



S01

Consolidation Data Analysis Toolset

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xSeries ATS Server Consolidation Team

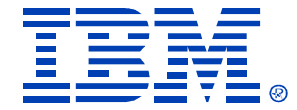
IBM @server xSeries
Technical Conference

Chicago, IL
Aug. 9 - 13, 2004



Why Consolidate?

- Many corporations suffer from “server sprawl”, where large numbers of servers consume vast quantities of power and rack space, driving up operational costs
- Microsoft support for Windows NT 4.0 ends on December 31, 2004
- For a variety of reasons, Intel-based servers are seldom fully utilized
 - Vendors discourage mingling disparate applications on a single server
 - Most applications do not need the full capacity of modern servers
- IT staff must monitor and update each system individually, often having to deal with different operating system versions or hardware configurations



Server Consolidation Benefits

- Saves money through an overall reduction in the number of servers
 - Reduces server maintenance costs
 - Reduces administration costs
 - Reduces energy and floor space costs
- Reduces administration complexity by using state-of-art technology to manage fewer, more robust servers
- Fewer enterprise level systems can replace the commodity-class machines and increase overall reliability
- Improve disaster recovery
- Better accommodate future growth
- Improve physical and network security



IBM xSeries 'miniAlign'

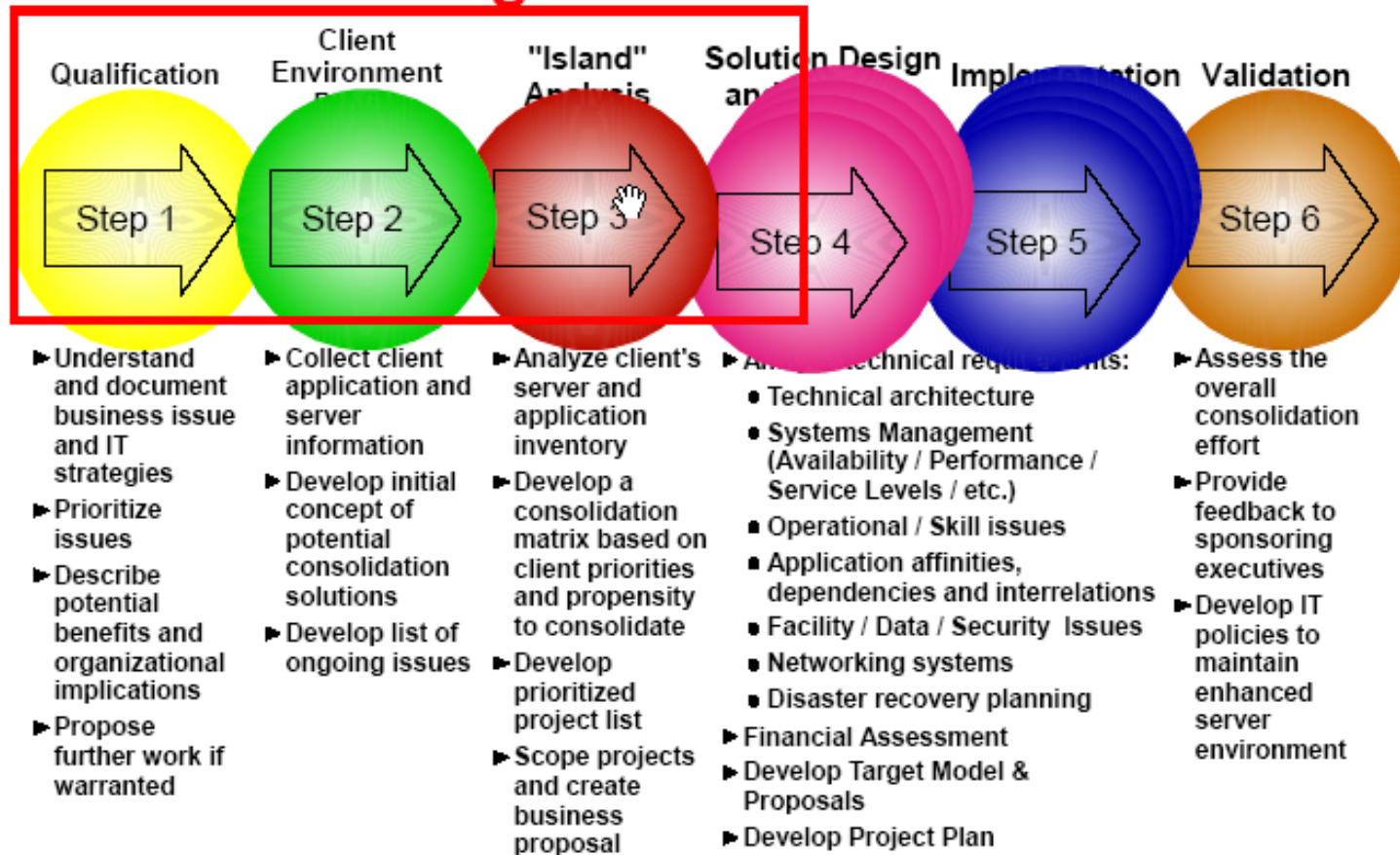
- Direct subset of IGS' patented 'Align' methodology
- Over 500 studies in Americas in past 2 years
- 95% competitive environment
- 92% success rate
- 'Elevator Pitch':
 - Agreed Success Criteria, commitment to implement
 - IBM makes significant investment to fund study
 - 4-6 week process, start to finish
 - Little customer resource required
 - Implementation Services available

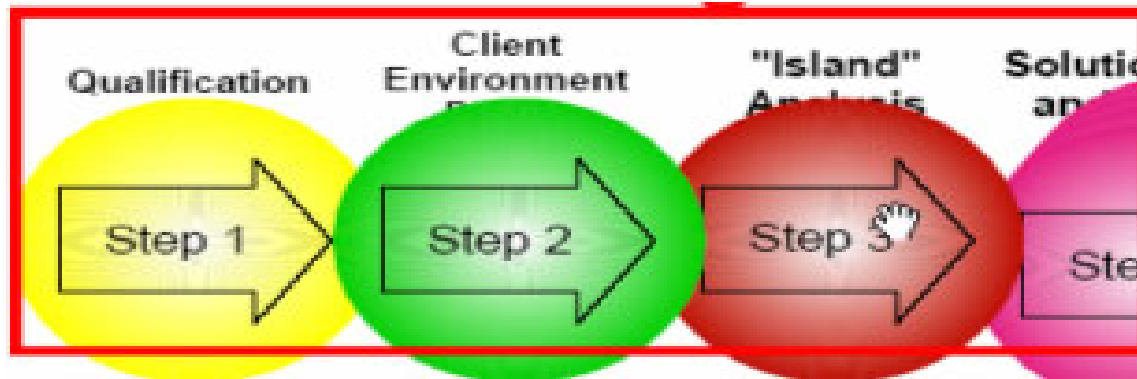


xSeries miniAlign Process

ALIGN Server Consolidation Methodology: Process Steps

miniAlign





- *Process Steps:*

- **Qualification** > Nomination Form
- **Profile Environment** > CDAT
- **“Island Analysis”** > SCON SWAT team
- **Solution Development** > Proposal
(Fee based):
- **Implementation** > Lab Services



Process Steps:

- **Qualification** > **Nomination Form**
- **Profile Environment** > **CDAT**
- **“Island Analysis”** > **SCON SWAT team**
- **Solution Development** > **Proposal**
(Fee based):
- **Implementation** > **Lab Services**



Qualification > Nomination Form

eXpresSCON Opportunity Nomination Form

Opportunity Description / Contact Info

V1.3 1/01/2004
Page 1 of 3

Company Name:

Division/Project ID if multiple studies:

Location:

Siebel/OMNotes #:

Omsys/Siebel xSeries Revenue \$:

Client rep/Notes ID:

Region/ Area #:

xSeries rep/Notes ID

FTSS/Notes ID

BP name if applicable:

Contact info:

IGS involved? Yes- contact/Notes ID:

Contact 1, Primary Decision Maker Name:

Title:

Phone:

Email:



Qualification > Nomination Form

eXpresSCON Opportunity Nomination Form Technical Information	V1.3 1/01/2004 Page 2 of 3
Success Criteria: (i.e.) "Consolidate SQL Serves by 3:1" or "Reduce file/print Servers from 15 to 5" Which two islands of servers would the customer like us to study? (Additional islands are additional cost)	
Total # Wintel servers: # Servers in scope of study: (potential addt'l cost if > 200)	
Incumbent vendor:	
Do NOT include servers faster than # Ghz: (Normally exclude 1.5Ghz and greater)	
Has customer agreed to implement on xSeries if we deliver a proposal that meets the agreed objectives stated above?	YES/ NO (delete one)
Desired Start Date	
CDAT requested? Est run date: # days if extended run: (Customer must provide additional server function/usage data to supplement CDAT info)	



Qualification > Critical Success Factors

Objective 1: Server Reduction

- Reduce total number of development servers by 70% within the 12 months of implementation.
- Reduce total number of QA servers by 70% within the 12 months of implementation.
- Reduce total number of production servers by 50% within 24 months of implementation.

Objective 2: Improve Service Level/Improve Server Manageability

- Implement a server consolidation process which will improve service levels to the business owner by 15%. The term service level includes enhance performance, manageability and system availability.
- Implement a server consolidation process that decreases the total of cost ownership by 30%.

Objective 3: Return on Investment

- Development/QA/Production Server Consolidation: Implement a solution which will provide a ROI within 12 months of the implementation, while taking into consideration our current hardware and software investment.



Process Steps:

- **Qualification** > Nomination Form
- **Profile Environment** > **CDAT**
- **“Island Analysis”** > SCON SWAT team
- **Solution Development** > Proposal
(Fee based):
- **Implementation** > Lab Services



CDAT Tool Highlights

- Performs the critical data collection process required for xSeries ‘miniAlign’ study
 - CDAT can access all Wintel servers, not just IBM
 - Gathers ~ 75-80% of data required for study
 - Additional customer data required (‘User counts’, ‘Location’, etc.)
- Developed, maintained by ICMT (“IBM Director”)
- No installation of agents on the target systems
- Uses only published calls/API’s (‘Enumerate’)
- Tunable to minimize network traffic
- Does not store password information
- Does not read disk data
- 30 day license key



CDAT Runtime Requirements

- A user ID and password with administrator privileges for domains containing target servers.
 - If organization has multiple domains, trust relationships must be in place in order for CDAT to access all servers using one common id and password.
- **Browser service must be turned ON for all target servers (for full Discovery)**
 - **Or customer provide servername / IP list of servers**
- **Share on admin\$ must be turned ON for all target servers**



Limitations

- All data required by miniAlign cannot be collected by CDAT
 - i.e. Physical location of servers (if multi-site)
 - # Concurrent users non-infrastructure servers
 - ? Test/Dev/Production
- ‘Dropdown’ selection for some customer supplied data
 - Can use customer server inventory data if avail

Three solid blue rectangular bars are stacked vertically on the left side of the slide.

Using CDAT Features



CDAT Features

- Network discovery
 - Automatic
 - Server Name / IP address .txt file
- On-screen data display
 - IBM Director look and feel
- Database management
- Data Collection Wizard
- Export to miniAlign spreadsheet
- Enterprise Data Collector



Network Discovery

- Automatic Background discovery
 - Discovers Windows domains and servers in connected and trusted domains
- Classifies the discovered servers
 - MS SQL Servers, DB2 Servers, Domino Servers, MS Exchange Servers, Windows Servers, Netware Servers, AIX Servers, 'Other' servers
- Remote discovery over WAN thru 'IP_Address' option



Network Discovery

- Discovery by IP Address
 - IP Address Range (subnet)
 - IP Addresses in a text file (from DNS servers)
- Can also use Server Names in input text file
- Or combination
 - Recommend use of Server Name wherever possible to assist with adding of additional data (location, user counts, etc.)

Background Discovery (Default)



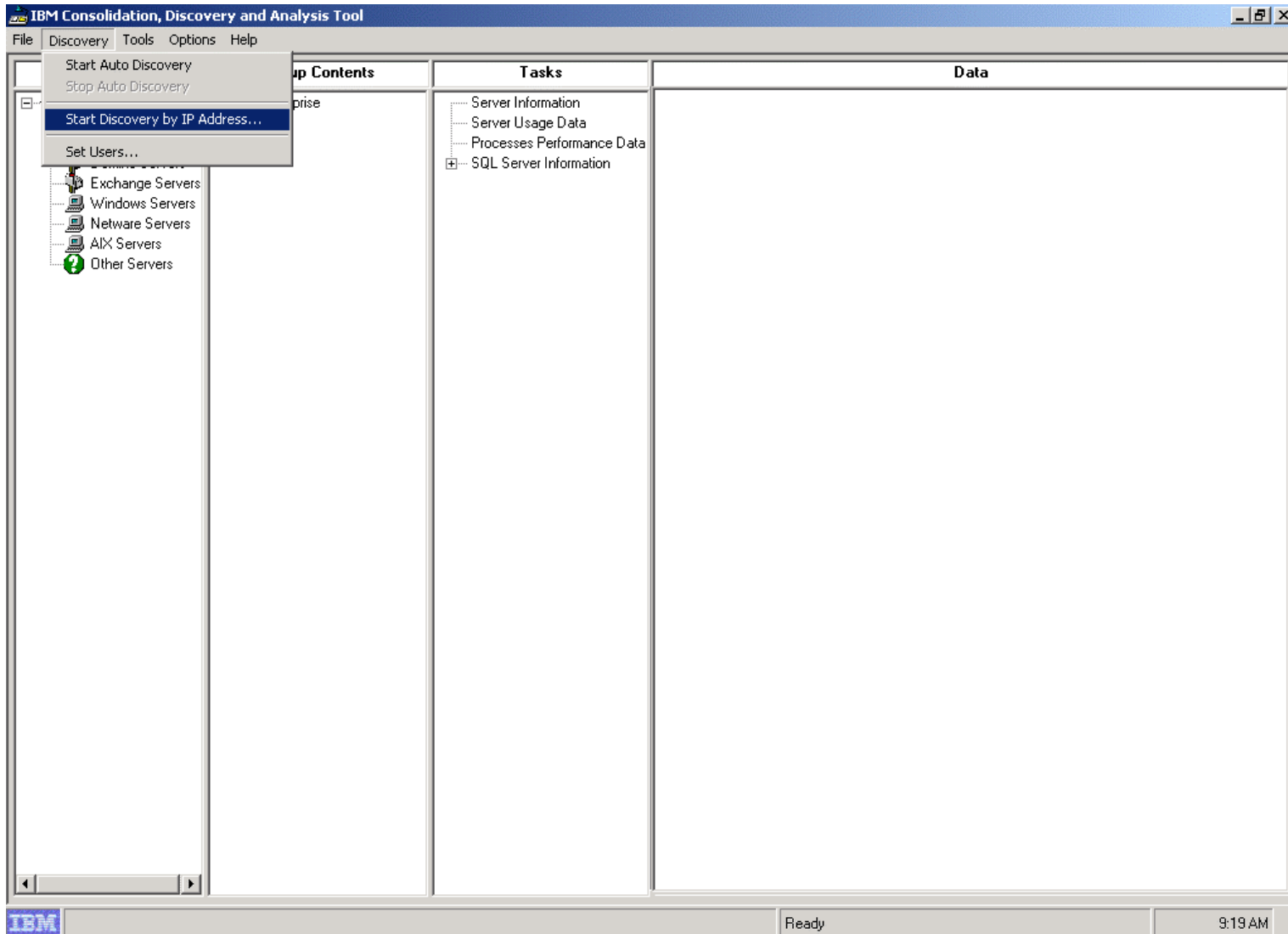
IBM Consolidation, Discovery and Analysis Tool

File Discovery Tools Options Help

Group	Group Contents	Tasks	Data
<ul style="list-style-type: none">All GroupsSQL ServersDB2 ServersDomino ServersExchange ServersWindows ServersNetware ServersAIX ServersOther Servers	Enterprise	<ul style="list-style-type: none">Server InformationServer Usage DataProcesses Performance DataSQL Server Information	

IBM Ready 9:10 AM

Discovery by IP Address (Option)





Discovery by IP Address

The screenshot shows the IBM Consolidation, Discovery and Analysis Tool interface. The main window has a menu bar (File, Discovery, Tools, Options, Help) and a table with columns: Group, Group Contents, Tasks, and Data. The Group column contains a tree view with 'All Groups' expanded, showing sub-groups like SQL Servers, DB2 Servers, Domino Servers, Exchange Servers, Windows Servers, Netware Servers, AIX Servers, and Other Servers. The Group Contents column shows 'Enterprise'. The Tasks column lists 'Server Information', 'Server Usage Data', 'Processes Performance Data', and 'SQL Server Information'. A dialog box titled 'Discovery By IP Address' is open, showing 'Discovery by IP Address Options'. It includes instructions to choose operating systems and applications. The 'Operating Systems' section has checkboxes for AIX, Netware, and Windows. The 'Applications' section has checkboxes for DB2, Domino, Exchange, and SQL. Below these are radio buttons for 'Enter IP Address Range' (selected) and 'Load IP Addresses File'. A text box contains '60000' with the label 'Timeout (ms) - does not effect discovery on Windows systems.' At the bottom are 'OK' and 'Cancel' buttons.

Group	Group Contents	Tasks	Data
All Groups <ul style="list-style-type: none">SQL ServersDB2 ServersDomino ServersExchange ServersWindows ServersNetware ServersAIX ServersOther Servers	Enterprise	Server Information <ul style="list-style-type: none">Server Usage DataProcesses Performance DataSQL Server Information	

Discovery By IP Address

Discovery by IP Address Options

Choose the operating system(s) and/or application(s) that you would like to have CDAT discover, and then select whether you would like to enter a range of IP addresses or specify them from a file.

Operating Systems:

- AIX
- Netware
- Windows

Applications:

- DB2
- Domino
- Exchange
- SQL

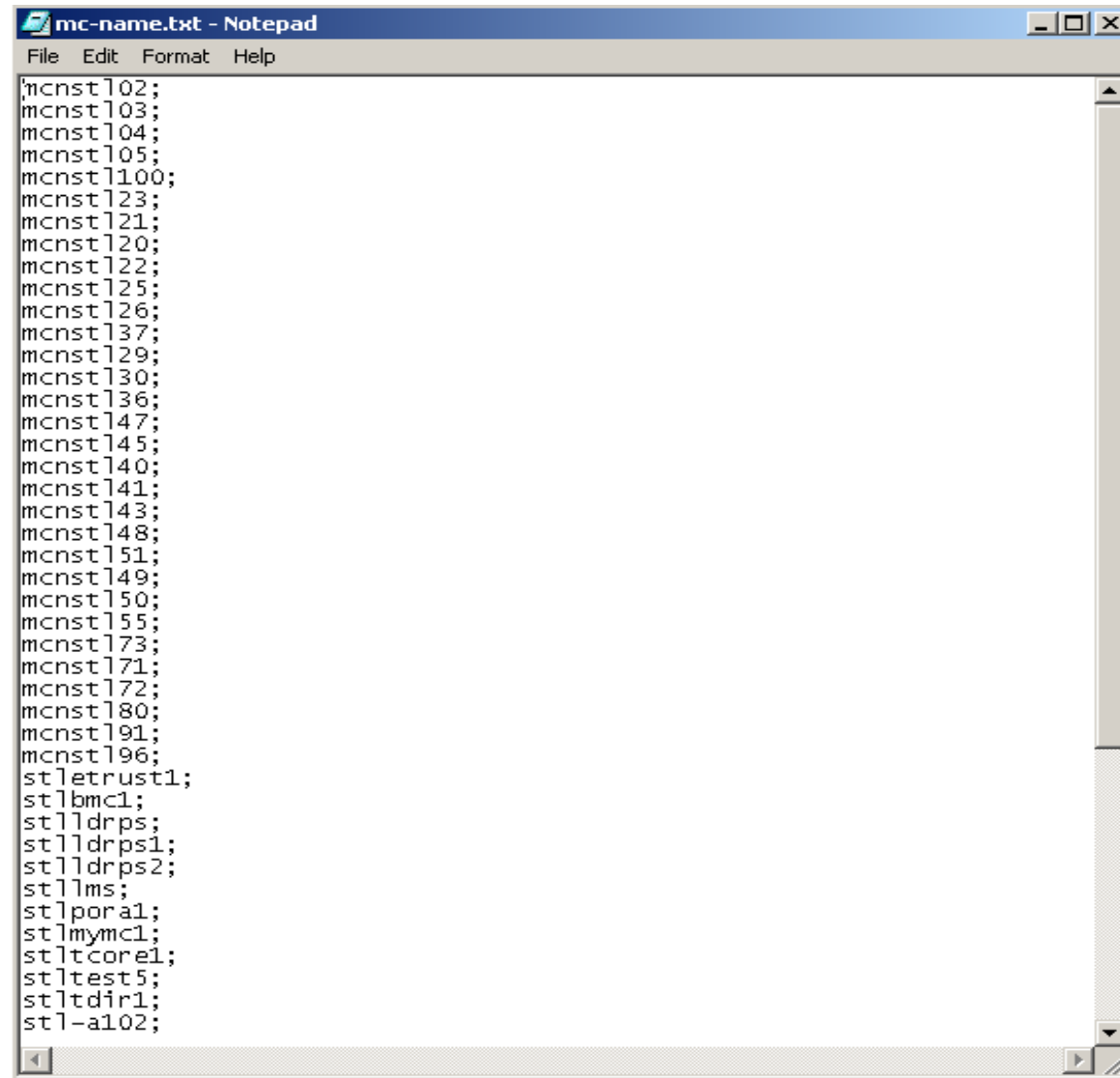
CDAT allows you to import IP Addresses or NETBIOS names (Windows only) from a text file. The IP Addresses/NETBIOS name(s) should each be on a separate line, delimited by semicolons. You can optionally choose to enter a range of IP addresses for CDAT to scan.

Enter IP Address Range Load IP Addresses File

60000 Timeout (ms) - does not effect discovery on Windows systems.

OK Cancel

Sample input file

A screenshot of a Notepad window titled 'mc-name.txt - Notepad'. The window contains a list of identifiers, each followed by a semicolon. The identifiers are: mcnst102; mcnst103; mcnst104; mcnst105; mcnst1100; mcnst123; mcnst121; mcnst120; mcnst122; mcnst125; mcnst126; mcnst137; mcnst129; mcnst130; mcnst136; mcnst147; mcnst145; mcnst140; mcnst141; mcnst143; mcnst148; mcnst151; mcnst149; mcnst150; mcnst155; mcnst173; mcnst171; mcnst172; mcnst180; mcnst191; mcnst196; stletrust1; stlbmc1; stlldrps; stlldrps1; stlldrps2; stllms; stlpora1; stlmymc1; stltcore1; stltest5; stltdir1; stl-a102;.

```
mcnst102;  
mcnst103;  
mcnst104;  
mcnst105;  
mcnst1100;  
mcnst123;  
mcnst121;  
mcnst120;  
mcnst122;  
mcnst125;  
mcnst126;  
mcnst137;  
mcnst129;  
mcnst130;  
mcnst136;  
mcnst147;  
mcnst145;  
mcnst140;  
mcnst141;  
mcnst143;  
mcnst148;  
mcnst151;  
mcnst149;  
mcnst150;  
mcnst155;  
mcnst173;  
mcnst171;  
mcnst172;  
mcnst180;  
mcnst191;  
mcnst196;  
stletrust1;  
stlbmc1;  
stlldrps;  
stlldrps1;  
stlldrps2;  
stllms;  
stlpora1;  
stlmymc1;  
stltcore1;  
stltest5;  
stltdir1;  
stl-a102;
```



On-screen data Display

- Click on a server node in the “Group Contents” pane
- Data is displayed for that server in the “Data” pane
- Data is refreshed every time the user clicks on a server
- Must be logged in with Administrator ID
 - Will be prompted for User/PW if Access Denied

On-screen data Display



IBM Consolidation, Discovery and Analysis Tool

File Discovery Tools Options Help

Group	Group Contents	Tasks	Data	
All Groups	Enterprise	Server Information	Item	Value
SQL Servers	BARRYMKRASNER	Server Usage Data	Platform Id	Windows
DB2 Servers	CDAT	Processes Performance Data	Type	Windows NT/Windows 2000 workstation or server Windo...
Domino Servers	DBSVR	SQL Server Information	OS Version	5.0
Exchange Servers	FAXSVR		IP Address	10.40.4.16
Windows Servers			# Processors	2
Netware Servers			Processor Info	x86 Family 6 Model 8 Stepping 3, GenuineIntel ~666MHz
AIX Servers			Total Physical Memory (KB)	1048080
Other Servers			Total Physical Memory (MB)	1024
			# Disks	3
			Total Size of Disk E	67.80 GB
			Free Space on Disk E	53.01 GB
			Total Size of Disk D	9.89 GB
			Free Space on Disk D	3.09 GB
			Total Size of Disk C	7.00 GB
			Free Space on Disk C	2.40 GB
			SQL Server Version	Microsoft SQL Server 2000 - 8.00.760 (Intel X86) #Dec 17...

IBM Ready Background server discovery completed. 9:32 AM



Database Management

- CDAT stores data collected for servers in a SQL Server-compatible database (MSDE)
- Database functions
 - (Select db server: 'Local'/dropdown list)
 - Create (new)
 - Clear (contents)
 - Set Current Database (select DB file to export)



Database Management

The screenshot displays the IBM Consolidation, Discovery and Analysis Tool interface. The main window is titled "IBM Consolidation, Discovery and Analysis Tool" and has a menu bar with "File", "Discovery", "Tools", "Options", and "Help".

The interface is divided into several panes:

- Left Pane (Tree View):** Shows a hierarchy of server types: DB2 Servers, Domino Servers, Exchange Servers, Windows Servers, Netware Servers, AIX Servers, and Other Servers. Under "Windows Servers", there are sub-items: COAT, DBSVR, and FAXSVR. The "DBSVR" item is selected.
- Contents Pane:** Shows the selected server "DBSVR" and its associated tasks.
- Tasks Pane:** Lists tasks for the selected server: Server Information, Server Usage Data, Processes Performance Data, and SQL Server Information.
- Data Pane:** Displays a table of system information for the selected server.

Item	Value
Platform Id	Windows
Type	Windows NT/Windows 2000 workstation or server Windo...
OS Version	5.0
IP Address	10.40.4.16
# Processors	2
Processor Info	x86 Family 6 Model 8 Stepping 3, GenuineIntel ~666MHz
Total Physical Memory (KB)	1048080
Total Physical Memory (MB)	1024
# Disks	3
Total Size of Disk E	67.80 GB
Free Space on Disk E	53.01 GB
Total Size of Disk D	9.89 GB
Free Space on Disk D	3.09 GB
Total Size of Disk C	7.00 GB
Free Space on Disk C	2.40 GB
SQL Server Version	Microsoft SQL Server 2000 - 8.00.760 (Intel X86) Dec 17...

The status bar at the bottom shows "IBM Ready", "Background server discovery completed.", and "9:36 AM".

'Create' Database Dialog



The screenshot shows the IBM Consolidation, Discovery and Analysis Tool interface. The main window is divided into four panes: Group, Group Contents, Tasks, and Data. The Data pane contains a table with server information. A dialog box titled 'Choose a SQL Server' is overlaid on the Data pane, with a dropdown menu showing '(local)' and 'OK' and 'Cancel' buttons.

Item	Value
Platform Id	Windows
Type	Windows NT/Windows 2000 workstation or server Windo...
OS Version	5.0
IP Address	10.40.4.16
# Processors	2
Processor Info	x86 Family 6 Model 8 Stepping 3, GenuineIntel ~666MHz
Total Physical Memory (KB)	1048080
Total Physical Memory (MB)	1024
# Disks	3
Total Size of Disk E	67.80 GB
Free Space on Disk E	53.01 GB
Total Size of Disk D	9.89 GB
Free Space on Disk D	3.09 GB
Total Size of Disk C	7.00 GB
Free Space on Disk C	2.40 GB
SQL Server Version	Microsoft SQL Server 2000 - 8.00.760 (Intel X86) Dec 17...

Choose a SQL Server

Select a Server:

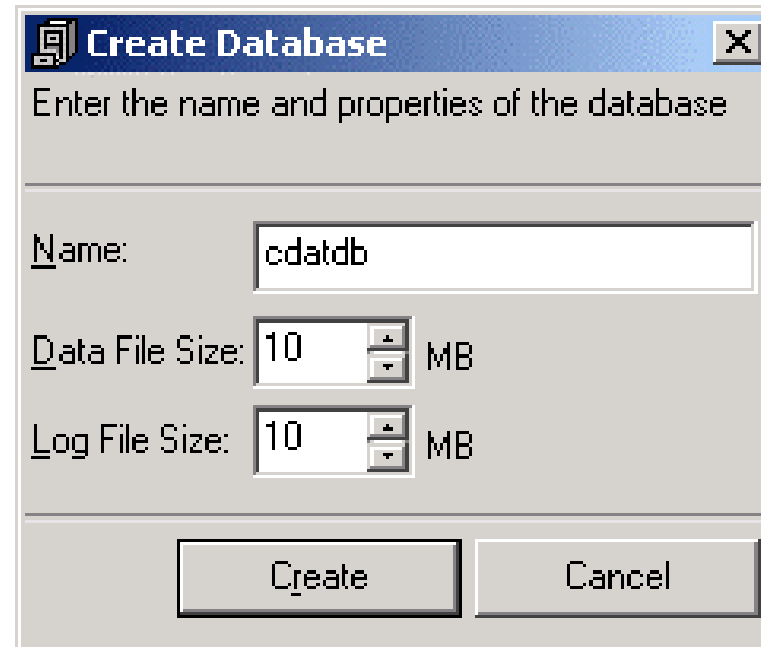
(local)

OK Cancel

IBM Ready Background server discovery completed. 9:41 AM



'Create' Database Dialog



No need to change default values



Data Collection Wizard

- Allows user to collect data for multiple servers and store them in a database
- Customizable data collection
- Runs in the background, user can continue using other features in CDAT
 - Or CDAT can be closed
- Success/error messages are recorded in a time stamped log file

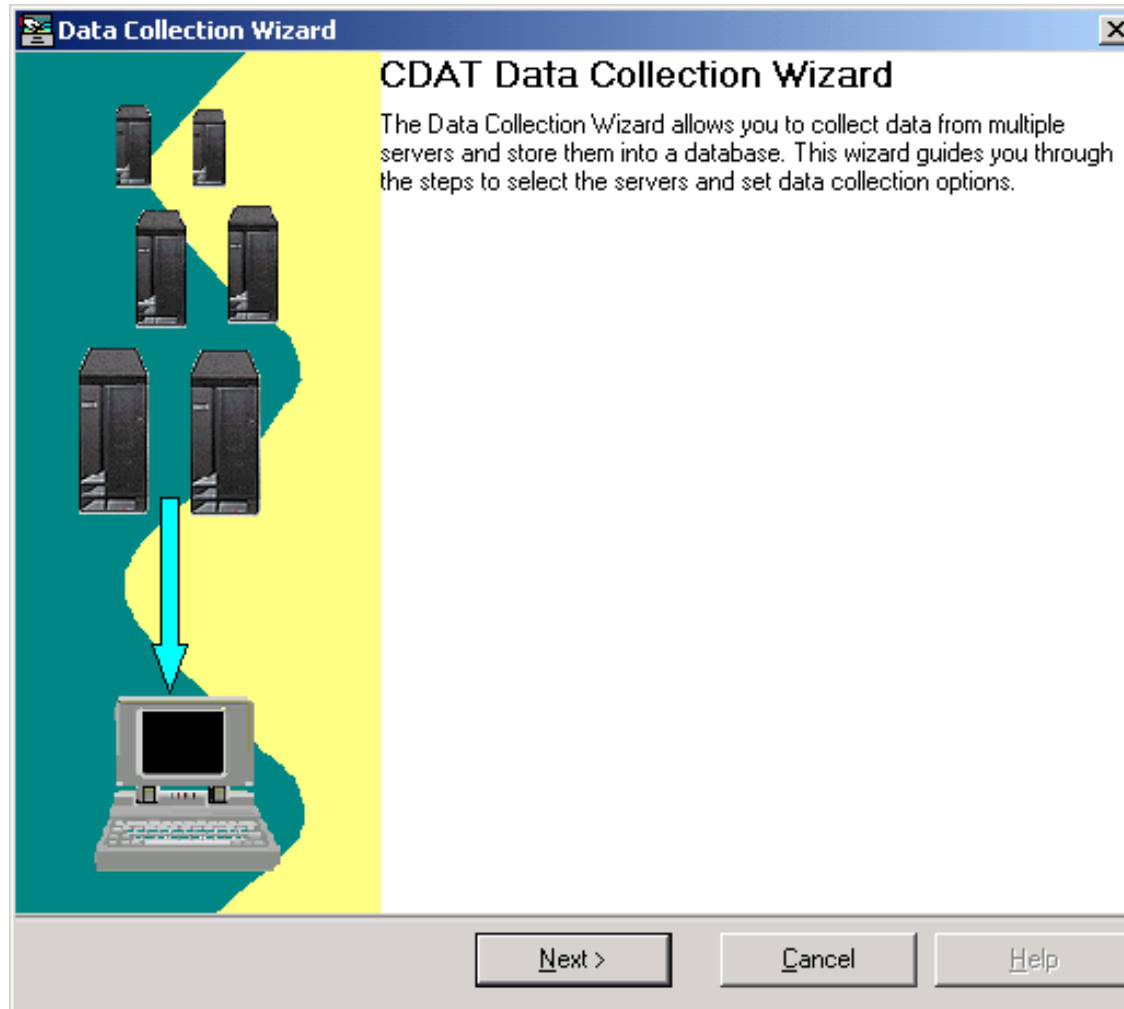


Data Collection Wizard

- User can choose any number of servers
- Supports one or multiple snapshots of data
(Need 'multiple' for Peak/Average Utilization)
- 'Multiple' uses Windows Task Manager
- Launched from Tools - Data Collection Wizard menu



Data Collection Wizard



Data Collection Wizard

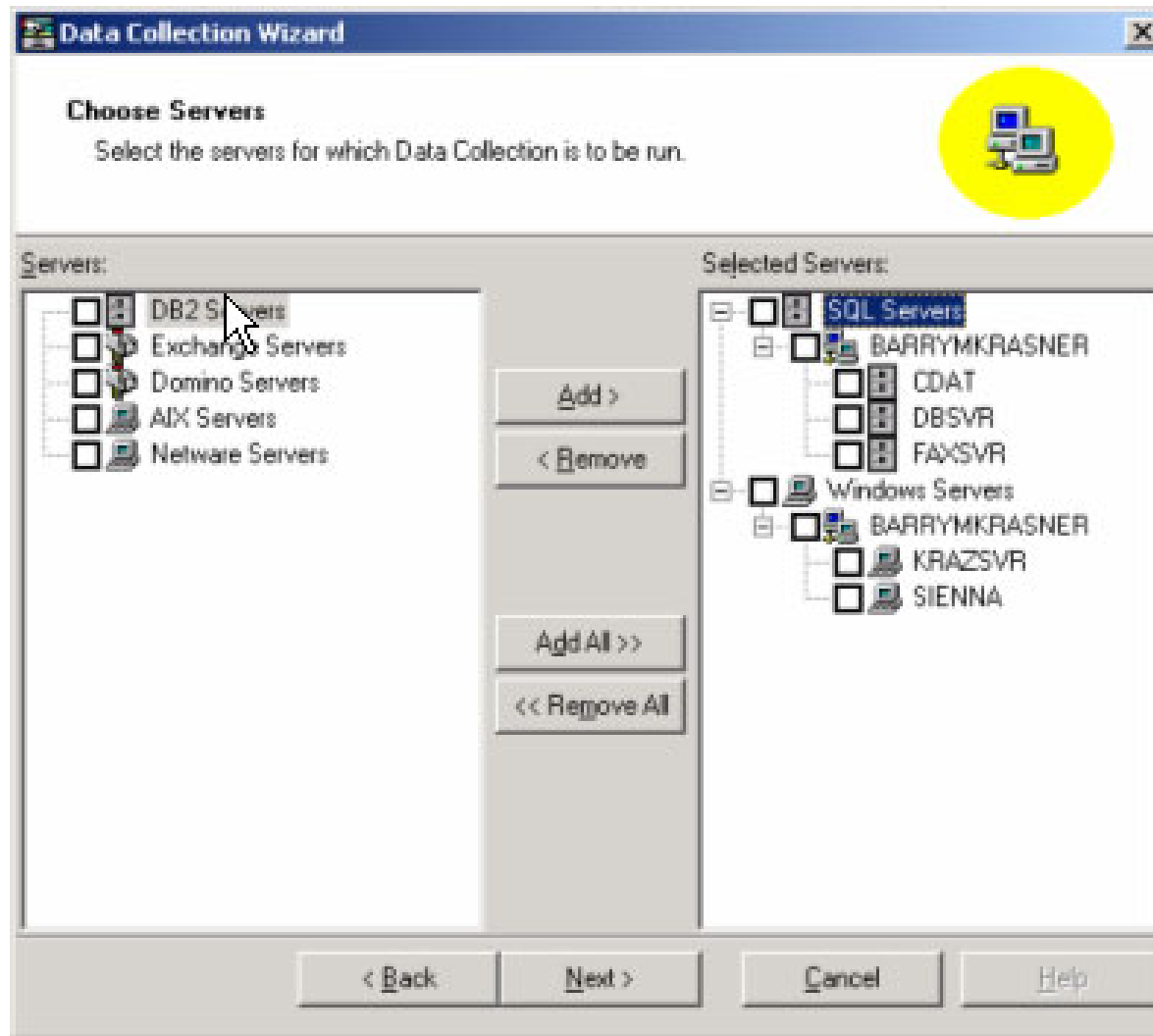


The screenshot shows the IBM Consolidation, Discovery and Analysis Tool interface. The main window has a menu bar (File, Discovery, Tools, Options, Help) and a table with columns: Group, Group Contents, Tasks, and Data. The Group Contents column shows a tree view of servers under 'Enterprise', including BARRYMKRASNER, CDAT, DBSVR, and FAXSVR. The Tasks column lists 'Server Information', 'Server Usage Data', 'Processes Performance Data', and 'SQL Server Information'. The Data column shows a table with columns 'Item' and 'Value', listing properties like Platform Id, Type, OS Version, IP Address, and # Processors.

A 'Data Collection Wizard' dialog box is open, titled 'Choose Servers'. It contains the instruction: 'Select the servers for which Data Collection is to be run.' Below this are two panes: 'Servers:' and 'Selected Servers:'. The 'Servers:' pane lists categories: DB2 Servers, Exchange Servers, Domino Servers, AIX Servers, and Netware Servers. The 'Selected Servers:' pane shows a tree view of the selected servers: SQL Servers (BARRYMKRASNER, CDAT, DBSVR, FAXSVR) and Windows Servers (BARRYMKRASNER, KRAZSVR, SIENNA). Between the panes are buttons: 'Add >', '< Remove', 'Add All >>', and '<< Remove All'. At the bottom of the dialog are buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

The status bar at the bottom of the main window shows 'IBM Ready', 'Background server discovery completed.', and '9:50 AM'.

Data Collection Wizard





Data Collection Wizard

- When selecting servers to collect data from, remove ALL:
 - CD Towers
 - SNAP servers
 - NAS devices, etc.
- These devices will not respond properly to an RPC call and will cause errors and slow collection times
- Data collection speed is in range of 4-8 servers per minute depending on network topology/distance

Data Collection Wizard



IBM Consolidation, Discovery and Analysis Tool

File Discovery Tools Options Help

Group	Group Contents	Tasks	Data
All Groups	Enterprise	Server Information	Item
SQL Servers	BARRYMKRASNER	Server Usage Data	Platform Id
DB2 Servers	CDAT	Processes Performance Data	Type
Domino Servers	DBSVR	SQL Server Information	OS Version
Exchange Servers	FAXSVR		IP Address
Windows Servers			# Processors
Netware Servers			
AIX Servers			
Other Servers			

Data Collection Wizard

Stepping 3, GenuineIntel ~666MHz

2000 - 8.00.760 (Intel X86) 11Dec 17...

Specify Settings

You can enter settings for the Data Collection or use the default values.

Authentication (CDAT data collection requires administrator rights to the target servers)

MS Windows

I am currently logged on as a Domain admin

Specify a Domain admin account

User Name:

Password:

Novell Netware

I am currently logged in as a Netware admin

Specify a Netware admin account

User Name:

Password:

Data Collection Settings

SNMP community:

Size of Servers Batch:

Error Log File Name:

Contact:

Destination

Database Server:

Database Name: Refresh

Delete existing data from destination database

< Back Next > Cancel Help

IBM Ready Background server discovery completed. 9:52 AM



Data Collection Wizard

Data Collection Wizard [X]

Specify Settings
You can enter settings for the Data Collection or use the default values.

Authentication (CDAT data collection requires administrator rights to the target servers)

MS Windows

I am currently logged on as a Domain admin

Specify a Domain admin account

User Name:

Password:

Novell Netware

I am currently logged in as a Netware admin

Specify a Netware admin account

User Name:

Password:

Data Collection Settings

SNMP community:

Size of Servers Batch:

Error Log File Name:
 ...

Contact:

Destination

Database Server: ...

Database Name: Refresh

Delete existing data from destination database

< Back Next > Cancel Help

Data Collection Wizard



The screenshot shows the IBM Consolidation, Discovery and Analysis Tool interface. The main window is divided into four panes: Group, Group Contents, Tasks, and Data. The Data pane displays a table of system information.

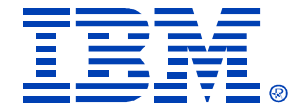
Item	Value
Platform Id	Windows
Type	Windows NT/Windows 2000 workstation or server Windo...
OS Version	5.0
IP Address	10.40.4.16
# Processors	2

The Data Collection Wizard dialog box is open, showing the Multiple Samples Settings screen. It includes the following fields and options:

- Collect a single sample immediately
- Collect multiple samples
- Multiple Samples Settings:
 - Task Name: []
 - Start Date and Time: 6/21/2004 09:55
 - Run data collection for: 5 days
 - Collect data every: 30 minutes
 - Maximum Run Time: 60 minutes
 - Batch File Location: C:\Program Files\IBM\CDAT\Tasks\
 - This machine is not part of a domain (password will be stored in clear text in the batch file)
 - Local Admin User: [] Password: []

The taskbar at the bottom shows the IBM logo, the word "Ready", the status "Background server discovery completed.", and the time "9:55 AM".

Data Collection Wizard



Data Collection Wizard

Multiple Samples Settings
You can specify the settings to collect multiple data samples.

Collect a single sample immediately
 Collect multiple samples

Multiple Samples Settings:

Task Name:

Start Date and Time:

Run data collection for: days

Collect data every: minutes

Maximum Run Time: minutes

Batch File Location:

This machine is not part of a domain (password will be stored in clear text in the batch file)

Local Admin User: Password:

< Back Next > Cancel Help

Data Collection Wizard



IBM Consolidation, Discovery and Analysis Tool

File Discovery Tools Options Help

Group	Group Contents	Tasks	Data												
<ul style="list-style-type: none"> All Groups SQL Servers DB2 Servers Domino Servers Exchange Servers Windows Servers Netware Servers AIX Servers Other Servers 	<ul style="list-style-type: none"> Enterprise <ul style="list-style-type: none"> BARRYMKRASNER <ul style="list-style-type: none"> CDAT DBSVR FAXSVR 	<ul style="list-style-type: none"> Server Information Server Usage Data Processes Performance Data SQL Server Information 	<table border="1"> <thead> <tr> <th>Item</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Platform Id</td> <td>Windows</td> </tr> <tr> <td>Type</td> <td>Windows NT/Windows 2000 workstation or server Windo...</td> </tr> <tr> <td>OS Version</td> <td>5.0</td> </tr> <tr> <td>IP Address</td> <td>10.40.4.16</td> </tr> <tr> <td># Processors</td> <td>2</td> </tr> </tbody> </table>	Item	Value	Platform Id	Windows	Type	Windows NT/Windows 2000 workstation or server Windo...	OS Version	5.0	IP Address	10.40.4.16	# Processors	2
Item	Value														
Platform Id	Windows														
Type	Windows NT/Windows 2000 workstation or server Windo...														
OS Version	5.0														
IP Address	10.40.4.16														
# Processors	2														

Data Collection Wizard

Customize Data Set
You can choose the data that is to be collected. By default, the Data Collection Wizard collects all data.

Use default data set

Choose Data Set:

Server Data	Performance Counters:
<input checked="" type="checkbox"/> Server Base Data	<input checked="" type="checkbox"/> Processor: % Processor Time
<input checked="" type="checkbox"/> MS SQL Server Data	<input checked="" type="checkbox"/> PhysicalDisk: Disk Transfers/sec
<input checked="" type="checkbox"/> MS Exchange Data	<input checked="" type="checkbox"/> PhysicalDisk: Disk Bytes/sec
<input checked="" type="checkbox"/> DB2 Data	<input checked="" type="checkbox"/> PhysicalMemory: Usage in MB
<input checked="" type="checkbox"/> Domino Data	<input checked="" type="checkbox"/> Network Interface: Bandwidth Utilization(%age)
<input checked="" type="checkbox"/> Performance Counters	
<input checked="" type="checkbox"/> Process Filters	

Process Filter Settings...

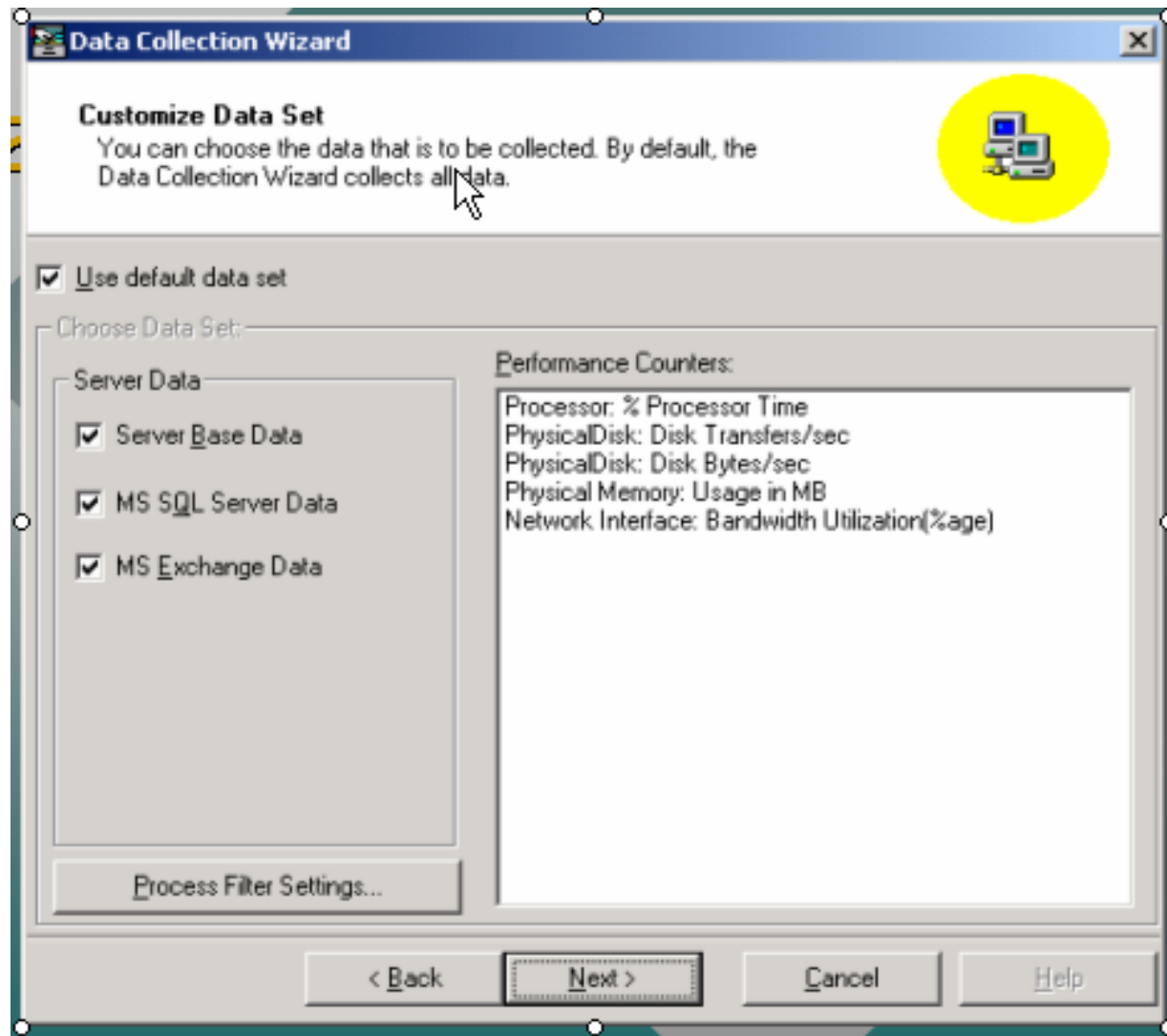
< Back Next > Cancel Help

Stepping 3. GenuineIntel ~666MHz

2000 - 8.00.760 (Intel X86) #Dec 17...

IBM Ready Background server discovery completed. 9:57 AM

Data Collection Wizard



Data Collection Wizard



IBM Consolidation, Discovery and Analysis Tool

File Discovery Tools Options Help

Group	Group Contents	Tasks	Data
All Groups	Enterprise	Server Information	Item Value
SQL Servers	BARRYMKRASNER	Server Usage Data	Platform Id Windows
DB2 Servers	CDAT	Processes Performance Data	Type Windows NT/Windows 2000 workstation or server Windo...
Domino Servers	DBSVR	SQL Server Information	OS Version 5.0
Exchange Servers	FAXSVR		IP Address 10.40.4.16
Windows Servers			# Processors 2
Netware Servers			
AIX Servers			
Other Servers			

Data Collection Wizard

Stepping 3, GenuineIntel ~666MHz

Completing the CDAT Data Collection Wizard

CDAT Data Collection wizard has enough information to run data collection. Review your selections and click Finish to launch data collection. To make any modifications, click Back. At any time during Data Collection, you can Cancel it.

Data Collection Summary:

Server Count: 5
Authentication: Use Default login
Log File Name: C:\Program Files\IBM\CDAT\Logs\CDATLog_062

Destination Database Server: DBSVR
Destination Database Name: Clorox
Delete Existing Data: No
Data Set: All data
Performance Counters: 5
Collect multiple samples: No

View Selected Servers

< Back Finish Cancel Help

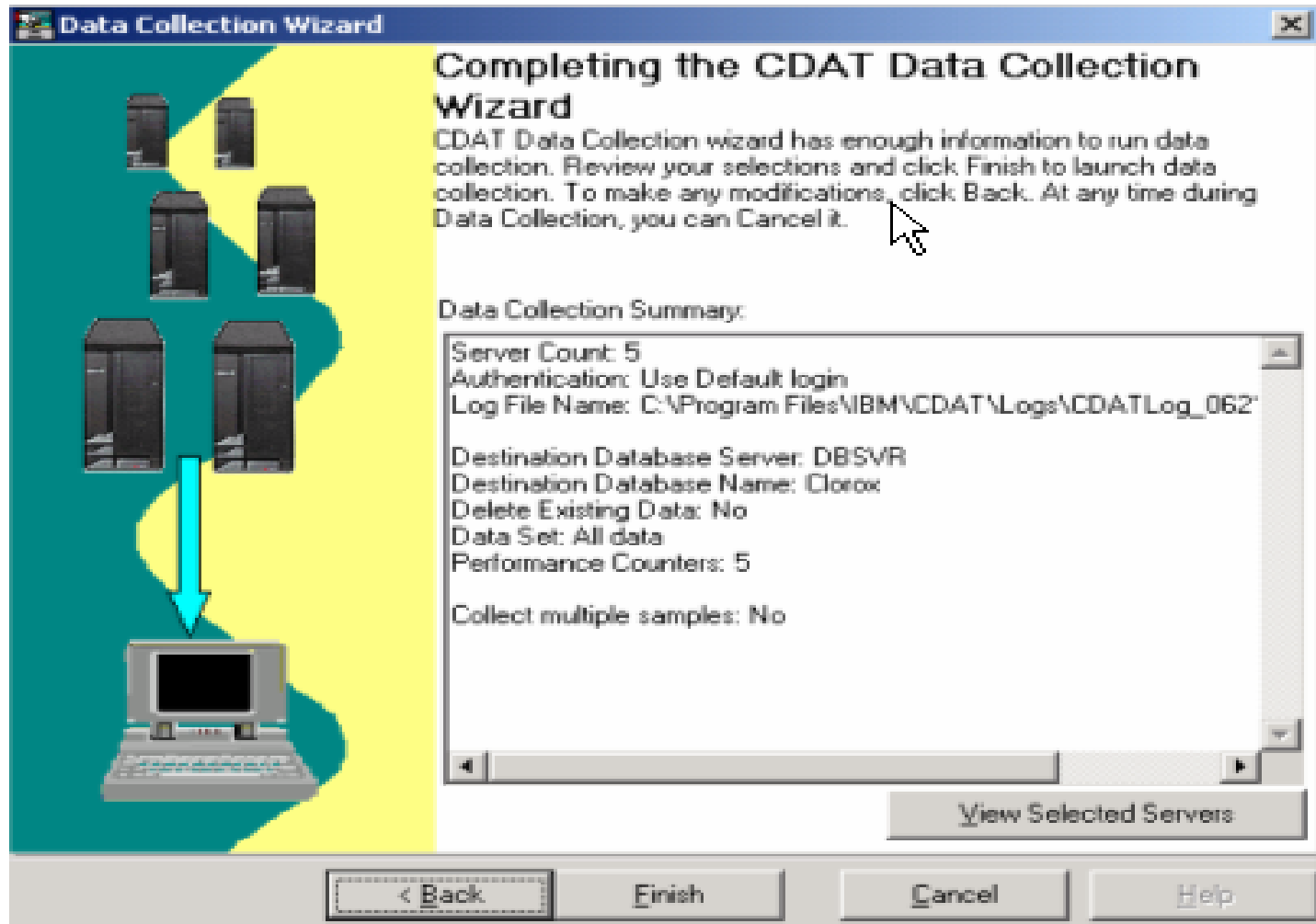
2000 - 8.00.760 (Intel X86) 11Dec 17...

Background server discovery completed.

10:00 AM



Data Collection Wizard





Export to Align

- Data collected & stored in the database can be exported to a miniAlign spreadsheet
- Fields that are populated:

Server Type	Dataset Collected
All Servers	Server Information: OS Type, IP Address, CPU Information and Speed, Physical Memory, Disk Information Server Usage Data: Memory Utilization, CPU Utilization, Disk Transfers/Sec, Disk Kilobytes/Sec, Network Bandwidth Utilization Process Information: Process name, CPU Utilization, Thread Count, Virtual Memory usage, IO Bytes/sec, Page Faults/sec
MS SQL Servers	SQL Server Version, Configuration Parameters, Database(s) Information, Extended stored procedures
MS Exchange Servers	Exchange database(s) path and size



Export to Align

	A	E	F	G	H	I	J	K	L
1	Server Name	Operating System	Operating System Version	CPU Count	CPU MHz	Memory (MB)	Total Storage (GB)	Used Storage (GB)	Disk Drive Count
2	Server1	Invalid platform Id 0	0	0		0	0	0	0
3	Server2	Windows	4	1	498	256	33.86	1.34	2
4	Server3	Windows	4	1	497	192	9.32	2.26	3
5	Server4	Windows	5.2	2	448	1024	33.86	5.68	2
6	Server5	Windows	4	1	498	1024	33.86	5.23	2
7	Server6	Windows	5	1	498	384	33.86	28.81	2
8	Server7	Windows	4	1	299	255	50.81	48.45	2
9	Server8	Windows	4	1	299	127	7.96	6.84	2



Export to Align

Server Name	Primary Role	Location if Mult	Primary Function	Primary Software	Database	High Availability	Concurrent Users
Server1	Production	NYC	File	Windows NT 4.0		Standalone	30
Server2	Unknown	Milwaukee	Network	Windows NT 4.0		Active-Active Cluster	
Server3	Test	NYC	Print	Windows NT 4.0		Standalone	
Server4	Development	NYC	Database	Microsoft SQL Server	SQL 6.5	Standalone	35
Server5	Production	Atlanta	Application	Plant Applications		Standalone	
Server6	Production	Atlanta	Email and Groupware	Lotus Notes		Active-Passive Cluster	120
Server7	Other	Pittsburgh	File	Windows NT 4.0		Active-Passive Cluster	
Server8	Production	Pittsburgh	Network	Windows NT 4.0		Standalone	
Server9	Production	Atlanta, MS	File	Windows NT 4.0		Standalone	



Export to Align

Server Name	Memory Utilization (MB) Peak	Memory Utilization (MB) Avg	CPU Utilization (%age) Peak	CPU Utilization (%age) Avg	Disk Transfers/sec Peak	Disk Transfers/sec Avg	Disk Kilo Bytes/sec Peak	Disk Kilo Bytes/sec Avg	LAN Side Network Bandwidth Utilization (%age) Peak	LAN Side Network Bandwidth Utilization (%age) Avg
Server1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Server2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Server3	74	73	0	0	0	0	0	0	0	0
Server4	387	372	1	0	0	0	0	0	0	0
Server5	115	103	0	0	0	0	0	0	0	0
Server6	379	282	100	12	0	0	0	0	0	0
Server7	188	164	100	9	0	0	0	0	0	0
Server8	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1



CDAT Usage

- Data Collection from Multiple domains
 - has to be done one domain at a time if there are no trust relations/common administrative account
- Server Access
 - Sometimes, specific servers can flag an “Access Denied” message if the Administrative account used is not valid on the server.



CDAT Usage

- Server Discovery
 - CDAT cannot discover or collect data from certain servers (e.g.. in a DMZ)
 - Can run within DMZ if allowed
 - CDAT normally discovers ~ 20% more servers than customer is aware of
 - Automatic discovery discovers only “Servers” (not Windows PC’s)
 - IP discovery supports workstations also



CDAT Usage

“Enterprise Data Collector”

- Allows Business Units to run CDAT independently
- Select ‘Local’ or remote server name from list of SQL Servers in Domain
- Can store collected CDAT database on selected server
- “EDC” program will merge multiple CDAT databases into single database
- Generate Enterprise-wide spreadsheet of server data



Process Steps:

- **Qualification** > Nomination Form
- **Profile Environment** > CDAT
- **“Island Analysis”** > **SCON SWAT team**
- **Solution Development** > Proposal
(Fee based):
- **Implementation** > Lab Services



“Island Analysis”

Island	CCF	S	L	Primary Application	Database	OS Version	CPU Count	CPU MHz	Memory (MB)	Used Storage (GB)	Memory Utilization (MB) Avg	CPU % Peak	CPU % Avg
db	1326	a	B	BlackBerry Wireless E-Mail	SQL 2000	5	1	1396	1024	5.12	423	95	1
db	5584	A	B	Informatica	SQL	5	4	1396	3744	37.18	1734	100	9
db	1243	a	B	Remedy (helpdesk and asset mgmt)	SQL 2000	5	2	901	2048	18.11	182	69	3
db	134	D	B	SQL 2000 CMLS (TEST)	SQL	5	1	448	512	12.05	314	12	1
db	658	D	B	Excellnet SQL	SQL 7.0	4	2	731	512	3.87	168	45	1
db	1494	d	B	SQL 2000	SQL 2000	5	2	996	2048	21.95	1852	75	12
db	1155	D	B	SQL 2000	SQL	5	2	996	2048	32.78	1767	58	3
db	1360	D	B	SQL 2000	SQL	5	2	731	3872	204.41	2004	93	18
db	1258	D	B	SQL 2000	SQL	5	1	1258	2304	18.57	1949	100	6
db	1786	d	B	SQL 2000	SQL 2000	5	2	902	3776	198.35	1874	99	17
db	417	D	B	SQL 2000, Strohl	SQL	5	1	1390	1024	5.44	938	28	1
db	1591	d	B	SQL Server 2000	SQL	5	2	1396	2048	6.23	513	57	1
db		D	B	Branchville	SQL					2.14	174	3	3
db	402	D	B	Web Clas Application Test Server	SQL	5	1	731	512	20.98	449	55	3
db		D	B	STROHL LDRPS Database Server (TEST)	SQL					5.04	821	1	1
db	1117	I	B	IIS	SQL	5	2	997	2048	14.29	1868	56	3
db	1761	M	B	NetIQ	SQL	5	2	1258	3840	21.45	2870	70	20
db	2307	M	B	Web Inspector	SQL	5	2	1390	2048	8.57	1535	83	6



“Island Analysis”

Customer Inventory						
	Status	ca	Services / Applications	Host	OS	I/S Department
1	Production	NY	File & Print	FS01	WINTEL	Tech Services
2	Production	NY	File & Print	NY5	WINTEL	Tech Services
3	Production	NY	Spartacom Modem pool	OM	WINTEL	Tech Services
4	Production	NY	Citrix for .Com	MD1	WINTEL	Internet / Intranet
5	Production	NY	PDC	DS1	WINTEL	Tech Services
6	Production	NY	Legato	EBS	WINTEL	Tech Services
7	Production	NY	Exchange - Mailbox	EX01	WINTEL	Tech Services
8	Production	NY	Essbase dev and Hyperion Reports	PP09	WINTEL	Tech Services
9	Production	NY	Starteam	PP13	WINTEL	Tech Services
10	Production	NY	Sales Audit, Citrix, Oracle	PP14	WINTEL	Tech Services
11	Production	NY	Radius - Steel Belted Radius	JS01	WINTEL	Tech Services
12	Production	NY	Marketworks development	DEV	WINTEL	Tech Services
13	Production	NY	Exchange - Mailbox	EX4	WINTEL	Tech Services
14	Production	NY	Exchange - Mailbox	EX3	WINTEL	Tech Services
15	Production	NY	Exchange - Mailbox	EX2	WINTEL	Tech Services
16	Production	NY	Exchange - Mailbox	EX02	WINTEL	Tech Services
17	Production	NY	Exchange - Mailbox	EX03	WINTEL	Tech Services
18	Production	NY	FTP	TP1	WINTEL	Tech Services
19	Production	NY	Internet Data warehouse Access	CO1	WINTEL	Internet / Intranet
20	Production	NY	Internet Data warehouse Database	BO1	WINTEL	Internet / Intranet
21	Production	NY	Internet Data warehouse Report	TO1	WINTEL	Internet / Intranet
22	Production	NY	IIS - Intranet	ET1	WINTEL	Internet / Intranet



“Island Analysis”

- Perform a detail database analysis
 - Can the databases be combined?
 - Are there any custom databases?
 - Number of database transactions?
 - Database indexing?
 - Number of queries?
 - Middleware application requirements?
 - Vendor validated?
 - Can the business and infrastructure support centralization
 - Can one database platform be used as standardization?
 - Memory requirements?



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Solution Development

Server Name	Location	Primary Software	OS Version	CPU Count	CPU MHz	Memory (MB)	Used Storage (GB)	Memory Utilization (MB) Avg	CPU % Avg	CPU % Peak
B	USA - Bayport, TX	HurrtrakRM/Pro 2002; CodeCalc v2004;	5	1	927	512	43.7	126	0	0
B	USA - Bayport, TX	Symantec Norton Antivirus 7.x	4	1	863	126	1.41	86	0	1
B	USA - Bayport, TX	Microsoft File Server & St. Bernard Update Expert 6.2	5	2	993	512	3.49	219	0	0
B	USA - Belpre, OH	TRIM 4.0	4	1	399	192	0.97	71	1	3
B	USA - Belpre, OH	Symantec Norton Antivirus 7.x	4	1	730	126	1.29	84	0	1
B	USA - Belpre, OH	Microsoft Internet Information Services	5	1	1130	1024	4.95	126	0	0
C	USA - Chesapeake, VA	Origin Lab v7.5 by Origin Pro, Clarity v3 by Coastal Clarity, PAS Works 5	5	2	348	192	2.2	136	0	29
C	USA - Chesapeake, VA	Microsoft File Server & St. Bernard Update Expert 6.2	5	2	993	512	3.38	232	0	0
C	USA - Chesapeake, VA	MoldFlow v7, MoldFlow Plastics Insight v4.1, Rainbow Technologies Centinel LM v7.1.1, CADKEY v10	5	4	699	3968	10.05	422	0	0
D	USA - Decatur, AL	Symantec Norton Antivirus 7.x	4	1	399	128	2	88	0	12
E	USA - MOC Comms Room	Winframe Citrix v1.7	5	1	930	2048	8.88	405	0	2
B	USA - Monaca, PA	AutoCAD Licensing Server	4	1	231	64	1.32	45	0	0
B	USA - Monaca, PA	Symantec Norton Antivirus 7.x	4	1	863	126	1.46	83	0	0
B	USA - Monaca, PA	Microsoft File and Printer Server	5	2	993	512	24.68	372	1	13
P	USA - Painesville, OH	Symantec Norton Antivirus 7.x	4	1	863	126	1.4	396	1	9
R	USA - Red Deer	DHCP	4	1	167	32	0.29	451	5	79
S	USA - SCRS	Microsoft SMS	5	1	399	256	1.95	300	0	1
S	USA - Sherwood Park	DHCP	4	1	167	48	0.39	34	0	0
S	USA - Southfield, MI	Symantec Norton Antivirus 7.x	4	1	864	126	2.02	500	7	46
S	USA - Springfield, MA	Process Control Historian Server	4	2	447	512	72.04	80	1	3
S	USA - Springfield, MA	Symantec Norton Antivirus 7.x	4	1	448	128	1.39	23	0	1
K	USA - USOC - Pittsburgh, PA	SAP Content Server; SAP Knowledge Provider Web Server	4	2	199	672	0.93	129	0	2
M	USA - USOC - Pittsburgh, PA	Exchange 5.5	4	2	549	2048	93.3	1158	6	40
M	USA - USOC - Pittsburgh, PA	Exchange 5.5	4	2	549	2048	13.93	1110	2	32
M	USA - USOC - Pittsburgh, PA	Exchange 5.5	4	2	549	2048	2.45	158	2	5
N	USA - USOC - Pittsburgh, PA	WINS Service	5	1	927	256	1.35	121	0	1
S	USA - USOC - Pittsburgh, PA	Winframe Citrix v1.7	4	4	550	4032	11.37	112	0	0
T	USA - USOC - Pittsburgh, PA	Trend Micro ServerProtect 5	5	1	993	512	2.89	247	0	3
U	USA - USOC - Pittsburgh, PA	Symantec Norton Antivirus 7.x	4	1	730	126	1.49	89	0	1



Solution Development

Hardware Solution Specifications - USA

- 30 servers will be consolidated 2 x445 server
- Use ESX Server and VirtualCenter
- ESX Server requires local disk storage for OS boot
- Will be SAN connected

Total Quantity *	Component
2	x445 server configured with:
8	3.0Ghz Intel Xeon processors
14	GB of RAM
4	10/100/1000 Ethernet adapters (built in)
2	73GB disk drives
2	2Gb FC HBA



Solution Development

Storage Requirements



Canada

Current Storage "In Use" (GB)	Plus 25% Overhead (GB)	Plus 25% Growth Factor (GB)	Recommend Total Storage (GB)
5683	1421	1421	8524.5

USA

Current Storage "In Use" (GB)	Plus 25% Overhead (GB)	Plus 25% Growth Factor (GB)	Recommend Total Storage (GB)
2252	563	563	3378

Europe

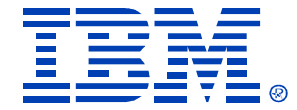
Current Storage "In Use" (GB)	Plus 25% Overhead (GB)	Plus 25% Growth Factor (GB)	Recommend Total Storage (GB)
1054	264	264	1581





Solution Development

TCO Summary					
Hardware Solution	Category	Without Consolidation	With Consolidation	Difference	%
xSeries Servers	Hardware	\$1,423,950	\$624,000	\$799,950	56%
	Maintenance	\$278,850	\$25,768	\$253,082	91%
	Software	\$0	\$240,000	(\$240,000)	
	Facilities	\$299,056	\$19,944	\$279,111	93%
	Labor	\$3,071,250	\$2,457,000	\$614,250	20%
	xSeries Subtotal		\$5,073,106	\$3,366,712	\$1,706,393
BladeCenter	Hardware	\$1,111,300	\$598,540	\$512,760	46%
	Maintenance	\$151,580	\$24,600	\$126,980	84%
	Software	\$0	\$37,500	(\$37,500)	
	Facilities	\$162,564	\$29,388	\$133,178	82%
	Labor	\$1,669,500	\$819,000	\$850,500	51%
	Blades Subtotal		\$3,094,944	\$1,509,028	\$1,585,918
Grand Totals	Hardware	\$2,535,250	\$1,222,540	\$1,312,710	52%
	Maintenance	\$430,430	\$50,368	\$380,062	88%
	Software	\$0	\$277,500	(\$277,500)	
	Facilities	\$461,619	\$49,330	\$412,289	89%
	Labor	\$4,740,750	\$3,276,000	\$1,464,750	31%
	Grand Totals		\$8,168,049	\$4,875,738	\$3,292,311



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Implementation Services

xSeries Lab Services

- xSeries Lab Services can help in the deployment of all solutions in this study
 - Skilled and experienced xLS staff help speed deployment
 - Reduces interruptions, freeing I/T staff to focus on other tasks
 - A smooth and efficient deployment results in faster financial savings

The goal of xLS is to assist customers in the efficient adoption of IBM technology, resulting in a faster realization of savings.



Implementation Services



Services	Number of Server(s)	Estimated Effort (in person days)
Installing larger xSeries servers for physical consolidations. Includes installation, configuration, setup and integration	4	4
Migrating older servers to larger xSeries servers (does not include OS or application upgrades (e.g., NT4 to Win2K))	18	9
VMware ESX Server Training (does not include equipment fees or manuals)	N/A	2
VMware Jump-Start Implementation. Includes installation, configuration, setup and integration	2	3
VMware Server Migration (does not include OS or application upgrades (e.g., NT4 to Win2K))	27	13
VMware Server Migration Tools	27	N/A
BladeCenter Jump-Start Implementation. Includes installation, configuration, setup and integration	2	3
BladeCenter Server Migration (does not include OS or application upgrades (e.g., NT4 to Win2K))	20	10
BladeCenter Server Migration Tools	20	N/A
Storage Installation/Configuration	1	5
IBM Director Training on Best Practices of System Management (does not include equipment fees)	2	4
IBM Director Jump-Start Implementation for the target environment (assumes Director server)	1	3
Preparation and Planning Verify servers to be migrated. Develop implementation plan.	65	6
Project Management	N/A	12
Total		61

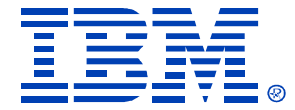


Questions?.....

Thank you for your time!

Optional Demo

Multiple Samples Security



- To use the Domain Admin account for multiple samples, the machine (laptop) must be a member of the Domain or a trusted domain
- As a workaround, enter a local Admin account in the Multiple Samples screen - the domain user and password will be stored in clear text in the batch file