

**[customer name]**

## **Storage Assessment and Research Tool**

### **Data Collection Phase Summary Data - Cross-check Data**

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*Interviewer :* N.N.

*Interviewees :* N.N.

## 0. Preface

Choosing a data storage solution is a complex process that must take into account fast-growing data storage requirements, the need for continuous availability and shared resources, and continuous cost pressure. StART can help address these issues and should be considered any time a customer proposal is being prepared

### Storage Assessment and Research Tool (StART) Objective

#### How can StART help?

- StART delivers a comprehensive IT assessment and a feasible high-level storage design.
- StART quickly provides an assessment of the current IT structure and assesses the four major storage-related cost components of the solution: hardware, human resources, outages and miscellaneous.
- StART delivers a consolidated and optimized high-level storage network design and calculates its Total Ownership Cost (TOC) over three years.
- Finally, the tool compares the future TOC to the initial, basic TOC and calculates the potential cost savings of the new storage network solution. Storage networking technologies like SAN, Network Attached Storage and iSCSI are supported.

StART is based on customer information provided in a short questionnaire and offers industry-typical default values if the requested information is not available. The user-friendly interface and underlying mathematical routines enable fast and easy modification of the solution design and a quick calculation of the corresponding technical and financial impacts. Planning and decision processes are more reliable and can be delivered in less time with this tool, a benefit that can be helpful when assessing system integration projects or other IT cost decisions.

#### In summary :

IBM Customers and their storage decisions will benefit from StART .

The necessary tool skills are provided by IBM storage sales teams, technical support teams and IBM Business Partners

It is an easy-to-use tool for Storage Sales / FTSS people and can deliver results within days (1-5).

## Storage Assessment and Research Tool Structure

The Storage Assessment and Research Tool consists of six segments:

- S1 - A questionnaire with 12 categories of questions, a subset of them mandatory. We provide a set of default values for all optional parameters in case individual customer answers are not available.
- S2 - A summary of the input parameters (for customer validation)
- S3 - A calculation module for the initial IT cost assessment (Business As Usual = BAU)
- S4 - A storage network design module
  - Storage Area Network
  - IP Storage (NAS and iSCSI)
- S5 - A calculation module for the cost savings derived from the migration to the consolidated storage network solution
- S6 - A results module (tables and charts)

## 1. General Information

**Note: Attributes valid for the entire questionnaire with the following meaning**

**[M] Mandatory parameter**

**[ ] Optional parameter**

**[ - ] Parameter currently not used**

### 1.1 [M] Company Name

Usage: To identify tables and charts in the output

### 1.2 [M] Project Name

Usage: To identify tables and charts in the output

### 1.3 [ ] Industry

Please specify the industry from the following list:

1 = Finance

2 = Distribution

3 = Public

4 = Insurance

5 = Industrial

6 = Communication

99 = Other

Usage: Usage: Is used to calculate the proposed outage cost per hour (see Section 10. Outage)

Default: 99 = Other

### 1.4 [M] Revenue

What was the last year overall revenue of all applications running on the servers and storage facilities subject of this assessment ? Enter 2.500 if the relevant revenue is 2.500.000.000 \$ (2.5 B\$). Use the official exchange rate for the local currency.

Usage: To calculate revenue related outage costs, see also section 10.

**1.5 [M] Revenue Growth**

What is the expected annual revenue growth in % for the revenue specified in Q 1.4? The input has to be in decimal or percentage, e.g. "5%" or "0.05"

Usage: To calculate revenue related outage costs, see also section 10.

**1.6 [ ] Annual Industry Price Erosion [%]**

What is the annual Industry price erosion in % for storage hardware?

Usage: Used to calculate the disk storage costs for Business As Usual and for the proposed storage solutions.

Default: 40%

**1.7 [ ] Include IBM Global Financing Offering**

Should IBM Global Financing (IGF) offering be included (Yes=1, No=0)?

Financing can reduce total ownership cost by a further 8 to 13%, in most cases.

Note: Terms and Conditions apply. Promotion availability and details may vary across Countries. Check with your local IGF contact for availability in your country:

EMEA :	Nick Hodgson	(44) 20 8818 6075
- Central	Markus Rieche	(49) 711 785 4686
- Nordics	Maiken Larsen	(45) 4523 4561
- North	Stuart Gordon	(44) 1256 343736
- South	Francesca Zafferoni	(39) 02 5962 6595
- West	Eric Davy	(33) 1 4905 5906

US:	Gord Annear	(1) 905 316 2044
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AP:	Hiroyuki Arakawa	(81) 3 5572 2642
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Visit IGF web site at <http://w3-1.ibm.com/financing>

Usage: Used to calculate the disk storage costs for the proposed storage solutions.

Default: 0

## 2. Application Information

Common way to specify the server groups and their associated server and storage facilities.

- The grouping should be done according to the main applications or with similar requirements and environments, e.g.
  - o Order Entry, CAD/CAM, SAP, MAIL, Data base, Finance ...
  - o Availability: same application on same type of servers, but one group requires remote copy whereas the other doesn't.
  - o Performance: same application on same type of servers, but one group requires different performance (normal vs. high)
  - o Others: application type (Q 2.4), file sharing (Q 2.6), growth rates (Q 5.1, Q 5.2), etc.
- To specify more than 5 server groups, use an additional questionnaire.
- The maximum supported number of server groups is currently 10.

### 2.1 [M] Key Application Name

What is the name of the key application in each server group?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: To identify the server groups in tables and charts in the output

### 2.2 [M] Application Revenue Contribution

What is the revenue contribution for the applications on each server group? Use the following definition:

5 = Mission critical

4 = Very high importance

3 = High importance

2 = Medium importance

1 = Low importance

0 = No impact or revenue loss

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Weighting factor used in calculation of the revenue related outage costs, 0 = none, 5 = high

**2.3 [ ] e-Business Type**

In which e-business type are the servers running? Use the following definition:

1 = e-Commerce

2 = Enterprise Resource Planning (ERP)

3 = Business Intelligence (BI)

4 = Supply Chain Management (SCM)

5 = Customer Relationship Management (CRM)

99 = Other

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Is used to calculate the proposed outage cost per hour (see Section 10. Outage)

Default: 99 = Other

**2.4 [ M ] Application Type**

What is the application type of the main application? Use the following definition:

0 = unknown

1 = Block/IO (e.g. database server, mail server)

2 = File/IO (e.g. File & Print server, WEB server)

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model.

**2.5 [ ] Performance Requirements**

What are the performance requirements for the applications?

0 = Normal

1 = High

2 = Super

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to define the number of servers that can share the same data paths to a specific storage device and to select the appropriate storage solution and storage model.

Default: 0 = Normal

**2.6 [ ] File Sharing**

How important is the File Sharing functionality? Use the following definition:

0 = No importance

1 = Medium importance

2 = High importance

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model.

Default: 0 = No importance

**2.7 [ ] Enforced Implementation**

Is there a certain type of storage network that should be enforced?

The tool will select the appropriate storage model. If the selection is not supported by either the application type (Q 2.4) or the server operating system (Q 3.2), then the tool will set this parameter to the default value.

0 = nothing specified (use recommended implementation)

1 = SAN implementation is required (must be used for Server Type = S/390, AS/400, iSeries)

2 = NAS implementation is required (can be used for Open Systems only)

3 = iSCSI implementation is required (can be used for Open Systems only)

Alternatively a specific network and model can be specified:

11 or -11 = SAN – FAStT500

12 or -12 = SAN – FAStT700

13 or -13 = SAN – ESS

21 or -21 = NAS – NAS 200

22 or -22 = NAS – NAS 300

23 or -23 = NAS – NAS 300G

31 or -31 = iSCSI – IP Storage 200i

32 or -32 = iSCSI – Cisco Router 5420

In the case of NAS 300G or Cisco 5420 the SAN Storage can be enforced via

- NAS300: 2311 = FAStT500 2312 = FAStT700 2313 = ESS 2314 = ESS Turbo

- Cisco5420: 3211 = FAStT500 3212 = FAStT700 3213 = ESS 3214 = ESS Turbo

Note: If the input is given as a NEGATIVE number ( - 11), the consolidation rules will NOT be applied, e.g. a NAS appliance box will never be converted to a NAS Gateway!

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

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Usage: Used to enforce a specific storage network solution or storage model.

Default:	1	for S/390 or z-Series and AS/400 or i-Series
	0	for all others

### 3. Server Information

**Note:** In case of Remote Copy that is already implemented, only the primary site should be specified.

#### 3.1 [M] Server Type

What server type is used in each server group?

1 = z-Series or OS/390 Mainframe

2 = p-Series or other UNIX based systems

3 = x-Series or other Intel based Windows NT/2000/XP systems

4 = Intel based Novell NetWare systems

5 = i-Series or AS/400

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the fabric type (switch or director) and the storage network type.

#### 3.2 [M] Server Operating System

What operating system is used?

Currently supported operating systems are:

11 = OS/390

12 = z-OS

21 = AIX

22 = Sun Solaris

23 = HP UX

24 = Linux

31 = NT

32 = 2K

33 = XP

41 = NetWare

51 = OS/400

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model.

### 3.3 [M] Number of Servers

How many servers are in each server group?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model and to size the storage network solution.

Note: For z-Series or S/390 the number of servers is identical to the number of direct connections (ESCON or FICON), e.g. for two S/390 servers with 5 ESCON connections each, then the number of servers should be specified as “10”. In addition for each server group having one ESCON or FICON connection, the Availability Type current (Q 9.1) should be set to “0”.

### 3.4 [M] Number of Concurrent Active Users

How many active users on average are connected concurrently in each group?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model and for calculating the productivity related outage costs.

## 4. Disk Storage Information

**Note:** In case of Remote Copy that is already implemented, only the primary site should be specified.

### 4.1 [M] Installed Disk Capacity [GB] per Server Group

What is the total installed capacity in GB for each server group? For non-RVA/ESS storage, the raw capacity should be specified. For RVA/ESS, the usable capacity should be specified.

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model and to size the storage network solution.

### 4.2 [ ] RAID Level

What is the used RAID level for each server group? This parameter also controls the RAID level to be implemented in the future solution and whether the existing storage hardware should be re-utilized or not (see table below).

Input	Existing Storage	Future RAID Implementation				
		RAID Type	ESS	FASTT	IP	Re-Utilization
0	None-IBM or IBM-RVA	RAID 1 or 10	5	5	5	NO
1	None-IBM or IBM-RVA	RAID 1 or 10	5	5	5	NO
-1	None-IBM or IBM-RVA	RAID 1 or 10	10	1	1	NO
5	None-IBM or IBM-RVA	RAID 5	5	5	5	NO
10	None-IBM or IBM-RVA	RAID 0	5	5	5	YES
11	None-IBM or IBM-RVA	RAID 1 or 10	5	5	5	YES
-11	None-IBM or IBM-RVA	RAID 1 or 10	10	1	1	YES
15	None-IBM or IBM-RVA	RAID 5	5	5	5	YES
50	FASTT 500	RAID 0	N.A.	5	N.A.	YES
51	FASTT 500	RAID 1	N.A.	1	N.A.	YES
55	FASTT 500	RAID 5	N.A.	5	N.A.	YES
70	FASTT 700	RAID 0	N.A.	5	N.A.	YES
71	FASTT 700	RAID 1	N.A.	1	N.A.	YES
75	FASTT 700	RAID 5	N.A.	5	N.A.	YES
90	ESS Exx/Fxx	RAID 0	5	N.A.	N.A.	YES
91	ESS Turbo	RAID 10	10	N.A.	N.A.	YES
95	ESS Turbo	RAID 5	5	N.A.	N.A.	YES

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Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model and to size the storage network solution.

Default:        5        for S/390 or z-Series and AS/400 or i-Series  
                   1        for Unix systems  
                   0        for all others

#### 4.3 [ ] Currently Reserved Capacity [%]

What is the reserved capacity in percent of the installed capacity per server group specified in Q 4.1 and used for copy volumes, test purposes, etc.?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to size the storage network solution.

Default:        0%

#### 4.4 [ ] Utilization [%]

What is the disk storage utilization related to the usable capacity?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to size the storage network solution.

Default:        80%    for S/390 or z-Series and AS/400 or i-Series  
                   60%    for Unix systems  
                   50%    for all others

#### 4.5 [ ] Price Adjustments [%] \*

(\*) This parameter has to be filled out by the IBM representative

#### 4.6 [ ] Future Reserved Capacity [%]

As a percentage of the installed disk storage capacity per relevant server group:  
How much is the expected spare capacity to be reserved for future needs ?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to size the storage network solution.

Default: Value equal to [4.3] Currently Reserved Capacity

## 5. Server / Storage Growth

**Note:** In case of Remote Copy that is already implemented, only the primary site should be specified.

### 5.1 [M] Growth rate Server [%]

What is the reflected server group's expected annual growth rate in % over the next 3 years?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model and to size the storage network solution.

### 5.2 [M] Growth rate Disk Storage [%]

What is the reflected server group's expected annual disk storage growth rate in % over the next 3 years?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model and to size the storage network solution.

### 5.3 [ ] Purchased Storage Cost / MB [\$]

What is the average purchased cost per MB for the already installed storage? The cost should be the local street price converted into US dollars including costs for capacity related functions such as FlashCopy and storage disposal. Non-capacity related costs should be specified in section 6.

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the disk storage costs for Business As Usual.

Default:      0.11    for S/390 or z-Series and AS/400 or i-Series  
                 0.08    for Unix systems  
                 0.06    for all others

**5.4 [ ] Acquisition Overhead [%]**

What is the acquisition overhead in % of the storage costs specified in Q 5.3 for purchasing disk storage?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the disk storage costs for Business As Usual.

Default: 5%

## 6. Storage Management Cost

**Note:** These costs are only related to Business As Usual. All other costs related to storage software or hardware should be specified in section 11.

### 6.1 [ ] Software [\$]

What is the annual cost for storage management software, which is not capacity related? Capacity related storage cost should be included in the purchased storage cost in Q 5.3

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the disk storage costs for Business As Usual.

Default: 0

### 6.2 [ ] Service [\$]

What is the annual cost for storage management services and maintenance?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the disk storage costs for Business As Usual.

Default: 0

## 7. Human Resource Cost

**Note:** The two types of operational staff (FTEs) can be used not only to differentiate in workload, but also for different burdened cost levels.

### 7.1 [M] #FTE1

Specify how many Full Time Equivalent (FTE) persons are involved in storage with an annual burdened cost specified in [7.2]?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs for Business As Usual.

### 7.2 [ ] Annual burdened cost / FTE1 [\$]

What is the annual burdened cost in \$ per FTE1 converted into US dollars? The burdened cost should include the total company costs (salary, taxes, pensions, health programs, etc.) excluding those specified in Q 7.7, Q 7.8, and Q 7.9. (Recruitment, education, labor turn-over)

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs

Default: 100.000

### 7.3 [ ] #FTE2

How many Full Time Equivalent (FTE) persons are involved in storage with an annual burdened cost specified in [7.4]?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs for Business As Usual.

Default: 0

**7.4 [ ] Annual burdened cost / FTE2 [\$]**

What is the annual burdened cost in \$ per FTE2 converted into US dollars?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs

Default: 100.000

**7.5 [ ] Annual burdened cost increase [%]**

What is the annual burdened cost increase in %?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs

Default: 5%

**7.6 [ ] Management Software Cost [\$]**

What is the annual cost for administration, reporting and configuration software, e.g. Tivoli Storage Network Manager (TSNM), or Tivoli Decision Support (TDP)?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs

Default: 0

**7.7 [ ] Average Cost of Recruitment per FTE [\$]**

What is the average cost for recruitment of new FTEs?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs

Default: 10.000

**7.8 [ ] Cost of Education/Training [\$]**

What is the average cost for education and training per FTE per year?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs

Default: 0

**7.9 [ ] Annual Estimated Labour Turnover [%]**

What is annual estimated labour turnover (fluctuation) rate in % for the above specified personnel?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs

Default: 15%

**7.10 [ ] Education / Training Cost Increase [%]**

What is the estimated annual education/training cost increase?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the human resource costs

Default: 5%

**8 Intentionally left blank**

## 9. Availability Level

### 9.1 [ ] Availability Type (current)

What is the current availability type?

0 = Basic (single path Server to Storage)

1 = High Availability (Dual Pathing – hardware/software)

2 = Remote Copy (Disaster tolerant solution)

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the hardware costs for Business As Usual.

Default: 0

Note: For S/390 and z-Series please refer to Q 3.3

### 9.2 [ ] Availability Type (future)

What is the required availability type in the future?

0 = Basic (single path Server to Storage)

1 = High Availability (Dual Pathing – hardware/software)

2 = Remote Copy (Disaster tolerant solution)

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to select the appropriate storage solution and storage model, to calculate the hardware costs, and the outage costs.

Default: 1 if SAN is proposed or enforced  
0 otherwise

**9.3 [M] Operation Days/Year**

How many days a year is each server group operating?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the outage costs.

**9.4 [M] Operation Hours/Day**

How many hours per day on average is each server group operating?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the outage costs

## 10. Outages (storage related)

### 10.1 [ ] Hourly cost for storage related outages (lost revenue) [\$]

What is the outage cost (lost revenue) in \$ per hour?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the revenue related outage costs for Business As Usual.

Default: Empty

Note: If nothing (empty field) is specified this number is calculated from the total revenue (Q 1.4), revenue growth (Q 1.5), and the application revenue contribution factor (Q 2.2).

### 10.2 [ ] Annual burdened cost / User [\$]

What is the annual total burdened cost per user in \$?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the productivity related outage costs for Business As Usual.

Default: 100.000

## Un-Planned Outages

### 10.3 [M] # Outage Incidents

What is the total number of storage related unplanned outage incidents (# of affected servers x frequency) for the last year?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the un-planned outage costs for Business As Usual.

Note: Example: A server group has 15 servers, where 5 servers failed once during the last year, 3 servers failed twice, 2 servers failed tree times, and all other servers never failed. The number to specify is:  $(5 \times 1) + (3 \times 2) + (2 \times 3) = 17$

**10.4 [M] Duration per Incident [hours]**

What is the average duration of an un-planned storage related outage in hours per incident?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the un-planned outage costs for Business As Usual.

**Planned Outages****10.5 [ ] # Outage Incidents**

What is the total number of storage related planned outage incidents (# of affected servers x frequency) for the last year?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the planned outage costs for Business As Usual

Default:      1.0 x #Servers (Q 3.3)      for S/390, z-Series and AS/400, i-Series servers  
                  0.5 x #Servers (Q 3.3)      for Open Systems

**10.6 [ ] Duration per Incident [hours]**

What is the average duration of a planned storage related outage in hours per incident?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the un-planned outage costs for Business As Usual.

Default:      4

## 11. Miscellaneous

**Note:** This section covers non-capacity related costs. Capacity related costs should be specified in Q 5.3

### 11.1 [ ] Additional Hardware / Software [\$]

What is the annual cost in \$ for additional hardware and/or software, e.g. storage enclosures, cables, etc.?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the Miscellaneous costs.

Default: 0

### 11.2 [ ] Environmental Cost [\$]

What are the annual environmental costs, e.g. power, cooling, floor space, etc.?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the Miscellaneous costs

Default: If not specified, a default value of 5% of the TOC will be used.

## 12. Installed SAN Fabric

**Note:** If a storage type is specified in Q 12.1, then only one fabric type (switch, director) can be used, i.e. only one of the questions Q 12.2 to Q 12.5 can be used.

### 12.1 [ ] Storage Type installed already in SAN

What type of storage is used in an already implemented SAN environment?

1 = IBM

2 = EMC

3 = HDS

99 = Other or mixed

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the hardware costs for existing SANs.

Default: 0

Note: If “0” or nothing is specified then all inputs for Q 12.2 to Q 12.5 are ignored.

### 12.2 [ ] Number of 16-port Switches

How many 16-port switches are already installed?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the hardware costs for existing SANs.

Default: 0

### 12.3 [ ] Number of 32-port Switches

How many 32-port switches are already installed?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the hardware costs for existing SANs.

Default: 0

#### 12.4 [ ] Number of 64-port Directors

How many 64-port directors are already installed?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the hardware costs for existing SANs.

Default: 0

#### 12.5 [ ] Number of 128-port Directors

How many 128-port directors are already installed ?

Server Group 1	Server Group 2	Server Group 3	Server Group 4	Server Group 5

Usage: Used to calculate the hardware costs for existing SANs.

Default: 0