
When DR is not Enough

Maintaining High Availability

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Why Are We Here?

Some of you may have noticed that PEG was unreachable for a few hours Sunday eve...

***Unfortunately, a nap and a poker tournament interfered** so it took a few hours longer than absolutely necessary.*

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*Greg Higgins
PEG Manager*

Why Are We Here?

- High availability is NOT disaster recovery planning
- HA: Keep the app available
- DR: Bring it up fast/good after an unexpected catastrophic event

Agenda

- Introduction
- Real life scenarios and solutions
- Quick Q&A

- Part II: AppServer HA with Gilles

Introduction

- OpenEdge has no DB HA solution
- We must work to
 - Minimize possibility of DB down time
 - Minimize effect of DB down time
- Can we fix quickly w/out going to DR?

Scenario 1- Running Out of Disk Space

- We've all seen it
 - One FS is full
 - The others have plenty of space
- Often due to uncontrolled BI growth
 - Cannot truncate BI online
 - Cannot truncate BI with OE Replication

Solution

- prostrict addonline
 - Watch out for permissions issues
- Note:
 - I advocate ONE FS for DB/BI/AI
 - This is contrary to many respected DBAs
 - Perf gain is questionable for normal environments

Scenario 2 – Index Corruption

```
SYSTEM ERROR: read wrong dbkey at offset <offset>  
in file <file> found <dbkey>, expected <dbkey>,  
retrying. (9445)
```

- Could be a hardware, O.S. or software issue
- Not as frequent as it used to be

Solution

- Use proutil db -C idxfix online -Bp 64

```
_proutil sports -C idxfix
```

- There will be some impact on prod
 - Depends on the table...

Scenario 3 – Lock Table Overflow

Lock table overflow, increase -L on server (915)

- Of course you need to find and fix the offending process
- BUT...users are screaming NOW
- Let the users continue THEN fix the problem

Solution

- `_proutil db -C increaseto`

```
_proutil sports -C increaseto -L 100000
```

- Can also increase `-B`, `-B2`, `-bibufs`, `-aibufs`, `-Mxs` and `-omsz`
- Like `prostrct addonline`, there could be permission issues if adding `shmem` segments
- Sorry – cannot decrease online

Scenario 4 – Bad C/S Parameters

- -Ma (max users per server)
- -Mpb (max servers per broker)
- -Mn (max servers)
- -n (max connections)

- $-Mpb \times -Ma = \text{max concurrent on } -S \text{ port}$

Scenario 4 – continued...

- I have seen this many times
- Some apps take 2 conx/user
 - When you add 100 users...oops...params only adjusted for 100 connections
- Recently: SQL application bug was causing large number of connections

Solution

- Segregate ALL the login brokers
- Primary broker: only for shmem connections
- TWO secondary brokers
 - One for ABL
 - One for SQL
- Leave plenty of overhead space in -n and -Mn
 - Licensing and -n are NOT related

Solution – continued...

- You cannot increase `-Mpb` nor `-Ma`
- BUT you can add a 3rd (or 4th) secondary login broker
 - Move group of connections to new broker
 - Ex.: AppServer connections can be moved easily
 - Liberate slots in main broker

Scenario 5 – Imminent Server Death

- Hard drive death rattle (TOC TOC TOC)?
- Blocked fan?
- Weird console error messages?
- Running Windows? (sorry – had to say it)

- There is no RAC-like functionality
 - The DB is going to have to go down
 - Make it quick and almost painless

Solutions

1. ProCluster

- Enable DB as a cluster resource
- Assumes shared SAN containing DB disks

2. Poor-man's clustering

- Mount DB drives on other server
- AIX.: exportvg + importvg

Solutions

3. OE Replication local target

- OER supports two targets
- One to DR site and one local
- Local copy typically used for reporting

- You can use it for quick DR
- A small DNS change
- Restart all clients (ouch! – I know...)

Solutions

4. Poor man's replication – AKA AI files

- Can keep a local copy up-to-date
- Transfer and apply AI files

- Same as OER solution: two targets
- A small DNS change
- Restart all clients

Scenario 6: Server Maintenance

- Almost same as previous scenario
- Instead of staying down during maintenance, just move PROD DB for a few hours
- Fast, easy, low impact



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Questions?

