update_time is null;
-- 0 (验证执行成功)
```

3. 创建索引

```
1 drop index idx_update_time on pat_inhos_order;
2 create index idx_update_time on pat_inhos_order (update_time);
3 -- 数据量: 33112780 耗时: 3065
4 drop index idx_update_time on pat_inhos_order_group;
5 create index idx_update_time on pat_inhos_order_group (update_time);
```

配置说明

```
1 server:
2   port: 8888
3 spring:
4   datasource:
5     driver-class-name: com.mysql.cj.jdbc.Driver
6     url: jdbc:mysql://10.2.3.160:3306/windranger_emr?
characterEncoding=utf8&serverTimezone=GMT%2B8&allowMultiQueries=true
7     username: user
8     password: Lachesis-mh_1024
9     hikari:
10    maximum-pool-size: 200
11 sql:
12   init:
13     schema-locations: classpath*:db/schema.sql
14   mode: always
15   platform: mysql
16 logging:
17   config: classpath:logs/logback-spring.xml
18
19 transfer:
20   global:
```

```
21      # 边界值
22      update-time: '2025-02-18 00:00:00'
23      # 是否需要重新初始化任务
24      reset: false
25      jobs:
26          - table-name: pat_inhos_order
27              # 是否开启作业
28              enable: true
29              # 单个作业拆分任务数量
30              task-num: 50
31              # 需要处理的最小业务序号, 一般多用于测试使用 (闭区间[1, task-num], 但是必须小于等于task-max-sequence)
32              task-min-sequence: 1
33              # 需要处理的最大业务序号, 一般多用于测试使用 (闭区间[1, task-num], 但是必须大于等于task-min-sequence)
34              task-max-sequence: 50
35              # 单个作业任务并发处理器
36              task-handler-num: 5
37              # 子任务数量=10×10=100
38              task-sub-handler-num: 20
39              # 任务批量查询数量限制
40              task-sub-handler-query-limit: 2000
41          - table-name: pat_inhos_order_group
42              # 是否开启作业
43              enable: true
44              # 单个作业拆分任务数量
45              task-num: 50
46              # 需要处理的最小业务序号, 一般多用于测试使用 (闭区间[1, task-num], 但是必须小于等于task-max-sequence)
47              task-min-sequence: 1
48              # 需要处理的最大业务序号, 一般多用于测试使用 (闭区间[1, task-num], 但是必须大于等于task-min-sequence)
49              task-max-sequence: 50
50              # 单个作业任务并发处理器
51              task-handler-num: 5
52              # 子任务数量=10×10=100
53              task-sub-handler-num: 20
54              # 任务批量查询数量限制
55              task-sub-handler-query-limit: 2000
```

执行迁移

迁移程序 - 启动

```
1 cd /usr/local/springboot/transfer  
2 ./transfer start  
3 tailf logs/log_info.log
```

迁移程序 - 初始化

```
1 curl --location 'http://localhost:8888/init' \  
2 --header 'Content-Type: application/json' \  
3 --data '{  
4     "tableNames": ["pat_inhos_order_group"]  
5 }'
```

迁移程序 - 执行迁移作业

TODO 必须等待初始化完成~

```
1 curl --location 'http://localhost:8888/start' \  
2 --header 'Content-Type: application/json' \  
3 --data '{  
4     "tableNames": ["pat_inhos_order_group"]  
5 }'
```

注意调用接口的IP地址!

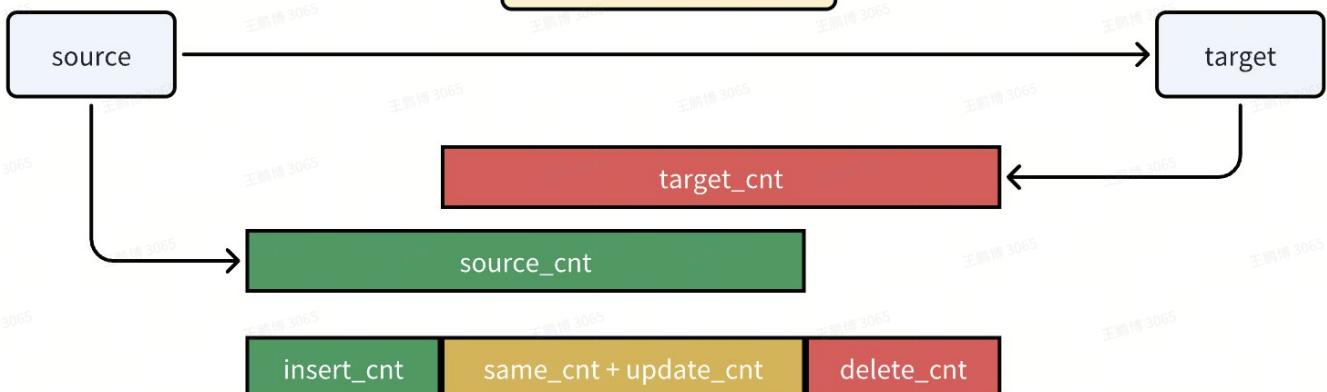
tableNames为空集合时表示启动所有作业，可以指定具体作业!

查询进度

1 SELECT * FROM transfer_task ORDER BY table_name, sequence;

id	table_name	sequence	start_id	end_id	step	init_cnt	source_cnt	target_cnt	same_cnt	insert_cnt	delete_cnt	update_cnt	progress	result	consume	start_time	end_time	create_time	update_time
50	pat_inhos_order	0	84254301	(NULL)	(NULL)	0	0	0	0	0	0	0	0.864/864	SUCCESS	346009 2025-03-20 11:05:09	2025-03-20 11:11:18	2025-03-20 11:04:51	2025-03-20 11:11:18	
1	pat_inhos_order	1	1556054	3278557	486826	486826	486826	486826	486826	0	0	0	0.864/864	SUCCESS	534223 2025-03-20 11:05:09	2025-03-20 11:14:04	2025-03-20 11:14:04	2025-03-20 11:14:04	
2	pat_inhos_order	2	3214592	5011329	1728557	1266420	1266420	1266420	1266420	1266420	0	0	0.864/864	SUCCESS	113091 2025-03-20 11:05:09	2025-03-20 11:07:03	2025-03-20 11:07:03	2025-03-20 11:07:03	
3	pat_inhos_order	3	5011330	6741667	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	152621 2025-03-20 11:05:09	2025-03-20 11:07:42	2025-03-20 11:07:42	2025-03-20 11:07:42	
4	pat_inhos_order	4	6741668	8470205	1728557	98948	98948	98948	98948	98948	0	0	0.864/864	SUCCESS	531780 2025-03-20 11:05:09	2025-03-20 11:14:01	2025-03-20 11:14:01	2025-03-20 11:14:01	
5	pat_inhos_order	5	8470206	10198743	1728557	1651478	1651478	1651478	1651478	1651478	0	0	0.864/864	SUCCESS	384318 2025-03-20 11:07:09	2025-03-20 11:13:27	2025-03-20 11:13:27	2025-03-20 11:13:27	
6	pat_inhos_order	6	10198744	11927281	1728557	757645	757645	757645	757645	757645	0	0	0.864/864	SUCCESS	274701 2025-03-20 11:07:14	2025-03-20 11:12:17	2025-03-20 11:12:17	2025-03-20 11:12:17	
7	pat_inhos_order	7	11927282	13455519	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	274701 2025-03-20 11:07:14	2025-03-20 11:12:17	2025-03-20 11:12:17	2025-03-20 11:12:17	
8	pat_inhos_order	8	13455520	15310357	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	148805 2025-03-20 11:11:43	2025-03-20 11:14:43	2025-03-20 11:13:43	2025-03-20 11:13:43	
9	pat_inhos_order	9	15310358	1711080	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	106330 2025-03-20 11:11:43	2025-03-20 11:14:43	2025-03-20 11:14:43	2025-03-20 11:14:43	
10	pat_inhos_order	10	1711081	18741433	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	493004 2025-03-20 11:11:43	2025-03-20 11:14:43	2025-03-20 11:14:43	2025-03-20 11:14:43	
11	pat_inhos_order	11	18741434	20569971	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	37915 2025-03-20 11:11:43	2025-03-20 11:14:21	2025-03-20 11:14:21	2025-03-20 11:14:21	
12	pat_inhos_order	12	20569972	22358509	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	24661 2025-03-20 11:11:43	2025-03-20 11:14:26	2025-03-20 11:14:26	2025-03-20 11:14:26	
13	pat_inhos_order	13	22358510	24027047	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	20246 2025-03-20 11:11:43	2025-03-20 11:14:31	2025-03-20 11:14:31	2025-03-20 11:14:31	
14	pat_inhos_order	14	24027048	25755585	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	24601 2025-03-20 11:11:43	2025-03-20 11:14:31	2025-03-20 11:14:31	2025-03-20 11:14:31	
15	pat_inhos_order	15	25755586	27484123	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	23375 2025-03-20 11:11:43	2025-03-20 11:14:45	2025-03-20 11:14:45	2025-03-20 11:14:45	
16	pat_inhos_order	16	27484124	29212661	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	25380 2025-03-20 11:11:43	2025-03-20 11:14:51	2025-03-20 11:14:51	2025-03-20 11:14:51	
17	pat_inhos_order	17	29212662	30941199	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	25502 2025-03-20 11:11:43	2025-03-20 11:14:56	2025-03-20 11:14:56	2025-03-20 11:14:56	
18	pat_inhos_order	18	30941200	32649973	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	28267 2025-03-20 11:11:43	2025-03-20 11:14:59	2025-03-20 11:14:59	2025-03-20 11:14:59	
19	pat_inhos_order	19	32649973	49958275	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	26551 2025-03-20 11:11:43	2025-03-20 11:14:59	2025-03-20 11:14:59	2025-03-20 11:14:59	
20	pat_inhos_order	20	49958275	5011329	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	14935 2025-03-20 11:11:43	2025-03-20 11:14:59	2025-03-20 11:14:59	2025-03-20 11:14:59	
21	pat_inhos_order	21	5011330	37155581	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	32770 2025-03-20 11:11:43	2025-03-20 11:15:24	2025-03-20 11:15:24	2025-03-20 11:15:24	
22	pat_inhos_order	22	37155582	39838389	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	35771 2025-03-20 11:11:43	2025-03-20 11:15:32	2025-03-20 11:15:32	2025-03-20 11:15:32	
23	pat_inhos_order	23	39838390	41312427	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	35441 2025-03-20 11:11:43	2025-03-20 11:15:33	2025-03-20 11:15:33	2025-03-20 11:15:33	
24	pat_inhos_order	24	41312428	43040465	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	36302 2025-03-20 11:11:43	2025-03-20 11:15:35	2025-03-20 11:15:35	2025-03-20 11:15:35	
25	pat_inhos_order	25	43040466	44769503	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	30041 2025-03-20 11:11:43	2025-03-20 11:15:45	2025-03-20 11:15:45	2025-03-20 11:15:45	
26	pat_inhos_order	26	44769504	46498041	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	30120 2025-03-20 11:11:43	2025-03-20 11:15:54	2025-03-20 11:15:54	2025-03-20 11:15:54	
27	pat_inhos_order	27	46498042	48226579	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	28106 2025-03-20 11:11:43	2025-03-20 11:16:00	2025-03-20 11:16:00	2025-03-20 11:16:00	
28	pat_inhos_order	28	48226580	49958275	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	26651 2025-03-20 11:11:43	2025-03-20 11:16:00	2025-03-20 11:16:00	2025-03-20 11:16:00	
29	pat_inhos_order	29	49958276	51633655	1728557	0	0	0	0	0	0	0	0.864/864	SUCCESS	31460 2025-03-20 11:11:43	2025-03-20 11:16:07	2025-03-20 11:16:07	2025-03-20 11:16:07	
30	pat_inhos_order	30	51633656	5341329	1728557	395	395	395	395	395	0	0	0.864/864	SUCCESS	67507 2025-03-20 11:11:43	2025-03-20 11:16:58	2025-03-20 11:16:58	2025-03-20 11:16:58	
31	pat_inhos_order	31	53413290	5511329	1728557	413	413	413	413	413	0	0	0.864/864	SUCCESS	113033 2025-03-20 11:11:43	2025-03-20 11:17:44	2025-03-20 11:17:44	2025-03-20 11:17:44	
32	pat_inhos_order	32	55113292	56563269	1728557	42	42	42	42	42	0	0	0.864/864	SUCCESS	157445 2025-03-20 11:11:43	2025-03-20 11:18:55	2025-03-20 11:18:55	2025-03-20 11:18:55	
33	pat_inhos_order	33	56091970	5859707	1728557	1438597	1438597	1438597	1438597	1438597	0	0	0.864/864	SUCCESS	93051 2025-03-20 11:11:43	2025-03-20 11:19:30	2025-03-20 11:19:30	2025-03-20 11:19:30	
34	pat_inhos_order	34	58597070	6032645	1728557	1709479	1709479	1709479	1709479	1709479	0	0	0.864/864	SUCCESS	1157161 2025-03-20 11:11:43	2025-03-20 11:19:47	2025-03-20 11:19:47	2025-03-20 11:19:47	
35	pat_inhos_order	35	60326454	61916703	1728557	1691388	1691388	1691388	1691388	1691388	0	0	0.864/864	SUCCESS	124524 2025-03-20 11:11:43	2025-03-20 11:19:52	2025-03-20 11:19:52	2025-03-20 11:19:52	
36	pat_inhos_order	36	62054994	63734241	1728557	1713434	1713434	1713434	1713434	1713434	0	0	0.864/864	SUCCESS	1316265 2025-03-20 11:11:43	2025-03-20 11:19:40	2025-03-20 11:19:40	2025-03-20 11:19:40	
37	pat_inhos_order	37	63713422	65511959	1728557	1711497	1711497	1711497	1711497	1711497	0	0	0.864/864	SUCCESS	133307 2025-03-20 11:11:43	2025-03-20 11:19:52	2025-03-20 11:19:52	2025-03-20 11:19:52	
38	pat_inhos_order	38	65511960	67240497	1728557	1721986	1721986	1721986	1721986	1721986	0	0	0.864/864	SUCCESS	110337 2025-03-20 11:11:43	2025-03-20 11:19:54	2025-03-20 11:19:54	2025-03-20 11:19:54	
39	pat_inhos_order	39	67240498	69596035	1728557	1722819	1722819	1722819	1722819	1722819	0	0	0.864/864	SUCCESS	114567 2025-03-20 11:11:43	2025-03-20 11:19:50	2025-03-20 11:19:50	2025-03-20 11:19:50	
40	pat_inhos_order	40	69596036	70697373	1728557	1698915	1698915	1698915	1698915	1698915	0	0	0.864/864	SUCCESS	119504 2025-03-20 11:11:43	2025-03-20 11:19:47	2025-03-20 11:19:47	2025-03-20 11:19:47	
41	pat_inhos_order	41	70697374	72426111	1728557	1713205	1713205	1713205	1713205	1713205	0	0	0.864/864	SUCCESS	107776 2025-03-20 11:11:43	2025-03-20 11:19:51	2025-03-20 11:19:51	2025-03-20 11:19:51	
42	pat_inhos_order	42	72426112	74134511	1728557	1727943	1727943	1727943	1727943	1727943	0	0	0.864/864	SUCCESS	117445 2025-03-20 11:11:43	2025-03-20 11:19:54	2025-03-20 11:19:54	2025-03-20 11:19:54	
43	pat_inhos_order	43	74134510	7583157	1728557	1727943	1727943	1727943	1727943	1727943	0	0	0.864/864	SUCCESS	99400 2025-03-20 11:11:43	2025-03-20 11:19:50	2025-03-20 11:19:50	2025-03-20 11:19:50	
44	pat_inhos_order	44	75831579	77611725	1728557	1727342	1727342	1727342	1727342										

最终target中的数据必须以
source数据为准



```
start_id = 1556054
end_id = 3284563
step = end_id - start_id = 1728509

source_cnt = 443299
target_cnt = 443299

443299 (same_cnt) + 0 (insert_cnt) = source_cnt
443299 (same_cnt) + 0 (delete_cnt) = target_cnt

progress = step / ${task-sub-handler-query-limit} = 1728509/2000
```

查询监控

地址: <http://10.2.3.160:3000>

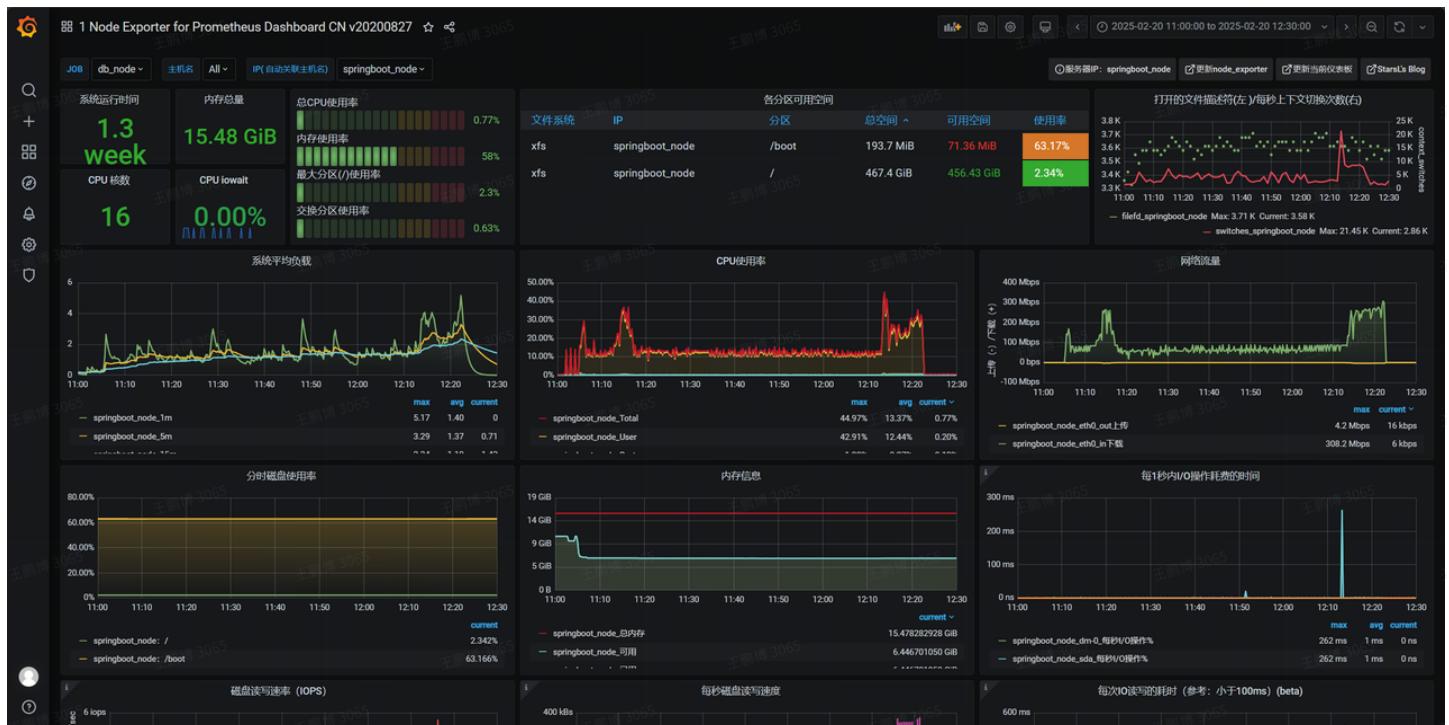
用户名: admin

密码: Lachesis-mh_1024

数据库-10.2.3.160



业务&迁移程序-10.2.3.158



数据重置

在院表数据情况

这里以清空pat_inhos_order_group对应的在院表数据为例~

MySQL Client

这里以清空pat_inhos_order_group对应的在院表数据为例~

```
1 use windranger_emr;
2 select count(*) from pat_inhos_order_group_in;
3 truncate table pat_inhos_order_group_in;
```

出院表数据清空

这里以清空pat_inhos_order_group对应的出院表数据为例~

MySQL Client

这里以清空pat_inhos_order_group对应的出院表数据为例~

找到所有是pat_inhos_order_group_out_为前缀的表，进行drop操作。

迁移程序

还没开发，如有需要再做开发~

Sharding-Proxy

这里以清空pat_inhos_order_group对应的出院表数据为例~

前提：需要部署Sharding-Proxy，这里因为需要JVM环境，所以部署在10.2.3.158服务，**对应代理的数据库地址也是10.2.3.158，用户名:root，密码:root**

```
1 mysql> use windranger_emr;
2 Reading table information for completion of table and column names
3 You can turn off this feature to get a quicker startup with -A
4
5 Database changed
6 mysql> select count(*) from pat_inhos_order_group_out;
7 +-----+
8 | count(*) |
9 +-----+
10 | 34881179 |
11 +-----+
12 1 row in set (2 min 24.43 sec)
13
14 mysql> truncate table pat_inhos_order_group_out;
15 Query OK, 0 rows affected (10.94 sec)
16
17 mysql> select count(*) from pat_inhos_order_group_out;
18 +-----+
19 | count(*) |
20 +-----+
21 |      0 |
22 +-----+
23 1 row in set (0.02 sec)
24
25 mysql>
```