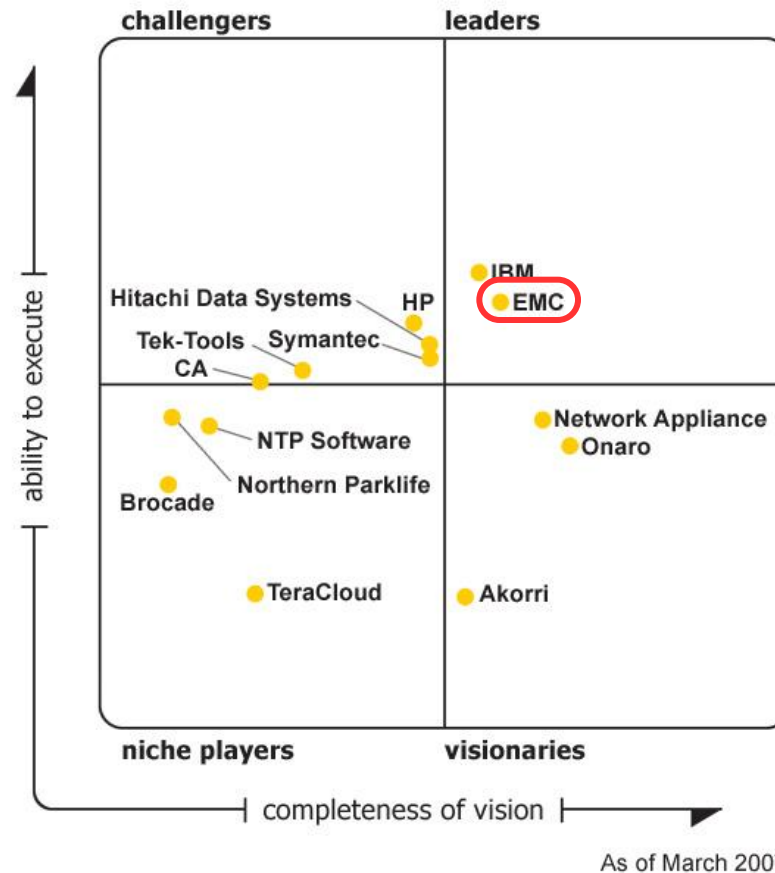


What's New with EMC ControlCenter V6.0



Storage Resource Management Software

Magic Quadrant for Storage Resource Management and SAN Management Software, 2007



Gartner

Source: Gartner Research
Magic Quadrant for Combined
SRM and SAN Management
Software, 2007

Dave Russell,
Robert E. Passmore
March 19, 2007

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EMC Storage Management—ControlCenter Family

A comprehensive family of storage resource management (SRM) and device management software that integrates the deepest set of storage administration functions across the broadest set of storage resources.

Executing in three key areas:

Services

Storage Management

SRM Planning and Provisioning

SRM Monitoring and Reporting

Device Management

SRM Planning and Provisioning

Design, plan, and provision multi-vendor tiered storage to streamline operations and meet service-level agreements

SRM Monitoring and Reporting

Monitor and report on multi-vendor tiered storage to improve asset usage and performance

Device Management

Configure and optimize EMC and non-EMC storage

New Features and Enhancements in ControlCenter V6.0

End-to-end management of VMware ESX Server environments

- Discovery, provisioning, monitoring, and reporting

Increased flexibility in reporting

- Easy access to data based on business needs

Single infrastructure for StorageScope and StorageScope File Level Reporter

Expanded EMC and non-EMC platform support

Performance monitoring and reporting enhancements

Enhanced security and serviceability



Improved VMware Support

End-to-end relationship information from an ESX Server to the physical array devices

- View physical and logical relationships to storage
- Enables storage management/allocation

View properties, capacity, and usage information for an ESX Server and corresponding virtual machines (VMs)

Discover and report on individual VMware guests

- Guest name, operating system version, and IP address
- Report the capacity, utilization, and trending

Provisioning

- Mask and zone storage to ESX Servers

Monitoring and reporting

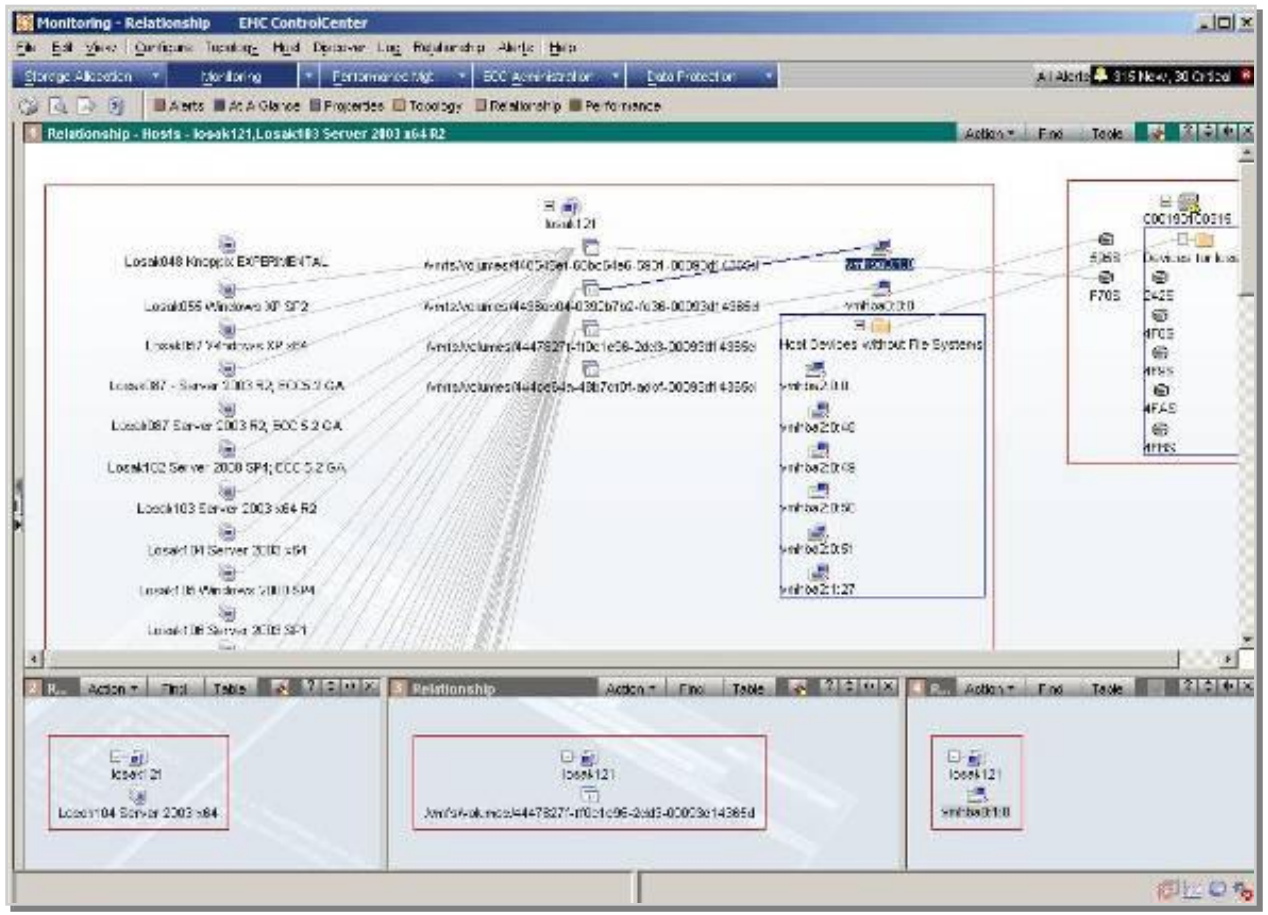
- VMware ESX sever up/down
- VM guest up/down, which tools are installed, running



Improved VMware Support

Relationship View

Map logical relationships of VMware guests and hosts to storage Topology Views



Improved VMware Support

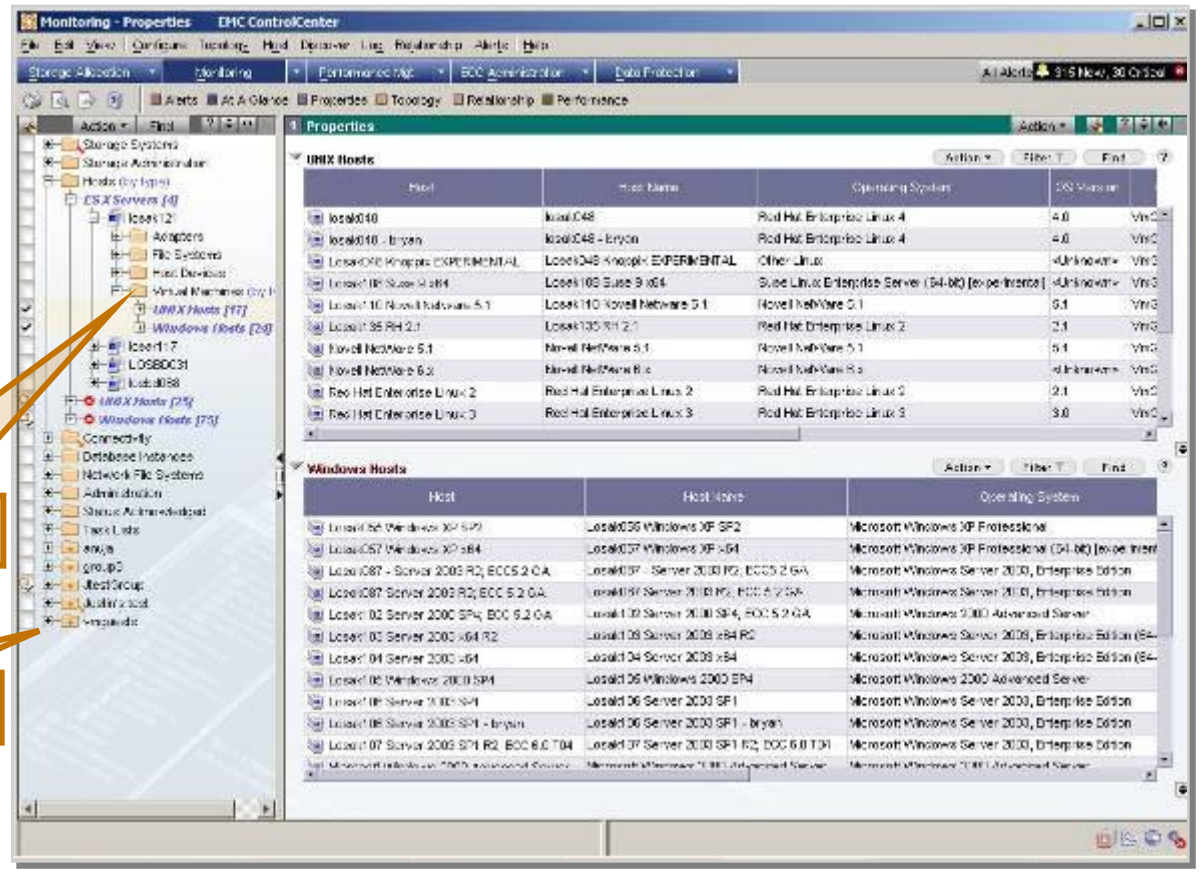
Properties View

Display properties of a virtual machine

View the most common attributes (including configuration) for the selected objects

Virtual Machines

VMware guests

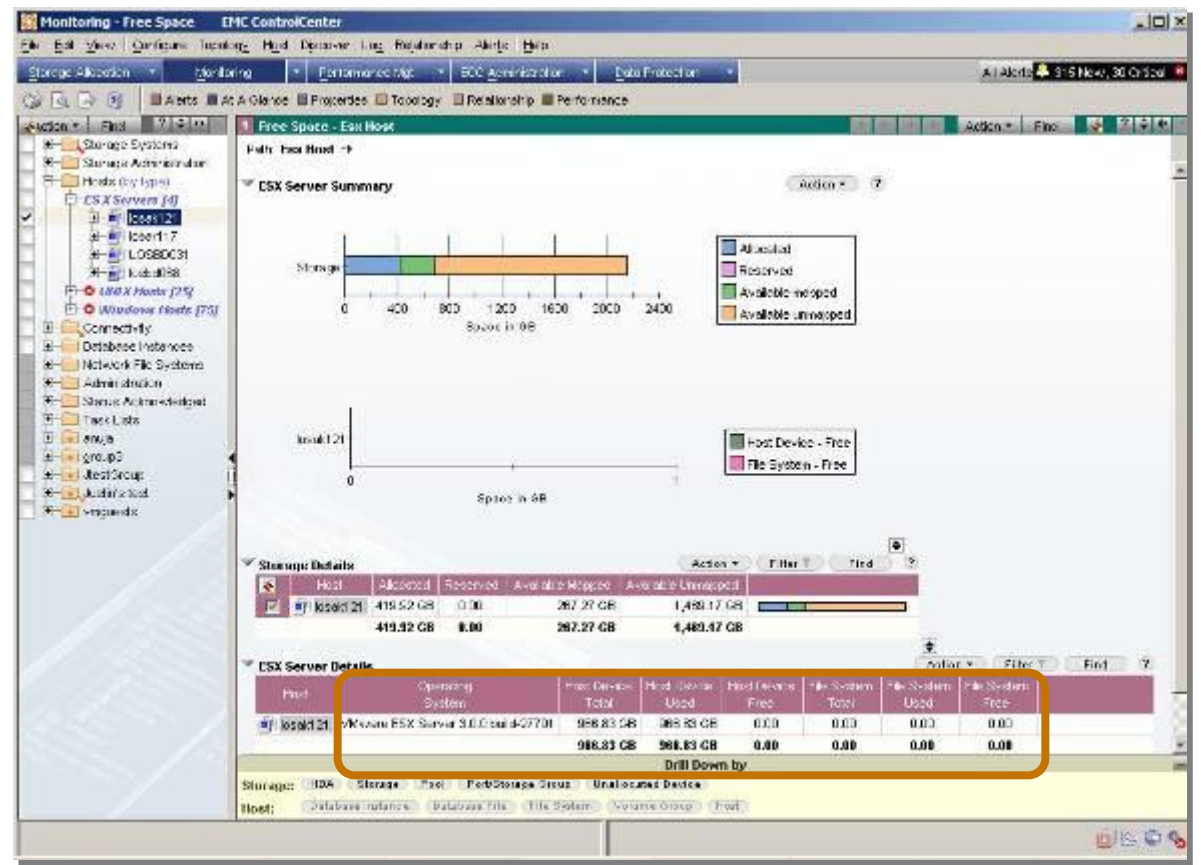


Improved VMware Support

Free Space View

Shows free space and allocated space for storage arrays related to a selected VMware server

View detailed information for host bus adapters, ports, devices, and pools



Improved VMware Support

Understanding the Virtualized Environment with VMware

StorageScope reports provide storage details including:

- Properties of a VMware ESX Server
- What array it is connected to
- Virtual machine properties and utilization metrics
- Mapped raw devices
- VMFS (Virtual Machine File System) volumes

Back-end array for VMware ESX Server

Arrays

| Array Name | Array Type | # Accessible LUNs | # Allocated LUNs | Accessible(GB) | Used Accessible(GB) | % Used Accessible | # Unused Accessible LUNs | # VMFS Volumes Less Than 10% Used |
|--------------|------------|-------------------|------------------|----------------|---------------------|-------------------|--------------------------|-----------------------------------|
| 000187400019 | Symmetrix | 62 | 62 | 163.87 | 0.00 | 0% | 62 | 0 |
| 000187402005 | Symmetrix | 8 | 8 | 0.00 | 117.18 | 0% | 7 | 0 |

Export... 2 items

Detailed views for VMFS, raw devices, and individual virtual machines

10 VMFS Volumes - Most Used

VMFS Volumes Raw Devices Virtual Machines

| VMFS Volume Name | VMFS Volume Type | VMFS Volume Total(GB) | VMFS Volume Used(GB) | % VMFS Volume Used | # Weeks Until Full |
|------------------|------------------|-----------------------|----------------------|--------------------|--------------------|
| F:\ | NTFS | 5.60 | 0.01 | < 1% | Not Available |

Export... 1 item

More Flexible Reporting

New Reporting Methods for StorageScope and StorageScope File Level Reporter

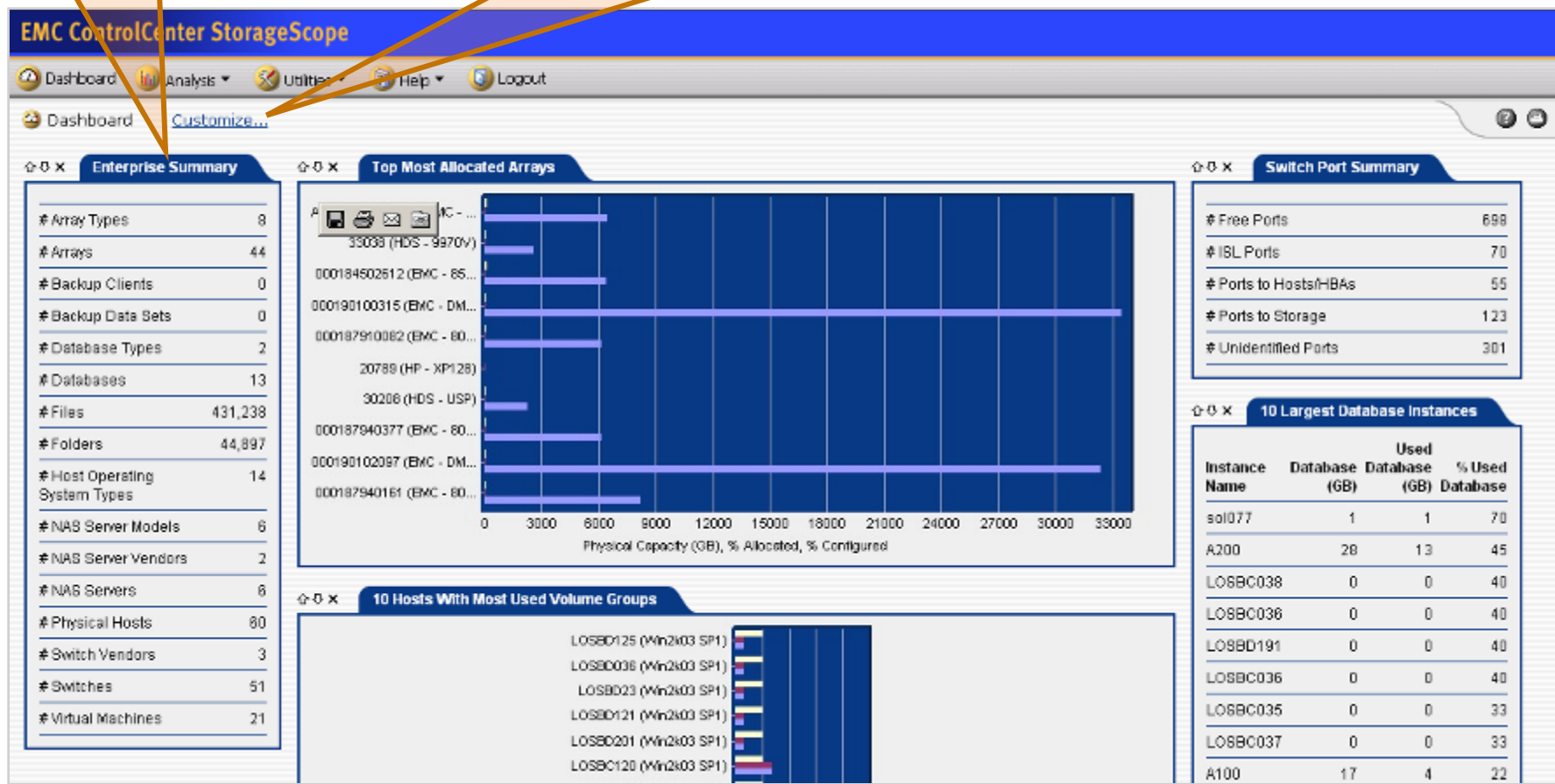
| Reporting Method | Description | |
|-----------------------------|--|--------|
| User interface views | Based on the ControlCenter StorageScope File Level Reporter interface, the Web-based views provide high-level information for initial analysis | Novice |
| Built-in reports | Customizable report templates that summarize data at the enterprise level | |
| Query Builder | A wizard-based interface for detailed reporting; flexible data access with multiple output formats | |
| Custom reports | Custom Crystal reports can be imported and will be updated each new report session | |
| Repository access | Open access to the centralized reporting database; data can be imported into other data stores for advanced reporting | Expert |

Flexible Reporting

StorageScope Dashboard—Enterprise Summary

Enterprise Summary

Customize to view what is important to you



Flexible Reporting

Track Assets by Department

Create custom groups for each department in the console

Add assets allocated for the department in the group

StorageScope provides built-in reports for:

- Hosts by group
- Arrays by group

Group of Windows hosts

| Host Name | Host OS | Accessible (GB) | Used Accessible (GB) | File System (GB) | Used File System (GB) | Network File System (GB) | VMFS Capacity (GB) | Used VMFS (GB) | Database (GB) | Used Database (GB) |
|---|---------------------|-----------------|----------------------|------------------|-----------------------|--------------------------|--------------------|----------------|---------------|--------------------|
| Host Group: \All Groups | | | | | | | | | | |
| Total | | 8,098.63 | 6,939.92 | 4,859.06 | 1,409.61 | 0.00 | 3,460.50 | 1,374.25 | 71.49 | 18.75 |
| Host Group: \All Groups\Host Types\Windows | | | | | | | | | | |
| LOSBC024 (Win2k03 SP1) | Windows Server 2003 | 109.63 | 75.85 | 75.85 | 44.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| LOSBC027 (Win2k03 SP1) | Windows Server 2003 | 42.16 | 42.13 | 42.13 | 11.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| LOSBD200 (Win2k03 SP1) | Windows Server 2003 | 103.76 | 50.56 | 50.56 | 23.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Flexible Reporting

Charging Departments for Storage Use

Departments need to pay for allocated storage

Management can see detailed reports of charges

Chargeback reports can be scheduled based on specific needs

Assign cost/unit through “Manage Calculated Column” in StorageScope Query Builder

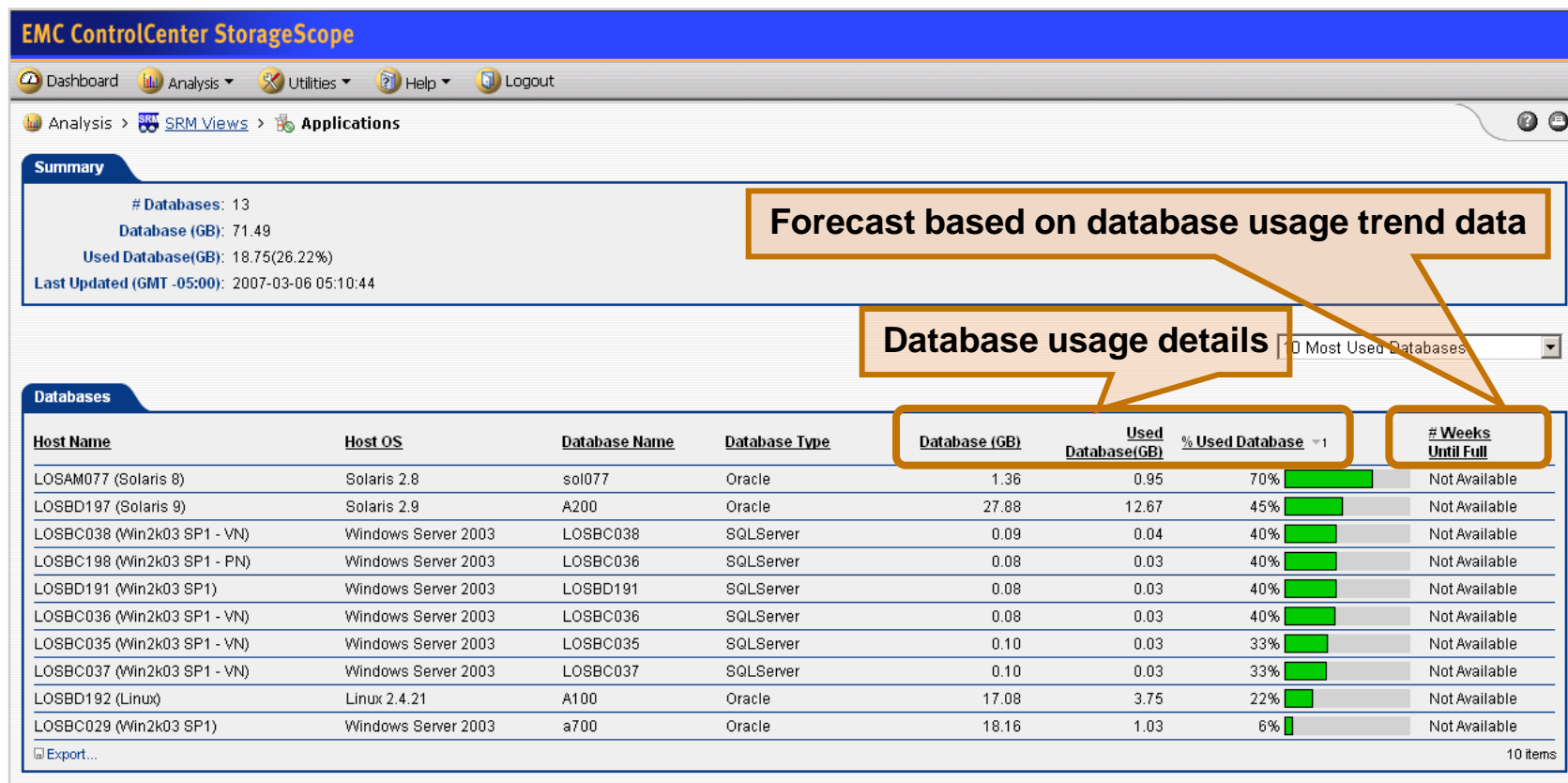


Flexible Reporting

Analyzing Storage Needs for an Application

See usage details for the database

Trend data can help you predict when database will run out of storage



Query Builder

StorageScope

Wizard-based interface for generating ad-hoc reports

Commonly used queries provided “out of the box”

Queries can be modified, copied, and saved for customization

- Calculated fields
- Custom database joins
- Advanced sorting and filtering
- Totals and subtotals

Query output can be screen, e-mail, PDF, CSV, or XML

SQL created by Query Builder can be viewed and exported



The screenshot shows the EMC ControlCenter StorageScope interface. The top navigation bar includes 'Dashboard', 'Analysis', 'Utilities', 'Help', and 'Logout'. The current view is 'Analysis > Queries'. Below the navigation, there is a 'Queries' tab and a message '29 items found, displaying all items.' followed by a table of queries.

| Name | Category | Type | Status | Last Run Time (GMT-04:00) |
|------------------------------------|----------------------|----------|-----------|---------------------------|
| Accessible Unused Devices | Storage Reclamation | Built-in | Succeeded | 2007-03-27 05:12 |
| Allocated HDS Devices | Asset Management | Built-in | Never Run | Not Applicable |
| Array Configuration | Arrays | Built-in | Succeeded | 2007-03-06 14:18 |
| Array Devices Allocated to Hosts | Storage Utilization | Built-in | Never Run | Not Applicable |
| Array Port Connections with Host | Asset Management | Built-in | Never Run | Not Applicable |
| Array Port Connections with Switch | Asset Management | Built-in | Never Run | Not Applicable |
| Array Utilization Details | Arrays | Built-in | Never Run | Not Applicable |
| Backup | Backup/Restore | Built-in | Never Run | Not Applicable |
| Backup Job Details | Backup/Restore | Built-in | Never Run | Not Applicable |
| Backup Job Errors | Backup/Restore | Built-in | Succeeded | 2007-03-27 05:12 |
| CAS clusters | CAS | Built-in | Never Run | Not Applicable |
| Database Tablespace Usage | Applications | Built-in | Never Run | Not Applicable |
| Fibre Channel HBAs | Asset Management | Built-in | Never Run | Not Applicable |
| Fibre Channel Switches | Connectivity | Built-in | Never Run | Not Applicable |
| File Extension by Host | File Level Storage | Built-in | Never Run | Not Applicable |
| Host Allocation Details | Hosts | Built-in | Succeeded | 2007-03-21 01:43 |
| Host and Array Devices | Relationship Mapping | Built-in | Succeeded | 2007-03-21 01:47 |
| Host Utilization Details | Hosts | Built-in | Never Run | Not Applicable |
| Masked, but Not Connected | Troubleshooting | Built-in | Never Run | Not Applicable |
| Masked, Mapped, but Not Accessible | Troubleshooting | Built-in | Never Run | Not Applicable |
| NAS File Servers | Asset Management | Built-in | Never Run | Not Applicable |
| Query 2007-03-07 11:05:03 | Asset Management | Custom | Succeeded | 2007-03-07 12:05 |
| Query 2007-03-22 05:00:51 | Asset Management | Custom | Succeeded | 2007-03-22 05:02 |
| Relationship View with Capacities | Relationship Mapping | Built-in | Succeeded | 2007-03-21 01:41 |
| Test | Asset Management | Custom | Never Run | Not Applicable |
| VMGuest to Storage Device | Relationship Mapping | Custom | Succeeded | 2007-03-13 00:37 |
| VMWare Usage | Asset Management | Built-in | Never Run | Not Applicable |
| Weekly Database Usage | Applications | Built-in | Never Run | Not Applicable |
| Windows Filesystem Weekly Growth | File Level Storage | Built-in | Never Run | Not Applicable |

At the bottom of the interface, there is a toolbar with buttons: 'Create...', 'Copy...', 'Modify...', 'Stop', 'Delete', 'Run...', and 'View SQL'.

Custom Reports

Custom reports to meet your needs

Custom reports created using Crystal Reports can be imported

SQL from Query Builder can be leveraged to create custom reports

Report data is always up-to-date

Reports can be scheduled

EMC Global Services custom reporting implementation service can be used



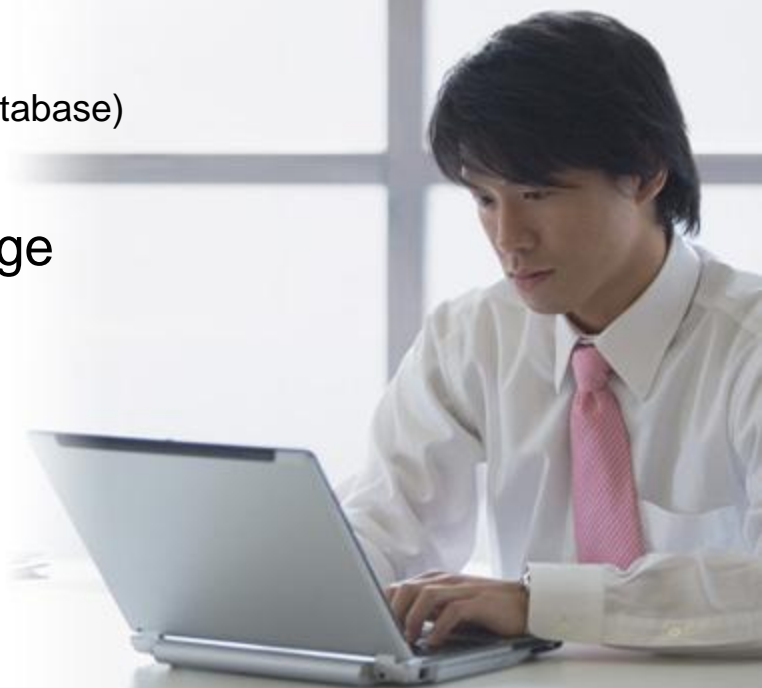
Report on File Details

StorageScope File Level Reporter

ControlCenter V6.0 integrates StorageScope and StorageScope File Level Reporter into a single infrastructure and provides:

- Single reporting user interface
- Single set of agents
 - Host and file agents merged
- Single reporting server and data repository
 - New StorageScope Repository (Oracle 10g DSS database)

Merge reports on files and directories with StorageScope information on servers, storage devices, and arrays



Built-In Reports

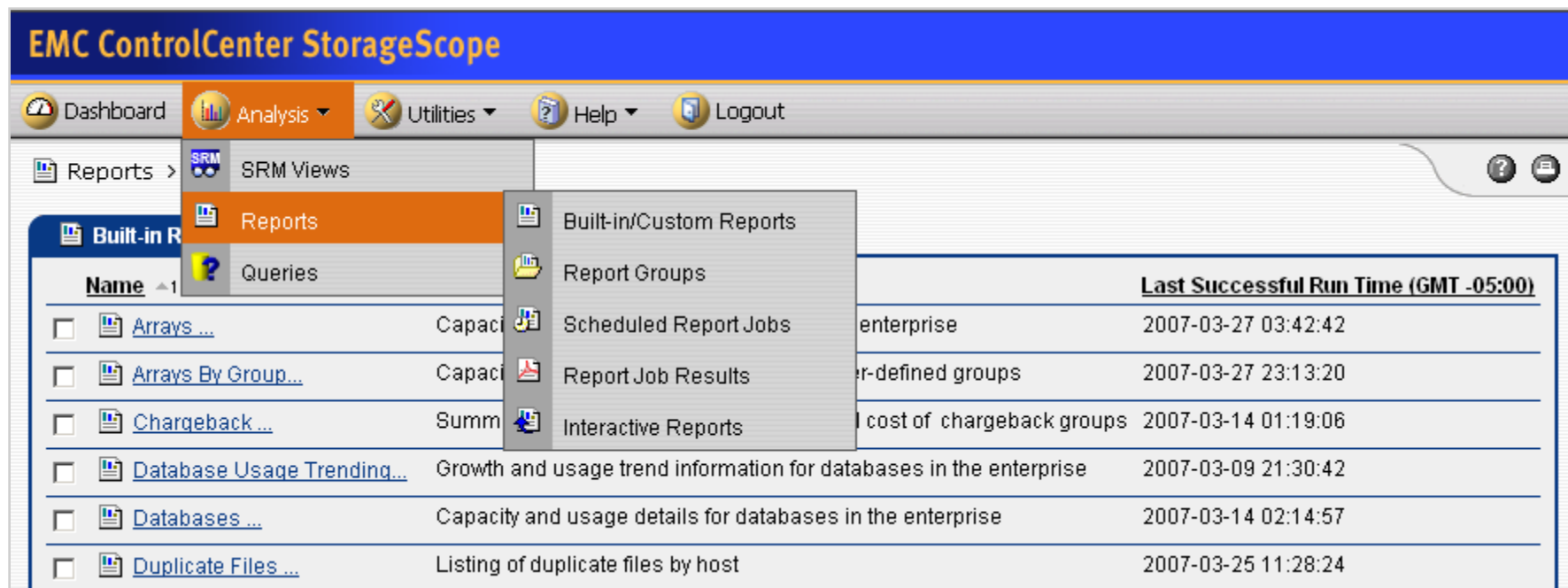
StorageScope

12 reports provided “out of the box”

Template design based on primary use cases and most commonly requested reports

User can adjust filtering and report format settings

Reports can be scheduled based on business requirements



The screenshot shows the EMC ControlCenter StorageScope interface. The top navigation bar includes Dashboard, Analysis, Utilities, Help, and Logout. The left sidebar shows a tree view with Reports > SRM Views > Reports selected. A dropdown menu is open over the Reports folder, listing: Built-in/Custom Reports, Report Groups, Scheduled Report Jobs, Report Job Results, and Interactive Reports. The main content area displays a table of reports with columns for Name, description, and Last Successful Run Time (GMT -05:00).

| Name | | Last Successful Run Time (GMT -05:00) |
|---|--|---|
| <input type="checkbox"/> Arrays ... | Capacity | enterprise 2007-03-27 03:42:42 |
| <input type="checkbox"/> Arrays By Group... | Capacity | user-defined groups 2007-03-27 23:13:20 |
| <input type="checkbox"/> Chargeback ... | Summary | cost of chargeback groups 2007-03-14 01:19:06 |
| <input type="checkbox"/> Database Usage Trending... | Growth and usage trend information for databases in the enterprise | 2007-03-09 21:30:42 |
| <input type="checkbox"/> Databases ... | Capacity and usage details for databases in the enterprise | 2007-03-14 02:14:57 |
| <input type="checkbox"/> Duplicate Files ... | Listing of duplicate files by host | 2007-03-25 11:28:24 |

Example of Built-In Reports

StorageScope

EMC ControlCenter™ StorageScope

Hosts Report

Capacity and usage details for all hosts in the enterprise

2006-12-22 14:58:29 (GMT-05:00)

Page 1 of 19



Details For All Hosts

| All Hosts | |
|------------------------------------|---------|
| Total # Physical Hosts: | 12 |
| # ESX Servers: | 2 |
| Accessible (TB): | 2.25 |
| # Dormant Files: | 320,526 |
| Used Accessible (TB): | 4.90 |
| Internal/JBOD (TB): | 0.72 |
| # Volume Groups: | 7 |
| Volume Group (GB): | 532.99 |
| Used Volume Group (GB): | 334.21 |
| # File Systems (excl VMFS): | 29 |
| File System (excl VMFS) (GB): | 345.83 |
| Used File System (excl VMFS) (GB): | 103.89 |
| # Media Files: | 362,091 |
| Media Files (GB): | 16.35 |
| # Aged Files: | 403,912 |
| Aged Files (GB): | 29.75 |

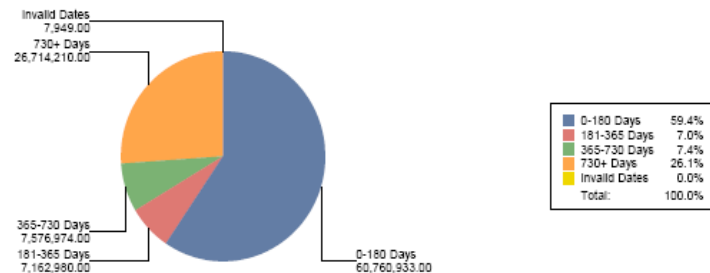
Enterprise Summary Report

Enterprise-level summary of physical and logical storage resources

2006-11-17 10:58:17 (GMT-05:00)

Page 3 of 9

Aged File Distribution (by Allocation Size)



Interface Views

StorageScope

EMC ControlCenter StorageScope

Dashboard | Analysis | Utilities | Help | Logout

Analysis : SRM Views > Arrays

Summary

- # Arrays: 18
- Total Capacity (TB): 56.33
- Configured (TB): 24.43
- Allocated (TB): 4.69
- Available (TB): 51.64
- # Arrays Full in 6 Months: Not Available

Data Center View

View historical trends

12 Months Storage Growth

Drill-down for individual details

Filter views 10 Arrays with Most Configured Space

Consumption Details Reclaimable Capacity

| Array | Array Type | Total Capacity (GB) | Available (GB) | % Configured | % Allocated | % Array Accessible Used | # Weeks Till Full | # Hosts |
|--|--------------|---------------------|----------------|--------------|-------------|-------------------------|-------------------|---------|
| 000184600082 | Symmetrix | 2,187.72 | 861.36 | 94% | 64% | 0% | >26 | 4 |
| 000000022848 | ESS | 1,084.80 | 1,084.80 | 75% | 0% | 0% | >26 | 0 |
| 000187940311 | Symmetrix | 6,152.98 | 5,722.99 | 66% | 11% | 0% | >26 | 0 |
| 000187400019 | Symmetrix | 40,233.14 | 7,807.29 | 39% | 16% | 77% | >26 | 1 |
| 000187940318 | Symmetrix | 6,152.98 | 5,670.13 | 33% | 24% | 0% | >26 | 1 |
| 600A0B80001386A30000000042AFF0 | IBM_DS4300 | 950.12 | 886.37 | 21% | 31% | 0% | >26 | 0 |
| 50001FE150013630 | StorageWorks | 915.81 | 844.31 | 21% | 37% | 0% | >26 | 0 |
| APM00034802084 | Clariion | 0.00 | 0.00 | 0% | 0% | 0% | Not Available | 1 |
| 000183600342 | Symmetrix | 0.00 | 0.00 | 0% | 0% | 0% | Not Available | 1 |
| 000182601265 | Symmetrix | 0.00 | 0.00 | 0% | 0% | 0% | Not Available | 1 |

Manage File-Related Storage Activity and Capacity

StorageScope File Level Reporter

View detailed reports

- Size of file
- Owner
- Last modified date
- Last access date

Duplicate Files Report
Listing of duplicate files by host
2007-04-13 09:48:38 (GMT-04:00)
Page 16 of 24

| Host Name | Path | Allocated File Size (MB) | Actual File Size (MB) | Last Accessed |
|------------------------------------|------------------------------------|--------------------------|-----------------------|----------------------|
| Excess Size for REDO01.LOG: | | | 200.00 | |
| File Name: REDO02.LOG | | 200.00 | 200.00 | |
| losao162 | C:\ECC\Repository\oradata\emcstsd\ | | | 4/ 8/2007 6:30:41 AM |
| losao162 | C:\ECC\Repository\oradata\rambdb\ | | | 4/12/2007 6:02:51 AM |
| Excess Size for REDO02.LOG: | | | 200.00 | |
| File Name: REDO03.LOG | | 200.00 | 200.00 | |
| losao162 | C:\ECC\Repository\oradata\emcstsd\ | | | 4/ 8/2007 6:30:41 AM |
| losao162 | C:\ECC\Repository\oradata\rambdb\ | | | 4/12/2007 6:03:10 AM |

Chargeback for Virtual Machines

EMC StorageScope Query Builder - Query Results - Microsoft Internet Explorer provided by EMC Corp

Query Results

Query Name: ForRoxane_VMWare Usage
Run Time 2007-10-24 20:24 (GMT+01:00) [View SQL](#)

131 rows - Page 1 of 3

Capacity usage

Chargeback \$\$

| Arrays: Array Name | LUNs: LUN Name | ESX Server: Host System Name | Host Devices: Host Device Name - 2 | VMFS Name | VM Machine: VMDK Capacity (KB) | VM Machine: Host System Name - 1 | VM File: VM File Capacity(KB) | Chargeback2 (\$) |
|---------------------|----------------|------------------------------|------------------------------------|--------------|--------------------------------|--|-------------------------------|------------------|
| 000285500903 | 078 | jack | vmhba1:0:6 | VMSTORE-6 | 31,522,816 | * ECC 5.2 - SP1 - CR1 - IP 122.226 | 31,457,280 | 90.00 |
| 000285500903 | 078 | jack | vmhba1:0:6 | VMSTORE-6 | 31,522,816 | * ECC 5.2 - SP1 - CR1 - IP 122.226 | 65,536 | 0.19 |
| Subtotal (2) | | | | | 63,045,632 | * ECC 5.2 - SP1 - CR1 - IP 122.226 | 31,522,816 | 90.19 |
| 99-0000-000 | 0012 | robin | vmhba2:0:3 | vmware_disk4 | 44,466,176 | * ECC 5.2 - SP1 - W2K3SP1 - CR1 - IP 24.172 | 6,258,688 | 17.91 |
| 99-0000-000 | 0012 | robin | vmhba2:0:3 | vmware_disk4 | 44,466,176 | * ECC 5.2 - SP1 - W2K3SP1 - CR1 - IP 24.172 | 6,750,208 | 19.31 |
| 99-0000-000 | 0012 | robin | vmhba2:0:3 | vmware_disk4 | 44,466,176 | * ECC 5.2 - SP1 - W2K3SP1 - CR1 - IP 24.172 | 31,457,280 | 90.00 |
| Subtotal (3) | | | | | 133,398,528 | * ECC 5.2 - SP1 - W2K3SP1 - CR1 - IP 24.172 | 44,466,176 | 127.22 |
| 000285500903 | 078 | sydney | vmhba1:0:6 | VMSTORE-6 | 38,305,792 | * ECC 5.2 - SP4 - CR1 - IP 122.224 | 31,457,280 | 90.00 |
| 000285500903 | 078 | sydney | vmhba1:0:6 | VMSTORE-6 | 38,305,792 | * ECC 5.2 - SP4 - CR1 - IP 122.224 | 6,848,512 | 19.59 |
| Subtotal (2) | | | | | 76,611,584 | * ECC 5.2 - SP4 - CR1 - IP 122.224 | 38,305,792 | 109.59 |
| 000285500903 | 0B4 | jack | vmhba1:0:7 | VMSTORE-7 | 51,232,768 | * ECC 5.2 - SP4 - CR2 - IP 122.227 | 31,457,280 | 90.00 |
| 000285500903 | 0B4 | jack | vmhba1:0:7 | VMSTORE-7 | 51,232,768 | * ECC 5.2 - SP4 - CR2 - IP 122.227 | 12,910,592 | 36.94 |
| 000285500903 | 0B4 | jack | vmhba1:0:7 | VMSTORE-7 | 51,232,768 | * ECC 5.2 - SP4 - CR2 - IP 122.227 | 6,864,896 | 19.64 |
| Subtotal (3) | | | | | 153,698,304 | * ECC 5.2 - SP4 - CR2 - IP 122.227 | 51,232,768 | 146.58 |
| 000285500903 | 0B4 | sydney | vmhba1:0:7 | VMSTORE-7 | 43,630,592 | * ECC 6.0 - CR3 - IP 3.208 | 31,457,280 | 90.00 |
| 000285500903 | 0B4 | sydney | vmhba1:0:7 | VMSTORE-7 | 43,630,592 | * ECC 6.0 - CR3 - IP 3.208 | 12,173,312 | 34.83 |
| Subtotal (2) | | | | | 87,261,184 | * ECC 6.0 - CR3 - IP 3.208 | 43,630,592 | 124.83 |
| 000285500903 | 0B4 | sydney | vmhba1:0:7 | VMSTORE-7 | 53,624,832 | Aurora -ECC 5.2 - SP5 - W2K3SP1 - CR1 - IP 24.175 | 31,457,280 | 90.00 |
| 000285500903 | 0B4 | sydney | vmhba1:0:7 | VMSTORE-7 | 53,624,832 | Aurora -ECC 5.2 - SP5 - W2K3SP1 - CR1 - IP 24.175 | 22,167,552 | 63.42 |
| 99-0000-000 | 0011 | robin | vmhba2:0:1 | vmware_disk2 | 53,755,904 | Aurora -ECC 5.2 - SP5 - W2K3SP1 - CR1 - IP 24.175 | 14,565,376 | 41.67 |
| 99-0000-000 | 0011 | robin | vmhba2:0:1 | vmware_disk2 | 53,755,904 | Aurora -ECC 5.2 - SP5 - W2K3SP1 - CR1 - IP 24.175 | 7,733,248 | 22.12 |
| 99-0000-000 | 0011 | robin | vmhba2:0:1 | vmware_disk2 | 53,755,904 | Aurora -ECC 5.2 - SP5 - W2K3SP1 - CR1 - IP 24.175 | 31,457,280 | 90.00 |
| Subtotal (5) | | | | | 268,517,376 | Aurora -ECC 5.2 - SP5 - W2K3SP1 - CR1 - IP 24.175 | 107,380,736 | 307.22 |
| 000285500903 | 078 | sydney | vmhba1:0:6 | VMSTORE-6 | 47,366,144 | CCM - Demo - ECC6.0 - IP 3.209 | 4,112,384 | 11.77 |
| 000285500903 | 078 | sydney | vmhba1:0:6 | VMSTORE-6 | 47,366,144 | CCM - Demo - ECC6.0 - IP 3.209 | 4,161,536 | 11.91 |
| 000285500903 | 078 | sydney | vmhba1:0:6 | VMSTORE-6 | 47,366,144 | CCM - Demo - ECC6.0 - IP 3.209 | 31,457,280 | 90.00 |
| 000285500903 | 078 | sydney | vmhba1:0:6 | VMSTORE-6 | 47,366,144 | CCM - Demo - ECC6.0 - IP 3.209 | 7,634,944 | 21.84 |
| Subtotal (4) | | | | | 189,464,576 | CCM - Demo - ECC6.0 - IP 3.209 | 47,366,144 | 135.52 |
| 000285500903 | 03C | sydney | vmhba1:0:0 | VMSTORE-5 | 31,457,280 | CCMECC60 | 0 | 0.00 |
| 000285500903 | 03C | sydney | vmhba1:0:5 | VMSTORE-5 | 31,457,280 | CCMECC60 | 31,457,280 | 90.00 |
| 000285500903 | 03C | sydney | vmhba1:0:5 | VMSTORE-5 | 31,457,280 | CCMECC60 | 31,457,280 | 90.00 |
| Subtotal (3) | | | | | 94,371,840 | CCMECC60 | 31,457,280 | 90.00 |
| 000285500903 | 078 | jack | vmhba1:0:6 | VMSTORE-6 | 31,457,280 | CONXCCM | 31,457,280 | 90.00 |

Improved Performance Monitoring and Reporting

Monitor and Report on Tiered-Storage Infrastructure Performance

Increase productivity

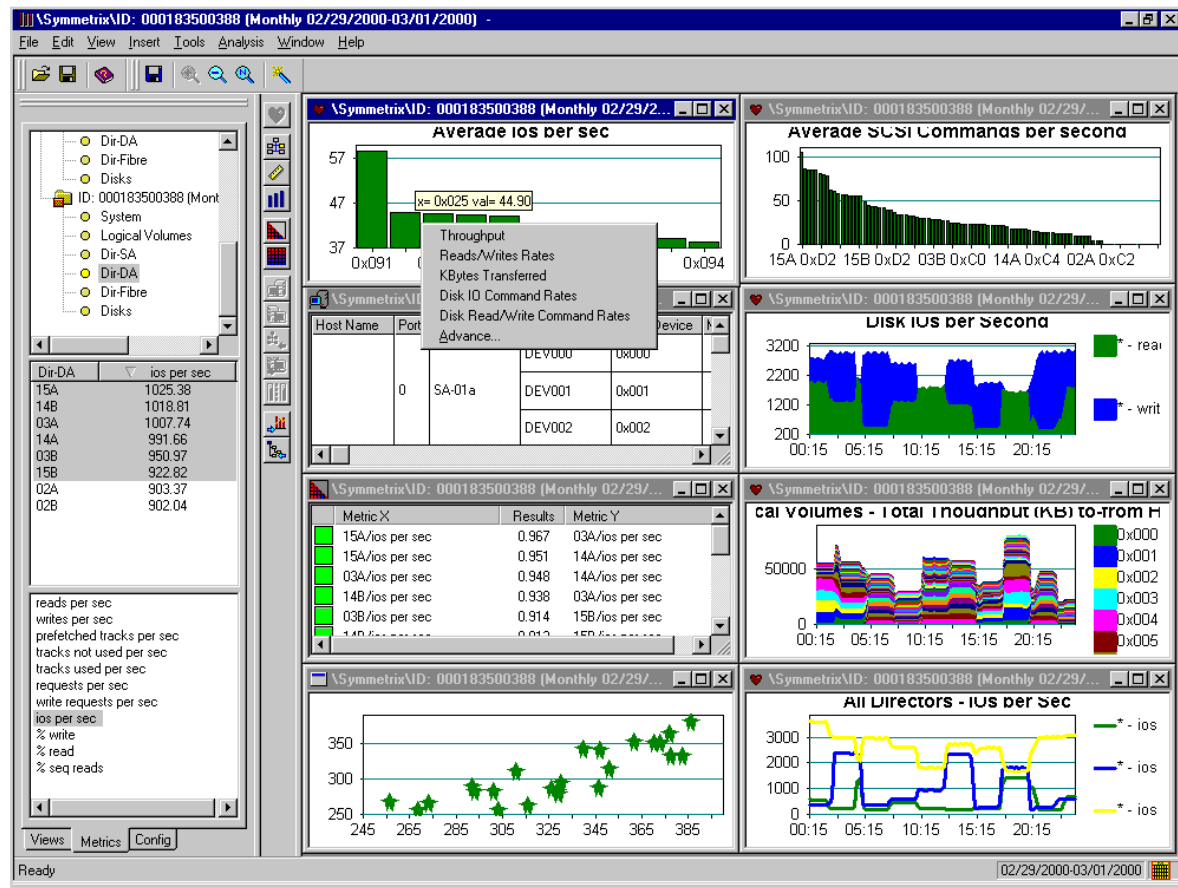
- Automate reporting of performance

Improve service level by pinpointing...

- Performance trends
- Future performance-capacity needs
- Implementation deficiencies

Support business growth

- Forecast performance requirements



ControlCenter Performance Manager

Improved Performance Monitoring and Reporting

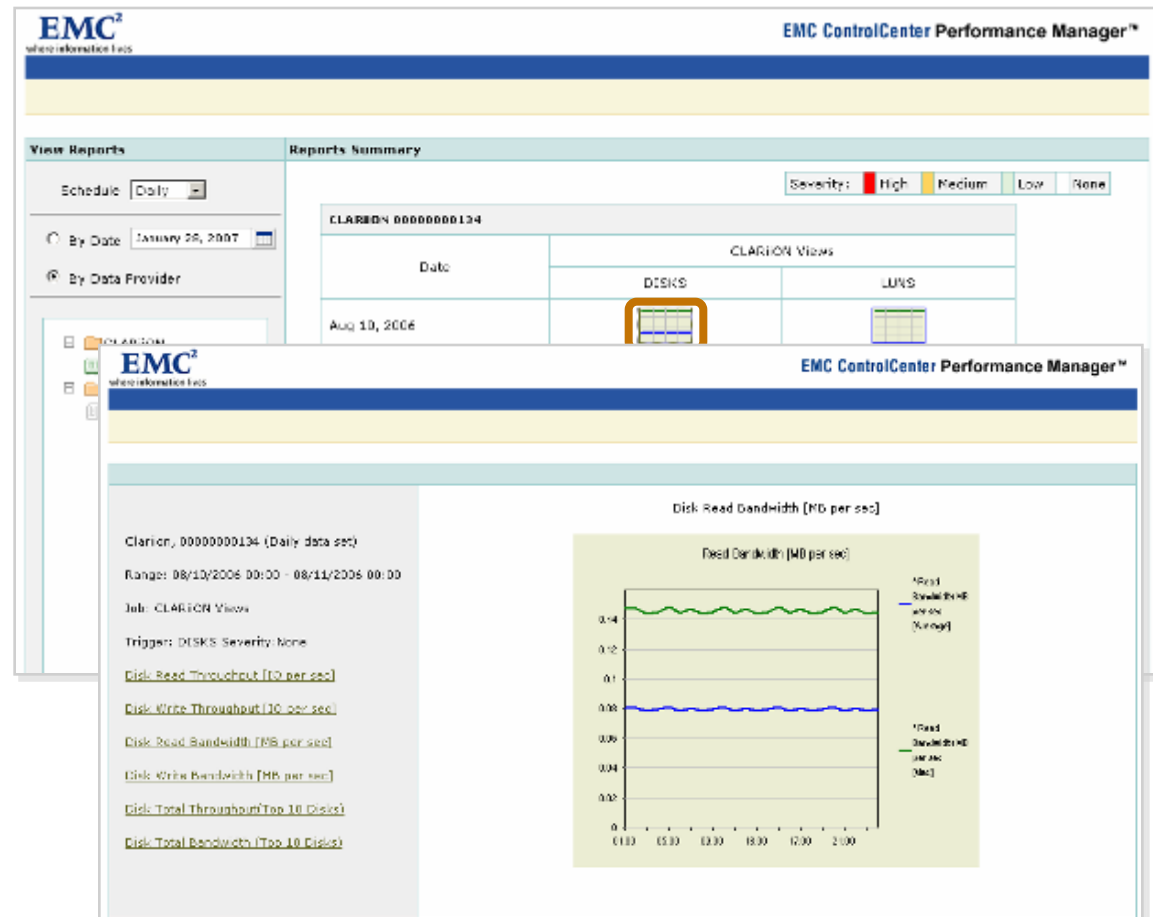
Manage Performance by Exception with Automated Web Views

Performance summary reports with thumbnails

- Show by date or by system
- Green, yellow, or red— based on usage thresholds
- Systems sorted by severity
- Organized by front end, system, or back end

Generated automatically, based on schedule or performance thresholds

Drill-down for detailed report



Performance Manager

Improved Performance Monitoring and Reporting

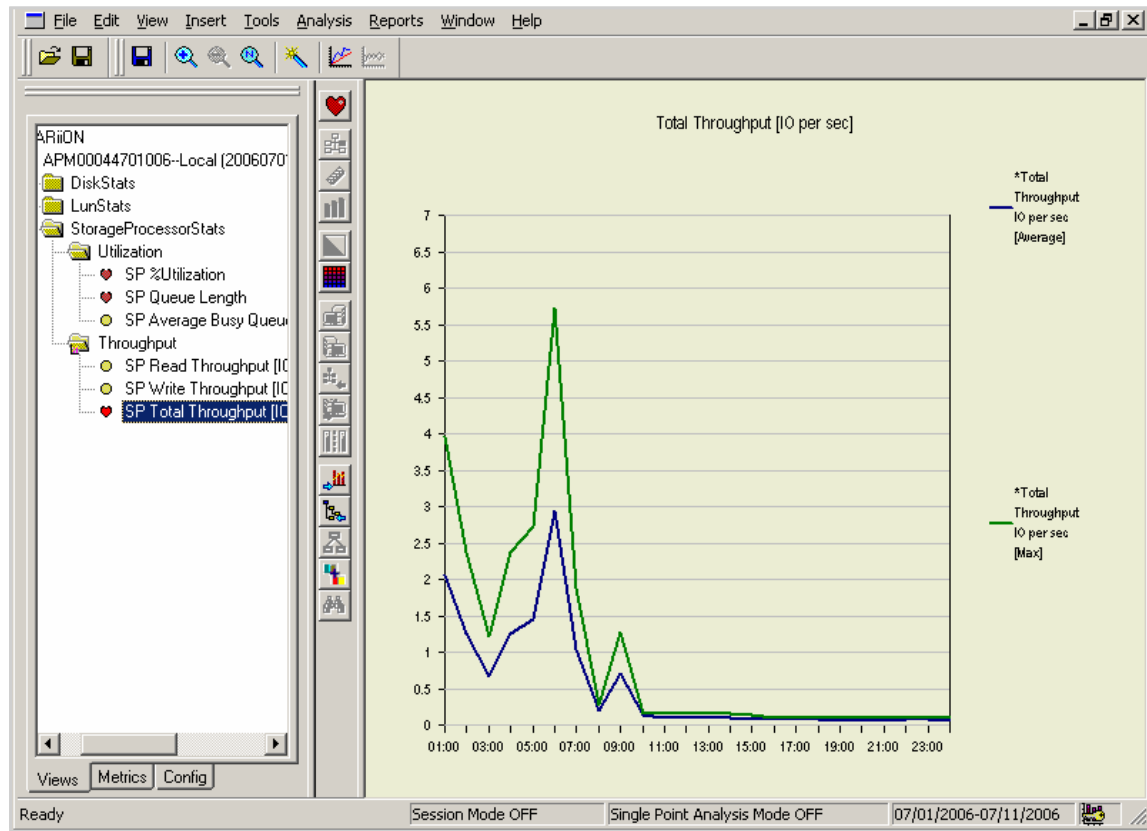
CLARiiON Performance Monitoring and Analysis

CLARiiON statistics are extensive and consistent with Navisphere Analyzer

Statistics displayed for:

- Disks
- LUNs
- Storage processors

CLARiiON Agent supports asynchronous events, including “call home” alerts

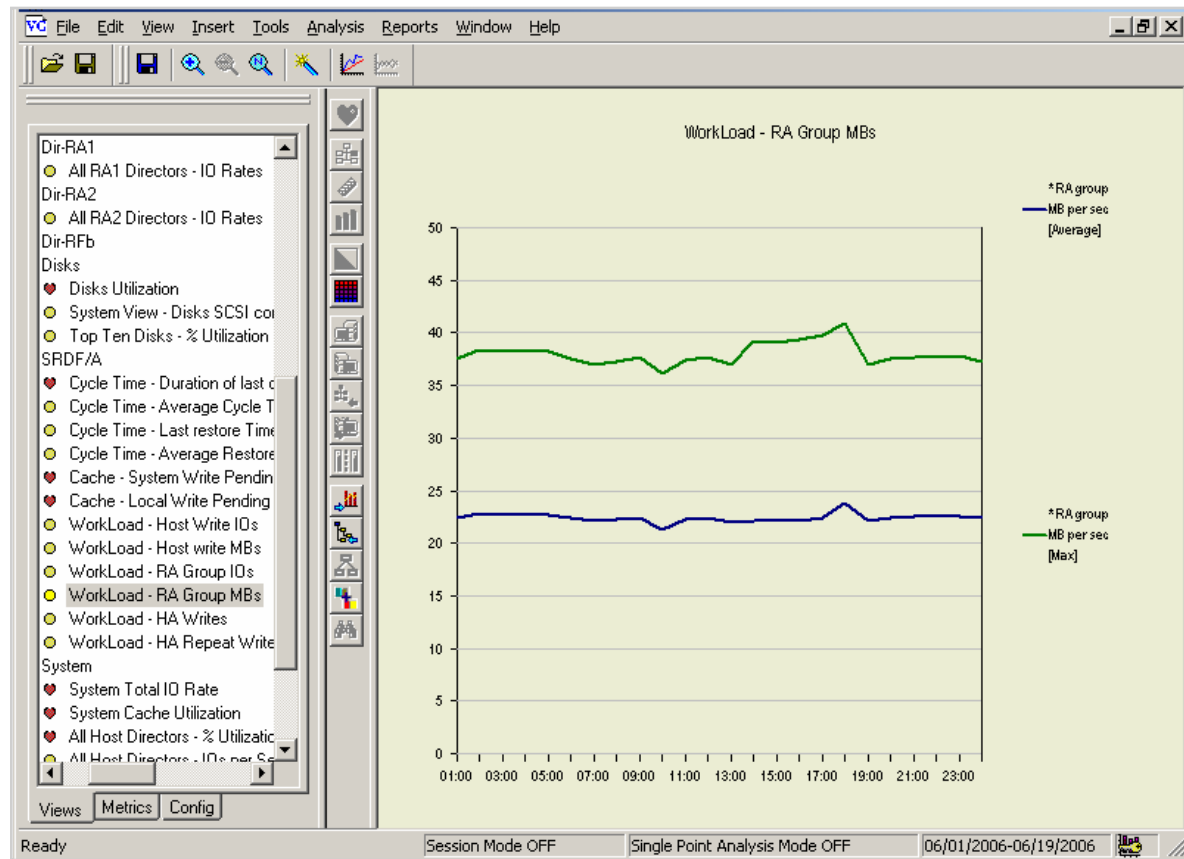


Performance Manager

Improved Performance Monitoring and Reporting

Deep Dive into Symmetrix Replication Performance

View replication performance, including SRDF/A and SRDF family director statistics



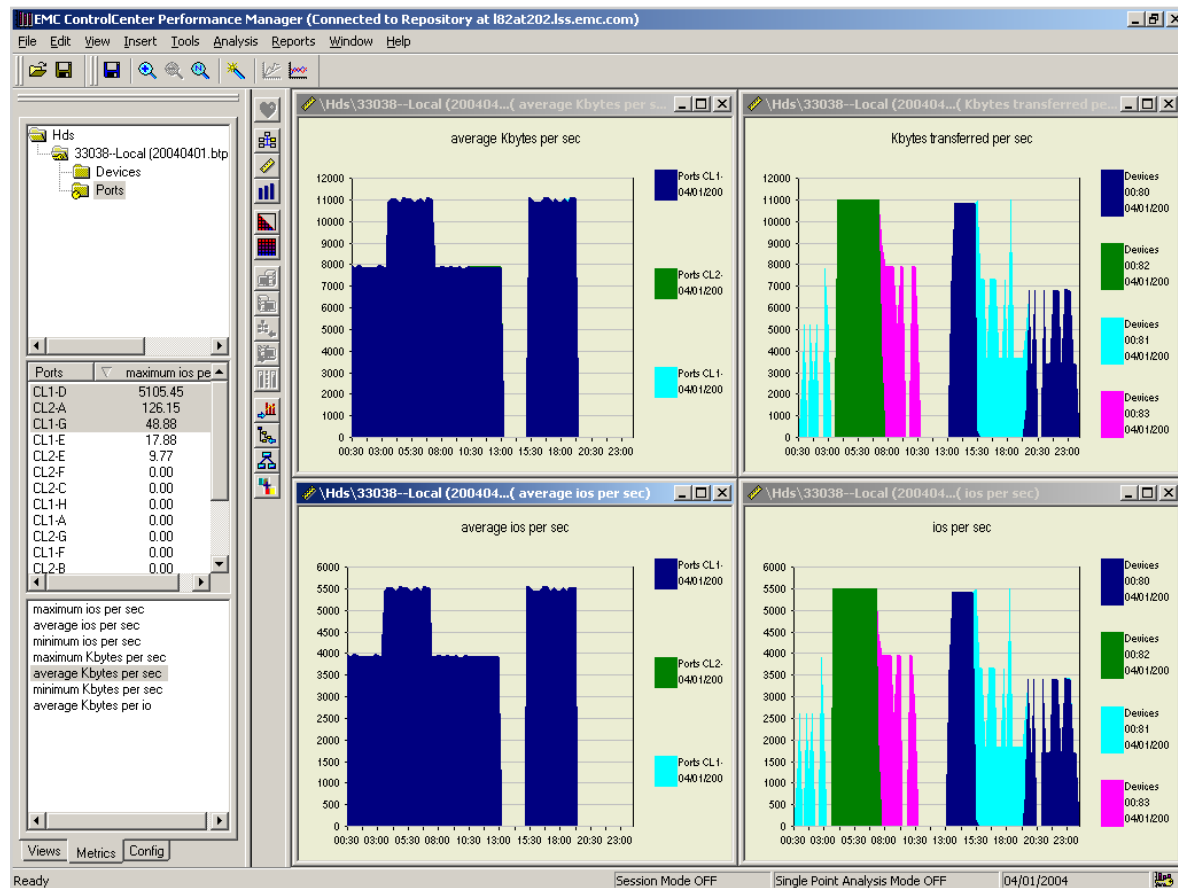
Performance Manager

Improved Performance Monitoring and Reporting

Hitachi Performance Monitoring and Analysis

Extends support to include:

- New statistics displayed for...
 - Devices
 - Ports
- Multiple LDEV (logical device) masking support
- Discover mainframe devices
 - Tree View and Properties View



Performance Manager

Security and Serviceability

Enhanced security

- Expands Command History auditing coverage
- Provides console session timeout option

Improved usability

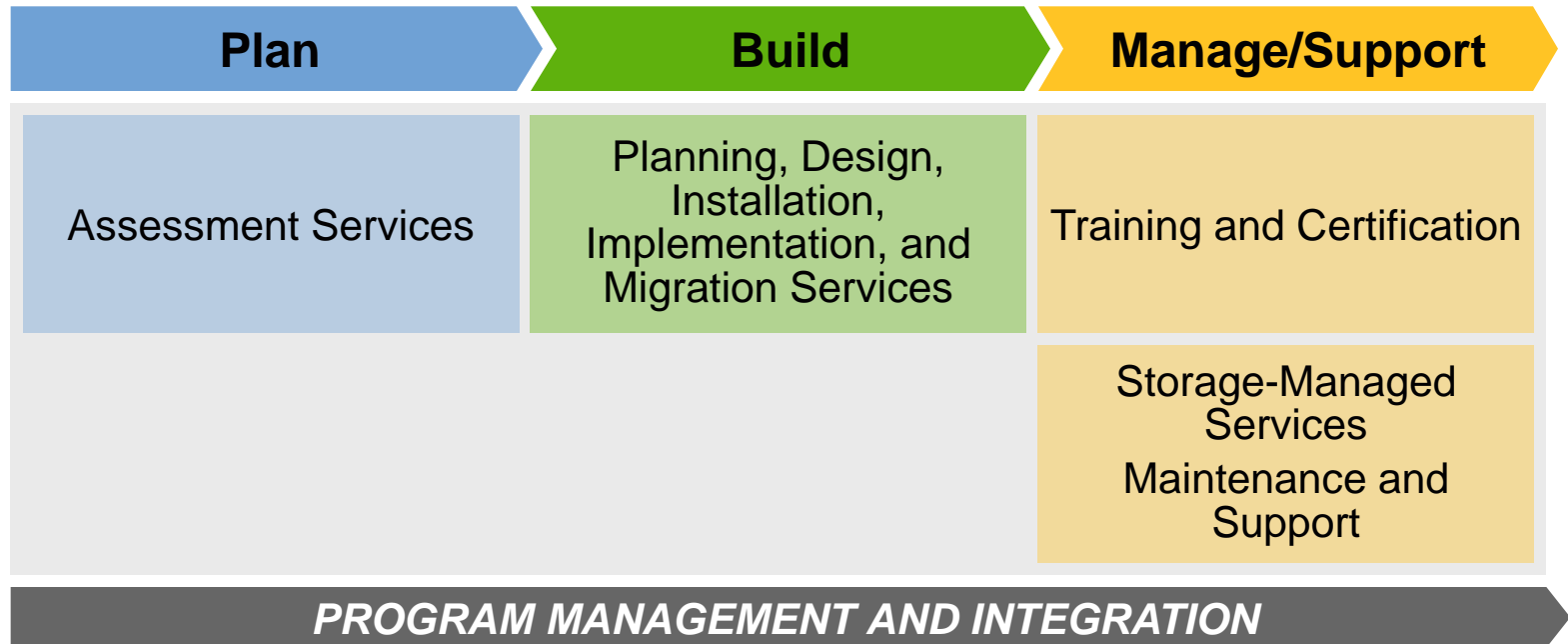
- InstallShield-based installation
- “Last discovered on” object information in console and StorageScope

Improved serviceability

- Better log-collection utility



ControlCenter Service Offerings



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