

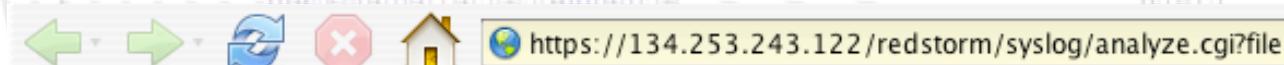
Sisyphus Log Analysis Toolkit

Date: start:	<input type="text" value="2006/07/01 06:00:00"/>	<< < = > >>
stop:	<input type="text" value="2006/07/13 06:00:00"/>	First: 2006/04/01 00:00:00 Last: 2006/07/13 06:00:00
Host:	<input type="text" value="not ()"/>	<< < = > >>
Job ID:	<input type="text"/>	
Word:	<input type="text"/>	
Display top N:	<input type="text" value="100"/>	sorted by <input type="button" value="host_info ▾"/> <input type="button" value="Desc. ▾"/>

List: [Documents](#) [?](#)

Displaying 100 of -1 docs. 0 selected.

<input type="checkbox"/>	<input checked="" type="checkbox"/>	YYYY/MM/DD/HH	HOST	bytes
<input type="checkbox"/>	<input type="checkbox"/>	docs/2006/07/03/23/nid00832		65275
<input type="checkbox"/>	<input type="checkbox"/>	docs/2006/07/04/nid00835		83069
<input type="checkbox"/>	<input type="checkbox"/>	docs/2006/07/03/23/nid00543		122268



<input type="checkbox"/>	3	24	150	100	kern err kernel: LustreError: * pi
<input type="checkbox"/>	4	1	0	0	kern err kernel: LustreError: * *

server code, just going back to sleep ns: mds-mds_15_UUID lock: 00000100397a8cc0/0x2a
 PLN flags: 4000 remote: 0x0 expref: -99 pid: 1031
 Jul 3 23:53:57 nid00832 kern err kernel: LustreError: 1513:0:(client.e:945:ptlrc_expire_one
 req@0000010039001600 x2377216/t0 08->ost00543_0_UUID@NID_543_UUID:6 lens 2
 Jul 3 23:53:57 nid00832 kern alert kernel: LustreError: dumping log to /tmp/lustre-log-nid00

Event logs are:

- **Ubiquitous** (nearly all types of com)
- **Informational** (nearly always the first)
- **Voluminous** (infeasible to read all of them)
- **Noisy** (many messages are completely useless)

• **Non-stationary** (characteristics)

Interrogating (grep) or monitoring (log)

- Is common
- Can be easy (or NOT)
- Can be effective (or NOT)

Many hard questions cannot be easily answered

Under what conditions does string “x” appear in log
^ e.g. nodes, times, locations

Premise:

**Similar computers
correctly execute
the same program
should produce
similar log messages**

Process:

Group log messages into “document”
according to time and host factors

Encode as a “term-doc” matrix:

$X=GL$ where G is a per-term
information weight regarding
some factor of interest
(Host, Time, App, User, etc)



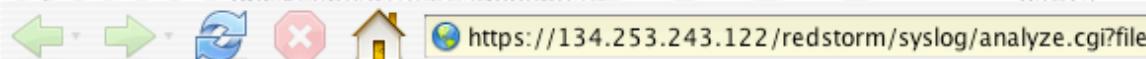
Sisyphus Log Analysis Toolkit

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<input type="checkbox"/>	<input checked="" type="checkbox"/>	docs/2006/07/07/04/nid00835	83069
<input type="checkbox"/>	<input checked="" type="checkbox"/>	docs/2006/07/03/23/nid00543	122268



(2)

<input type="checkbox"/>	3	24	150	100	kern err kernel: LustreError: * p
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(4)

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PLN flags: 4000 remote: 0x0 expref: -99 pid: 1031
Jul 3 23:53:57 nid00832 kern err kernel: LustreError: 1513:0:(client.c:945:ptlrpc_expire_one_request()) req@0000010039001600 x2377216/t0 o8->ost00543_0_UUID@NID_543 UUID:6 lens 2
Jul 3 23:53:57 nid00832 kern alert kernel: LustreError: dumping log to /tmp/lustre-log-nid00832

(5)

<input type="checkbox"/>	ID	pos	word	host info
<input checked="" type="checkbox"/>	195	4	[:obdclass:obd_dev+4272]	4.57
<input type="checkbox"/>	127	5	1513:0:(client.c:945:ptlrpc_expire_one_request())	4.29
<input type="checkbox"/>	318	25	mds-mds_15_UUID	3.91

(6)

How effective is it?

Of the 33 **GL** Combinations Tested,
host information weighting provides
exceptionally good fault detection.

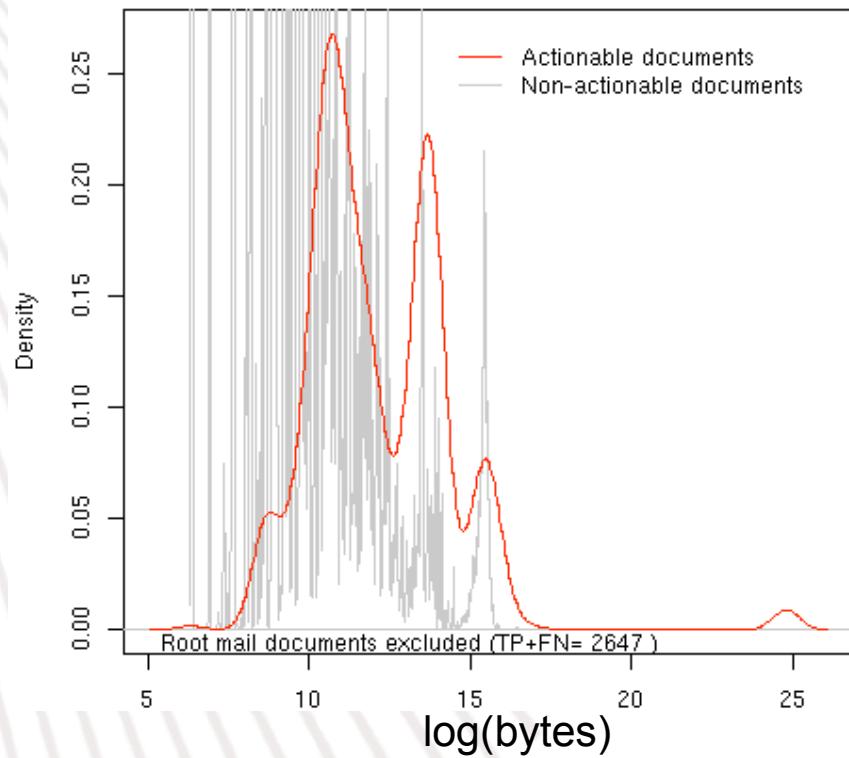
On a 512 Node Linux Cluster at SNL,
60% of faults are detected with an
alarm precision rate of at least 80%.
This corresponds to an excellent false
positive rate of 0.07%.

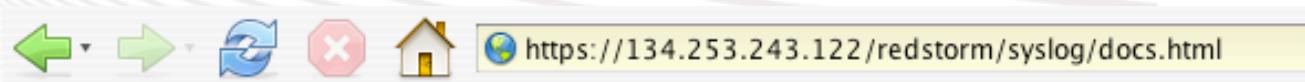
Results for Red Storm, Blue Gene,
Thunderbird, and Liberty are pending...

Effectiveness

Bytes

VS





Sisyphus Log Analysis Toolkit

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<< < = > >>

Host: (not

Job ID:

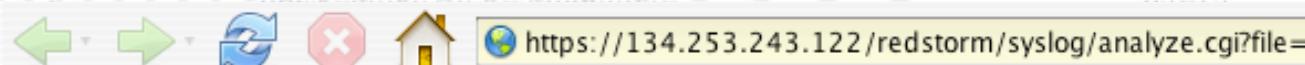
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server code, just going back to sleep ns: mds-mds_15_UUID lock: 00000100397a8cc0/0x2a7
PLN flags: 4000 remote: 0x0 expref: -99 pid: 1031

Jul 3 23:53:57 nid00832 kern err kernel: LustreError: 1513:0:(client.c:945:ptlRpc_expire_one_req@0000010039001600 x2377216/t0 o8->ost00543_0_UUID@NID_543_UUID:6 lens 24

Jul 3 23:53:57 nid00832 kern alert kernel: LustreError: dumping log to /tmp/lustre-log-nid008