



NetApp™

Go further, faster™

ApplianceWatch PRO 2.0 Customer Technical Presentation

Allan Watanabe – TME
January 2010





Agenda

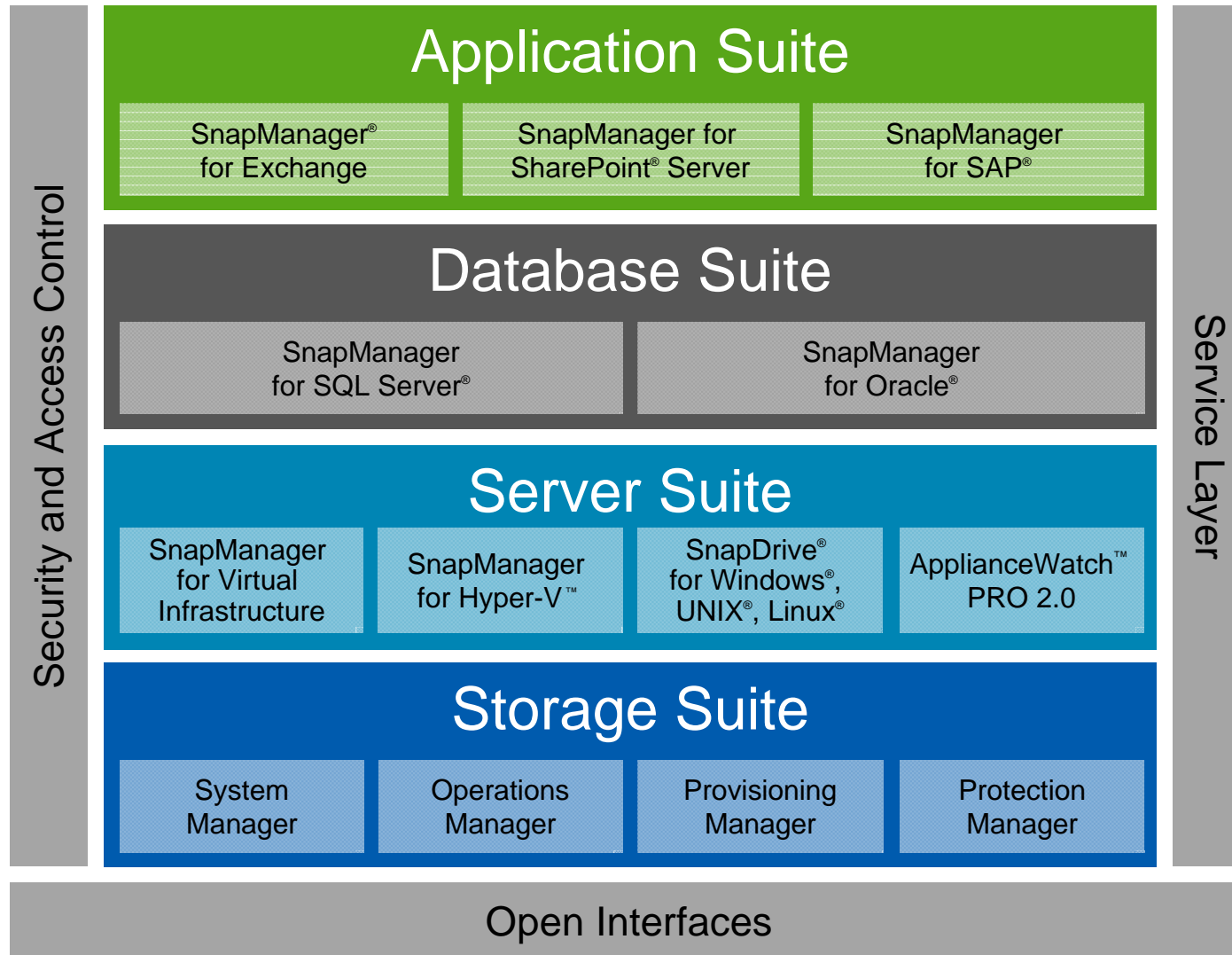
- ApplianceWatch™ overview
- Features and benefits
- Licensing and availability
- System requirements
- Summary and Q&A





NetApp Manageability Software Family

An Integrated Data Management Approach





Microsoft System Center Overview

■ What is SCOM?

- Microsoft® System Center Operations Manager provides end-to-end monitoring for enterprise IT environments.
 - Monitors Windows®, Linux®, and UNIX® servers, applications, and Windows clients
 - Provides comprehensive views of their health states – all through a single console
 - Views are key to rapid and agile response to events that can affect the availability of the services that the IT department provides to its customers



■ What is SCVMM?

- Microsoft System Center Virtual Machine Manager provides centralized administration for virtual machine infrastructures.
 - Helps to increase physical server utilization
 - Enables rapid provisioning of new virtual machines by the VMM administrator and authorized self-service end users





What Is ApplianceWatch PRO 2.0?

- NetApp[®] ApplianceWatch[™] PRO 2.0 for SCOM is installed on the SCOM 2007 server to give Windows IT administrators a central interface to monitor NetApp storage systems
- Discovers hardware and storage layouts of your NetApp storage systems
- Provides alerts, health views, and various performance views
- Also provides dynamic management of a virtualized environment with the addition of PRO management packs



ApplianceWatch



ApplianceWatch PRO 2.0 Overview



- Automatic NetApp® system discovery
- System monitoring
 - Alert reporting
 - Performance monitoring
- Report on the health of storage elements
 - Physical hardware: controller, shelf, fan, power supply, disk, etc
 - Logical elements: aggregates, volumes, LUNs
- Integration with SCVMM via PRO
 - Autoremediation PRO Tip
 - VM-to-storage mapping and monitoring
 - Event correlation
 - Triggers and actions
 - Alerts (thin-provisioning PRO Tips, etc.)



PRO Management Packs Overview

- Base Management Pack

- Monitoring application integrates into System Center Operation Manager (SCOM 2007) to monitor NetApp® controllers

- Discovers NetApp controllers
- Monitors events
- Collects performance statistics
- Handles alert conditions



- PRO Management Pack

- Separate management pack for System Center Virtual Machine Manager (SCVMM 2008) integration with PRO Tips



What's New in ApplianceWatch PRO 2.0?

- Monitor storage availability and capacity pertaining to virtual machines running on a Microsoft® Hyper-V™ host
- Receive PRO Tips with autoremediation support in the System Center Virtual Machine Manager (SCVMM) console
- NetApp® ApplianceWatch™ PRO 2.0 is a completely rewritten tool
 - Most functionality in 2.0 does not involve SNMP
 - Uses Manage ONTAP® connections to the storage controllers and actively monitors their status
 - No dependency on the Data ONTAP® MIB files
 - Can still receive and display SNMP traps from Data ONTAP





Features and Benefits

- Easy storage management for Windows® administrators
 - Monitor all elements of the IT infrastructure (Single pane of glass from MMC console)
 - Centralized monitoring means less hardware and less training
- Drill down into NetApp® systems
 - Simplify distributed NetApp storage system monitoring
 - Isolate problems quickly by using alerts and diagram views
 - Troubleshoot performance issues by using performance views
- ApplianceWatch™ Performance and Resource Optimization (PRO) management pack
 - Avoid or minimize downtime, shorten time to resolution, and provide autorecovery tools in a virtualized environment



ApplianceWatch



Easy Storage Management for Windows Administrators

The screenshot displays the System Center Operations Manager 2007 interface. The main window is titled "System Center Operations Manager 2007 - CDK_SCOM_GROUP". The left-hand navigation pane shows a tree view under "Monitoring" with categories like Active Alerts, Computers, Discovered Inventory, Distributed Applications, Task Status, DataONTAP Storage Systems, Alerts, Diagram View, State View, Performance views, Microsoft SQL Server, Microsoft Windows Server, Network Device, Network Devices State, Virtual Machine Manager 2008, and Virtual Machine Manager 2008 Vie. The main area shows a list of alerts under the heading "Alerts (29)". A search bar is visible above the list. Below the main alert list, a pop-up window titled "Disk data written" shows a detailed view of "Alerts (68)". This pop-up window has a table with the following columns: Icon, Source, Name, Resolution State, and Created. The table lists several critical alerts, all with a "New" resolution state and timestamps from 10/23/2009 4:25:42 PM to 4:29:40 PM.

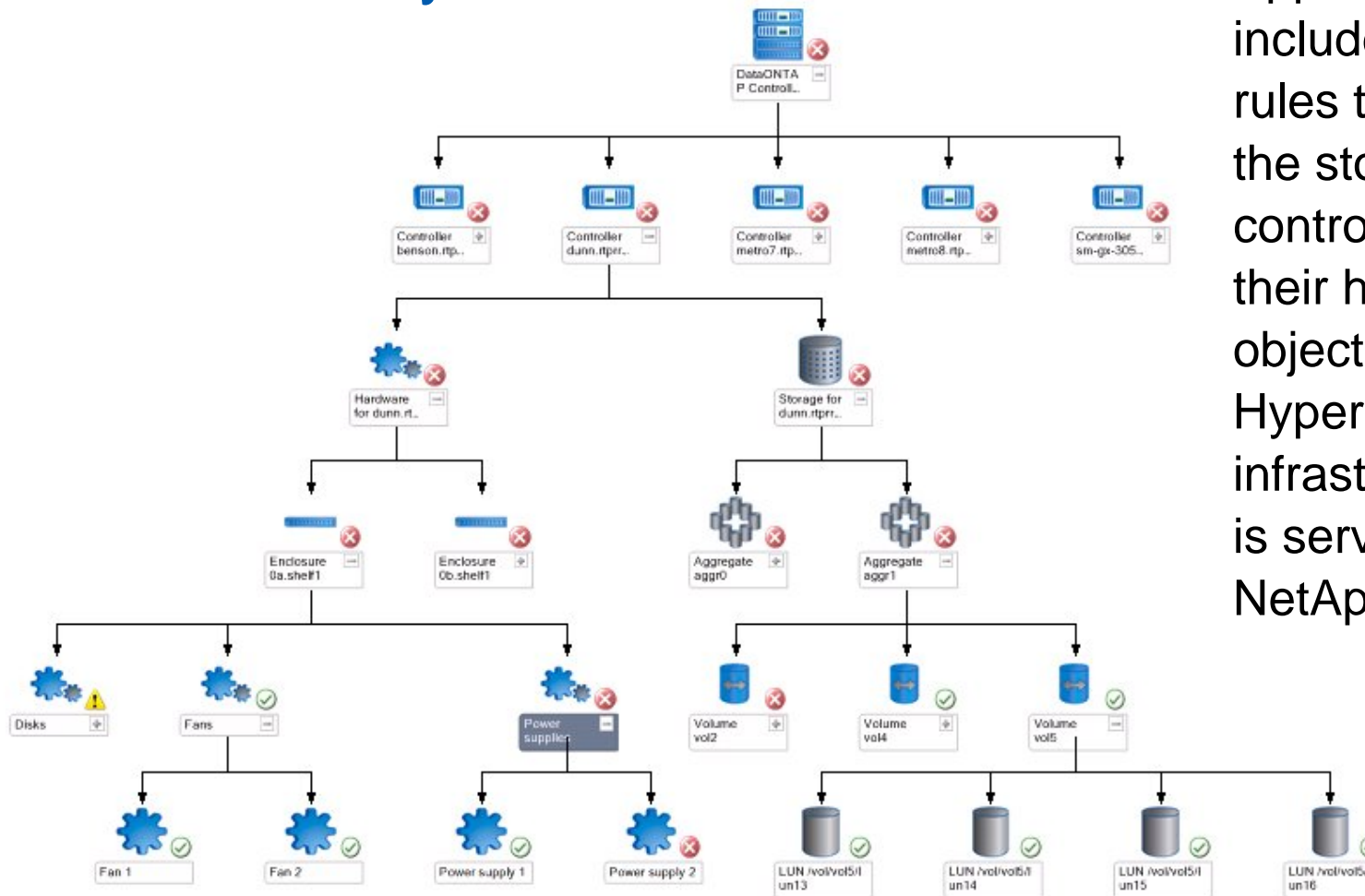
Icon	Source	Name	Resolution State	Created
Severity: Critical (60)				
✖	Volume vol_V5M	Volume SnapMirror monitor	New	10/23/2009 4:29:40 PM
✖	Qtree qtest_qtr...	Qtree quota monitor	New	10/23/2009 4:27:45 PM
✖	Qtree qtest_qtree	Qtree quota monitor	New	10/23/2009 4:27:45 PM
✖	Qtree abhi_Qtree	Qtree quota monitor	New	10/23/2009 4:27:40 PM
✖	Enclosure 0a.sh...	Enclosure state monitor	New	10/23/2009 4:25:42 PM
✖	Power supply 2	Power supply state monitor	New	10/23/2009 4:25:42 PM
✖	Power supply 2	Power supply state monitor	New	10/23/2009 4:25:42 PM
✖	Enclosure 0b.sh...	Enclosure state monitor	New	10/23/2009 4:25:42 PM
✖	Power supply 2	Power supply state monitor	New	10/23/2009 4:25:42 PM



Drill Down into NetApp Storage Systems

Discovery

- ApplianceWatch™ includes discovery rules that discover the storage controllers, their hosted objects, and the Hyper-V™ virtual infrastructure that is served by NetApp® storage





ApplianceWatch Monitoring

Monitoring

- Includes numerous rules that monitor the health of discovered Data ONTAP® storage objects
- Any monitor that finds a non-optimal condition generates an alert in SCOM
- Frequency of all rules can be adjusted by the user
- To optimize SCOM performance, the default rule execution frequency is based on the relative amount of controller interaction required

Alerts (68)

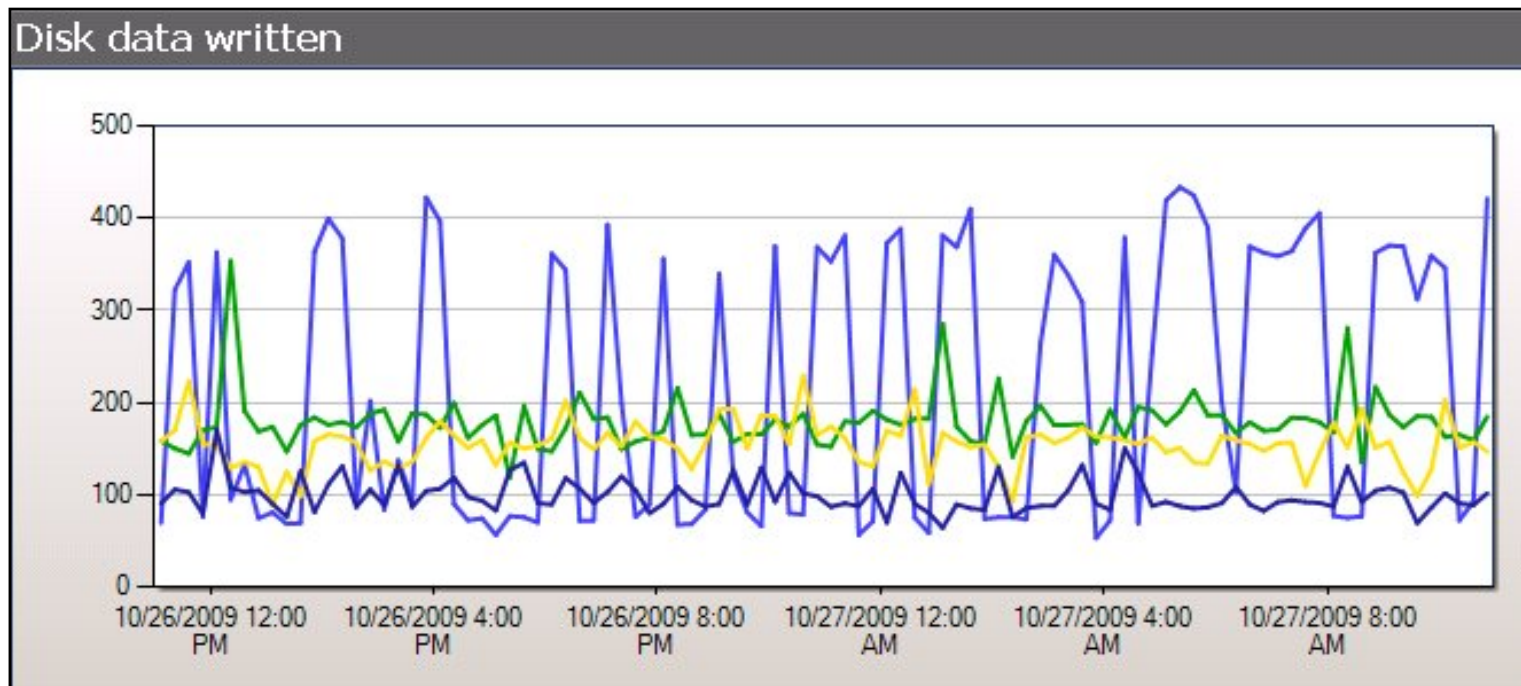
Icon	Source	Name	Resolution State	Created
Severity: Critical (60)				
	Volume vol_VSM	Volume SnapMirror monitor	New	10/23/2009 4:29:40 PM
	Qtree qtest_qtr...	Qtree quota monitor	New	10/23/2009 4:27:45 PM
	Qtree qtest_qtree	Qtree quota monitor	New	10/23/2009 4:27:45 PM
	Qtree abhi_Qtree	Qtree quota monitor	New	10/23/2009 4:27:40 PM
	Enclosure 0a.sh...	Enclosure state monitor	New	10/23/2009 4:25:42 PM
	Power supply 2	Power supply state monitor	New	10/23/2009 4:25:42 PM
	Power supply 2	Power supply state monitor	New	10/23/2009 4:25:42 PM
	Enclosure 0b.sh...	Enclosure state monitor	New	10/23/2009 4:25:42 PM
	Power supply 2	Power supply state monitor	New	10/23/2009 4:25:42 PM



ApplianceWatch Performance Views

Performance

- Monitors 18 controller-level performance counters
- Each displayed graphically in the performance views
- Also monitors average CPU utilization and generates an alert if a controller's CPU load remains above a user-configurable threshold





Performance and Resource Optimization Management Pack

The screenshot shows a window titled "PRO Tips (3)" with a table of tips. The table has columns for Source, Tip, and State. The second row is highlighted, showing a tip for VM8_Dunn_LUN6. Below the table, the selected tip is expanded to show details for VM8_Dunn_LUN6, including a "Volume space utilization PRO" warning and a "Virtual Machine Summary" section.

Source	Tip	State
VM1_Dunn_LUN1	Volume space utilization PRO	Active
VM8_Dunn_LUN6	Volume space utilization PRO	Active
VM7_Dunn_LUN5	Volume space utilization PRO	Active

VM8_Dunn_LUN6

Volume space utilization PRO

One or more storage volumes that serve this VM have exceeded the critical space utilization limit: (dunn:vol2).
VM name: VM8_Dunn_LUN6
VM GUID: 93A35BDB-D3FA-420F-BE02-036232960C59
VM FQDN: HypervibeVM8.rtpre.testdomain
VM host: x3550rre8.rtpre.testdomain

Virtual Machine Summary

Name: [VM8_Dunn_LUN6](#)
Host: [x3550rre8.rtpre.testdomain](#)
CPU: 1.00 GHz Pentium III Xeon
Memory: 512.00 MB
Storage: 15.00 GB

Show this window when new PRO Tips are created

Implement Dismiss



Licensing and Availability

- ApplianceWatch™ is free for NetApp customers who have a valid software subscription contract for their controllers
- No SSP purchase or renewal is required in order to receive support for this product (with a valid subscription contract)





ApplianceWatch Part Number EOA Bulletin

- The following part numbers will have an EOA notification in the Quote Tool:
 - SW-APPWATCH-MOM
 - SW-SSP-APPWATCH-MOM
- The part number EOA only with no effect on the form, fit, or function of the product
- NetApp will continue to provide software support for these products
 - No SSP purchase or renewals will be required in order to receive support for this product
- Offered and supported free of charge to customers as long as they have a valid software subscription contract for their controllers
 - Customers can download this product directly from the NOW™ download page
 - Existing customers will have access to newer versions of the software



Hardware and Software Requirements

- Hardware requirements
 - Defined by SCOM 2007 server sizing tools provided by Microsoft
- Software requirements
 - Windows® 2008 Server, RTM/SP1/R2, x32/x64
 - Windows 2003 Server, x32/x64
 - Microsoft® System Center Operations Manager 2007, SP1/R2
 - Microsoft Virtual Machine Manager 2008, RTM/R2
 - Microsoft SQL Server® 2005 or 2008
 - .NET Version 3.5 or later
 - Review SCOM server installation requirements for full details





ApplianceWatch PRO 2.0 Support

- Support for FAS series, V-Series, and N series
- Requires Data ONTAP® 7.2.6+, 7.3.x, 8.0.x (7-Mode)
- MultiStore® (vFiler™) data support on Data ONTAP 7.3.1.1P8, 7.3.2P1, and later
- ApplianceWatch™ supports all protocols, drives, and so on
- No requirement for specific Data ONTAP licenses or any other NetApp® software



ApplianceWatch PRO 2.0 Summary



- Simplify storage management through integration with Microsoft® technology
- Monitor all elements of a heterogeneous IT infrastructure from a single interface (MMC)
- Drill down into NetApp® storage systems to view hardware and storage layout
- Isolate problems quickly by using alerts and various performance views
- Receive PRO Tips with autoremediation support in the System Center Virtual Machine Manager console
- Configure all NetApp storage controllers by using NetApp tools launched from the SCOM monitoring console



Features and Benefits Summary

Feature	Benefit
Discovery	Discover NetApp® storage systems
Navigation	Navigate between (and manage) multiple storage systems
Centralized monitoring and alerting of NetApp storage resources	Incorporate faster resolution and achieve high availability of NetApp resources
Multiprotocol support	FC, iSCSI, and FCoE
Extensive reporting of NetApp storage	Incorporate efficient resource utilization
Identify storage systems by IOPS, network throughput, and CPU utilization	Identify key storage systems based on performance-related activity
SCVMM PRO Tip integration	Achieve high storage availability and capacity for VMs running on a Microsoft® Hyper-V™ host



References

- NetApp® Communities

- http://communities.netapp.com/community/products_and_solutions/storage_management_software

- NGS Wiki TOI

- http://wikid.netapp.com/w/NGS_NPI/TOI/ApplianceWatch/2.0

- Interoperability Matrix Tool (IMT)

- <http://now.netapp.com/matrix/mtx/login.do>

- NetApp Field Portal

- <https://fieldportal.netapp.com>





Thank You

© Copyright 2010, NetApp, Inc. All rights reserved. No portions of this document may be reproduced without prior written consent of NetApp, Inc. Specifications are subject to change without notice. NetApp, the NetApp logo, Go further, faster, ApplianceWatch, Data ONTAP, MultiStore, NOW, SnapDrive, SnapManager, and vFiler are trademarks or registered trademarks of NetApp, Inc. in the United States and/or other countries. Linux is a registered trademark of Linus Torvalds. Microsoft, SharePoint, SQL Server, and Windows are registered trademarks and Hyper-V is a trademark of Microsoft Corporation. Oracle is a registered trademark of Oracle Corporation. SAP is a registered trademark of SAP AG. UNIX is a registered trademark of The Open Group. All other brands or products are trademarks or registered trademarks of their respective holders and should be treated as such.