



NetApp Storage Optimisation Review

Citigroup

March 2010

Review Agenda

1. Introductions

2. Review Current SAA Report

2.1. Confirm the storage appliance list is accurate

Refer to separate reports to confirm Storage Appliance List
Summary of Appliance Count by Report Location

Country	Sys Count
CZ	2 (Previously 4)
DE	19 (Previously 21)
ES	8 (Previously 4)
HU	4
PK	4
PL	4
RU	8
UK1 Canary Wharf	8 (Previously 12)
UK2 Lewisham	15 (Previously 19)
ZA	4
CH	4

2.2. Appliances Not Sending ASUP Data or missing from the reports

- ES - 'BCNCTINAS202A' – No ASUPs between 21st Feb and 21st Mar 2010

2.3. Review O/S and Firmware Summary

2.3.1. Data ONTAP

- Data ONTAP version is determined by Citigroup Storage Engineering Group

2.3.2. Motherboard Firmware

- Motherboard firmware is determined by Citigroup Storage Engineering Group

2.3.3. Shelf Firmware

- Shelf firmware is determined by Citigroup Storage Engineering Group

2.3.4. Disk Firmware

- Disk firmware is determined by Citigroup Storage Engineering Group

2.4. Review the Recommendations

CZ

- (All systems) Virus Scanner recommended timeout setting (p.13)

DE

- Unable to reach mail hosts in autosupport.mailhost option (p.18)
- NVRAM Battery low 'duscmgnas502a' & 'duicmgnas701b' (p.19)
- (All systems) Virus Scanner recommended timeout setting (p.20)
- Aggr0 and aggr1 no eligible spares 'duicmgnas502a' (p.21)

ES

- (All systems) Virus Scanner recommended timeout setting (p.15)

HU

- NVRAM Battery low 'budctinas201a/b' & 'budctinas202a' (p.14)
- (All systems) Virus Scanner recommended timeout setting (p.14)

PK

- (All systems) Virus Scanner recommended timeout setting (p.15)

PL

- Tape device 2a.2: Check Condition 'wswctinas202a' (p.14)

RU

- (All systems) Virus Scanner recommended timeout setting (p.15)

UK1

- SSH dispatch failed from 169.183.180.250 'ldnctinas206b' (p.15)
- 'ldnvnasfit003@ldnctinas206b' vol approaching maxdirsize limit (p.15)
- (All systems) Virus Scanner recommended timeout setting (p.15)

UK2

- SnapMirror demo license expire 15th Mar 2010 'ldnctinas503s' (p.17)
- (All systems) Virus Scanner recommended timeout setting (p.18)

ZA

- (All systems) Virus Scanner recommended timeout setting (p.14)

CH

- User 'pm67350' denied access 'zrhctinas202a' (p.14)
- User 'rs31405' has an expired password 'zrhctinas202a' (p.14)
- SSH dispatch failed from 169.183.180.250 'zrhctinas202a' (p.14)
- User 'rs31405' locked out 'zrhctinas202a' (p.14)
- (All systems) Virus Scanner recommended timeout setting (p.14)

2.5. Review Capacity Trends/Summary

Aggregates showing >90% utilisation

CZ

- prgctinas002 – aggr1 – 81% (decrease from 100%)
- prgctinas001 – aggr1 – 81% (decrease from 100%)

DE

- dusgcbnas201a – aggr1 – 92% =
- dusgcbnas201a – aggr2 – 92% =
- dusgcbnas201b – aggr1 – 92% =
- dusgcbnas201b – aggr2 – 92% =
- fractinas503s – aggr1 – 93% =
- fractinas503s – aggr2 – 93% =
- fractinas503s – aggr3 – 95% =
- fractinas504a – aggr0 – 74% (decrease from 95%)
- fractinas504a – aggr1 – 93% =
- fractinas504b – aggr1 – 93% =
- fractinas501b – aggr2 – 74% (decrease from 92%)
- duicmgnas502b – aggr1 – 92% =
- duicmgnas502a – aggr1 – 91% =
- duicmgnas701b – aggr0 – 95% =
- duicmgnas701a – aggr0 – 95% =

ES

- madctinas001 – aggr1 – 100% =
- madctinas002 – aggr1 – 100% =
- bcncctinas201b – aggr1 – 93% =
- bcncctinas201a – aggr1 – 93% =

HU

- budctinas201a – aggr1 – 95% (increase from 86%)

PK

- khictinas201a – aggr1 – 95% =
- khictinas201a – aggr2 – 92% (increase from 83%)
- khictinas201b – aggr2 – 95% =

PL

- All aggregates are showing <90% utilisation

RU

- vkoctinas002 – aggr1 – 94% =
- vkoctinas004 – aggr1 – 91% =
- vkoctinas001 – aggr1 – 94% =
- vkoctinas001 – aggr2 – 94% =
- vkoctinas001 – aggr3 – 94% =
- vkoctinas003 – aggr1 – 94% =
- vkoctinas003 – aggr2 – 94% =
- vkoctinas003 – aggr3 – 94% =

UK1

- ldntinas202a – aggr1 – 94% =
- ldntinas202a – aggr2 – 94% =
- ldntinas202a – aggr3 – 94% =
- ldntinas202b – aggr1 – 94% =
- ldntinas202b – aggr2 – 94% =
- ldntinas202b – aggr3 – 94% =
- ldntinas204a – aggr1 – 94% =
- ldntinas204a – aggr2 – 94% =
- ldntinas204a – aggr3 – 94% =
- ldntinas204b – aggr1 – 94% =
- ldntinas204b – aggr2 – 94% =
- ldntinas204b – aggr3 – 94% =
- ldntinas206a – aggr1 – 94% =
- ldntinas206a – aggr2 – 94% =
- ldntinas206a – aggr3 – 94% =
- ldntinas206b – aggr1 – 94% =
- ldntinas206b – aggr2 – 94% =
- ldntinas206b – aggr3 – 94% =
- ldntinas208b – aggr3 – 94%
- ldntinas208a – aggr1 – 94%
- ldntinas208a – aggr2 – 94%
- ldntinas208a – aggr3 – 94%

UK2

- ldntinas207b – aggr3 – 93% =
- ldntinas207a – aggr1 – 93% =
- ldntinas207a – aggr2 – 93%
- ldntinas207a – aggr3 – 93% =
- ldntinas503s – aggr1 – 93%
- ldntinas503s – aggr2 – 93%
- ldntinas503s – aggr3 – 93%
- ldntinas504b – aggr1 – 93%
- ldntinas504a – aggr1 – 93%
- ldntinas501a – aggr1 – 93% =
- ldntinas501a – aggr2 – 92% =

ZA

- jnbctinas201a – aggr1 – 91% =
- jnbctinas201a – aggr2 – 91% =
- jnbctinas201b – aggr1 – 91% =
- jnbctinas201b – aggr2 – 91% =

CH

- zrhctinas201b – aggr1 – 90% =
- zrhctinas201a – aggr1 – 90% =

Volumes showing >80% Snap Reserve utilisation

CZ

- prgctinas002 – prgv01 – 86%

DE

- fractinas501a - ldncrpv385 – 87%
- duscmgngnas502a - duicmgv006 – 85%
- duscmgngnas502a - duicmgv041 – 93%
- duscmgngnas502a - duicmgv045 – 84%
- duscmgngnas502b - duicmgv026 – 267%
- duicmgngnas502b - duicmgv026 – 267%
- duicmgngnas502a - duicmgv006 – 85%
- duicmgngnas502a - duicmgv041 – 93%
- duicmgngnas502a - duicmgv045 – 84%
- dusgcbnas201b – dusv01 – 94%
- dusgcbnas201b – dusv02 – 98%
- dusgcbnas201b – dusv03 – 85%
- dusgcbnas201b – dusv04 – 84%
- dusgcbnas201b – dusv05 – 105%
- dusgcbnas201b – dusv06 – 92%
- dusgcbnas201a – dusv01 – 115%
- dusgcbnas201a – dusv02 – 114%
- dusgcbnas201a – dusv05 – 116%
- dusgcbnas201a – dusv06 – 116%
- dusgcbnas202a – dusv01 – 118%
- dusgcbnas202a – dusv02 – 118%
- dusgcbnas202a – dusv05 – 113%
- dusgcbnas202a – dusv06 – 120%
- dusgcbnas202b – dusv01 – 94%
- dusgcbnas202b – dusv02 – 98%
- dusgcbnas202b – dusv03 – 85%
- dusgcbnas202b – dusv04 – 84%
- dusgcbnas202b – dusv05 – 105%
- dusgcbnas202b – dusv06 – 92%

ES

- bcncctinas201b - bcncctiv007 – 92%
- bcncctinas201b - bcncctiv008 – 89%
- bcncctinas201b - bcncctiv010 – 83%
- bcncctinas201b - bcncctiv011 – 84%
- bcncctinas201b - bcncctiv012 – 107%
- bcncctinas201a - bcncctiv001 – 98%
- bcncctinas201a - bcncctiv002 – 95%
- bcncctinas201a - bcncctiv003 – 131%
- bcncctinas202b - bcncctiv007 – 89%
- bcncctinas202b - bcncctiv008 – 81%
- bcncctinas202a - bcncctiv003 – 100%
- madctinas001dr – madv01 – 178%
- madctinas001dr – madv05 – 92%
- madctinas001dr – madv06 – 99%
- madctinas001 – madv01 – 178%
- madctinas001 – madv05 – 88%
- madctinas001 – madv06 – 101%

HU

- budctinas202a – budv02 – 77%
- budctinas202a – budv03 – 87%
- budctinas202a – budv07 – 82%
- budctinas202b – budv18 – 82%
- budctinas201b – budv18 – 82%
- budctinas201a – budv03 – 87%
- budctinas201a – budv07 – 82%
- budctinas201a – vol0dr_m – 89%

PK

- khictinas202b – khictiv021 – 89%
- khictinas202b – khictiv022 – 100%
- khictinas202b – khictiv023 – 98%
- khictinas202b – khictiv026 – 80%
- khictinas202b – khictiv034 – 87%
- khictinas202a – khictiv002 – 93%
- khictinas202a – khictiv003 – 86%
- khictinas202a – khictiv004 – 90%
- khictinas202a – khictiv005 – 83%
- khictinas202a – khictiv009 – 99%
- khictinas202a – khictiv010 – 92%
- khictinas202a – khictiv011 – 86%
- khictinas202a – khictiv012 – 85%
- khictinas202a – khictiv013 – 103%
- khictinas202a – khictiv016 – 135%
- khictinas202a – khictiv017 – 86%
- khictinas202a – khictiv018 – 81%
- khictinas201a – khictiv002 – 90%
- khictinas201a – khictiv003 – 84%
- khictinas201a – khictiv004 – 87%
- khictinas201a – khictiv005 – 83%
- khictinas201a – khictiv009 – 88%
- khictinas201a – khictiv010 – 92%
- khictinas201a – khictiv011 – 86%
- khictinas201a – khictiv012 – 85%
- khictinas201a – khictiv013 – 103%
- khictinas201a – khictiv016 – 135%
- khictinas201a – khictiv017 – 86%
- khictinas201a – khictiv018 – 81%
- khictinas201b – khictiv021 – 89%
- khictinas201b – khictiv022 – 100%
- khictinas201b – khictiv023 – 98%
- khictinas201b – khictiv026 – 80%
- khictinas201b – khictiv034 – 87%

PL

- wswctinas201a – wswv05 – 137%
- wswctinas201b – wswv05 – 150%
- wswctinas202a – wswv05 – 137%
- wswctinas202b – wswv04 – 81%
- wswctinas202b – wswv05 – 109%

RU

- vkoctinas001dr – vkov03 – 83%
- vkoctinas001dr – vkov05 – 99%
- vkoctinas003dr – vkov04 – 81%
- vkoctinas003dr – vkov14 – 99%
- vkoctinas001 – vkov03 – 83%
- vkoctinas001 – vkov05 – 99%
- vkoctinas003 – vkov04 – 81%
- vkoctinas003 – vkov14 – 99%

UK1

- ldntinas208b – vol0dr_m – 84%
- ldntinas208a – vol0dr_m – 87%
- ldntinas208a – ldncav084 – 89%
- ldntinas208a – ldncav086 – 98%
- ldntinas208a – ldncav092 – 90%
- ldntinas208a – ldncav096 – 82%
- ldntinas208a – ldncav104 – 89%
- ldntinas208a – ldncav108 – 85%
- ldntinas208a – ldncrpv246 – 81%
- ldntinas206b – ldnv43 – 98%
- ldntinas206a – ldnv23 – 93%
- ldntinas204b – ldnv17 – 86%
- ldntinas204b – ldnv31 – 85%
- ldntinas204a – ldnv24 – 81%

UK2

- ldntinas207a – vol0 – 82%
- ldntinas207a – ldncav084 – 99%
- ldntinas207a – ldncav086 – 98%
- ldntinas207a – ldncav092 – 89%
- ldntinas207a – ldncav096 – 80%
- ldntinas207a – ldncav104 – 91%
- ldntinas207a – ldncav108 – 87%
- ldntinas207a – ldncrpv240 – 97%
- ldntinas207a – ldncrpv246 – 81%
- ldntinas501a – ldncrpv385 – 87%
- ldntinas203b – ldnv17 – 98%
- ldntinas203b – ldnv21 – 231%
- ldntinas203b – ldnv31 – 85%
- ldntinas203a – ldnv24 – 84%
- ldntinas205a – ldnv23 – 93%
- ldntinas201b – ldnv22 – 97%

ZA

- jnbctinas202b – vol0 – 88%
- jnbctinas202a – vol0 – 81%

CH

- zrhctinas202a – vol0 – 150%

2.6. Review Performance Trends/Summary

2.6.1. CPU Utilisation

- CZ - Both storage appliances are below 10% (Stable)
- DE - Top 10 storage appliances are below 15% (Stable)
'fractinas401a/b' increased to 35% and 50% on 7th Mar
- ES - All storage appliances are below 10% (Stable)
- HU - All storage appliances are below 15% (Up 5%)
- PK - All storage appliances are between 5-15% (Stable)
- PL - All storage appliances are below 10% (Stable)
- RU - All storage appliances are between 10-25% (Stable)
- UK1 - All storage appliances are between 10-20% (Stable)
'ldnctinas206a' has increased to 35%
- UK2 - Top 10 storage appliances are between 10-25% (Stable)
- ZA - All storage appliances are below 15% (Stable)
- CH - All storage appliances are below 15% (Stable)

2.6.2. Disk Utilisation

- CZ - Both storage appliances are between 20-60% (Up 15%)
- DE - Top 10 storage appliances are between 15-55% (Up 5%)
- ES - All storage appliances are between 20-45% (Up 5%)
- HU - All storage appliances are between 25-50% (Up 5%)
- PK - All storage appliances are between 30-45% (Up 5%)
- PL - All storage appliances are between 20-40% (Stable)
- RU - All storage appliances are between 30-55% (Up 5%)
- UK1 - All storage appliances are utilised between 25-70% (Up from 15-65%)
- UK2 - Top 10 appliances are utilised at 15%-95% (Up 5%)
'ldnctinas205a' is constantly at 95%, next highest is at 70%
- ZA - All storage appliances are between 25-35% (Stable)
- CH - All storage appliances are between 20-40% (Up from 10-25%)

2.7. Review TSC Calls - Out of Line Issues/Experiences

- TGA covers this material on weekly con call

2.8. RMA Details (Parts Outstanding)

CZ

- 18th Jan 10 – 450GB Disk – PRGCTINAS001

DE

- 15th Nov 09 – 450GB Disk - DUICMGNAS502A
- 15th Nov 09 – 450GB Disk - FRACTINAS501A
- 10th Dec 09 – 450GB Disk - FRACTINAS504B
- 3rd Jan 10 – 300GB Disk – DUSGCBNAS202B
- 24th Jan 10 – 300GB Disk – DUSGCBNAS202B
- 14th Jan 10 – 450GB Disk – FRACTINAS504B

ES

- None

HU

- 20th Nov 09 – 450GB Disk - BUDCTINAS201B
- 18th Feb 10 – DS14 Mk4 Disk Shelf - BUDCTINAS202A

PK

- None - Pakistan has no agreement in place for return of defective parts so can be disregarded

PL

- None

RU

- 15th Nov 09 – 1GB Memory Dimm – VKOCTINAS002
- 15th Nov 09 – 1GB Memory Dimm – VKOCTINAS002
- 23rd Dec 09 – 144GB Disk – VKOCTINAS003
- 17th Mar 10 – 1GB Memory Dimm – VKOCTINAS004DR

UK1

- 3rd Mar 10 – 300GB Disk – LDNCTINAS202B
- 29th Jan 10 – 300GB Disk – LDNCTINAS202B

UK2

- 30th Nov 09 – 300GB Disk – LDNCTINAS205A
- 30th Nov 09 – 300GB Disk – LDNCTINAS205A
- 6th Nov 09 – 450GB Disk – LDNCTINAS207A
- 13th Feb 10 – 450GB Disk – LDNCTINAS501A
- 23rd Dec 09 – 450GB Disk – LDNCTINAS501B

ZA

- None

CH

- None

3. Contracts

CZ

Platform	Hostname	Serial Number	Expiry Date
FAS3050	PRGCTINAS001	2063534	31 st Oct 2009
FAS3050	PRGCTINAS001CR	2063537	31 st Oct 2009
FAS3050	PRGCTINAS002	1078309	31 st Oct 2009
FAS3050	PRGCTINAS002DR	2063536	31 st Oct 2009

DE

Platform	Hostname	Serial Number	Expiry Date
FAS3050	DUSGCBNAS201A	2079157	31 st Oct 2010
FAS3050	DUSGCBNAS201B	2079156	31 st Oct 2010
FAS3050	DUSGCBNAS202A	2079368	31 st Oct 2010
FAS3050	DUSGCBNAS202B	2079369	31 st Oct 2010
FAS3040	FRACTINAS201A	20001210	28 th Feb 2011
FAS3040	FRACTINAS201B	20001209	28 th Feb 2011
FAS3040	FRACTINAS202A	20001217	28 th Feb 2011
FAS3040	FRACTINAS202B	20001216	28 th Feb 2011

ES

Platform	Hostname	Serial Number	Expiry Date
FAS3050	MADCTINAS001	2074082	31 st Jul 2010
FAS3050	MADCTINAS001DR	2074080	31 st Jul 2010
FAS3050	MADCTINAS002	2074083	31 st Jul 2010
FAS3050	MADCTINAS002DR	2074081	31 st Jul 2010

HU - No contracts expire in next 12 months

PK

Platform	Hostname	Serial Number	Expiry Date
FAS3040	KHICTINAS201A	30003866	31 st Mar 2011 (SES)
FAS3040	KHICTINAS201B	30003867	31 st Mar 2011 (SES)
FAS3040	KHICTINAS202A	30001777	31 st Jan 2011 (SESG)
FAS3040	KHICTINAS202B	1088268	31 st Mar 2011 (SES)

PL

Platform	Hostname	Serial Number	Expiry Date
FAS3040	WSWCTINAS201A	20004838	30th April 2012 (4hr Parts)
FAS3040	WSWCTINAS201B	20004839	30th April 2012 (4hr Parts)
FAS3040	WSWCTINAS202A	20004840	30th April 2012 (4hr Parts)
FAS3040	WSWCTINAS202B	20004841	30th April 2012 (4hr Parts)

RU

Platform	Hostname	Serial Number	Expiry Date
FAS3050	VKOCTINAS001	2074933	31st July 2009
FAS3050	VKOCTINAS001DR	2074931	31st July 2009
FAS3050	VKOCTINAS002	2074927	31st July 2009
FAS3050	VKOCTINAS002DR	2074924	31st July 2009
FAS3050	VKOCTINAS003	2074934	31st July 2009
FAS3050	VKOCTINAS003DR	2074932	31st July 2009
FAS3050	VKOCTINAS004	2074928	31st July 2009
FAS3050	VKOCTINAS004DR	2074923	31st July 2009

UK1

Platform	Hostname	Serial Number	Expiry Date
FAS3050	LDNCTINAS202A	2079441	31st Oct 2010
FAS3050	LDNCTINAS202B	2079440	31st Oct 2010
FAS3050	LDNCTINAS204A	2079445	31st Oct 2010
FAS3050	LDNCTINAS204B	2079444	31st Oct 2010
FAS3050	LDNCTINAS206A	2079443	31st Oct 2010
FAS3050	LDNCTINAS206B	2079442	31st Oct 2010

UK2

Platform	Hostname	Serial Number	Expiry Date
FAS3050	LDNCTINAS201A	2079175	31st Oct 2010
FAS3050	LDNCTINAS201B	2079174	31st Oct 2010
FAS3050	LDNCTINAS203A	2079160	31st Oct 2010
FAS3050	LDNCTINAS203B	2079159	31st Oct 2010
FAS3050	LDNCTINAS205A	2079170	31st Oct 2010
FAS3050	LDNCTINAS205B	2079169	31st Oct 2010

ZA

Platform	Hostname	Serial Number	Expiry Date
FAS3040	JNBCTINAS201A	2082970	31 st Jan 2011
FAS3040	JNBCTINAS201B	2082971	31 st Jan 2011
FAS3040	JNBCTINAS202A	2082973	31 st Dec 2010
FAS3040	JNBCTINAS202B	2082972	31 st Jan 2011

CH - No contracts expire in next 12 months

4. Review Customer Support Bulletins

Register at : <http://now.netapp.com/NOW/products/field/>

5. NetApp Online Resources

NOW Site:

<https://now.netapp.com/eservice/SupportHome.jsp>

Premium Auto Support:

<http://now.netapp.com/NOW/asuphome/>

TR-3437: Storage Best Practices and Resiliency Guide:

<http://media.netapp.com/documents/tr-3437.pdf>

Data ONTAP 7.3.2 Data Protection Online Backup and Recovery Guide:

<http://now.netapp.com/NOW/knowledge/docs/ontap/rel732/pdfs/ontap/onlinebk.pdf>

TR-3066: Data Protection Strategies for NetApp Storage Systems:

<http://media.netapp.com/documents/wp-3066.pdf>

SnapMirror FAQ:

http://now.netapp.com/NOW/knowledge/docs/bpg/dp/sm_faq.shtml

TR-3446: SnapMirror Best Practice Guide:

<http://media.netapp.com/documents/tr-3446.pdf>

TR-3505: Deduplication for FAS and V-Series Deployment and Implementation Guide:

<http://www.netapp.com/us/library/technical-reports/tr-3505.html>

6. AOB

7. Agree Next Meeting Date

Next Storage Optimisation Review is due in June