



Monitoring at BNP Paribas Fortis

GSE DB2 23 March 2017

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BNP PARIBAS
FORTIS

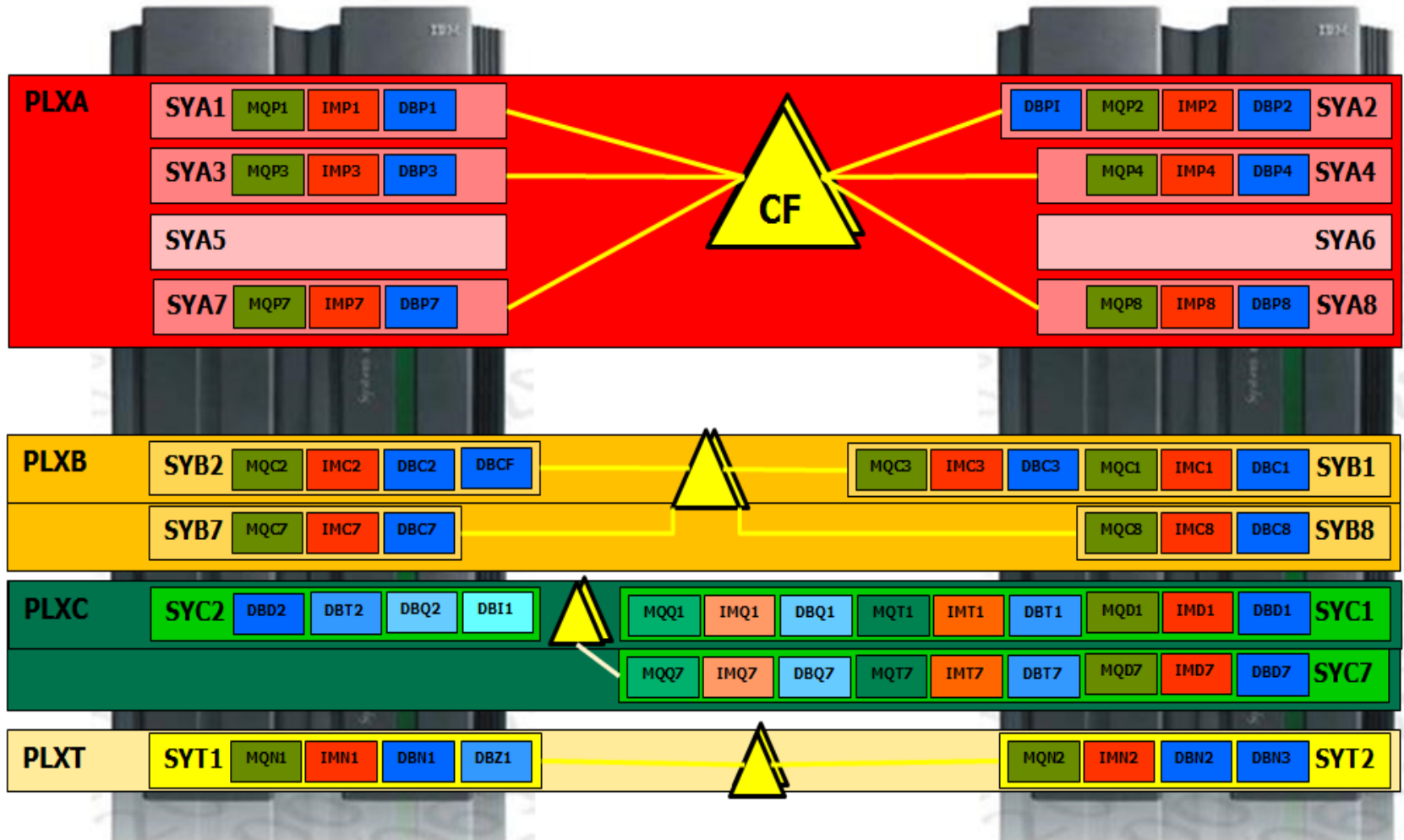
| The bank and insurance for a changing world

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Introduction



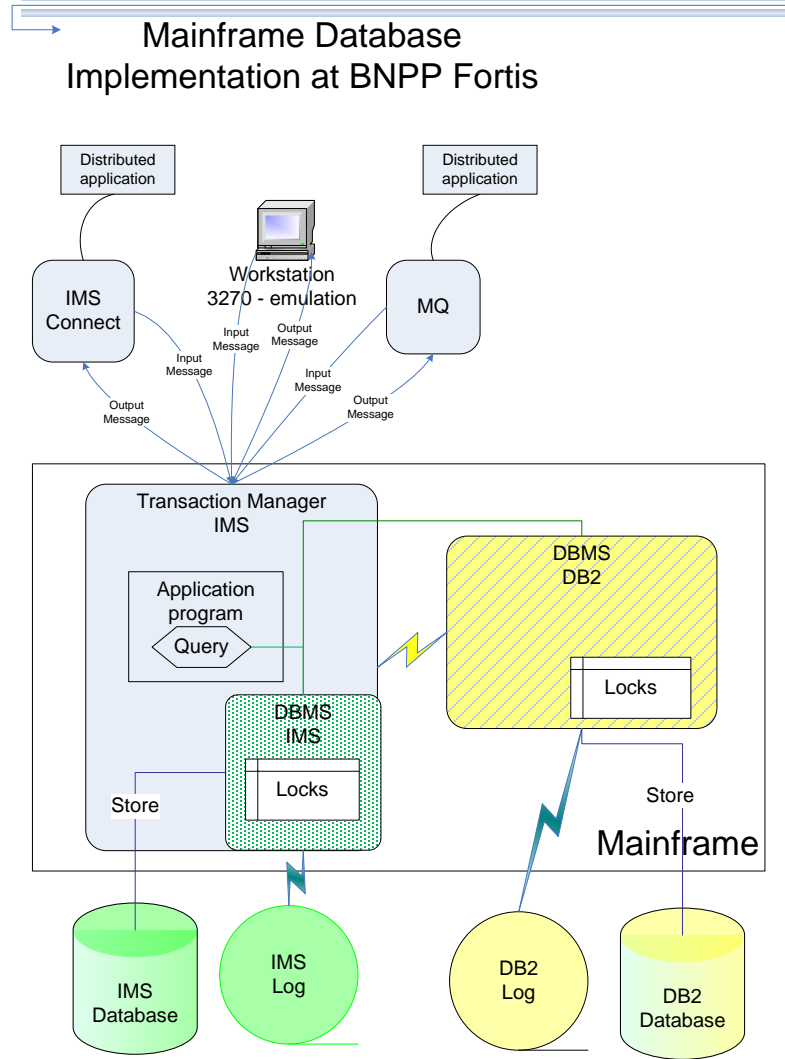
Introduction

Software used

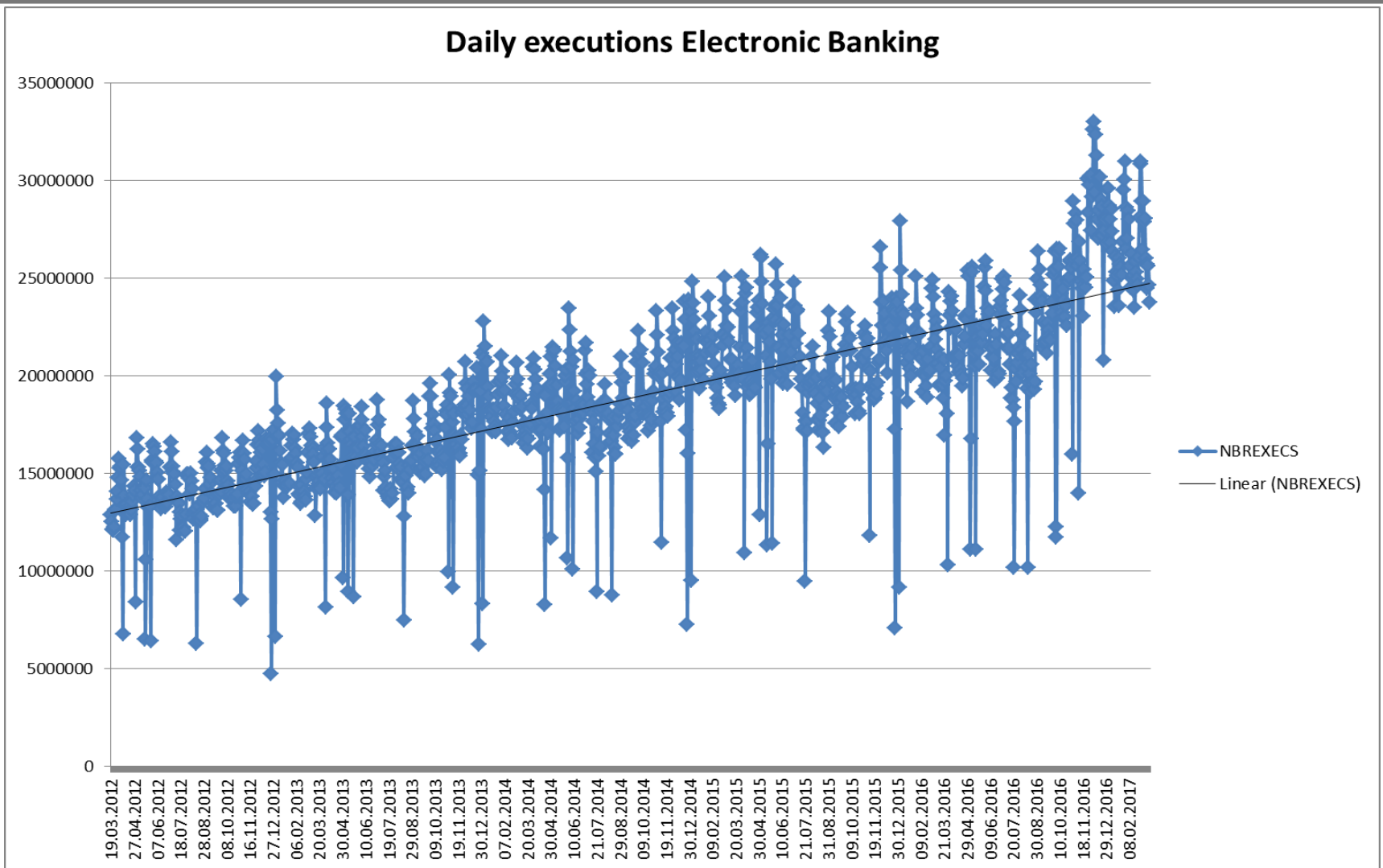
- DB2 V11
- IMS V13 DB/DC
- MQ V7
- WAS
- BMC Tools V11
- Omegamon 5.3 used for Performance Warehouse
- IBM Utilities V11
- Tivoli System Automation



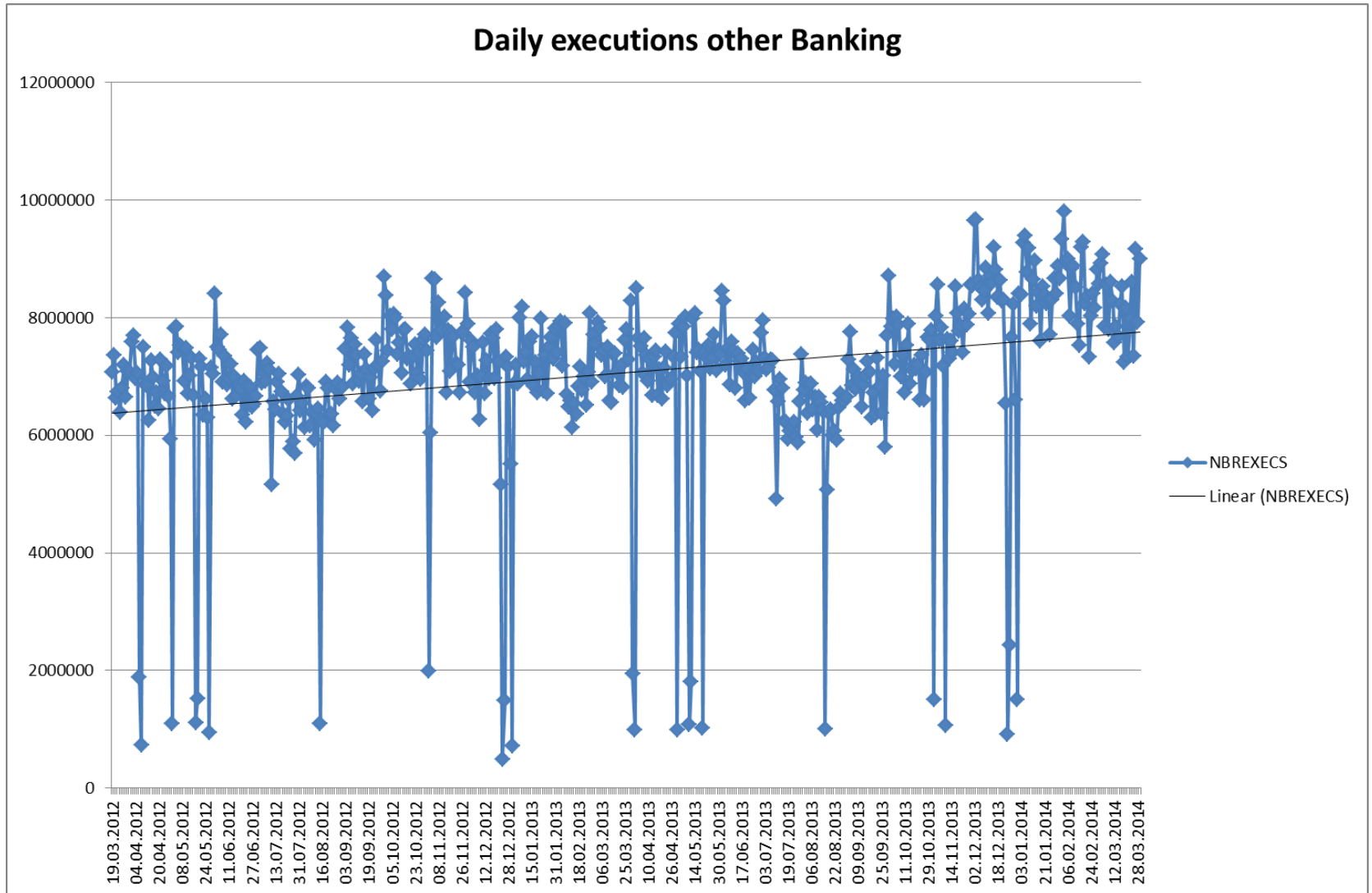
Introduction



Introduction



Introduction



Availability monitoring

LPAR failure

- Restart Light of DB2
- IMS FDBR recovery
- Automatic Recover indoubt with FDBR info

```
IMSID=IMT2 SSID=DBT2 Action=ABORT NID=IMT2.001147370000CCAD  
IMSID=IMT2 SSID=DBT2 Action=COMMIT NID=IMT2.001147360000CCB8
```

```
DFS4168I FDR FOR (IMT2) DATABASE RECOVERY COMPLETED
```

```
-db2id DISPLAY GROUP
```

```
-db2id RECOVER INDOUBT(imsid) ACTION(ABORT/COMMIT) NID(imsid.num)
```

- LPL recovery



Availability monitoring

DB2 failure

- Suspend MQ
- Restart DB2
- LPL recovery
- Resume MQ

IMS failure

- Suspend MQ
- IMS FDBR recovery
- Automatic Recover indoubt with FDBR info
- Restart IMS
- Resume MQ



Availability monitoring

availability checks

- Every 15 minutes
 - Check critical transactions
 - Check DB availability
 - Exceptions defined for planned unavailability
 - Automatic alerting
- Daily reporting on DEADLOCK and TIMEOUT



Availability monitoring

Maintenance from Sat 23:00 to Sun 06:00

DB2 objects are split in two groups

- platinum : Sun 02:00 to Sun 06:00
 - Objects used during complete maintenance period
 - Automatically determined based on historical data
- silver : complete period



Performance monitoring

Transaction queuing for all classes (every minute)

- Standard region setup for normal work
- When queuing extra regions will be started
- Stop extra regions when workload drops
- Alerting when all extra regions are started and still queuing (exceptions allowed)

When region occupation is too high (70%=high/30% normal), extra regions are also started to prevent queuing



Performance monitoring

Electronic Banking End-to-End monitoring

- Transaction response time
- When timeouts detected (30 sec)

LPAR capacity monitoring

- Done with BMC ICAP
- Web banking LPAR's have higher weight
- Increments by 2 MSU



Performance Data

Daily Access path checking

- Tablespace scans
- Index scans with 0 matching columns
- List of SQL using more then 100 CPU sec/day



Performance Data

Standard DB2 SMF data

- The SMF records are loaded by plex
 - PLXC – daily about 850.000 (multiple subsystems)
 - PLXB – daily about 10.000.000
 - PLXA – daily about 400.000.000
- All volume data is summarized by hour
- Data retention
 - Kept for at least 100 days
 - Package information is kept 150 days
 - Plan data is kept for 200 days



Performance Data

BMC APPTUNE info

- Collected during selected periods
- Kept for about 14 months
- Aggregated by period of 8 hours
- Contains information by statement AVG/MIN/MAX
 - CPU
 - Elapsed
 - Wait
 - Getpage
 - ...
- Daily/weekly follow-up of statements with high deviation
- Daily check of huge CPU SQL



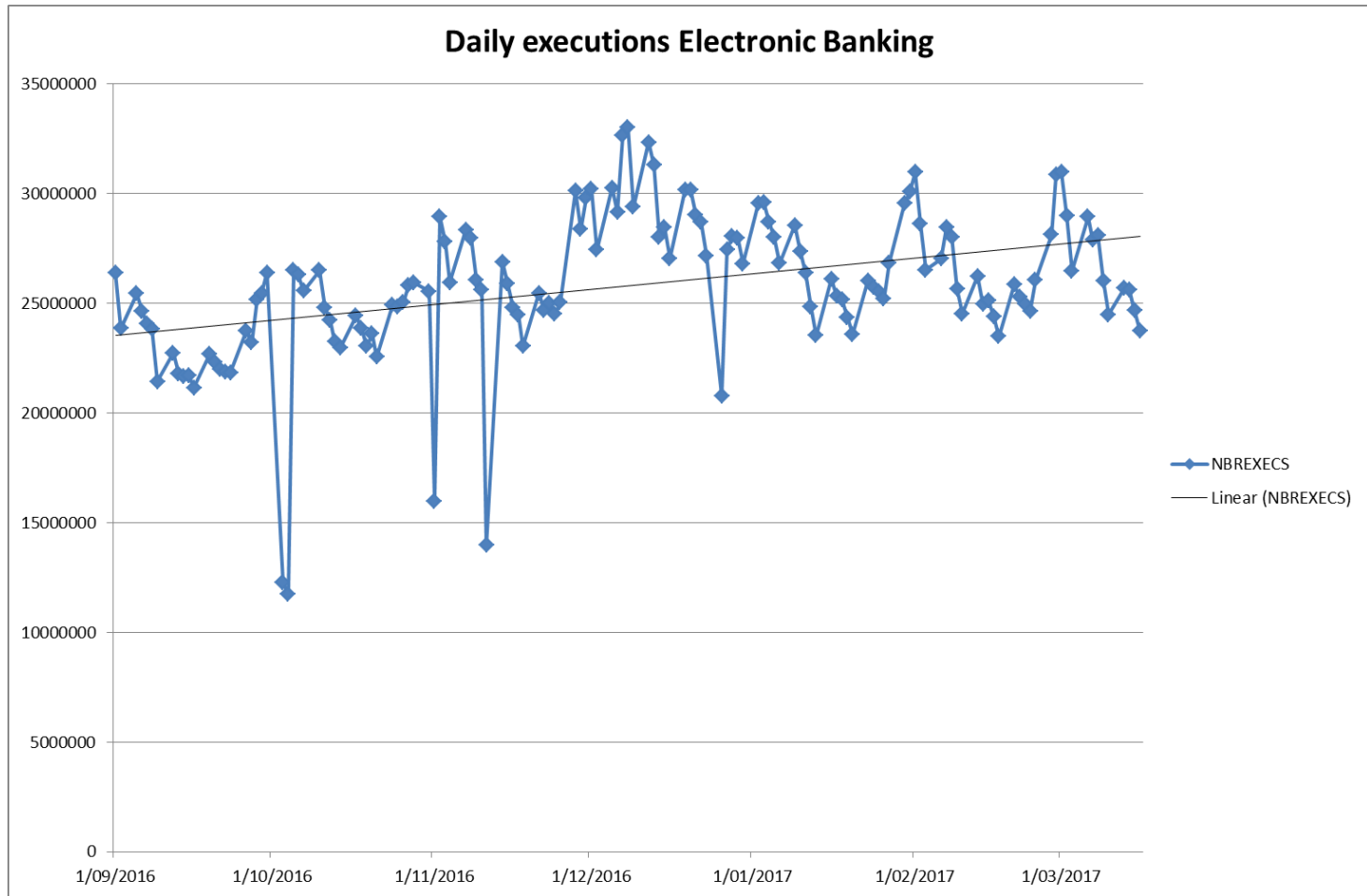
Performance Data

Combined IMS/DB2 data

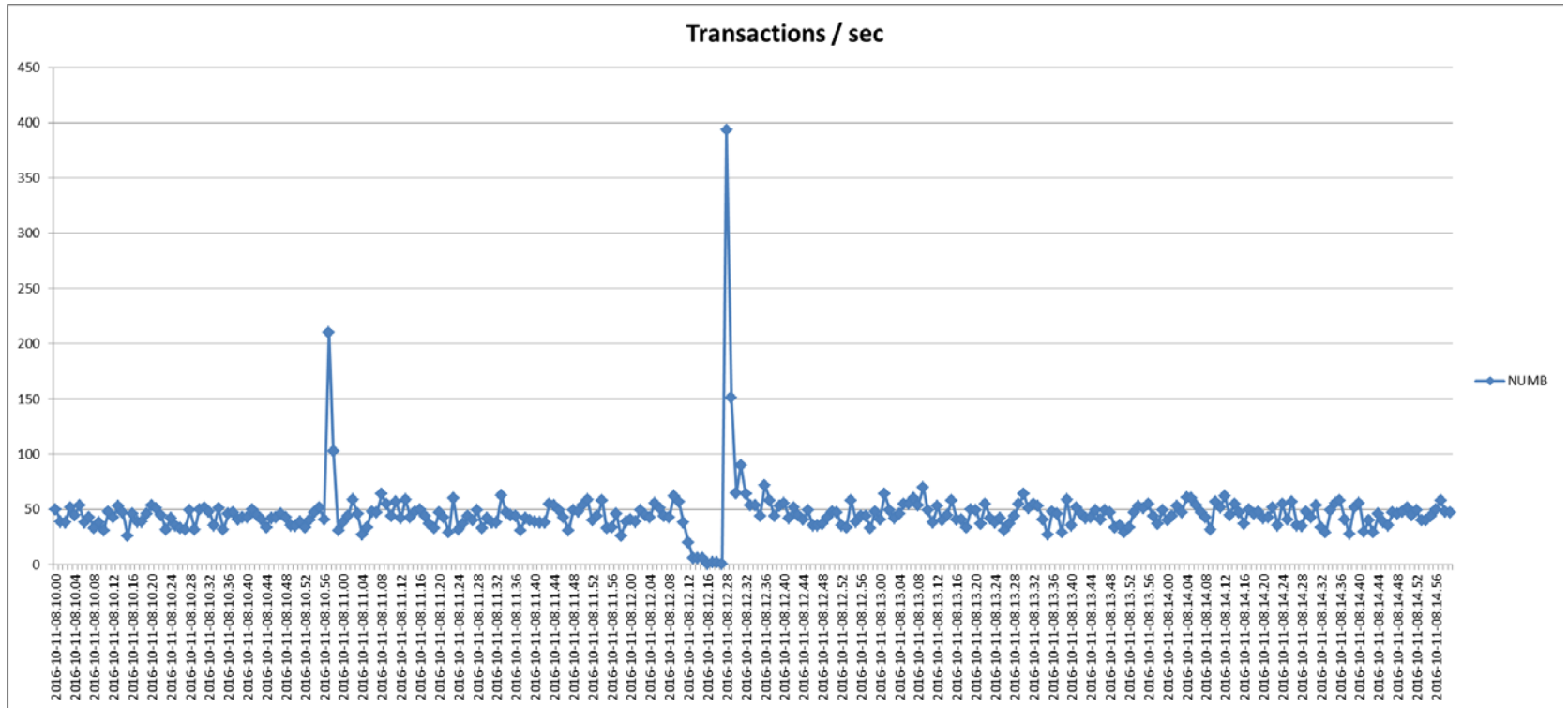
- Based on A4 IMS record of IMS ATF
- Daily compare of transaction
 - Data previous month for comparable workday
 - Relative CPU
 - Total CPU
 - Number of executions
- Monthly Top 50 total CPU consumption
 - Transactions
 - BMP



Samples



Samples



Questions ?



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