



Storage Sizing Template 2011-2016

Prepared for

ABC Technologies Private Limited

Version: 2.0

Date:-3/11/2011

Record of Revisions

The following is a list of revisions made to this document:

Rev	Date	Pages Affected	Reason	Summary of Technical Changes	Issued By	Approved By
1.0	1/11/2011	All	–	Initial document release.	Anuj Sharma	Anuj Sharma
2.0	3/11/2011	All		Final Document Release	Anuj Sharma	Anuj Sharma

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A. Purpose of this document

The purpose of this document is to gather the current storage requirements from all the Business Units as per the applications hosted and future growth expected with respect to the applications, data and servers. We will use the data gathered to size the SAN Environment to cater the needs of all the Business Units efficiently over a period of time 2011-2016.

A. Business Unit Details

BU Name	Contact Person	Email ID
IT Operations	Indu Bharti	i.b@abc.com
Finance	Saurabh Sawhney	s.s@abc.com
Human Resource	Sahil Sawhney	s.s1@abc.com
Facilities	Arvind Jamwal	a.j@abc.com

B. IT Operations

BU Head
Ahmad Maksood
Email ID- a.maksood@abc.com
Work Location – ABC PBT LTD Tower 3 Bangalore
Handphone – 9999999999

Application	Number of Servers	Number of Initiator Ports Per Servers	Servers to be Commissioned in 5 years	Application I/O per Server	Read I/O / Write I/O	I/o Size	Storage Requirements -5 Years	RAID
Exchange	10	4	10	1200	70/30	16 KB	80 TB	0/1
SourceOne	10	4	10	1200	70/30	16 KB	80 TB	5
Networker	5	4	2	1200	70/30	64 KB	10 TB	5
Total	25		22				170TB	

Port Requirements: $(10+10) \times 4 + (10+10) \times 4 + (5+2) \times 4 = 188$

Storage Requirements:

Total Exchange IOPS Required (RAID 1/0): $(\% \text{Read I/O}) \times \text{Total I/O} + 2 \times (\% \text{Write I/O}) \times \text{Total IO}$

$$= 0.7 \times 24000 + 2 \times 0.3 \times 24000 = 28000 \text{ Drive IOPS}$$

Total Source One IOPS Require (RAID 5): $\text{Read I/O} \times \text{Total I/O} + 4 \times (\% \text{Write I/O}) \times \text{Total IO}$

$$= 0.7 \times 24000 + 4 \times 0.3 \times 24000 = 42000 \text{ Drive IOPS}$$

Total Networker IOPS Require (RAID 5): $\text{Read I/O} \times \text{Total I/O} + 4 \times (\% \text{Write I/O}) \times \text{Total IO}$

$$= 0.7 \times 9400 + 4 \times 0.3 \times 9400 = 17860 \text{ Drive IOPS}$$

Assuming we use 15000 FC rpm drive we will require Total Drives = $\text{Total IOPS} / \text{Drive IOPS}$

$$= 28000 + 42000 + 17860 / 180 = 87860 / 180 = 488 \text{ Drives}$$

C. Finance

BU Head	
John Liny	
Email ID- j.liny@abc.com	
Work Location – ABC PBT LTD Tower 3 Bangalore	
Handphone – 9999999998	

Application	Number of Servers	Number of Initiator Ports Per Servers	Servers to be Commissioned in 5 years	Application I/O per Server	Read I/O / Write I/O	I/o Size	Storage Requirements -5 Years	RAID
SQL	20	4	20	1200	70/30	16 KB	80 TB	0/1
File Server	20	4	20	1200	70/30	16 KB	80 TB	5
Networker	5	4	2	1200	70/30	64 KB	10 TB	5
Total	45		42				170TB	

Port Requirements: $(10+10) \times 4 + (10+10) \times 4 + (5+2) \times 4 = 188$

Storage Requirements:

Total SQL IOPS Required (RAID 1/0): $(\% \text{Read I/O}) \times \text{Total I/O} + 2 \times (\% \text{Write I/O}) \times \text{Total IO}$

$$= 0.7 \times 24000 + 2 \times 0.3 \times 24000 = 28000 \text{ Drive IOPS}$$

Total File Server One IOPS Require (RAID 5): $\text{Read I/O} \times \text{Total I/O} + 4 \times (\% \text{Write I/O}) \times \text{Total IO}$

$$= 0.7 \times 24000 + 4 \times 0.3 \times 24000 = 42000 \text{ Drive IOPS}$$

Total Networker IOPS Require (RAID 5): $\text{Read I/O} \times \text{Total I/O} + 4 \times (\% \text{Write I/O}) \times \text{Total IO}$

$$= 0.7 \times 9400 + 4 \times 0.3 \times 9400 = 17860 \text{ Drive IOPS}$$

Assuming we use 15000 FC rpm drive we will require Total Drives = Total IOPS/ Drive IOPS
 =28000+42000+17860/180 =87860/180=488 Drives

D. Human Resources

BU Head	
Ahmad Maksood	
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Work Location – ABC PBT LTD Tower 3 Bangalore	
Handphone – 999999997	

Application	Number of Servers	Number of Initiator Ports Per Servers	Servers to be Commissioned in 5 years	Application I/O per Server	Read I/O / Write I/O	I/o Size	Storage Requirements -5 Years	RAID
Portal	20	4	20	1200	70/30	16 KB	80 TB	0/1
File Server	20	4	20	1200	70/30	16 KB	80 TB	5
Networker	5	4	2	1200	70/30	64 KB	10 TB	5
Total	45		42				170TB	

Port Requirements: (10+10) X 4 + (10+10) X 4 (5+2) X 4=188

Storage Requirements:

Total Portal IOPS Required (RAID 1/0): (%Read I/O) X Total I/O + 2*(% Write I/O) X Total IO

$$=0.7*24000 + 2*0.3X24000= 28000 \text{ Drive IOPS}$$

Total File Server IOPS Require (RAID 5): Read I/O) X Total I/O + 4*(% Write I/O) X Total IO

$$=0.7*24000 + 4*0.3X24000= 42000 \text{ Drive IOPS}$$

Total Networker IOPS Require (RAID 5): Read I/O) X Total I/O + 4*(% Write I/O) X Total IO

$$=0.7*9400 + 4*0.3X9400 = 17860 \text{ Drive IOPS}$$

Assuming we use 15000 FC rpm drive we will require Total Drives = Total IOPS/ Drive IOPS
 =28000+42000+17860/180 =87860/180=488 Drives

E. Facilities

BU Head	
Arvind Jamwal	
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Work Location – ABC PBT LTD Tower 3 Bangalore	
Handphone – 9999999996	

Application	Number of Servers	Number of Initiator Ports Per Servers	Servers to be Commissioned in 5 years	Application I/O per Server	Read I/O / Write I/O	I/o Size	Storage Requirements -5 Years	RAID
Catia	20	4	20	1200	70/30	16 KB	80 TB	0/1
Documentum	20	4	20	1200	70/30	16 KB	80 TB	5
Networker	5	4	2	1200	70/30	64 KB	10 TB	5
Total	45		42				170TB	

Port Requirements: (10+10) X 4 + (10+10) X 4 (5+2) X 4=188

Storage Requirements:

Total Catia IOPS Required (RAID 1/0): (%Read I/O) X Total I/O + 2*(% Write I/O) X Total IO

$$=0.7*24000 + 2*0.3X24000= 28000 \text{ Drive IOPS}$$

Total Documentum One IOPS Require (RAID 5):- Read I/O) X Total I/O + 4*(% Write I/O) X Total IO

$$=0.7*24000 + 4*0.3X24000= 42000 \text{ Drive IOPS}$$

Total Networker IOPS Require (RAID 5): Read I/O X Total I/O + 4*(% Write I/O) X Total IO
 $=0.7*9400 + 4*0.3*9400 = 17860$ Drive IOPS

Assuming we use 15000 FC rpm drive we will require Total Drives = Total IOPS/ Drive IOPS
 $=28000+42000+17860/180 =87860/180=488$ Drives

F. Environment Requirements (HT+IT+FINANCE +Facilities)

Total Fabric Node Ports: $188+188+188+188=1952$

Total Storage Required: $170+170+170+170 =680$ TB

Total FC 15000k RPM Drives Required = $488+488+488+488 = 1952$

SAN Topology to be used: Core Edge Topology

Now you can consult with your Vendor for the Switches and Storage that will suffices the above requirements.

G. Assumptions

FC 15000k RPM Drive Used

IOPS

Drive Type	IOPS
Fibre Channel 15k rpm	180
SAS 15k rpm	180
Fibre Channel 10k rpm	140
SAT 7.2k rpm	80
Flash Drive	2500
SATA 5.4k rpm	40