

Domino Domain Monitoring (DDM)

... for
Administrators

Last updated on 06/02/2013 by Austin Chang



Agenda

- Introduction
 - Why Domino Domain Monitoring(DDM)
 - Key Benefits
 - DDM components
- Configuration
 - Design and implement a Server Collection Hierarchy
 - Enable and modify the default probes (events4.nsf)
 - Set Filters
- Probe Console Commands
- Monitor Scenario
 - Proactively monitor IMAP, POP3, and SMTP
 - Detect and automatically fix a corrupt database using custom corrective action
- Video DDM-Scenario-Demo for monitoring SMTP port 25
 - Begin to use Lotus Domino Domain Monitoring
 - http://v.youku.com/v_show/id_XNTcyMjAzNjk2.html
 - <http://youtu.be/w4DmGmt2Sd8>



Introduction

- DDM starts to support from Domino 7
- Before DDM available, some functions can be achieved by
 - Server Port Probe tool
 - For example, IP Central
 - Send a test mail to a mailin database to ensure the mail routing function is working fine.
 - Add some debug code into Agents
 - Event Generator/Handler
 - Statistics data
 - Activity Log
 - log.nsf (Replication), SNMP

Introduction (Continued)

- DDM provides a simple, flexible and powerful interface for Domino administrators to monitor the servers in their domain.
 - Feature-oriented view of the domain status
 - Highly-configurable probes categorized by feature areas
 - Probable cause and possible solution determination
 - Automation of corrective actions
 - Default settings for easy out-of-the-box setup
 - Domino domain monitoring data aggregation with collection hierarchies



DDM

My Events

- By Severity
- By Date
- By Type
- By Server
- By Assignment
- Open Configuration

Hide Administrators

- hub/caribbean
- External Admin
- Hub Admin
- Mail Admin
- Mail1 Admin
- Mail2 Admin
- Network Admin

Sametime awareness for collaboration

Open Events Recent Events All Events

Open and closed events from the past week only, sorted by severity

Refresh Assign... Change State Add Comments... View Unread Legend...

#	Date	Server	Recent Events By Severity	Assigned To
110			Open	
101			Failure	
94			Database: Monitoring	
3			Operating System: Network	
3			Replication	
1			Server	
1			Warning (High)	
1			Application Code	
	Fr 03/23	Mail/Caribbean	Designer: Agent 'OutOffice' in Frank Nostramé' disabled during Design Update from template 'Mail (R7) ...'	
8			Warning (Low)	
2			Database	
1			Messaging: C&S	

Feature-oriented view

Event Preview

Open Event
(This event is not assigned to anyone)

Generated by: mail/Caribbean
in Domain: Caribbean
Event class: Enhanced

For server: Mail/Caribbean
Database: Frank Nostrame
Agent: OutOffice
User: Frank Nostrame/Caribbean

Detailed event information

Most Recent Event

Warning High

Today, 2:40:28 PM
Designer: Agent 'OutOffice' in 'Frank Nostrame' disabled during Design Update from template 'Mail (R7)'. Agent signer 'Frank Nostrame/Caribbean'.

Explanation

- Reported by: Database Designer
- Severity and type: Warning High in Application Code
- Probable cause: Design Update task updated the agent with a new version
- Possible solution:
 - Enable the agent, set "Run Onbehalf of" to the agent owner 'Frank Nostrame/Caribbean'
 - Notify the agent owner 'Frank Nostrame/Caribbean'
- Corrective action: Choose Solution...

Customizable corrective actions

Event Change History:

Introduction – 1. Why Domino Domain Monitoring(DDM)

- PainPoint 1
 - There is no tool can provide single view of the overall status of multiple servers across one or more Domains.
- PainPoint 2
 - Administrators always spend much time to find out the cause when a server problem occur .
- PainPoint 3
 - The analysis and fix of problem strongly depends on the experience and skill of Administrators.



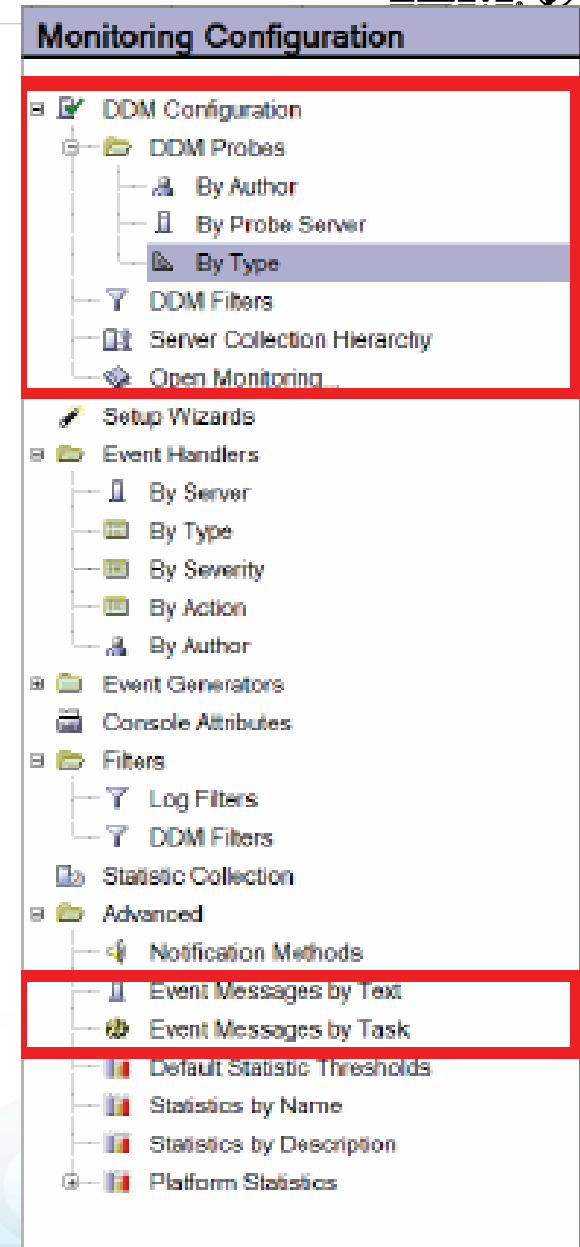
Introduction – 2. Key Benefits

- Active monitoring capability: 57 new probes with highly-configurable schedules, content and targets.
- Domino domain monitoring data aggregation with collection hierarchies
- Automatic problem determination and determination of probable cause in multiple feature areas, and provide possible solution.
- Delegation of problems
- Automation of corrective actions
- Auto-closing for the resolved problem



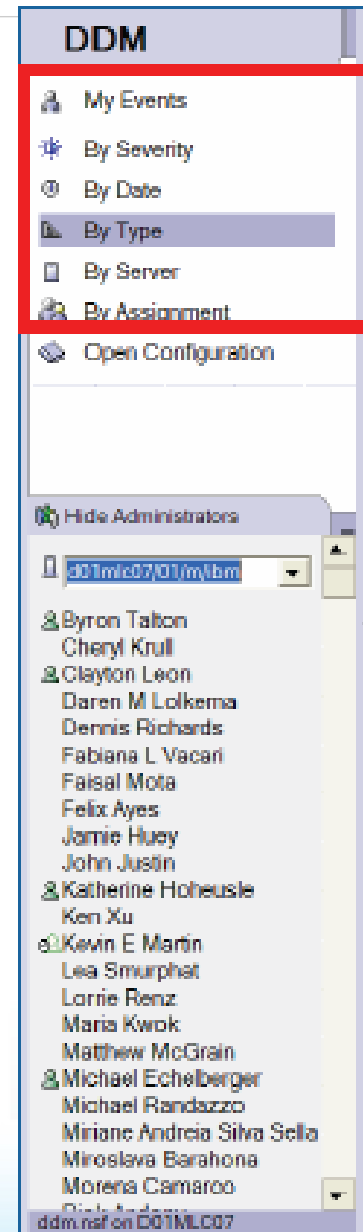
Introduction – 3. DDM components

- Monitoring Configuration - **Events4.nsf**
 - Probes
 - By Author
 - By Probe Server
 - By Type
 - Server Collection Hierarchy
 - Filters



Introduction – 3. DDM components (Continued)

- Domino Domain Monitor – **DDM.nsf**
 - Event report documents
 - By Severity
 - By Date
 - By Type
 - By Server
 - By Assignment (including My Events view)

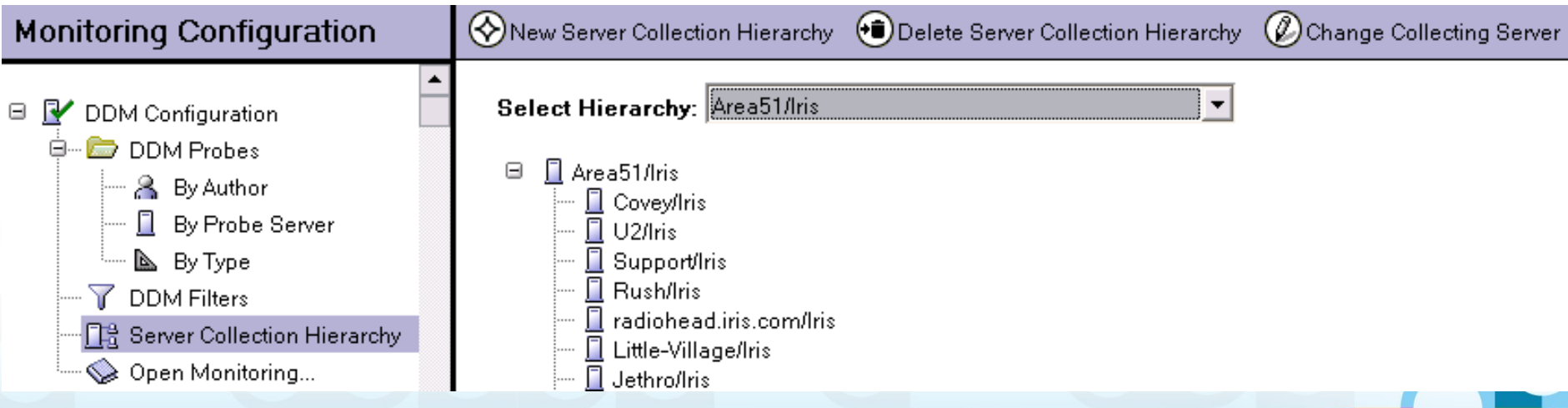


DDM Configuration

1. Design and implement a Server Collection Hierarchy
2. Enable and modify the default probes (events4.nsf)
3. Filters

Configuration: 1. Server Collection Hierarchy

- Available from the **DDM Configuration** section in events4.nsf
- Create, delete or modify a hierarchy
- Select a hierarchy from the dropdown box
- Area51, **the collecting server**, includes reports from all of it's children servers
- **Children servers** include only their own reports



The screenshot displays the 'Monitoring Configuration' interface. On the left, a tree view shows the navigation structure: 'DDM Configuration' (checked), 'DDM Probes' (with sub-items 'By Author', 'By Probe Server', 'By Type'), 'DDM Filters', 'Server Collection Hierarchy' (highlighted), and 'Open Monitoring...'. The main area features three buttons: 'New Server Collection Hierarchy', 'Delete Server Collection Hierarchy', and 'Change Collecting Server'. Below these is a 'Select Hierarchy:' dropdown menu currently set to 'Area51/Iris'. A tree view below the dropdown shows the hierarchy for 'Area51/Iris', including sub-items: 'Covey/Iris', 'U2/Iris', 'Support/Iris', 'Rush/Iris', 'radiohead.iris.com/Iris', 'Little-Village/Iris', and 'Jethro/Iris'.

Configuration - Server Collection Hierarchy (Continued)

- Click on an individual server to modify the hierarchy

- Pick the action
- Select the servers
- OK

The screenshot shows the 'Manage Server Collection Hierarchy' dialog box overlaid on the 'Server Collection Hierarchy' tree view. The dialog box has a title bar 'Manage Server Collection Hierarchy' and a close button. It contains a section 'Choose an action to perform:' with two radio buttons: 'Add subordinate servers to Area51/Iris' (selected) and 'Remove subordinate servers from Area51/Iris'. Below this is a list of 'Available Servers:' with checkboxes: ACDC/Iris, Azure/Iris, bou/Iris, Brooks/Iris, Fish/Iris (checked), Garfunkle/Iris, Garth/Iris, and Glimmer/Iris. At the bottom of the dialog are 'OK' and 'Cancel' buttons. A status bar at the bottom of the dialog reads 'Adds selected servers as subordinates of Area51/Iris.' The background shows a tree view with 'DDM Configuration' expanded to 'Server Collection Hierarchy', which is further expanded to 'Area51/Iris'. Under 'Area51/Iris', several servers are listed: Covey/Iris, U2/Iris, Support/Iris, Rush/Iris, radiohead.iris.com/Iris, Little-Village/Iris, and Jethro/Iris. To the right of the tree view, there are two buttons: 'Delete Server Collection Hierarchy' and 'Change Collecting Server'.

Configuration - Server Collection Hierarchy(Continued)

- Define redundant hierarchies

Select Hierarchy: Area51/Iris

- [-] Area51/Iris
 - [-] Covey/Iris
 - [-] U2/Iris
 - [-] Support/Iris
 - [-] Rush/Iris
 - [-] radiohead.iris.com/Iris
 - [-] Little-Village/Iris
 - [-] Jethro/Iris
 - [-] Demily/Iris
 - [-] Clapton/Iris
 - [-] SlipKnot/Iris
 - [-] Roswell/Iris
 - [-] Frog/Iris
 - [-] Eric/Iris
 - [-] Ella/Iris
 - [-] Dixie/Iris
 - [-] Dayrunner/Iris
 - [-] Crash Test Dummy/Iris
 - [-] Chicks/Iris
 - [-] bhsurfers.iris.com/Iris
 - [-] Ace/Iris

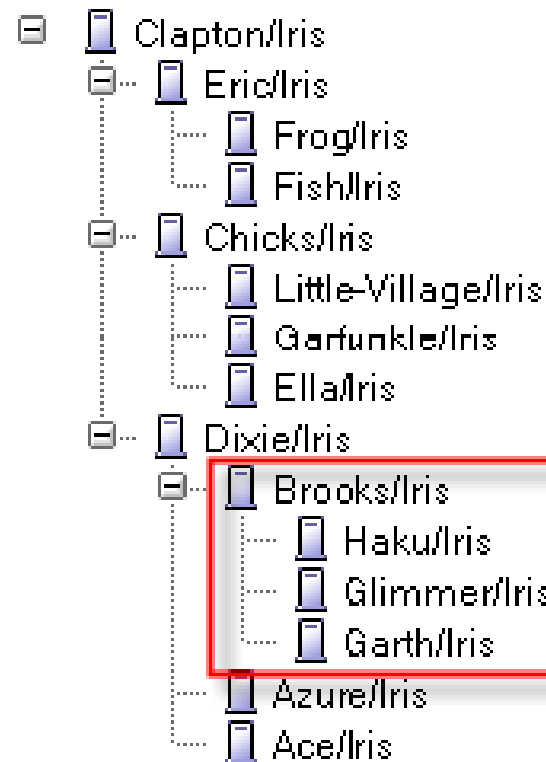
Select Hierarchy: Roswell/Iris

- [-] Roswell/Iris
 - [-] Covey/Iris
 - [-] U2/Iris
 - [-] Support/Iris
 - [-] radiohead.iris.com/Iris
 - [-] Little-Village/Iris
 - [-] Demily/Iris
 - [-] Clapton/Iris
 - [-] SlipKnot/Iris
 - [-] Rush/Iris
 - [-] Jethro/Iris
 - [-] Frog/Iris
 - [-] Eric/Iris
 - [-] Ella/Iris
 - [-] Dixie/Iris
 - [-] Dayrunner/Iris
 - [-] Crash Test Dummy/Iris
 - [-] Chicks/Iris
 - [-] bhsurfers.iris.com/Iris
 - [-] Area51/Iris
 - [-] Ace/Iris

Configuration - Server Collection Hierarchy (Continued)

- And nested hierarchies
- For example, **Brooks** and her children might be messaging servers. If you only want to view reports for messaging servers, look at Brooks!!
ddm.nsf

Select Hierarchy:



Configuration: 2. Enable default DDM Probes

- Events4.nsf – New DDM section
- **DDM Probes / By Type**
- **Types are the major functional areas**

The screenshot shows the 'Monitoring Configuration' interface. On the left, a tree view shows 'DDM Configuration' expanded to 'DDM Probes', which is further expanded to 'By Type'. On the right, a table displays the following data:

Total	Enabled	Type
14	7	Application Code
8	4	Database
20	10	Directory
24	11	Messaging
8	4	Operating System
4	2	Replication
10	5	Security
2	1	Server
4	2	Web

Configuration: Enable default DDM Probes (Continued)

■ Types expand into subtypes ...

[-] Application Code

- [-] Agents Behind Schedule
- [-] Agents Evaluated by CPU Usage
- [-] Agents Evaluated by Memory Usage
- [-] Long Running Agents

[-] Database

- [-] Database Compact
- [-] Database Design
- [-] Database Error Monitoring
- [-] Scheduled Database Checks

[-] Directory

- [-] Directory Availability
- [-] Directory Catalog Aggregation Schedule
- [-] Directory Catalog Creation
- [-] Directory Indexer Process State
- [-] LDAP Process State
- [-] LDAP Search Response
- [-] LDAP TCP Port Health
- [-] LDAP View Update Algorithm
- [-] Name Lookup Search Response
- [-] Secondary LDAP Search Response

[-] Messaging

- [-] Mail DSN
- [-] Mail Flow Statistic Check
- [-] Mail Reflector
- [-] Message Retrieval Process State
- [-] Message Retrieval TCP Port Health
- [-] NRPC Routing Status
- [-] Router Process State
- [-] SMTP Process State
- [-] SMTP TCP Port Health
- [-] Transfer Queue Check

[-] Operating System

- [-] CPU
- [-] Disk
- [-] Memory
- [-] Network

[-] Replication

- [-] Replication Errors
- [-] Scheduled Replication Checks

[-] Security

- [-] Security Best Practices
- [-] Security Configuration
- [-] Security Database ACL
- [-] Security Database Review
- [-] Security Review

[-] Server

- [-] Administration

[-] Web

- [-] Web Best Practices
- [-] Web Configuration

Configuration: Enable default DDM Probes (Continued)

- Three flavors of probes (some probes have more than one):
 - Scheduled probes run according to a configurable schedule and defaults are supplied
 - Embedded probes "instrument" the feature area and catch problems/issues as they occur
 - Listening probes run when particular error codes are logged

- Probe configuration is quick and flexible:
 - Defaults probe configuration documents supplied for "out-of-box" values
 - "Special target servers" concept allows out-of-the-box probing without having to specify named servers
 - Thresholds and result content are highly customizable
 - what the probe will actually check
 - probe sensitivity (when will they generate an event)
 - what severity event the probe will generate
 - Schedule is highly customizable for schedulable probes
 - Probes can be enabled/disabled per server/server group



Configuration: Enable default DDM Probes (Continued)

- Default probe configuration documents ship with Domino 7
- These documents are initially disabled
- Probes can be enabled/disabled from the view ...

Total	Enabled	Type	Probe Description	Last Modified By
7	0	Application Code		
1	0	Agents Behind Schedule		
			Default Application Code/Agents Behind Schedule Probe	Lotus Notes Ter
2	0	Agents Evaluated by CPU Usage		
			Default Application Code/Agents Evaluated By CPU Usage (Agent Manager)	Lotus Notes Ter
			Default Application Code/Agents Evaluated By CPU Usage (HTTP)	Lotus Notes Ter

Configuration: 3. Set Filters

- **Event filters control what and how much information is reported to ddm.nsf. Why?**
 - Initial flood of events is striking, many of which have always been there
 - Over time, administrators will want to “adjust the volume”, seeing more or less of certain events
- **Enhanced and simple events can be filtered.**
- **Filters can target specific servers and filter out events by event type/area and severity**
- **A default filter is supplied and enabled for simple events to reduce the initial “noise”.**



Configuration: Set Filters (Continued)

- Defined in events4.nsf
- Can target specific servers
- Can filter both enhanced and simple events, or just simple events
- Can filter all event types by severity

Domino Domain Monitor Filter

Description:

all warning simple events

Event Filter:

- Apply filter to enhanced and simple events
- Only apply filter to simple events

Event Types and Severities to Log:

- Log All Event Types Log Selected Event Types
- Fatal Failure Warning(High) Warning(Low) Normal

Servers on which the filter will be applied:

All servers in the domain

Monitoring Configuration

 New DDM Filter
 Edit Document
 Delete Document

	Description	Filter Type
- All Servers -		
	all warning simple events	Filter simple events only
hpeebles6		
	hpeebles7 simple code & db	Filter simple events only
hpeebles7		
	hpeebles7 enhanced code & db	Filter all events

DDM Configuration

- DDM Probes
 - By Author
 - By Probe Server
 - By Type
- DDM Filters**
- Server Collection Hierarchy

Configuration: Set Filters (Continued)

- Can filter specific event types by severity

Description:

hpeebles7 simple code & db

Event Filter:

Apply filter to enhanced and simple events
 Only apply filter to simple events

Event Types and Severities to Log:

Log All Event Types Log Selected Event Types

<input checked="" type="checkbox"/> Application Code	<input checked="" type="checkbox"/> All Severities	<input checked="" type="checkbox"/> Fatal	<input checked="" type="checkbox"/> Failure	<input checked="" type="checkbox"/> Warning (high)	<input checked="" type="checkbox"/> Warning (low)	<input checked="" type="checkbox"/> Normal
<input checked="" type="checkbox"/> Database	<input type="checkbox"/> All Severities	<input checked="" type="checkbox"/> Fatal	<input checked="" type="checkbox"/> Failure	<input checked="" type="checkbox"/> Warning (high)	<input type="checkbox"/> Warning (low)	<input type="checkbox"/> Normal
<input type="checkbox"/> Directory	<input type="checkbox"/> All Severities	<input type="checkbox"/> Fatal	<input type="checkbox"/> Failure	<input type="checkbox"/> Warning (high)	<input type="checkbox"/> Warning (low)	<input type="checkbox"/> Normal



Probe Console Commands

- View DDM probe schedule
 - >show sch -ddm
 - Shows a table of enabled probes and next scheduled run time Probe

```
> sh sch -ddm
```

Scheduled	Type	Next schedule
Default Messaging/Router Proc	Event Monitor	09/30/2005 12:31:03 PM
Default Messaging/SMTP Proces	Event Monitor	09/30/2005 12:30:40 PM
Default Messaging/POP3 Messag	Event Monitor	09/30/2005 12:30:40 PM
Default Messaging/IMAP Messag	Event Monitor	09/30/2005 12:30:40 PM
Monitor the replication of na	Event Monitor	10/01/2005 05:00:00 AM
Default Database/Scheduled Da	Event Monitor	10/01/2005 04:30:00 AM
Default Web/Best Practices Pr	Event Monitor	10/01/2005 02:00:00 AM
Default Security/Best Practic	Event Monitor	09/30/2005 12:30:40 PM
Default Security/Configuratio	Event Monitor	10/01/2005 04:00:00 AM
Default Messaging/SMTP TCP Po	ISpy	09/30/2005 12:29:51 PM
Default Messaging/POP3 Messag	ISpy	09/30/2005 12:29:51 PM
Default Messaging/IMAP Messag	ISpy	09/30/2005 12:29:51 PM

Probe Console Commands (Continued)

- View enabled probes
 - ‘tell event dumpprobes’
 - Shows a list of enabled DDM probes by note ID
- Run probes manually
 - ‘tell event runprobe ??????’
 - Run a probe with note ID ?????? immediately (designed to be used with the dumpprobes command)

```
> tell Event dumpprobes
```

```
>
```

```
ID          Probe Message Queue Name
-----
          1  ReplicationEvents-Events-1
38166       Database-38166
38170       Database-38170
30346       Database-30346
30394       Messaging-30394
30282       Messaging-30282
30290       Messaging-30290
30286       Messaging-30286
30382       Directory-30382
```


Monitor Scenarios

- Common probes

- Monitor for any errors encountered when compacting database on Domino servers. (Database/Database Compact)
- Monitor the configured database(s) to ensure that replication occurs on the target servers within the configured time interval. (Replication/Scheduled Replication Checks)
- Monitor which documents are not replicating in the Domino Directory. (Replication/Replication Errors)



Monitor Scenarios (Continued)

- Common probes
 - Monitor if name lookups are taking too long. (Directory/Name Lookup Search Response)
 - Monitor CPU (55%: fatal) /Disk (30%: fatal) /Memory (98%) Utilization on your Domino Servers. (Operating System/CPU;Disk;Memory)
 - Monitor the availability of all directories on the Domino servers. (Directory/Directory Availability)
 - Monitor and fix a corrupt database by the corrective action code.

Monitor Scenarios (Continued)

- Application probes
 - Monitor whether an agent (or Web agents) runs by Agent Manager took
 - longer than 2 minutes to complete. (Application Code/Long running agents)
 - Monitor database(s) for unused space, generate an event when the percent of 30% unused space exceeds, then automatically compact the database(s) if an event is generated. (Database/Scheduled Checks)

Monitor Scenarios (Continued)

- Application probes
 - Monitor the specific unused Notes DB with no access by any user for one month.
 - Monitor any ACL changes of the specific database.

Monitor Scenarios (Continued)

- Messaging probes
 - Monitor mail routing to Domino and/or non-Domino mail systems. (Messaging/Mail Reflector)
 - Monitors the amount of mail on a Domino server and checks whether the number of mail messages in the MAIL.BOX file exceeds the number of mail messages that the router can process. (Messaging/Mail Flow Statistic Check)

Monitor Scenarios (Continued)

- Messaging probes
 - Monitor whether your SMTP servers are listening on the appropriate ports.
(Messaging/SMTP process state)
 - Monitor whether NRPC mail routing is occurring on the Mail Servers.
(Messaging/NRPC Routing Status)

Monitor Scenarios (Continued)

- Administration Process probes
 - Monitor which AdminP requests are being generated, and whether they are being processed. (Server/Administration)

Reference

- Begin to use Lotus Domino Domain Monitoring
 - http://v.youku.com/v_show/id_XNTcyMjAzNjk2.html
 - <http://youtu.be/w4DmGmt2Sd8>
- This workshop introduces you to DDM ...
 - Lotus Education on Demand: Domino Domain Monitoring (DDM)
 - <http://www.ibm.com/support/docview.wss?uid=swg27007060>
- This wonderful DDM Redpaper explains many details ...
 - <http://www.redbooks.ibm.com/abstracts/redp4089.html>
- Notes/Domino Best Practices: Domino Domain Monitoring (DDM)
 - <http://www.ibm.com/support/docview.wss?uid=swg27009312>



Q&A

Thank
You

