

# 金融行业数据库架构变迁

**2016年11月2日星期三**

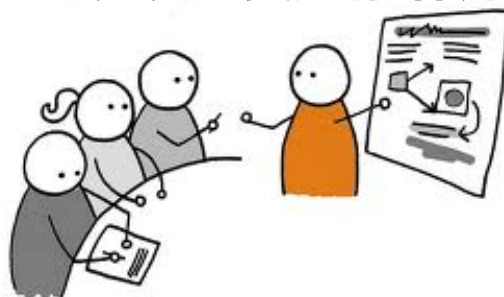
# What a DBA ?



## 优化网站数据库



## 对开发人员进行培训



## 网站架构调整

主数据中心



## 数据库硬件性能压力测试



## 自动化数字化运维平台



## 数据库安全



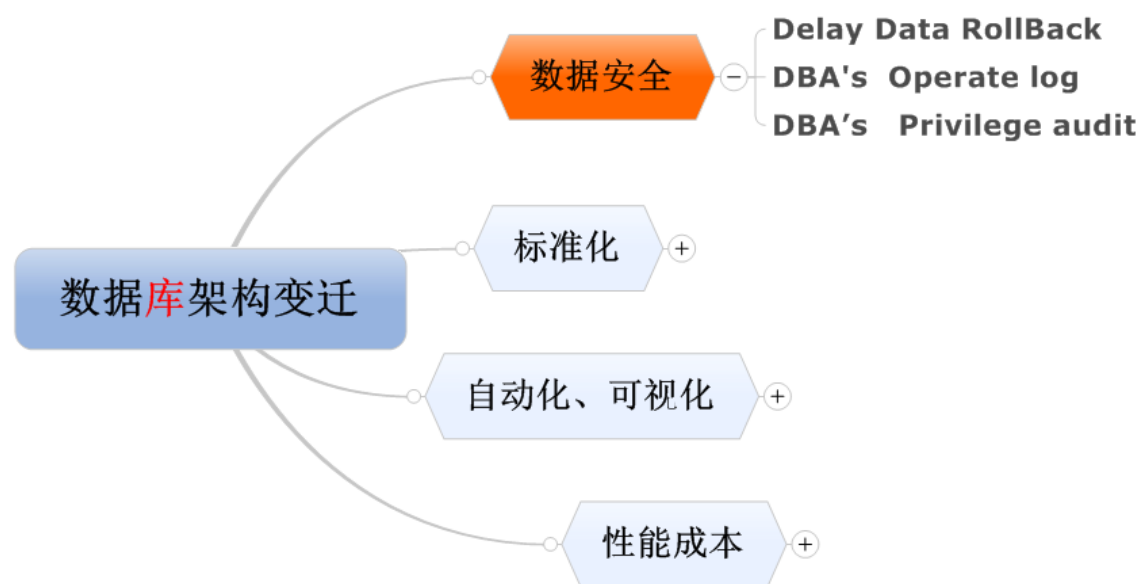
# What a DBA ?



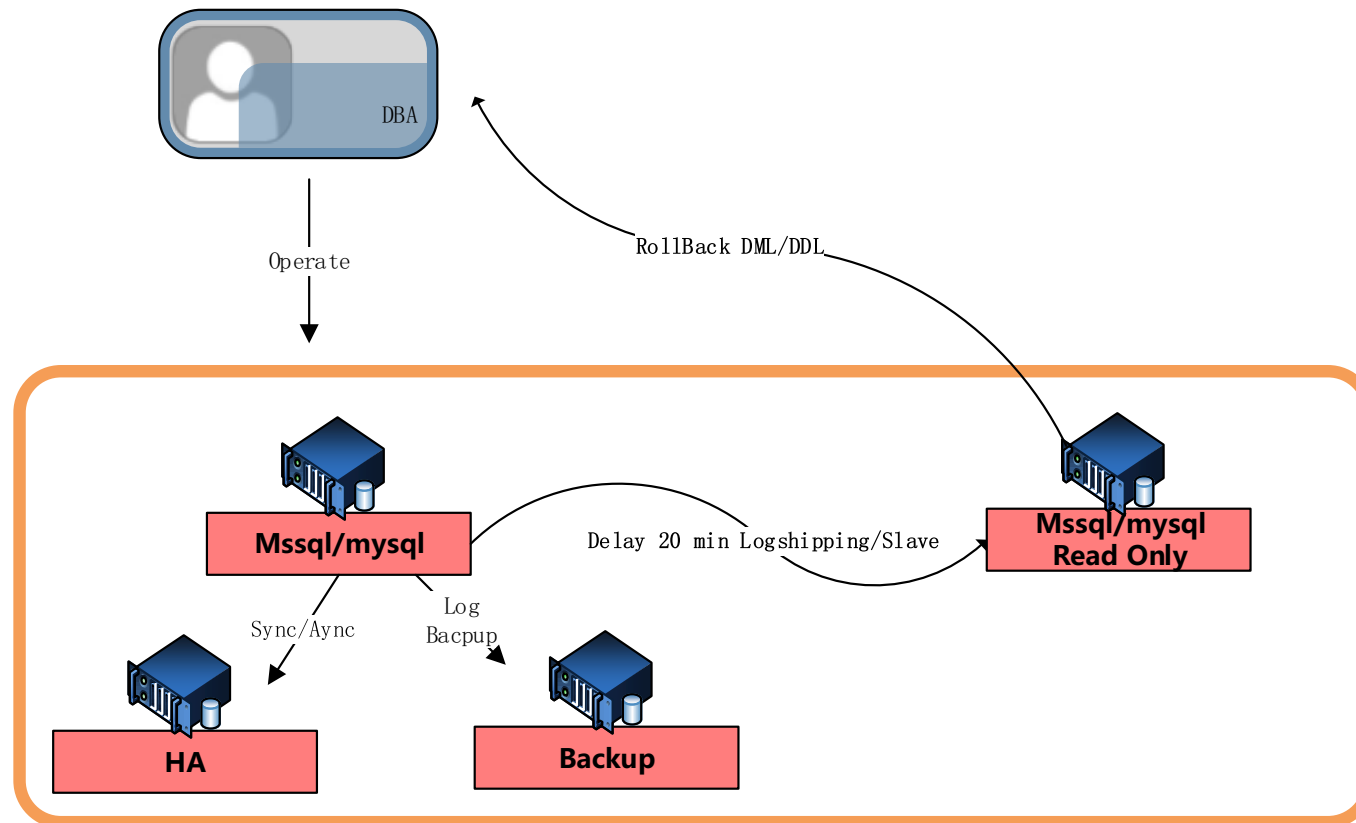
归纳为：

- 数据安全
- 标准化
- 自动化可视化
- 性能成本

# 数据安全



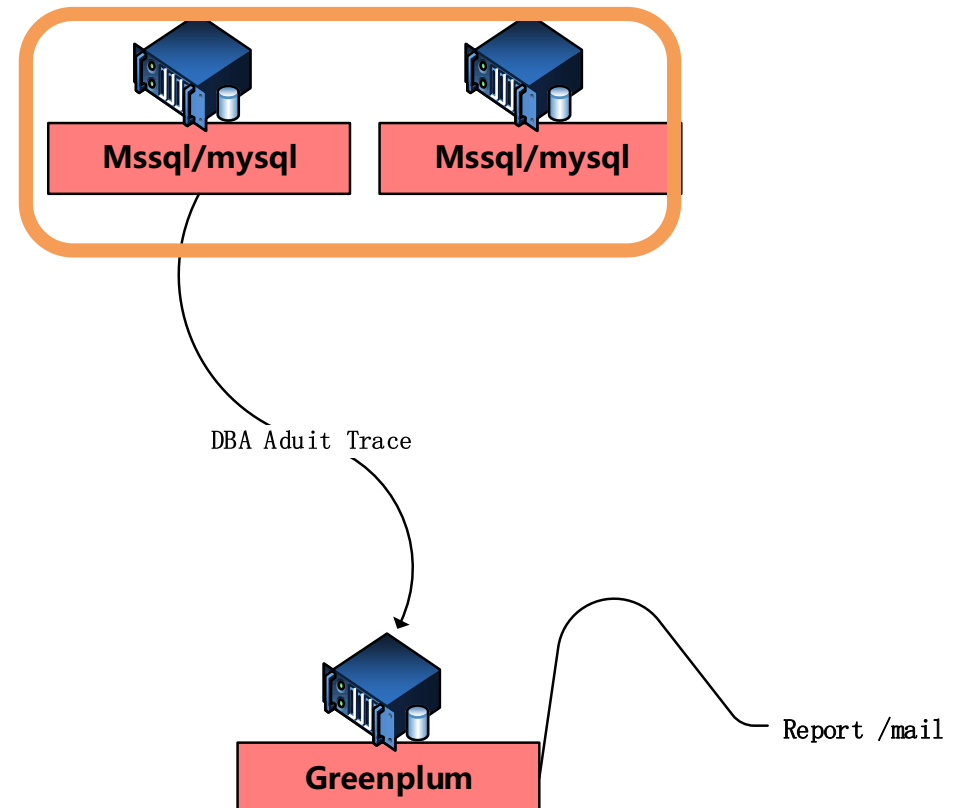
# Delay Data RollBack



# DBA's Operate Log



- 记录DBA操作，提供审计功能
- 支持 BI 血缘系统
- 特殊操作分类提醒



# DBA's Operate Log



## SQLServerDBABehaviorMonitor

WindowsIP:172.17.10.65 ServerName:172.17.10.65 TotalSum:85

WindowsIP:172.17.10.65 ServerName:172.17.10.65\_2433 LoginName:DBA\_dragon DateScope:20161009 - 20161009 TotalSum:85

| Trace Date | Data Base Name | Client Host Name | Application Name                       | Text Data   | Start Time         | End Time           |
|------------|----------------|------------------|--|---|--------------------|--------------------|
| 20161009   | DBCenter       | DB040DL360       | Microsoft SQL Server Management Studio | SELECT (@@microsoftversion / 0x1000000) & 0xff AS [VersionMajor], (@@microsoftversion / 0x10000) & 0xff AS [VersionMinor], @@microsoftversion & 0xffff AS [BuildNumber] | 2016/10/9 10:28:40 | 2016/10/9 10:28:40 |
| 20161009   | DBCenter       | DB040DL360       | Microsoft SQL Server Management Studio | SELECT dtb.name AS [Name] FROM master.sys.databases AS dtb ORDER BY [Name] ASC  | 2016/10/9 10:28:10 | 2016/10/9 10:28:10 |
| 20161009   | DBCenter       | DB040DL360       | Microsoft SQL Server Management Studio | SELECT dtb.name AS [Name] FROM master.sys.databases AS dtb ORDER BY [Name] ASC  | 2016/10/9 10:28:10 | 2016/10/9 10:28:10 |
| 20161009   | DBCenter       | DB040DL360       | Microsoft SQL Server Management Studio | SELECT dtb.name AS [Name] FROM master.sys.databases AS dtb ORDER BY [Name] ASC  | 2016/10/9 10:28:39 | 2016/10/9 10:28:39 |

# DBA's Operate Log



2016/10/10 (周一) 18:02  
dbmonitor@pppdan.com  
ServerMssqlAudit\_Alert:172.17.10.76:1433  
附件: [REDACTED]  
该邮件的重要性为: 高。

| EventType    | PostTime            | DataBaseName    | ObjectName       | LoginName   | OWNER       | Manager |
|--------------|---------------------|-----------------|------------------|-------------|-------------|---------|
| CREATE_TABLE | 2016-10-09 16:57:21 | ppdai_pay_trade | BatchOperationDB | DBA_hazhius | QiaoHongbao | YiQing  |

**CommandText**  
CREATE TABLE [dbo].[BatchOperation] ( [BatchOperationID] [bigint] IDENTITY(1,1) NOT NULL, [IsActive] [bit] NOT NULL DEFAULT ((1)), [InsertTime] [datetime] NOT NULL DEFAULT (getdate()), [UpdateTime] [datetime] NOT NULL DEFAULT (getdate()), CONSTRAINT [PK\_BatchOperation] PRIMARY KEY CLUSTERED ( [BatchOperationID] ASC ) WITH (PAD\_INDEX = OFF, STATISTICS\_NORECOMPUTE = OFF, IGNORE\_DUP\_KEY = OFF, ALLOW\_ROW\_LOCKS = ON, ALLOW\_PAGE\_LOCKS = ON) ON [PRIMARY] ) ON [PRIMARY] /\*# Owner: QiaoHongbao; Manager: YiQing \*/

| EventType    | PostTime            | DataBaseName    | ObjectName             | LoginName   | OWNER       | Manager |
|--------------|---------------------|-----------------|------------------------|-------------|-------------|---------|
| CREATE_TABLE | 2016-10-09 16:57:21 | ppdai_pay_trade | BatchOperationDetailDB | DBA_hazhius | QiaoHongbao | YiQing  |

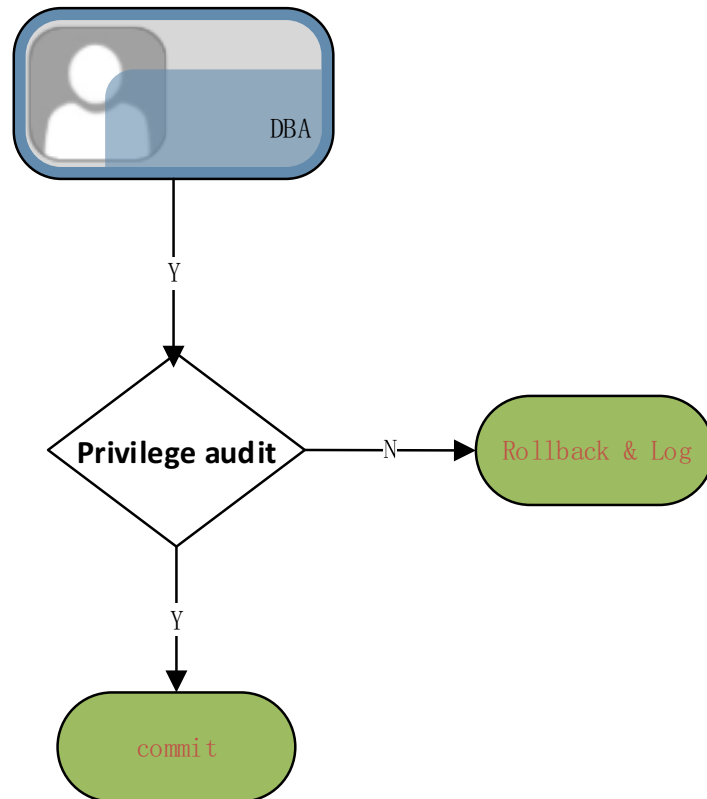
**CommandText**  
CREATE TABLE [dbo].[BatchOperationDetail] ( [BatchOperationDetailID] [bigint] IDENTITY(1,1) NOT NULL, [OperationBatchID] [bigint] NOT NULL, [TradeID] [bigint] NOT NULL, [OperateType] [int] NOT NULL, [Status] [int] NOT NULL DEFAULT ((0)), [IsActive] [bit] NOT NULL DEFAULT ((1)), [InsertTime] [datetime] NOT NULL DEFAULT (getdate()), [UpdateTime] [datetime] NOT NULL DEFAULT (getdate()), CONSTRAINT [PK\_BatchOperationDetail] PRIMARY KEY CLUSTERED ( [BatchOperationDetailID] ASC ) WITH (PAD\_INDEX = OFF, STATISTICS\_NORECOMPUTE = OFF, IGNORE\_DUP\_KEY = OFF, ALLOW\_ROW\_LOCKS = ON, ALLOW\_PAGE\_LOCKS = ON) ON [PRIMARY] ) ON [PRIMARY] /\*# Owner: QiaoHongbao; Manager: YiQing \*/

| EventType    | PostTime            | DataBaseName    | ObjectName       | LoginName   | OWNER       | Manager |
|--------------|---------------------|-----------------|------------------|-------------|-------------|---------|
| CREATE_TABLE | 2016-10-09 16:57:22 | ppdai_pay_trade | LoanOperationLog | DBA_hazhius | QiaoHongbao | YiQing  |

**CommandText**  
CREATE TABLE [dbo].[LoanOperationLog] ( [LogID] [bigint] IDENTITY(1,1) NOT NULL, [TradeID] [bigint] NOT NULL, [OperateType] [int] NOT NULL, [CommandJSON] [nvarchar](max) NOT NULL, [NotifyChannelBatch] [nvarchar](64) NULL, [Creator] [nvarchar](64) NULL, [Modifier] [nvarchar](64) NULL, [IsActive] [bit] NOT NULL DEFAULT ((1)), [InsertTime] [datetime] NOT NULL DEFAULT (getdate()), [UpdateTime] [datetime] NOT NULL DEFAULT (getdate()), [OperationBatchID] [bigint] NOT NULL DEFAULT ((0)), [CallerDescriptor] [nvarchar](128) NULL, CONSTRAINT [PK\_LoanOperationLog] PRIMARY KEY CLUSTERED ( [LogID] ASC ) WITH (PAD\_INDEX = OFF, STATISTICS\_NORECOMPUTE = OFF, IGNORE\_DUP\_KEY = OFF, ALLOW\_ROW\_LOCKS = ON, ALLOW\_PAGE\_LOCKS = ON) ON [PRIMARY] ) ON [PRIMARY] TEXTIMAGE\_ON [PRIMARY] /\*# Owner: QiaoHongbao; Manager: YiQing \*/



# DBA's Privilege audit



## 审核规范示例：

- Create table 必须要有主键，主键长度 $\leq 20$ 字节，必须包含column comment、dev\_owner
- Drop table 必须先改名，再删除
- 字段中包含 varchar(max) nvarchar(max) Text、image 会提示
- 个人用户账号高频次登录失败会提示并禁用账号
- .....

# DBA's Privilege audit



SQLQuery7.s...jin (103))\*

SQLQuery5.s...jin (201))\*

SQLQuery4.s...ngjin (84))\*

EventData.xml

SQL

drop table dbo.bankcitys

消息

(1 行受影响)  
消息 50000, 级别 16, 状态 2, 第 1 行  
事务在触发器中结束。批处理已中止。

SQLQuery8.s...jin (110))\*

SQLQuery7.s...jin (103))\*

SQLQuery5.s...jin (201))\*

SQLQuery4.s...ngjin (84))\*

EventData.xml

SQLQuery3.s...ngjin (80))\*

USE [ppdai\_Deposit\_Repl]  
GO  
  
/\*\*\*\*\* Object: Table [dbo].[bankcitys] Script Date: 10/11/2016 02:24:23 \*\*\*\*\*/  
SET ANSI\_NULLS ON  
GO  
  
SET QUOTED\_IDENTIFIER ON  
GO  
  
CREATE TABLE [dbo].[bankcityssys] (  
[BankCityId] [int] IDENTITY(1,1) NOT FOR REPLICATION NOT NULL,  
[CityName] [nvarchar] (20) NOT NULL,  
[ProvinceId] [int] NOT NULL,  
CONSTRAINT [PK\_aaaBankCitys] PRIMARY KEY CLUSTERED  
(  
[BankCityId] ASC  
) WITH (PAD\_INDEX = OFF, STATISTICS\_NORECOMPUTE = OFF, IGNORE\_DUP\_KEY = OFF, ALLOW\_ROW\_LOCKS = ON, ALLOW\_PAGE\_LOCKS = ON) ON [PRIMARY]  
) ON [PRIMARY]  
GO

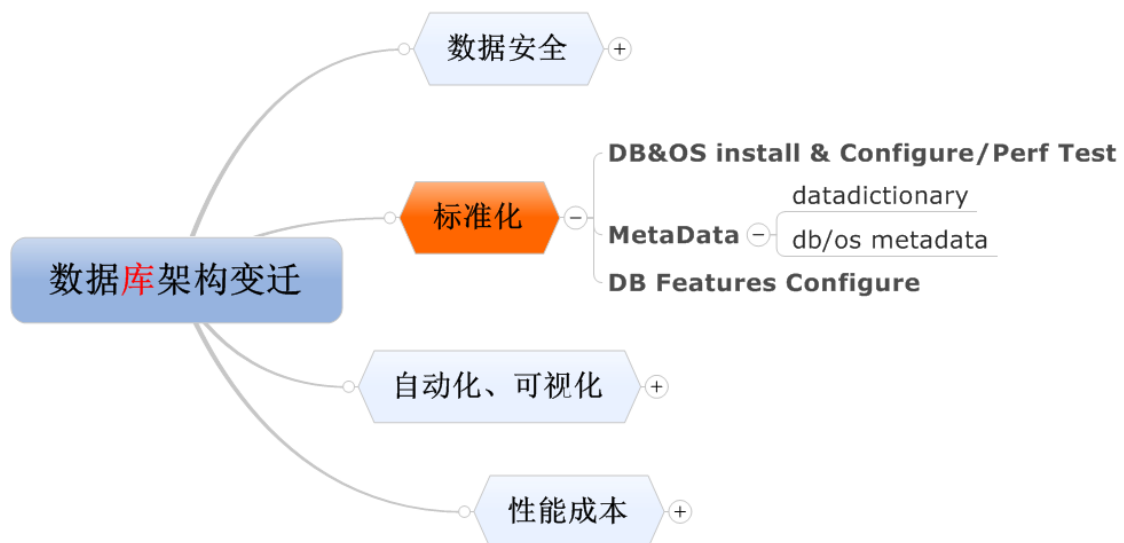
消息

Create table: bankcityssys Please indicate the Owners and Manager of this table!  
消息 50000, 级别 16, 状态 2, 第 2 行  
事务在触发器中结束。批处理已中止。

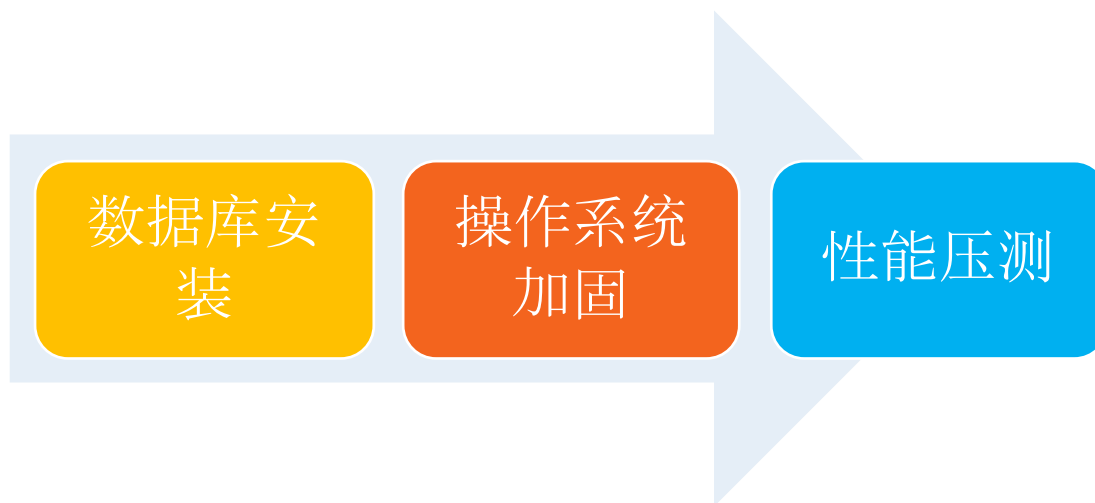
DBCenter\_SqlLogAlert (DateTime:2016-10-11 02:30:24)

| SERVENAME  | logtype   | LogDate                 | ProcessInfo | Text   | Time                |
|------------|-----------|-------------------------|-------------|--|---------------------|
| DB044DL580 | sqlserver | 2016-10-11T02:03:27.650 | 登录          | 错误: 18456, 严重性: 14, 状态: 38。  | 2016-10-11 02:30:24 |
| DB044DL580 | sqlserver | 2016-10-11T02:03:27.650 | 登录          | Login failed for user 'dba_kettle'. 原因: 无法打开明确指定的数据库。 [客户端: <local machine>]                       | 2016-10-11 02:30:24 |
| DB044DL580 | sqlserver | 2016-10-11T02:11:38.060 | spid124     | ppdai_RiskLevelInfo.Sql_RiskLevel_AllExecute failed: 对象名 'ppdai_Deposit_Repl.dbo.BankAccounts' 无效。 | 2016-10-11 02:30:24 |

# 标准化



# DB&OS Install &Configure/Per Test



- 数据库一键安装
  - Mysql
  - Mssql
- 操作系统加固
  - Linux
  - Windows
- 性能压测
  - Mysql
    - Sysbench
    - mysqlslap
  - Mssql
    - Sqlio
    - Ostress
    - Sqlsim
    - Diskspd

# DB&OS Install &Configure/Per Test



|                    |                  |                    |        |
|--------------------|------------------|--------------------|--------|
| sqlIO_Result       | 2015/12/4 19:35  | 文件夹                |        |
| EULA.rtf           | 2004/1/21 17:12  | RTF 文件             | 35 KB  |
| param.txt          | 2015/12/4 19:27  | TXT 文件             | 1 KB   |
| readme.txt         | 2003/11/10 10:17 | TXT 文件             | 23 KB  |
| ResultAnalysis.ps1 | 2015/12/4 8:05   | PS1 文件             | 4 KB   |
| sqlio.exe          | 2001/10/19 16:03 | 应用程序               | 176 KB |
| SQIO.ps1           | 2015/12/4 19:25  | PS1 文件             | 12 KB  |
| SQIO_cmd.bat       | 2015/12/4 8:31   | Windows 批处理...     | 1 KB   |
| Sqlio工具说明.doc      | 2015/8/27 17:50  | Microsoft Word ... | 18 KB  |

具体测试步骤:

1. 打开 SQIO.PS1 文档, 可更改具体压测的参数  
压测时间, 压测的文件大小, 压测的 IO 块大小以及 **不需压测的盘**

```
## 指定线程的数量, 最大值 256
$T_Count = 2
## 指定测试执行时间, 单位: 秒
$S_Count = 3600
## 指定未处理 I/O 请求数量, 也就是请求 Queue 的深度
$Q_Count = 1
## 初始化文件大小, 单位MB
$F_Size = 20480
## 指定 I/O 请求块的大小, 单位 KBytes
$B_Count = "64", "32", "16", "8", "4"
|
##制定TestFile文件路径
$DeviceID=Get-Wmi -class Win32_LogicalDisk | Where {$_.DriveType -eq 3 -and @('C:', 'D:') -notco
$Drive=@()
```



SqlioSim.rar 中包含 4 个文件

右击 sqliosim\_cmd.bat

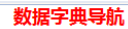
生成文件 errorlog、simlog.xml(压测报告)、sqliosim.ini(压测配置)

| 名称               | 修改日期             | 类型             | 大小     |
|------------------|------------------|----------------|--------|
| SQIOSIM.COM      | 2010/4/3 0:12    | MS-DOS 应用程序    | 245 KB |
| SQIOSIM.EXE      | 2010/4/3 19:00   | 应用程序           | 837 KB |
| Sqliosim.ps1     | 2015/11/20 13:51 | PS1 文件         | 2 KB   |
| sqliosim_cmd.bat | 2015/11/20 13:50 | Windows 批处理... | 1 KB   |

|                  |                  |                   |        |
|------------------|------------------|-------------------|--------|
| SQIOSIM.EXE      | 2010/4/3 19:00   | 应用程序              | 837 KB |
| sqliosim.ini     | 2015/11/20 13:55 | 配置设置              | 4 KB   |
| Sqliosim.ps1     | 2015/11/20 13:51 | Windows PowerS... | 2 KB   |
| sqliosim_cmd.bat | 2015/11/20 13:50 | Windows 批处理...    | 1 KB   |

| 名称               | 修改日期             | 类型                | 大小     |
|------------------|------------------|-------------------|--------|
| ErrorLog.xml     | 2015/11/20 13:55 | XSLT 文件           | 4 KB   |
| simlog.xml       | 2015/11/20 13:57 | XML 文档            | 52 KB  |
| SQIOSIM.COM      | 2010/4/3 0:12    | MS-DOS 应用程序       | 245 KB |
| SQIOSIM.EXE      | 2010/4/3 19:00   | 应用程序              | 837 KB |
| sqliosim.ini     | 2015/11/20 13:55 | 配置设置              | 4 KB   |
| Sqliosim.ps1     | 2015/11/20 13:51 | Windows PowerS... | 2 KB   |
| sqliosim_cmd.bat | 2015/11/20 13:50 | Windows 批处理...    | 1 KB   |

A diagram illustrating a star schema. In the center is a red cylinder representing a fact table. Four lines radiate from this central cylinder to four surrounding cylinders representing dimension tables: a yellow cylinder at the top-left, a green cylinder at the top-right, an orange cylinder at the bottom-left, and a blue cylinder at the bottom-right.



拍拍贷

征信

MySQL数据字典

财富

拍拍贷

14-31

# Meta Data-Datadictionary



## MSSQL Data Dictionary

WindowsIP : 172.17.0.1 数据库IP : 172.17.0.1

记录条数 : 5157 占用空间 : 0.19MB 所属人 : 业务负责人 :

| 数据库名称 | 架构名称 | 表名称           | 表描述         | 创建时间       | 字段序号 | 字段名称           | 字段描述         | 数据类型 | 默认值   | 是否允许为空 | 是否自增列 | 是否主键列 |
|-------|------|---------------|-------------|------------|------|----------------|--------------|------|-------|--------|-------|-------|
| prod  | dbo  | MessageGroup  | 消息群发用户对应关系表 | 2015-11-19 | 1    | MessageGroupId |              | int  |       | 0      | 1     | 1     |
| prod  | dbo  | MessageText   | 消息群发用户对应关系表 | 2015-11-19 | 2    | MessageTextId  | 消息文本ID       | int  | ((0)) | 0      | 0     | 0     |
| prod  | dbo  | MessageGroups | 消息群发用户对应关系表 | 2015-11-19 | 3    | UserIds        | 用户ID列表 用逗号分隔 | text | ('')  | 0      | 0     | 0     |

## MySQL Data Dictionary

LinuxIP : 172.17.0.1 数据库IP : 172.17.0.1

记录条数 : 6 占用空间 : 15

| 表类型 | 数据库名称 | 表名称               | 表描述  | 创建时间       | 字段序号 | 字段名称              | 字段描述                         | 数据类型        | 默认值               | 是否允许为空 | 是否自增列 | 是否主键列 |
|-----|-------|-------------------|------|------------|------|-------------------|------------------------------|-------------|-------------------|--------|-------|-------|
| def | aa    | aa_acctd_n        | 账户属性 | 2016-09-26 | 1    | AA_ACCTID_N       | 账户编号                         | bigint(20)  |                   | 0      | 0     | 1     |
| def | aa    | aa_user_id        | 账户属性 | 2016-09-26 | 2    | AA_USER_ID        | 用户ID                         | bigint(20)  |                   | 1      | 0     | 0     |
| def | aa    | aa_alias_name_v   | 账户属性 | 2016-09-26 | 3    | AA_ALIAS_NAME_V   | 账户名                          | varchar(64) |                   | 1      | 0     | 0     |
| def | aa    | aa_status_n       | 账户属性 | 2016-09-26 | 4    | AA_STATUS_N       | 账户状态 (0表示正常, 1冻结, 2注销)       | char(2)     |                   | 1      | 0     | 0     |
| def | aa    | aa_version_n      | 账户属性 | 2016-09-26 | 5    | AA_VERSION_N      | 版本号                          | bigint(10)  | 0                 | 1      | 0     | 0     |
| def | aa    | aa_accting_type_c | 账户属性 | 2016-09-26 | 6    | AA_ACCTING_TYPE_C | 会计科目类型0: 负债; 1: 资产; 2: 所有者权益 | char(1)     | 0                 | 0      | 0     | 0     |
| def | aa    | aa_positive_c     | 账户属性 | 2016-09-26 | 7    | AA_POSITIVE_C     | 0不允许为负; 1允许为负                | char(1)     | 0                 | 1      | 0     | 0     |
| def | aa    | aa_insert_time    | 账户属性 | 2016-09-26 | 8    | inserttime        |                              | timestamp   | CURRENT_TIMESTAMP | 0      | 0     | 0     |
| def | aa    | aa_update_time    | 账户属性 | 2016-09-26 | 9    | update_time       |                              | timestamp   | CURRENT_TIMESTAMP | 0      | 0     | 0     |
| def | aa    | aa_is_active      | 账户属性 | 2016-09-26 | 10   | is_active         |                              | tinyint(4)  | 1                 | 0      | 0     | 0     |

# Meta Data-DB/OS Meta Data



## Windows MetaData

Domain Name

WORKGROUP

Windows IP

172.17.0.2

Server Manu Facturer

HP

Server Model

ProLiant DL360 Gen9

ServerSystemName

Windows Server 2008 R2 Enterp

Server Hyper Thread

Enabled

WindowsServerInfoReport

DomainName:WORKGROUP

HostIP:172.17.0.2

HostName:DB016DL360Manufacturer:HPModel:ProLiant DL360 Gen9CDDriver:SystemType: x64-based PC

SystemName: Windows Server 2008 R2 EnterpriseHyperTread:EnabledDiskSizeInfo

Memot:28GB

CpuInfo: Intel(R) Xeon(R) CPU E5-2630 v3 @ 2.40GHz;Caption=Intel64 Family 6 Model 63 Stepping 2;L2CacheSize=L3CacheSize=4096

LogicalProcessor:32

Processor:2

NetWorkInfo:

| IP                                     | SubNetMask       | DNSServer                    | Gateway     | MacAddress        | Is DHCP | IPEnabl ed | Description                         |
|--|------------------|------------------------------|-------------|-------------------|---------|------------|-------------------------------------|
| 172.17.0.2<br>fe80::e5da7bcb:5008:9b5  | 255.255.255.0 64 |                              |             | 3C:A8:2A:12:EB:4C | False   | True       | HP Ethernet 1Gb 4-port 331i Adapter |
| 172.17.0.1<br>fe80::6044:7fb:c8c6:d35a | 255.255.255.0 64 | 172.17.8.201<br>172.17.8.202 | 172.17.10.1 | 3C:A8:2A:12:EB:4D | False   | True       | HP 网络团队 #1                          |

DiskInfo:

| HostIfname | Device | File System | Size    | Device ID          | diskmodel                          | PNPDevice ID  | Interface Type | Partition Size | Partition ID            | Firmware Revision | Disk Manufacturer |
|------------|--------|-------------|---------|--------------------|------------------------------------|---|----------------|----------------|-------------------------|-------------------|-------------------|
| DB016DL360 | C:     | NTFS        | 111(GB) | \\.\PHYSICALDRIVE0 | HP LOGICAL VOLUME SCSI Disk Device | SCSI\DISK&VEN_HP&PROD_LOGICAL_VOLUME\5&3E383EF808000100 | SCSI           | 112(GB)        | "Disk #0, Partition #2" | 2.52              | (标准磁盘驱动器)         |
| DB016DL360 | D:     | NTFS        | 150(GB) | \\.\PHYSICALDRIVE1 | HP LOGICAL VOLUME SCSI Disk Device | SCSI\DISK&VEN_HP&PROD_LOGICAL_VOLUME\5&3E383EF808000101 | SCSI           | 1677(GB)       | "Disk #1, Partition #0" | 2.52              | (标准磁盘驱动器)         |
| DB016DL360 | E:     | NTFS        | 800(GB) | \\.\PHYSICALDRIVE1 | HP LOGICAL VOLUME SCSI Disk Device | SCSI\DISK&VEN_HP&PROD_LOGICAL_VOLUME\5&3E383EF808000101 | SCSI           | 1677(GB)       | "Disk #1, Partition #1" | 2.52              | (标准磁盘驱动器)         |
| DB016DL360 | F:     | NTFS        | 727(GB) | \\.\PHYSICALDRIVE1 | HP LOGICAL VOLUME SCSI Disk Device | SCSI\DISK&VEN_HP&PROD_LOGICAL_VOLUME\5&3E383EF808000101 | SCSI           | 1677(GB)       | "Disk #1, Partition #2" | 2.52              | (标准磁盘驱动器)         |



# Meta Data-DB/OS Meta Data



## Linux MetaData

### LinuxServerInfoReport

LinuxIP:172.17.1.1 Port:22 HostName:DB01\_linux\_001DL360  
Kernel:Linux DB01\_linux\_001DL360 2.6.32-573.el6.x86\_64  
Release:CentOS release 6.7 (Final) SysBit:64  
Physical\_Cpus:2 Logical\_Cpus:40 Physical\_Memory(GB):125.91

#### CrontabInfo:

| CrontabInfo   |   |
|---------------|---|
| 0 */1 * * * * | /usr/sbin/ntpddate ntp1.ops.ppdiaicorp.com > /dev/null 2>&1 |
| */1 * * * *   | /home/perfmonscript/perfmon.sh                              |
| 0 0 * * *     | /opt/script/dbmon_client/dbmon_client slowlog               |
| 0 2 * * *     | /data/archdata_backup/purgedata.sh                          |
| 0 1 * * 2,4,6 | /data/archdata_backup/archdata.sh                           |

#### CPUInfo:

| CPU Type | Physical CPUs | Logical CPUs |
|----------|---------------|--------------|
|          |               |              |

#### MemoryInfo:

| Mem Total(GB) | Mem Free(GB) | Buffers(GB) | Swap Total(GB) | Swap Free(GB) |
|---------------|--------------|-------------|----------------|---------------|
| 125.91        | 17.14        | 0.42        | 64.00          | 64.00         |

#### NetWorkInfo:

| EthName | IPAddress  | HWaddr            | Bcast          | Mask          | Is AD | SpeedMode  | Product |
|---------|------------|-------------------|----------------|---------------|-------|--|---------|
| bond0   | 172.17.1.1 | 5C:B9:01:96:C7:99 | 172.17.10.255  | 255.255.255.0 | False | bond0: link status definitely up for interface eth1, 1000 Mbps full duplex |         |
| bond0:1 | 172.17.1.1 | 5C:B9:01:96:C7:99 | 172.17.255.255 | 255.255.0.0   | False |  |         |
| eth0    | 172.17.1.1 | 5C:B9:01:96:C7:98 | 172.17.11.255  | 255.255.255.0 | False | eth0: igb: eth0 NICLink is Up 1000 Mbps Full Duplex, Flow Control: RX      |         |

#### Disk Info:

| File System | Size(GB) | Used(GB) | Free(GB) | UsedPercent(%) | MountOn   | File Type |
|-------------|----------|----------|----------|----------------|-----------|-----------|
| /dev/sda4   | 4.80     | 0.02     | 4.53     | 1              | /home     |           |
| /dev/sda1   | 0.20     | 0.00     | 0.20     | 1              | /boot/efi |           |
| /dev/sda5   | 756.46   | 7.10     | 710.92   | 1              | /         |           |
| /dev/sda2   | 0.47     | 0.06     | 0.39     | 13             | /boot     |           |
| tmpfs       | 62.96    | 0.00     | 62.96    | 0              | /dev/shm  | Swap      |
| /dev/sdb1   | 1,320.13 | 448.57   | 804.49   | 36             | /data     |           |

# Meta Data-DB/OS Meta Data



## MssqlServer MetaData

### SQLServerInfo

DomainName:WORKGROUP

SQLIP:172.17.10.29

DNSServerppd:172.17.10.29

WindowsIP:172.17.10.29

WindowsServerName:

IsClusterNo

SQLServerAnalysis

SQLServerDBSizeInfo

Info:

| Port                        | Server Collation  | Language        | SQLInstance | SQLStart Account | Max Connections   | RemoteQueryTimeOut | RemoteLoginTimeOut | EnableCmdShell | EnableAWE     | EnableCLR      | Enable RAC | EnableREPL    | MDP |
|-----------------------------|-------------------|-----------------|-------------|------------------|-------------------|--------------------|--------------------|----------------|---------------|----------------|------------|---------------|-----|
| 2433                        | Chinese_PRC_CI_AS | 繁体中文            | MSSQLSERVER | .\DBA_Monitor    | 0                 | 600                | 20                 | Yes            | No            | No             | No         | No            | 40  |
| Edition                     | Product Level     | Product Version | ALLDBSize   | SQLStart Days    | Physics Cpu Count | Logic Cpu Count    | Physics Memory     | SQLMax Memory  | SQLMin Memory | SQLCacheMemory | MaxWorkers | UserScheduler |     |
| Enterprise Edition (64-bit) | SP2               | 10.50.4000.0    | 270GB       | 215              | 4                 | 80                 | 127GB              | 108GB          | 0GB           | 108GB          | 2844       | 80            |     |

HotDBInfo:

| DBName | Dbid | DBSize    | db Owner | Collation         | level | state_desc | ColState | SubStats | PubStats | DiaStats | MinerStats | LogShipping Status |
|--------|------|-----------|----------|-------------------|-------|------------|----------|----------|----------|----------|------------|--------------------|
| tempdb | 7    | 11572MB   | sa       | Chinese_PRC_CI_AS | 100   | ONLINE     | Disabled | Disabled | Disabled | Disabled | Disabled   | Disabled           |
| master | 1    | 1780.19MB | sa       | Chinese_PRC_CI_AS | 100   | ONLINE     | Disabled | Disabled | Disabled | Disabled | Disabled   | Disabled           |

### SQLServerMirrorInfo

MasterDOMAIN:WORKGROUP

PartnerDOMAIN:WORKGROUP

MasterWinip:172.17.10.29

PartnerWinip:172.17.10.29

MasterSqlip:172.17.10.29

PartnerSqlip:172.17.10.29

MirrorInfo:

| MasterServer | MasterDBName      | MirrorState | FailOverCount | MirrorSafety | PartnerInfo             | WitnessName | WitnessState | ConTimeOutSec | MaxRedoQueue | MasterInfo              |
|--------------|-------------------|-------------|---------------|--------------|-------------------------|-------------|--------------|---------------|--------------|-------------------------|
| D8023DL580   | ppdai_institution | 已同步         | 1             | 异步安全         | TCP://172.17.10.23:5022 | 见证服务器不存在    | No Witness   | 10            | 不限制最大队列日志大小  | TCP://172.17.10.29:5022 |

MirrorEndPointInfo:

| MasterSqlip       | MasterMirrEPName   | MasterEPOwner | MasterCetAccount  | MasterCetName | MasterCetStart Date | MasterCetExpiry Date | PartnerSqlip      | PartnerMirrEPName  | PartnerEPOwner | PartnerCetAccount | PartnerCetName | PartnerCetStart Date | PartnerCetExpiry Date |
|-------------------|--------------------|---------------|-------------------|---------------|---------------------|----------------------|-------------------|--------------------|----------------|-------------------|----------------|----------------------|-----------------------|
| 172.17.10.29_2433 | Endpoint_Mirroring | DBA_dingqin   | Sql login account | MIR_29_cert   | 2008/1/27 0:00:00   | 2099/1/1 0:00:00     | 172.17.10.23_2433 | Endpoint_Mirroring | DBA_dingqin    | Sql login account | MIR_23_cert    | 2008/1/27 0:00:00    | 2099/1/1 0:00:00      |

Repl info:

### SQLServerReplInfo

PubWinip:172.17.10.29

DistWinip:172.17.10.29

SubWinip:172.17.10.29

PubSqlip:172.17.10.29

DistSqlip:172.17.10.29

SubSqlip:172.17.10.29

PubDB:ppdai\_fund

DistDB:DistDB01

SubDB:ppdai\_fund

ReplInfo:

| Publication                                   | DistReplAgent  | PublisherLogin | SubscriberLogin | ReadLogAgent             | PubStatus | SubStatus | SubType | SyncType  |
|---|--|----------------|-----------------|--------------------------|-----------|-----------|---------|-----------|
| Rp_ppdai_fund_D8015DL360_ppdai_Deposit_Rep_01 | D8023DL580-ppdai_fund-Rp_ppdai_fund_D8015DL-172.17.10.73.1493-30 | D80ys_Repl     | dbsys_repl      | D8023DL580-ppdai_fund-13 | trans     | 活动        | push    | automatic |

ReplArticles:

| Publication                                   | Article          |
|---|------------------|
| Rp_ppdai_fund_D8015DL360_ppdai_Deposit_Rep_01 | UserTreasureInfo |

172.17.10.29\_2433\_DatabaseMirroringEndPoints\_20161011

172.17.10.29\_2433\_jobs\_20161011

172.17.10.29\_2433\_jobs\_ExceptDBA\_20161011

172.17.10.29\_2433\_jobs\_False\_20161011

172.17.10.29\_2433\_jobs\_True\_20161011

172.17.10.29\_2433\_LinkServers\_20161011

172.17.10.29\_2433\_ServerDataBaseTriggers\_20161011

172.17.10.29\_2433\_SQLAlias\_20161011

172.17.10.29\_2433\_SQLLogin\_20161011

172.17.10.29\_2433\_20161006\_2\_SQL

172.17.10.29\_2433\_20161006\_Audit

172.17.10.29\_2433\_20161006\_CrossJoin

172.17.10.29\_2433\_20161006\_DeadLock

172.17.10.29\_2433\_20161006\_MSDB

# Meta Data-DB/OS Meta Data



## Mysql MetaData

### MysqlToInfo

#### Configure Info:

ServerName: 172.17.10.67 Port: 3403  
HostName: DB01\_linux\_005DL360 Version: 5.7.14-log  
InnoDB version: 5.7.14 Protocol version: 10  
Storage engine: License: GPL  
Log output: FILE System time zone: CST  
Sql mode: STRICT\_TRANS\_TABLES,NO\_ENGINE\_SUBSTITUTION

| autocommit | auto_increment_increment | auto_increment_offset | character_set_server | character_set_client | character_set_results | basedir    | datadir               | tmpdir               | innodb_data_home_dir | innodb_log_group_home_dir | binlog_format | innodb_file_format | slave_exec_mode |
|------------|--------------------------|-----------------------|----------------------|----------------------|-----------------------|------------|-----------------------|----------------------|----------------------|---------------------------|---------------|--------------------|-----------------|
| ON         | 1                        | 1                     | utf8                 | utf8                 | utf8                  | /opt/mysql | /data/mysql_3403/var/ | /data/mysql_3403/tmp | /data/mysql_3403/    | /data/mysql_3403/iblog    | ROW           | Barracuda          | STRICT          |
| ON         | 1                        | 1                     | utf8                 | utf8                 | utf8                  | /opt/mysql | /data/mysql_3403/var/ | /data/mysql_3403/tmp | /data/mysql_3403/    | /data/mysql_3403/iblog    | ROW           | Barracuda          | STRICT          |

#### User Info:

### MysqlUserInfo

ServerName: 172.17.10.67 Port: 3403

| User Info           | Grant For  |
|---------------------|--|
| root@localhost      | GRANT ALL PRIVILEGES ON *.* TO 'root@localhost' WITH GRANT OPTION; GRANT PROXY ON '@' TO 'root@localhost' WITH GRANT OPTION;                     |
| mysql.sys@localhost | GRANT USAGE ON *.* TO 'mysql.sys@localhost'; GRANT TRIGGER ON 'sys.*' TO 'mysql.sys@localhost'; GRANT SELECT ON 'sys.' TO 'mysql.sys@localhost'; |
| mysql.sys@localhost | GRANT PROCESS, REPLICATION SLAVE, REPLICATION CLIENT ON *.* TO 'mysql.sys@localhost'; GRANT SELECT ON 'mysql.' TO 'mysql.sys@localhost';         |
| mysql.sys@localhost | GRANT RELOAD ON *.* TO 'mysql.sys@localhost';  |
| mysql.sys@localhost | GRANT SELECT, RELOAD, FILE, SUPER, REPLICATION SLAVE, REPLICATION CLIENT ON *.* TO 'mysql.sys@localhost';  |
| mysql.sys@localhost | GRANT USAGE ON *.* TO 'appuser_risk'@'%' GRANT SELECT, INSERT, UPDATE, EXECUTE ON 'pddai_risk_control' TO 'appuser_risk'@'%';                    |
| mysql.sys@localhost | GRANT ALL PRIVILEGES ON *.* TO 'dba_xuwanjin'@'%' WITH GRANT OPTION;   |
| mysql.sys@localhost | GRANT ALL PRIVILEGES ON *.* TO 'dba_xuwanjin'@'%' WITH GRANT OPTION;   |
| mysql.sys@localhost | GRANT ALL PRIVILEGES ON *.* TO 'dba_monitor'@'%' WITH GRANT OPTION;  |

#### DB Info: Mysql Table Info

### MysqlDBInfo

ServerName: 172.17.10.67 Port: 3403

| schema name        | default character set | default collation | db size (GB) | path |
|--------------------|-----------------------|-------------------|--------------|------|
| information_schema | utf8                  | utf8_general_ci   | 0.0000       |      |
| mysql              | utf8                  | utf8_general_ci   | 0.0318       |      |

### MysqlAllConfigure Info

|                                 | 172.17.10.67:3403                            |
|---------------------------------|--|
| autocommit                      | ON   |
| auto_increment_increment        | 1  |
| auto_increment_offset           | 1  |
| back_log                        | 1000   |
| basedir                         | /opt/mysql                                   |
| binlog_cache_size               | 4194304                                      |
| binlog_format                   | ROW  |
| bulk_insert_buffer_size         | 8388608                                      |
| character_set_client            | utf8   |
| character_set_results           | utf8   |
| character_set_server            | utf8   |
| connect_timeout                 | 60   |
| datadir                         | /data/mysql_3403/var/                        |
| default_storage_engine          | InnoDB                                       |
| event_scheduler                 | OFF  |
| expire_logs_days                | 10   |
| general_log                     | OFF  |
| general_log_file                | /data/mysql_3403/var/DB01_linux_005DL360.log |
| have_query_cache                | YES  |
| hostname                        | DB01_linux_005DL360                          |
| innodb_adaptive_flushing        | ON   |
| innodb_adaptive_hash_index      | ON   |
| innodb_additional_mem_pool_size |  |
| innodb_autoextend_increment     | 64   |
| innodb_buffer_pool_instances    | 8  |
| innodb_buffer_pool_size         | 75161927680                                  |
| innodb_change_buffering         | all  |
| innodb_checksums                | ON   |
| innodb_commit_concurrency       | 0  |
| innodb_concurrency_tickets      | 5000   |
| innodb_data_file_path           | ibdata1:1000M:autoextend                     |
| innodb_data_home_dir            | /data/mysql_3403/iblog                       |
| innodb_doublewrite              | ON   |
| innodb_fast_shutdown            | 1  |
| innodb_file_format              | Barracuda                                    |
| innodb_file_per_table           | ON   |
| innodb_flush_log_at_trx_commit  | 1  |
| innodb_flush_method             | O_DIRECT                                     |
| innodb_force_recovery           | 0  |
| innodb_io_capacity              | 200  |
| innodb_locks_unsafe_for_binlog  | OFF  |
| innodb_lock_wait_timeout        | 120  |

# DB Features Configure



- **Mssql**
  - **Logshipping**
  - **Mirror**
  - **AlwaysOn**
  - **Cluster**
  - **SSB**
  - **CDC**
- **Mysql**
  - **MHA**

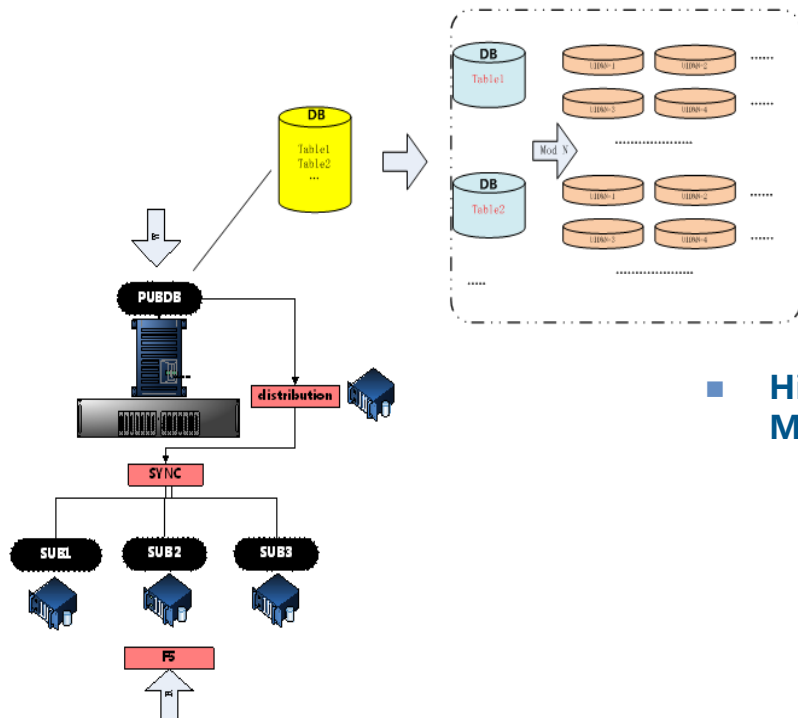


# DB Features Configure



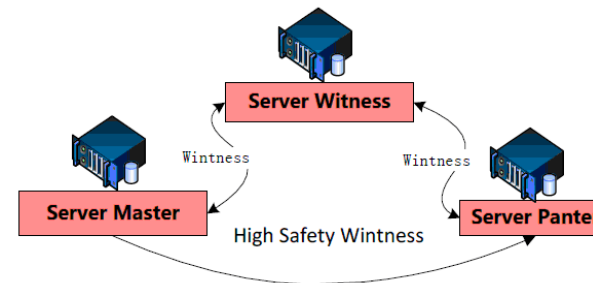
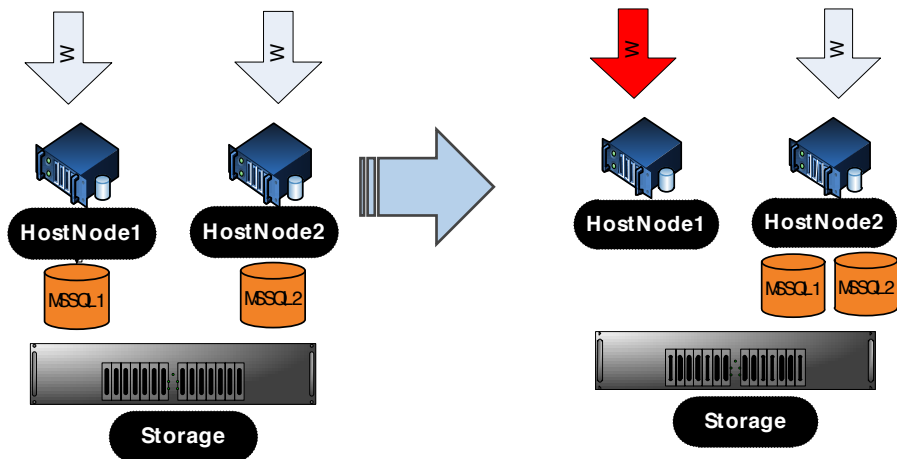
## Mssql

### ■ Load balance



### ■ High Safety Mirror

### ■ Cluster/Always on cluster

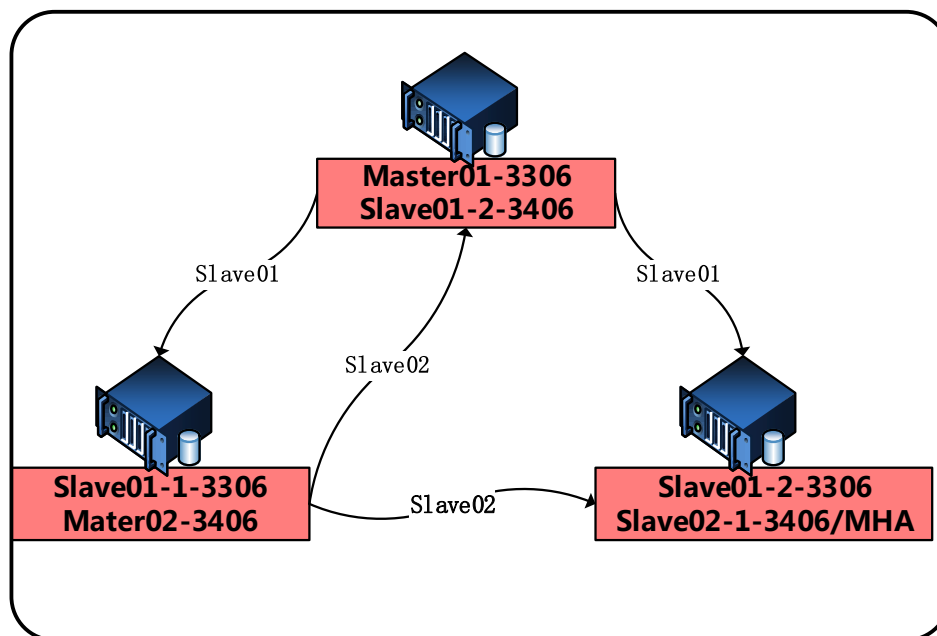


# DB Features Configure



*MySQL*

MHA/Slave



# 自动化可视化



## DB ServerInfoReport

RelatedURL Info : [DataDictionary](#) [TestServers Info](#) [ERP Server Info](#) [ILO DBPerformance](#) [Greenplum DBPerformance](#) [Oracle DBPerformance Info](#) [Kettle ETL Status](#) [Mysql Zabbix Monitor](#) [Mysql slowlog Monitor](#)

DBServer Count: Windows DBCount: MysqlDBCount:

Mysql Whole Info: [DB Backup Info](#)

Mysql Info:

| DomainInfo      | Is Domain | Windows IP | Is VM | SqServerIP | Cluster Name | WinServerInfo | DiskSizeInfo | SqServerInfo    | DBSizeInfo | SqBackupInfo    | ServerAnalysis     | WinPerfor | WinDiskPerfor | WinNetPerfor | SqPerfor | SqErrorLog | WinErrorLog | DeadLock Info   | Slow SQL | DBA Audit | Analysis Top10 | DiskQueue | Purchased Price | Online Years | Machine Use Type | Rate Of Depreciation |
|-----------------|-----------|------------|-------|------------|--------------|---------------|--------------|-----------------|------------|-----------------|--------------------|-----------|---------------|--------------|----------|------------|-------------|-----------------|----------|-----------|----------------|-----------|-----------------|--------------|------------------|----------------------|
| podaol.corp.com | IsDomain  |            |       |            |              | WinServerInfo | DiskSizeInfo | MysqlServerInfo | DBSizeInfo | MysqlBackupInfo | SQL ServerAnalysis | WinPerfor | WinDiskPerfor | WinNetPerfor | SqPerfor | SqErrorLog | WinErrorLog | SqlDeadLockInfo | SlowSQL  | DBAAudit  | AnalysisTop10  | DiskQueue | 58000           | 0.92年        | AB#              | 100%                 |
|                 |           |            |       |            |              | WinServerInfo | DiskSizeInfo | MysqlServerInfo | DBSizeInfo | MysqlBackupInfo | SQL ServerAnalysis | WinPerfor | WinDiskPerfor | WinNetPerfor | SqPerfor | SqErrorLog | WinErrorLog | SqlDeadLockInfo | SlowSQL  | DBAAudit  | AnalysisTop10  | DiskQueue | 2.80年           | C#           | 0%               |                      |
|                 |           |            |       |            |              | WinServerInfo | DiskSizeInfo | MysqlServerInfo | DBSizeInfo | MysqlBackupInfo | SQL ServerAnalysis | WinPerfor | WinDiskPerfor | WinNetPerfor | SqPerfor | SqErrorLog | WinErrorLog | SqlDeadLockInfo | SlowSQL  | DBAAudit  | AnalysisTop10  | DiskQueue | 67300           | 0.19年        | AB#              | 100%                 |
|                 |           |            |       |            |              | WinServerInfo | DiskSizeInfo | MysqlServerInfo | DBSizeInfo | MysqlBackupInfo | SQL ServerAnalysis | WinPerfor | WinDiskPerfor | WinNetPerfor | SqPerfor | SqErrorLog | WinErrorLog | SqlDeadLockInfo | SlowSQL  | DBAAudit  | AnalysisTop10  | DiskQueue | 58000           | 0.79年        | AB#              | 100%                 |
|                 |           |            |       |            |              | WinServerInfo | DiskSizeInfo | MysqlServerInfo | DBSizeInfo | MysqlBackupInfo | SQL ServerAnalysis | WinPerfor | WinDiskPerfor | WinNetPerfor | SqPerfor | SqErrorLog | WinErrorLog | SqlDeadLockInfo | SlowSQL  | DBAAudit  | AnalysisTop10  | DiskQueue | 2.80年           | C#           | 0%               |                      |
|                 |           |            |       |            |              | WinServerInfo | DiskSizeInfo | MysqlServerInfo | DBSizeInfo | MysqlBackupInfo | SQL ServerAnalysis | WinPerfor | WinDiskPerfor | WinNetPerfor | SqPerfor | SqErrorLog | WinErrorLog | SqlDeadLockInfo | SlowSQL  | DBAAudit  | AnalysisTop10  | DiskQueue | 2.80年           | C#           | 0%               |                      |

Mysql:

| LinuxIP | MysqlIP | IsVM | LinuxServerInfo                 | MysqlInfo                 | MysqlConfigure                 | MysqlConfigModify                 | MysqlDBSizeInfo                 | MysqlTableInfo                 | LinuxPerformance                 | LinuxDiskPerformance                 | MysqlDBPerformance                 | MysqlStatus                     | MysqlDeadLockInfo                 | Mysql Unuseful Index Info              | Mysql Error Log               | Linux Error Log               | mysqlbacku log                 |
|---------|---------|------|---------------------------------|---------------------------|--------------------------------|-----------------------------------|---------------------------------|--------------------------------|----------------------------------|--------------------------------------|------------------------------------|---------------------------------|-----------------------------------|--|-------------------------------|-------------------------------|--------------------------------|
|         |         | VM   | <a href="#">LinuxServerInfo</a> | <a href="#">MysqlInfo</a> | <a href="#">MysqlConfigure</a> | <a href="#">MysqlConfigModify</a> | <a href="#">MysqlDBSizeInfo</a> | <a href="#">MysqlTableInfo</a> | <a href="#">LinuxPerformance</a> | <a href="#">LinuxDiskPerformance</a> | <a href="#">MysqlDBPerformance</a> | <a href="#">MysqlStatusList</a> | <a href="#">MysqlDeadLockInfo</a> | <a href="#">MysqlUnusefulIndexInfo</a> | <a href="#">MysqlErrorLog</a> | <a href="#">LinuxErrorLog</a> | <a href="#">MysqlBackupLog</a> |
|         |         |      | <a href="#">LinuxServerInfo</a> | <a href="#">MysqlInfo</a> | <a href="#">MysqlConfigure</a> | <a href="#">MysqlConfigModify</a> | <a href="#">MysqlDBSizeInfo</a> | <a href="#">MysqlTableInfo</a> | <a href="#">LinuxPerformance</a> | <a href="#">LinuxDiskPerformance</a> | <a href="#">MysqlDBPerformance</a> | <a href="#">MysqlStatusList</a> | <a href="#">MysqlDeadLockInfo</a> | <a href="#">MysqlUnusefulIndexInfo</a> | <a href="#">MysqlErrorLog</a> | <a href="#">LinuxErrorLog</a> | <a href="#">MysqlBackupLog</a> |
|         |         |      | <a href="#">LinuxServerInfo</a> | <a href="#">MysqlInfo</a> | <a href="#">MysqlConfigure</a> | <a href="#">MysqlConfigModify</a> | <a href="#">MysqlDBSizeInfo</a> | <a href="#">MysqlTableInfo</a> | <a href="#">LinuxPerformance</a> | <a href="#">LinuxDiskPerformance</a> | <a href="#">MysqlDBPerformance</a> | <a href="#">MysqlStatusList</a> | <a href="#">MysqlDeadLockInfo</a> | <a href="#">MysqlUnusefulIndexInfo</a> | <a href="#">MysqlErrorLog</a> | <a href="#">LinuxErrorLog</a> | <a href="#">MysqlBackupLog</a> |
|         |         |      | <a href="#">LinuxServerInfo</a> | <a href="#">MysqlInfo</a> | <a href="#">MysqlConfigure</a> | <a href="#">MysqlConfigModify</a> | <a href="#">MysqlDBSizeInfo</a> | <a href="#">MysqlTableInfo</a> | <a href="#">LinuxPerformance</a> | <a href="#">LinuxDiskPerformance</a> | <a href="#">MysqlDBPerformance</a> | <a href="#">MysqlStatusList</a> | <a href="#">MysqlDeadLockInfo</a> | <a href="#">MysqlUnusefulIndexInfo</a> | <a href="#">MysqlErrorLog</a> | <a href="#">LinuxErrorLog</a> | <a href="#">MysqlBackupLog</a> |
|         |         |      | <a href="#">LinuxServerInfo</a> | <a href="#">MysqlInfo</a> | <a href="#">MysqlConfigure</a> | <a href="#">MysqlConfigModify</a> | <a href="#">MysqlDBSizeInfo</a> | <a href="#">MysqlTableInfo</a> | <a href="#">LinuxPerformance</a> | <a href="#">LinuxDiskPerformance</a> | <a href="#">MysqlDBPerformance</a> | <a href="#">MysqlStatusList</a> | <a href="#">MysqlDeadLockInfo</a> | <a href="#">MysqlUnusefulIndexInfo</a> | <a href="#">MysqlErrorLog</a> | <a href="#">LinuxErrorLog</a> | <a href="#">MysqlBackupLog</a> |
|         |         |      | <a href="#">LinuxServerInfo</a> | <a href="#">MysqlInfo</a> | <a href="#">MysqlConfigure</a> | <a href="#">MysqlConfigModify</a> | <a href="#">MysqlDBSizeInfo</a> | <a href="#">MysqlTableInfo</a> | <a href="#">LinuxPerformance</a> | <a href="#">LinuxDiskPerformance</a> | <a href="#">MysqlDBPerformance</a> | <a href="#">MysqlStatusList</a> | <a href="#">MysqlDeadLockInfo</a> | <a href="#">MysqlUnusefulIndexInfo</a> | <a href="#">MysqlErrorLog</a> | <a href="#">LinuxErrorLog</a> | <a href="#">MysqlBackupLog</a> |

MongoDB Info:

| MongoIP | MongoDBPerformance                 | MongoServerInfo                 | MongoPerformance                 | MongoDiskPerformance                 |
|---------|------------------------------------|---------------------------------|----------------------------------|--------------------------------------|
|         | <a href="#">MongoDBPerformance</a> | <a href="#">MongoServerInfo</a> | <a href="#">MongoPerformance</a> | <a href="#">MongoDiskPerformance</a> |

Business Line Info:

| Business Line | DBDiskSize                 | DBSumPerfor                 | DBAvgPerfor                 |
|---------------|----------------------------|-----------------------------|-----------------------------|
|               | <a href="#">DBDiskSize</a> | <a href="#">DBSumPerfor</a> | <a href="#">DBAvgPerfor</a> |
|               | <a href="#">DBDiskSize</a> | <a href="#">DBSumPerfor</a> | <a href="#">DBAvgPerfor</a> |
|               | <a href="#">DBDiskSize</a> | <a href="#">DBSumPerfor</a> | <a href="#">DBAvgPerfor</a> |
|               | <a href="#">DBDiskSize</a> | <a href="#">DBSumPerfor</a> | <a href="#">DBAvgPerfor</a> |
|               | <a href="#">DBDiskSize</a> | <a href="#">DBSumPerfor</a> | <a href="#">DBAvgPerfor</a> |
|               | <a href="#">DBDiskSize</a> | <a href="#">DBSumPerfor</a> | <a href="#">DBAvgPerfor</a> |

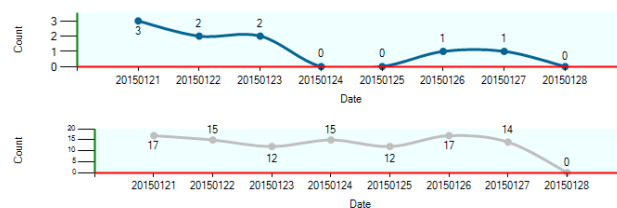
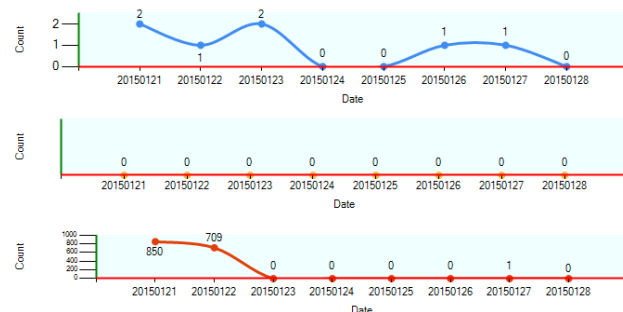
ETL LOG Info:

| MysqlIP | ETL Log                |
|---------|------------------------|
|         | <a href="#">ETLLog</a> |
|         | <a href="#">ETLLog</a> |

# 自动化可视化



DeadLockKPI\_DeadSqlSum\_192.168.100.200\_1433



lgappconn\_DeadSqlSum  
CommDataPPD\_DeadSqlSum  
CommDataPay\_DeadSqlSum  
lgappconn\_DeadSqlSum  
ppdsq\_DeadSqlSum

This is a DeadLockKpi mail,Please Check it out!

Repl info:

**SQLServerReplInfo**

PubWinip:192.168.100.200

DistWinip:192.168.100.203

SubWinip:192.168.100.203

PubSqlip:192.168.100.200\_1433

DistSqlip:192.168.100.203\_2433

SubSqlip:192.168.100.203\_2433

PubDB:PPD

DistDB:DistDB\_TransData

SubDB:Ppd\_repl

ReplInfo:

| Publication                  | DistReplAgent                                   | PublisherLogin | SubscriberLogin | ReadLogAgent    | PubStatus | SubStatus | SubType | SyncType                 |
|------------------------------|---|----------------|-----------------|-----------------|-----------|-----------|---------|--------------------------|
| RP_PPD_DB001R720.PPD_Repl_01 | DB003R920-PPD-Rp_Ppd_DB001R720.Ppd_-DB001R720-1 | DBSys_Repl     | DBSys_Repl      | DB003R920-PPD-2 | trans     | 活动        | push    | replication support only |

ReplArticles:

| Publication                  | Article           |
|------------------------------|-------------------|
| RP_PPD_DB001R720.PPD_Repl_01 | UserCompanyOwners |
| RP_PPD_DB001R720.PPD_Repl_01 | UserDetails       |
| RP_PPD_DB001R720.PPD_Repl_01 | UserWageEarners   |



# 自动化可视化



## MSSQLRepliactionAgent\_commands\_Alert(DateTime:2014-12-12 11:54:08)

**ReplAgentMonitor Missing :**  
Missing 'Agent history clean up:%' job

**ReplAgentMonitor Missing :**  
Missing 'Distribution clean up:%' job

**-- ReplAgentMonitor SQL:**  
select x1.name,x1.enabled,x2.name from msdb.dbo.sysjobs as x1 with(nolock)  
inner join sys.syslogins as x2 with(nolock)  
on (x1.name like 'Agent history clean up:%' or x1.name like 'Distribution clean up:%')  
and x2.sid=x1.owner\_sid option(maxdop 1)

### DeadLock Info

Server: 192.168.100.200\_1433

Database: DBName=ppdai\_fund;DBid=35

StartTime: 01 21 2015 2:06AM

#### DeadSQL:

WebHostName:"PPD-WEB-63" ApplicationName:".Net SqlClient Data Provider" LoginName:"CommonDataPay"

Proc [Database Id = 35 Object Id = 1669580986]

#### Relation SQL:

WebHostName:"PPD-WEB-105" ApplicationName:".Net SqlClient Data Provider" LoginName:"fgappconn"

(@PayOff int output,@ListingId int) DECLARE @RepayAmount MONEY DECLARE @OwingAmount MONEY DECLARE @OwingOverdue MONEY DECLARE @OwingPrincipal MONEY DECLARE @OwingInterest MONEY DECLARE @OwingDun MONEY DECLARE @La  
@NextRepayDate DATETIME DECLARE @OrderId INT DECLARE @Number INT SELECT  
@Number=COUNT(1),@RepayAmount=SUM(RepayAmount),@OwingAmount=SUM(OwingAmount),@OwingOverdue=SUM(OwingOverdue),@OwingPrincipal=SUM(OwingPrincipal),@OwingInterest=SUM(OwingInterest),@OwingDun=SUM(OwingDun),@La  
FROM dbo.ListLoan with(nolock) WHERE listingid=@ListingId SELECT TOP 1 @NextRepayDate=DueDate,@OrderId=OrderId-1 FROM dbo.ListLoan with(nolock) WHERE listingid=@ListingId AND StatusID IN (0,4,5) ORDER BY OrderId ASC IF(@OrderId IS NULL,  
UPDATE dbo.ListLoanTotal SET Number=@Number,CurrentNumber=@OrderId,RepayAmount=@RepayAmount,OwingAmount=@OwingAmount,OwingOverdue=@OwingOverdue,OwingPrincipal=@OwingPrincipal,OwingInterest=@OwingInterest

WebHostName:"PPD-WEB-63" ApplicationName:".Net SqlClient Data Provider" LoginName:"CommonDataPay"

Proc [Database Id = 35 Object Id = 1669580986]

# 自动化可视化



**Fingerprint** **Example** **Normalized** **Advisor** **Review**

密码正确通过率 select ? province\_name ,sum(loginsuccess) success,sum(login) total, concat(sum(loginsuccess)/sum(login)\* ? , ? ) from ( select r.idnumber, max(case when d.status\_code = ? then ? else ? end) loginsuccess, ? login from ppx\_jd\_request\_log r,ppx\_jd\_detail\_log d where ? = ? and d.inserttime > ? and r.serial\_number = d.serial\_number and d.event\_code= ? and d.status\_code!= ? and d.status\_code!= ? group by r.idnumber ) t union all ( select ? province\_name ,sum(loginsuccess) success,sum(login) total, concat(sum(loginsuccess)/sum(login)\* ? , ? ) from ( select r.idnumber, max(case when d.status\_code = ? then ? else ? end) loginsuccess, ? login from ppx\_jd\_request\_log r,ppx\_jd\_detail\_log d where ? = ? and d.inserttime > ? and r.serial\_number = d.serial\_number and r.jd\_username not regexp ? and d.event\_code= ? and d.status\_code!= ? and d.status\_code!= ? group by r.idnumber ) t union all ( select province\_name province\_name,sum(loginsuccess) success,sum(login) total, concat(sum(loginsuccess)/sum(login)\* ? , ? ) from ( select r.idnumber, p.province\_name,max(case when d.status\_code = ? then ? else ? end) loginsuccess, ? login from ppx\_jd\_request\_log r,ppx\_jd\_detail\_log d,ppdai\_mj\_dp\_meta\_mobilephone\_location m,ppdai\_mj\_dp\_meta\_city c,ppdai\_mj\_dp\_meta\_province p where ? = ? and d.inserttime > ? and r.jd\_username regexp ? and r.serial\_number = d.serial\_number and d.event\_code= ? and d.status\_code!= ? and d.status\_code!= ? and m.pre ? nums=left(r.jd\_username, ? ) and m.city\_id=c.id and c.province\_id=p.id group by r.idnumber ) t group by t.province\_name order by sum(loginsuccess)/sum(login) desc,total desc ) #select \* from ppdai\_mj\_dp\_meta\_mobilephone\_location where pre ? nums= ? limit ?

Explain

Detailed Stats

Seen between 2016-10-09 16:18:35 and 2016-10-19 10:01:53.

3 queries per day.

| Boolean Attributes       | Count | % |
|--------------------------|-------|---|
| Query Count              | 31    | - |
| Query Cache              |       |   |
| Full Scan                |       |   |
| Full Join                |       |   |
| Temporary Tables         |       |   |
| On Disk Temporary Tables |       |   |
| File Sorts               |       |   |
| On Disk File Sorts       |       |   |

| Attribute       | Median    | 95%       | StdDev  | Min     | Max       | Sum        |
|-----------------|-----------|-----------|---------|---------|-----------|------------|
| Query Time (ms) | 2,565     | 3,034     | 445     | 1,586   | 3,901     | 81,372     |
| Lock Time (ms)  | 1         | 1         | 0       | 1       | 1         | 29         |
| Rows Sent       | 33        | 33        | 0       | 32      | 33        | 1,022      |
| Rows Examined   | 1,083,080 | 1,159,762 | 100,088 | 789,032 | 1,389,860 | 34,104,230 |
| Rows Affected   |           |           |         |         |           |            |

Time of day  
Weekday  
Day of the month  
Months



# 性能成本



Business Line:

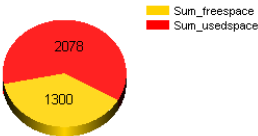
| Business Line ID | businessline |
|------------------|--------------|
| 7                | 线上主服务器       |

HOST INFO: 共2台, 总价格: ¥373000

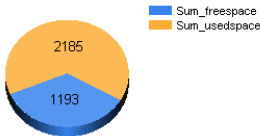
| Host IP     | SQLIP            | dbtype  | Note   | Purchased Price | Online Years | Machine Use Type | Rate Of Depreciation | DNSServer  | Server Model | HDDType     | Physical Memory | CpuCore |
|-------------|------------------|---------|--------|-----------------|--------------|------------------|----------------------|--|--------------|-------------|-----------------|---------|
| 10.10.10.72 | 10.10.10.72_1433 | Primary | 线上主服务器 | 186500          | 0.27年        | AB类              | 100%                 | ppdai01-10-30.db.ppdai.com; ppdai01-100-200.db.ppdai.com; ppdai01-mssql-10-72.db.ppdai.com | DL580        | 800g ssd*10 | 256GB           | 12      |
| 10.10.10.73 | 10.10.10.1433    | Mirror  | 主服务器镜像 | 186500          | 0.25年        | AB类              | 100%                 | ppdai01-mssql-10-73.db.ppdai.com   | DL580        | 800g ssd*10 | 256GB           | 12      |

Space Used:

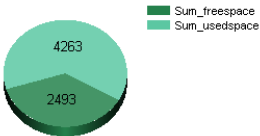
主库空间使用情况(GB)



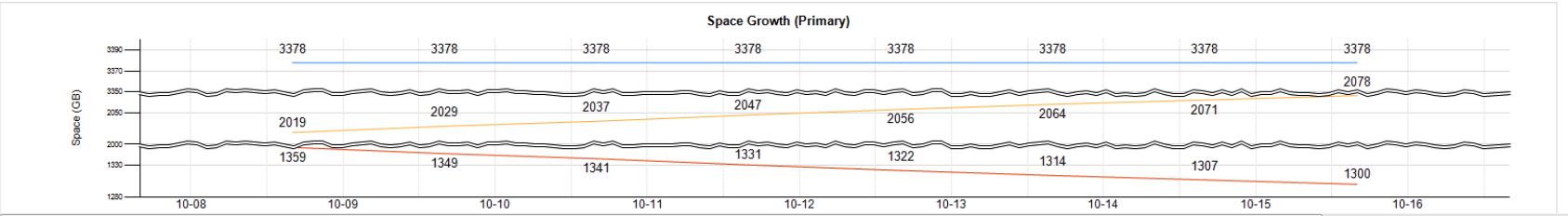
备库空间使用情况(GB)



主+备空间使用情况(GB)



Space growth: 主库



# 性能成本



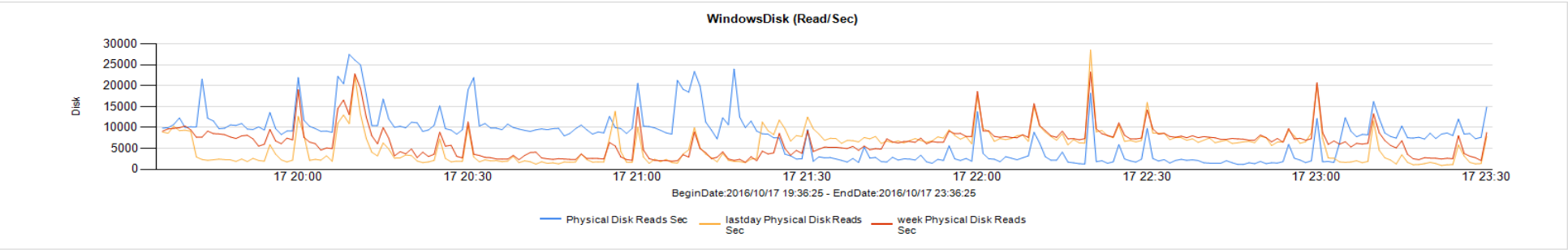
BusinessLine SumPerfor (性能指标求和)

BusinessLineName: 共2台

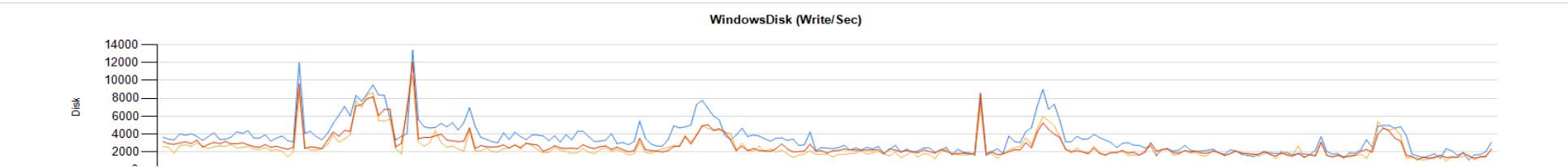
| Sql IP            | Business Line | dbtype  |
|-------------------|---------------|---------|
| 10.70.1433        | 线上主服务器        | Primary |
| 170.17.10.70_1433 | 主服务器镜像        | Mirror  |

Disk: iops=Read/Sec+Write/sec

Disk:Read/Sec



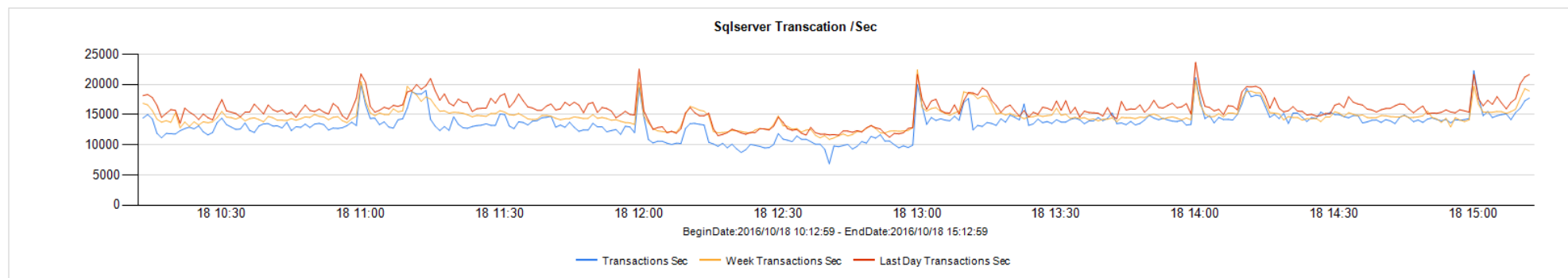
Disk: Write/Sec



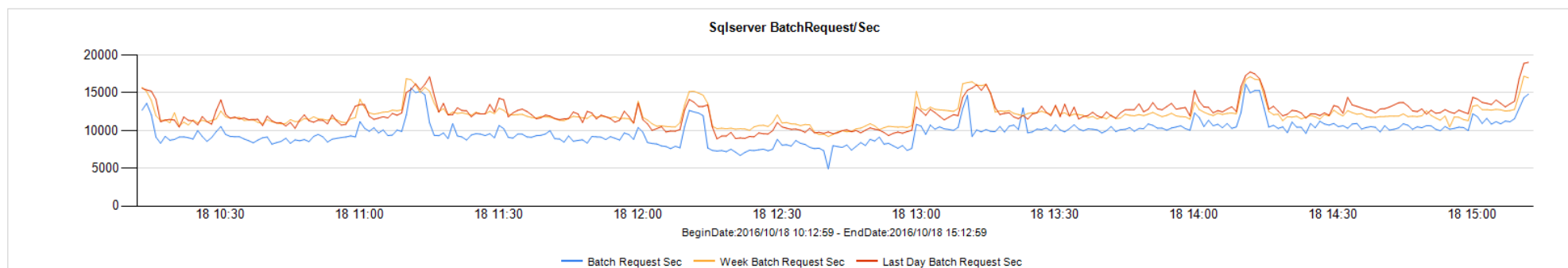
# 性能成本



Transctions/Sec



BatchRequest/Sec

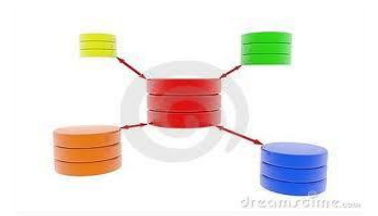


# 性能成本



- 部分非核心业务切换mysql
- Mysql 社区版 ( 5.7.14 )
  - 支持并行复制
  - 支持高版本percona audit
  - 较完善的管理工具





# Thank You

**2016年11月2日星期三**