Extreme Inside of Domino -- Best practice

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Today's Agenda

- Domino router task best practice
- Domino HTTP task tuning and best practice
- Domino memory best practice
- Domino administration best practice

Domino router task best practice

Common causes of router performance problems

- Mass mailing
- Dead mails
- Spam mails
- Mail databases

Mass mailing (I)

- Avoid mass mails, use small groups
- Send mass mails in off hours, or use low priority
- Add reader field to large group
- Use attachments to send large images and files, avoid using in-line image and OLE
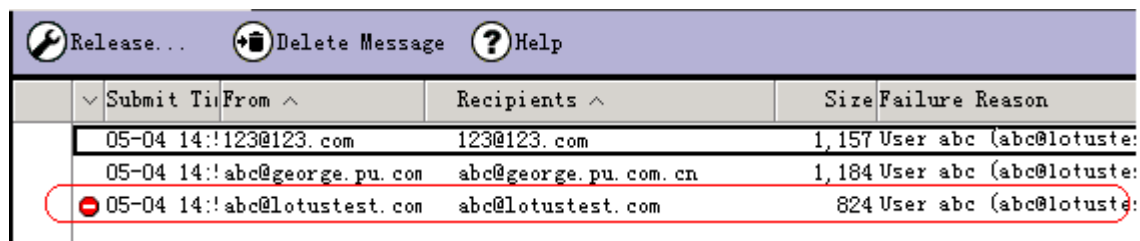- Disable_BCC_group_expansion=1

Mass mailing (II)

- Strictly control the size of mails
  - ▸ Recommend: (number of recipients) * (mail size) <= 200M
  - ▸ Begin from 6.5.5, new notes.ini parameters
    - Limit the (number of recipients) * (mail size)
      - **RouterMaxEffectiveSize=xxx (KB)**
    - Include the size of attachments:
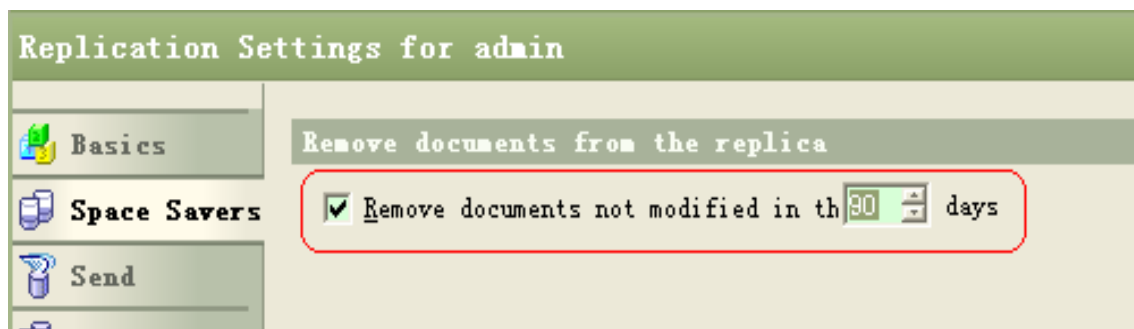   - **RouterMaxEffectiveSizeIncAttach=1**

Dead mails

- Mails can not be delivered to recipients and return to sender; Usually are spam mails.

- Large number of dead mails will extend the time of building queue
- Administrator should delete the dead mail periodically

Spam mails (I)

- In general, prevent relaying all mails

Spam mails (II)

- Enable local domain recipients verification can avoid most of dead mails

    – configuration document->Router/SMTP->Restrictions and controls->SMTP Inbound control

Inbound Intended Recipients Controls

Verify that local domain recipients exist in the Domino Directory: `Enabled` ▼

Allow messages intended only for the following internet addresses:

Spam mails (III)

- Use third party black list and white list
- Define the private black list and white list
- Router examine order:
  - ▸ Private white list->Private black list->DNS white list->DNS black list

DNS Blacklist Filters		DNS Whitelist Filters	
DNS Blacklist filters:	Disabled ▾	DNS Whitelist Filters:	Disabled ▾
DNS Blacklist sites:		DNS Whitelist Sites:	
Desired action when a connecting host is found in a DNS Blacklist:	Log only ▾	Desired action when a connecting host is found in a DNS whitelist:	Silently skip blacklist filters ▾
Custom SMTP error response for rejected messages:			

Private Blacklist Filter		Private Whitelist Filter	
Private Blacklist Filter:	Disabled ▾	Private Whitelist Filter:	Disabled ▾
Blacklist the following hosts:		Whitelist the following hosts:	
Desired action when a connecting host is found in the private blacklist:	Log only ▾	Desired action when a connecting host is found in the private whitelist:	Silently skip blacklist filters ▾
Custom SMTP error response for rejected messages:			

Mail databases

- The larger size of a mail database, the lower performance
- Recommend database size <= 1G
- Recommend to set database quota
- Recommend to archive mail databases periodically

Domino http task tuning and best practice

HTTP tuning (I)

- Number active threads: Server document->Internet protocols->HTTP
    - More threads consume more CPU and memory
        - set 40 at first (default), increase the number 10 at a time
        - single processor < = 64
        - Multi-processor < = 80
    - How to determine the best number of threads
        - Total throughput = HTTP.Worker.Total.TotalRequestTime/HTTP.Worker.Total.RequestsProcessed
        - Average response time of simple response time
    - TN: Domino HTTP Active Thread recommendations:
        - http://www.ibm.com/support/docview.wss?rs=899&uid=swg21173877

HTTP tuning (II)

- Begin from 6.5.4FP1/6.5.5, there are three methods for http thread queue:

  ▸ HTTPQueueMethod=0 – default settings of R6

   - Distribute connections using round robin method

  ▸ HTTPQueueMethod=1

   - Assign to the thread has least number of connections waiting

  ▸ HTTPQueueMethod=2 – default settings of R5

   - Incoming network connections are put on one queue which all worker threads will pull from

- Recommend to use HTTPQueueMethod=2 for most situations.

HTTP best practice (I)

- Run web agents concurrently can improve performance
  - ▶ Server document->Domino Web Engine->Web Agents

  Web Agents

  Run web agents concurrently?   Enabled

  Web agent timeout: 0 seconds

- Make sure the agents are thread-safe
- Test your agents before enable this setting

HTTP best practice (II)

- Notes.ini parameter to optimize usage of private memory (6.5.6/7.0.2 and above):
    - **InotesThreadMemoryGivePoolsBack=1**
- JavaMaxHeapSize = (bytes) (only needed in 32 bit system)
    - ▸ Default: 16MB ~ 64MB (1G in iSeries)
    - ▸ AIX < = 128 MB
    - ▸ Other platforms < = 256 MB

Domino memory best practice

UBM size

- What's Unified Buffer Manager (NSF Buffer Pool)
  - ▸ The single largest block of shared memory caching disk I/O for server database
  - ▸ Recommend size: 512 MB ~ 750 MB
- Default size of UBM (Recommend 512 MB)

	R6/7	R8
Windows 32	3/8 * 2G = 750 MB	512 MB
Linux/Unix/AIX/Solaris	3/8 * 4G = **1.5 G**	512 MB
i5/OS	3/8 * 4G = **1.5 G**	400 MB

- Tuning UBM size:
  - ▸ Database.Database.BufferPool.PerCentReadsInBuffer > 90%
  - ▸ TN: Recommendations for setting NSF_BUFFER_POOL_SIZE_MB
    - http://www.ibm.com/support/docview.wss?rs=899&uid=swg21286171

Recycle() method

- When to use recycle?
  - ▶ If you have Java agent, servlet, or other Java applications that will use Domino objects.
  - ▶ Must use Recycle() to destroy the C++ object and sets the Java object for garbage collection.
- Remember to recycle the object WITHIN the loop
- TN: Why it is important to use recycle() method on every Java object that is created
  - ▶ http://www.ibm.com/support/docview.wss?rs=899&uid=swg21097861

Domino administration best practice

Full text index

- Create full text index for databases which Agent will perform full text operations on.

- Databases needed to be search by users frequently.

- Create full text index on local replica for mail databases.

- Prevent end users from creating full text index on server:
  - ▸ UPDATE_NO_FULLTEXT=1
  - ▸ End users are unable to create index through database properties
  - ▸ Administrator can create index through admin clinet->Tools-> Database -> Full Text Index

Database maintenance

- **Database maintenance (fixup, compact and updall)**
    - ▸ Fixup -- run only if corruption is suspected
    - ▸ Compact – weekly, use options -B or -b
    - ▸ Updall -- run every night by default
- **Avoid any operations on database through operating system directly when server is running, especially when transaction logging is enabled.**
- **Use replicate or copy task of Domino or third party backup software.**

Routine jobs of administrator

- Check admin4.nsf to approve requests, process waiting or failed requests -- weekly

- Clear up dead mails in mail.box -- daily or weekly

- Archive – weekly or monthly

- Fault recovery -- weekly

- Monitor log.nsf or statrep.nsf -- daily or weekly

Others

- Upgrade nsd debugger to latest version
  - ▸ Updated NSD for Domino releases
  - ▸ http://www-01.ibm.com/support/docview.wss?uid=swg24013182
- Disable platform statistics:
  - ▸ **PLATFORM_STATISTICS_DISABLE=1**

Useful resources

- Lotus FAQ: Monthly IBM Lotus Notes/Domino FAQ, Most visited articles on Lotus Domino Wiki, General Self-Help Resources

- IBM Info Center: Installation guide, administration help, release notes and quick start guide for all of IBM products:

- http://www.ibm.com/support/publications/us/library/

- Knowledge base: All technical notes for troubleshooting steps, known issues and recommendation settings etc.

- http://www.ibm.com/developerworks/lotus/support/

Thank You