jhragsd   to: Ricky Napier, Mark Rudisill, m.kaplan,   02/21/2017 02:51 PM
                    Robert K Gjertsen, Laura J Thompson

From: jhragsd@bldvmb.vnet.ibm.com

To: Ricky Napier/Miami/IBM@IBMUS, Mark Rudisill/Philadelphia/IBM@IBMUS,
            m.kaplan@ibm.com, Robert K Gjertsen/Austin/IBM@IBMUS, Laura J
            Thompson/Seattle/IBM@IBMUS

Please respond to Jim Ragsdale/Indianapolis/IBM@IBMUS

📩   🟩   jhragsd   IBM CONFIDENTIAL:CRIT Complaint AK4597,Winn Dixie Supermark:FYI (

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IBM CONFIDENTIAL:CRIT Complaint AK4597,Winn Dixie Supermark:FYI ONLY
The Complaint Management Tool (CMTool) sent you this note
because you are on the notification list for Complaint AK4597,
and that record was updated by JIM RAGSDALE.


Problem Record Numbers associated to this situation:
-----------------------------------------------------------------
 PMR 28343,442


Last Actions:

The Comments section was updated by the Resolution Owner.
The Comments section was updated by the Resolution Owner.
Action plan task 001 was completed.
The Current Status text was updated.

Basic Information:

Situation Record:   AK4597 - Complaint - Open (Monitor   )

Summary:
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10/25 - customer lost connection to +170 stores thru VIOS and also
experienced FS corruption. RCA required and what caused FS Corrupt.

Customer name:      Winn Dixie Supermarkets
Problem source:     VIOS - Product
Issue:              CORRECT SOLUTION/CONFIGURATION
Age:                104  days, in "Monitor   " status for 97  days
Country:            United States of America       Origin Office: 442
Resolution Org:     POWER
Last updates by:    JIM RAGSDALE - JHRAGSD at IBMUS
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Comments added in this session:

Update from Rob Gjertsen 02/21/17.
The Winn Dixie critsit was opened to investigate root VG file system
corruption occurring on approximately 1/3 of the client LPARs in a
VIOS Shared Storage Pools (SSP) environment that resulted after a
catastrophic network outage of approximately 5 minutes. The network
outage was due to a network broadcast storm caused by a network
configuration change. This network outage caused the failure of the
entire VIOS SSP cluster in this period of time, which is expected in
this situation because the storage pool relies on the network for
communication of meta-data and control traffic amongst all nodes in
the cluster. The VIOS SSP configuration included the recommended
redundancy for network adapters and switches, but this redundancy
does not protect against a broadcast storm scenario where the entire
network is lost for a period of time.

The corruption on the client LPAR root VGs is attributed to the use
of the JFS file system, which is unable to properly handle situations
where meta-data writes are occurring with transient loss of disk and
corruption can result once the disk access is later restored; the
legacy JFS file system was not designed for this failure scenario.
The use of the JFS2 file system, which was specifically hardened for
this scenario, prevents this situation. The recommendation to prevent
future loss of data is to convert all client LPAR file systems from
JFS to JFS2.

The use of the JFS2 file system would have prevented the corruption
on the client LPARs, but the network outage still would have resulted
in impact to the client LPARs due to the storage pool reliance on
network connectivity. Eventually the client LPAR I/Os timeout when
both IO paths to dual VIO servers are lost due to the storage pool
being taken offline on those servers, which can result in the client
LPAR root file system going into read-only mode (due to meta-data
write failures) and client applications encountering I/O errors. Note
that the storage pool should come online automatically for all
cluster nodes after the network outage resolves; correspondingly the
client LPAR filesystems should also return to normal mode from
read-only mode once meta-data writes can resume. Typically a network
outage would impact a subset of the VIOS SSP nodes (e.g., network
partition scenario) where some nodes have to take the storage pool
offline in order to allow the remainder of the cluster to make
forward progress serving IO requests to client LPARs.
An alternate network configuration utilizing a secondary private
network for VIOS SSP communication was proposed (involving multipath
routing with virtual IP addresses), which should avoid the impact of
a network broadcast storm on the primary network along with other
outages on the primary network; however, this solution is not yet
fully vetted for production use with VIOS SSP.
The customer has expressed an interest in having the storage pool
utilize the SAN as an alternate path of communication in case of a
network outage (e.g., using SANCOMM), which is a software feature
request for changes to VIOS SSP.

Comments added in this session:

Internal call today.
IBM: Laura Thompson, Rob Gjertsen, Bo Shue, Mike Kaplan, Mario
     Sanchez, Jim Ragsdale
Dynamix: Bob Tucker
Discussed and prepped for Client call scheduled for 2/22/17.
Jim R to open customer call, acknowledge all on the call and
hand discussion to Rob Gjertsen to cover his write-up. From Rob,
we'll go to Mike Kaplan. Plan is to transfer network recommendations

and future changes to Mike, Bob Tucker (Dynamix) and Cisco. Close
crit and end of call (assuming WD agrees).

Action Plan Text:

Action Plan Task Summary: Due: 2017-02-28 Owner: RAGSDALE, JIM H.

Customer will implement JFS2 in 1Q 2017.

Action Plan Task Detail:

Closing this action item as monitoring/tracking WD's JFS2 implementation is
not in scope of the crit.

The Current Status text that was updated in this session:

Jim Ragsdale
Date:02/21/16
Close Target:02/22/17
Situation is still open because: Closure call scheduled with customer
for 2/22. Internal conducted on 2/21.

Current Action: Present critsit root cause summary to customer
Action Target Date:02/22/17
Area owning action: DRO/RTL
Last Customer Contact: 02/13/17 via phone

Customer perception:Good

People having roles in the situation:

Rudisill, Mark A.	FDBK Coll	IBMUS(RUDISILL)	1-508-382-4258
RAGSDALE, JIM H.	Res Owner	IBMUS(JHRAGSD)	1-720-395-2960
SHUE, BO	Res Team Ldr	IBMUS(BSHUE)	1-720-342-3675
RAGSDALE, JIM H.	Res Assist	IBMUS(JHRAGSD)	1-720-395-2960
CLARK, CHRIS	RTL Backup	IBMUS(CJCLARK)	1-512-286-5721