


Single Console vs. Best of Breed

A position paper looking at two perspectives in choosing a client management system for the Mac OS.

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Contents

Introduction	3	Target Audience
	3	Acknowledgements
	4	Useful Links
Best of Breed	5	Executive Summary
	6	Single Console Model
	7	Best of Breed Model
	8	Features Unique to the Macintosh Platform
	9	Imaging
	9	Directory Services
	10	Remote Support
	10	Policies
	11	Maintenance
	11	Self Service
	11	Security
Appendix A	13	Feature Checklist

Introduction

Target Audience

This paper is intended for IT management and decision makers who are in the process of determining how to manage their Mac OS computers. The paper focuses on technical issues rather than business issues. If your organization seeks better information on the business justification for the Casper Suite, please contact us at info@jamfsoftware.com. URLs are found in the helpful links page that follows the introduction.

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Useful Links on Related Topics

Apple Computer

Best Practices For Managing Mac Systems

http://images.apple.com/business/solutions/it/docs/Best_Practices_Client_Mgmt.pdf

Solutions for Systems Management

http://images.apple.com/business/docs/Solutions_for_Systems_Management.pdf

Mac OS X Security Configuration Guides

<http://www.apple.com/support/security/guides/>

Executive Summary

Many organizations seeking to normalize their operations on the Macintosh platform first turn to the providers of their PC management software for Macintosh support, in a Single Console Model for client management. This approach offers the convenience of a single toolset and the ability to extend the existing investment in product and staff. However, some organizations discover that significant differences in underlying technologies may result in limited functionality of the Macintosh version, leading the organization to adopt auxiliary technologies to reach feature completeness.

The Best of Breed Model of client management may be defined as an approach that selects the best toolset for each platform, sacrificing brand homogeneity across the client population in favor of optimal functionality for each platform. Best of Breed developers are able to integrate closely with underlying OS technology, address challenges unique to the platform, maintain a faster development cycle, and develop a more complete feature set for the platform.

The Casper Suite from JAMF Software is a Best of Breed client management toolset for the Macintosh platform. The Casper Suite captures all the functionalities required to support Apple computers throughout their lifecycle in one integrated solution. This unparalleled breadth and depth of functionalities means that auxiliary solutions are not required, simplifying the overall IT management environment while maintaining optimal support across the entire network.

Specifically, the Casper Suite offers many functions that make it a feature complete toolset, including full imaging capabilities, easy integration with Active Directory or other directory services, secure remote support, scheduled service and distribution policies, self service, and security compliance protocols for Macintosh clients.

There are many factors to consider when selecting a client management solution for Macintosh computers in the enterprise. To ensure that the solution fits the organization needs, it is useful to create a feature or solutions checklist and end goals as guidelines for product evaluation. A Best in Breed solution for the Macintosh platform, such as the Casper Suite from JAMF Software, may complement a Best in Breed solution for the Windows platform, providing optimal support and compliance for all computers on the network.

Single Console Model

For IT organizations seeking to normalize their operations on the Macintosh platform, the natural inclination is to turn to the providers of their PC management software. Internally, we refer to this approach as the Single Console Model, meaning that organizations use one single toolset to manage Linux, Macintosh, and Windows computers. Looking to extend the Single Console Model for cross platform environments initially makes sense because it suggests a quick, easy and consistent management solution.

The main benefits of the ideal Single Console toolset are apparent: Adding licenses to an existing system allows companies to leverage their total seat count for volume discounts on price. Previous investments in training allow for greater utilization of existing IT resources. Companies may also be able to bypass a lengthy evaluation and purchase process. Many organizations begin their evaluation process looking at Single Console solutions. The success of these evaluations varies based on testing criteria and required functionalities. There are a number of factors that play into a less than perfect evaluation, but the two most prevalent are the difference in underlying technologies and the feature maturity of the Macintosh version of the software.

Both issues come back to the underlying architecture involved with Microsoft Windows and Mac OS X UNIX operating systems. The differences in transport protocols, security implementation and updating services lead to a number of challenges for the developer to enable the software to perform in the same manner when attempting the same task across platforms. These technical issues are not insignificant and lead developers down a challenging path - often with diminishing returns. The lack of success in overcoming these basic differences in the OS may result in products that are "feature incomplete" or that function in an inconsistent manner.

Many Single Console products make it through evaluation and are successfully adopted, sometimes with auxiliary software tools purchased to augment the main toolset and reach feature completeness. Because acceptance criteria differ from company to company, it is impossible to say that the acceptance or failure at one organization will lead to the success or failure at another. However, if testing has indicated that requirements will not be met using the Single Console Model, or if required auxiliary tools subvert the "Single Console" ideal too deeply, organizations may open their search to single platform products under the Best of Breed Model of client management.

Best of Breed Model

The Best of Breed Model of client management may be defined as an approach that selects the best toolset for each platform, sacrificing brand homogeneity across the client population in favor of optimal functionality for each platform. The benefits of the Best of Breed Model are several. Platform specific solutions are developed to integrate with the underlying architecture in the OS and leverage its built in capabilities, providing native support for common platform tasks. Also, when developers focus on a set of tasks on a single platform they are able to make greater advances than if they split their focus on multiple platforms, translating into faster development cycles and richer feature sets for that platform. This also allows developers to address needs that are unique to the platform, while supporting users with an intimate knowledge of the platform and integrating with existing technologies

JAMF Software is a Best of Breed software developer, focusing on the Macintosh platform. Organizations realize several strengths in working with the Mac OS as it pertains to lifecycle management. The three primary advantages of investing in the Macintosh platform are the extensibility of the BSD Kernel, the closed hardware architecture, and virtualization options that allow guest operating systems to allow any application to be run on Apple hardware. Combined with a Best of Breed client management toolset, Apple hardware running Mac OSX can provide a powerful, stable, and secure computing environment at the enterprise level.

The Casper Suite, the client management solution set developed for the Macintosh platform by JAMF Software, has the ability to integrate intimately with the Macintosh OSX technologies and leverage its existing proven tools. Specifically, there is no need for a client side agent to be installed and maintained on top of the OS. The JAMF binary, a small command line application, leverages launchd and other system events to perform management tasks. Simplifying the client side requirements for integration with the JAMF Software Server means that the administrator never needs to troubleshoot the management application itself when maintaining client performance.

Additionally, because JAMF Software develops solutions for Macintosh administrators and managers, the challenges and pain points unique to the platform are addressed, while meeting or exceeding the standards for performance and security the organization has for all the computers on its network. As a soup-to-nuts client management solution, the Casper Suite captures all the functionalities required to support these machines throughout their lifecycle in one integrated solution. This unparalleled breadth and depth of functionalities means that auxiliary solutions are not required, simplifying your overall IT management environment.

Features Unique to the Macintosh Platform

JAMF Software has worked with several companies over the last few years that began as Single Console evaluations then expanded to evaluations of Best of Breed solutions. There is no one single reason our clients have selected the Casper Suite. However, there are a variety of unique features that have helped make the Casper Suite their choice for Macintosh client management. The following is a short list, based on a white paper from Apple entitled “Client Management: Best Practices for Managing Mac Systems,” in which we explore how our features support Level 5: Robust Management.

In this white paper there are a series of tasks that pertain to client management that are categorized as follows: Imaging, directory services, remote support, policies, maintenance, self-service and security. From “Wild Macs” Level 1 through “Robust Management” Level 5, there are descriptions of IT functions and ratings depending on actions that determine where a company fits in its process maturity.

Imaging

The Casper Suite is the only commercial product that allows administrators to create configurations based on modules (packages) rather than monolithic disk images. The flexibility of this approach allows for granular control of the contents of any distinct user, group of users or workgroup. The Casper Suite is unique among commercial Macintosh client management systems in that it provides all the tools to build packages, create configurations and perform a bare-metal install in an easy and automated fashion. Auxiliary tools or coding are not required to fully image and configure a new computer for an end user.

Pre-staged imaging combines several technologies found in Mac OS X, extending and automating them using components of the Casper Suite. The end result is a deployment system that is efficient and light touch, providing machines provisioned, configured, and ready for the end user. MAC addresses or serial numbers are ingested into the database using either data before computers arrive or with a bar code reader scanning the outside of the shipping carton. Once in the database, assignment of configurations to workstations is done through a web browser. The final step is to plug into power, ethernet, and boot the machine holding down the "N" key to invoke the installation process. One company has gone so far as to ship new CPUs directly to end users and have them self provision their own hardware.

Directory Services

The Casper Suite is the only solution that offers built in support to bind Macintosh workstations to Active Directory. Additionally, the JAMF Software Server (JSS) can pull end user information from any other LDAP compliant source, allowing the use of directory users and groups, eliminating the need to manually enter end users.

Remote Support

While many companies have adopted VNC as a standard for remote control of end user machines, the Casper Suite stands alone in logging each connection and quitting the VNC server upon exit. When a VNC session is initiated, the administrator authenticates against the JSS which grants access based on the privileges assigned to that user's role and the logging of the session begins, time stamping the login name and IP address. When the proper credentials are provided, the VNC server (client application) is launched and available for the session. On termination of the session, the VNC server is quit, ensuring that there is no "ear" listening for a rogue inbound connection.

Automated maintenance tasks can be set up to occur at any frequency via a policy. Many of the common tasks, including Fix Permissions, Flush Caches, Self Heal Packages and Reset Computer Names, can be executed on a recurring basis during off-peak time periods. This eliminates the need for any manual form of preventative maintenance. Engineers can also monitor the health of certain hardware elements, such as hard drives or batteries of mobile machines, and initiate repair or replacement of failing elements, preventing critical failure and data loss.

Policies

The policy engine in the Casper Suite is a powerful tool which mirrors many of the common functions found in either Group Policy Objects (GPO) or their OS X counterpart, Managed Client for X (MCX). The ability to cache policies for offline execution and to schedule any task as it pertains to managing the desktop makes the policy engine a powerful tool for automation. Many of the desired management functions that are specific to the Mac OS can be achieved without bringing in an alternate directory service or modifying the schema in Active Directory.

Maintenance

Leveraging and extending Apple technologies is core to what the Casper Suite does. One of the best examples is the Software Update Service (SWUS) that Apple offers. Similar to Windows Update Server (WUS), the Apple solution queries against servers at Apple to download patches to both operating systems and applications. The Casper Suite automates several of these processes to determine approval of patches, scheduling of release and polling users who have not yet received the update. This automated process helps to both report and remediate critical OS security patches.

Self Service

The Casper Suite is the only client management toolset for the Macintosh platform that provides a self-service option for end users. Administrators are able to build a software application or update package, a font or printer installation package, or a maintenance task bundle and enable these items to be selected and deployed by the end user, without assistance from the IT department. Through self-service, IT is able to control versions and settings, maintain inventory, and enforce organizational policy while giving end users the ability to choose new software titles, printers or other items on their own schedule.

Security

The Casper Suite has a number of security features that are used to meet a variety of compliance standards. Greater detail can be found in the "Apple Security Checklist Companion" paper on the JAMF Software website. <http://www.jamfsoftware.com/libraries/pdf/products/AppleSecurityChecklistCompanion.pdf>. In the Casper Suite, JAMF Software makes the only commercial product that can reset passwords on local machines. While most user accounts are managed by a directory services, often times the local Admin account is not managed and therefore out of scope for password management via policy.

Conclusion

There are many factors to consider when selecting a client management solution for Macintosh computers in the enterprise. To ensure that the solution fits the organization needs, it is useful to create a feature or solutions checklist and end goals as guidelines for product evaluation. As both Single Console and Best of Breed solutions are evaluated, companies should match performance standards and feature requirements against the qualities of various candidates. If a Single Console solution is on the feature wish list, they must determine whether they are realizing the benefits of a Single Console solution if they must architect, purchase and integrate auxiliary tools to reach other performance and feature goals. These factors should be weighed against the broad feature sets and in depth solutions that a Best of Breed developer can provide. A Best in Breed solution for the Macintosh platform such as the Casper Suite from JAMF Software may best complement a Best in Breed solution for the Windows platform, providing optimal support and compliance for all computers on the network.

Appendix A - Feature Checklist

JAMF Software does not publish a feature comparison checklist between the Casper Suite and competitive products for two simple reasons:

1. Company authored comparisons may be inaccurate or out-of-date, and therefore suspect.
2. At JAMF Software, we spend our time improving our software and meeting the needs of our customers, not maintaining expertise in other products.

However, we encourage organizations considering the Casper Suite to conduct a thorough software evaluation and feature comparison in the effort to find a solution that best fits their needs and requirements. To simplify that process, we have provided a list of features found in the current version of the Casper Suite (Version 6) as a starting point to conduct a feature comparison. We are confident that your real world testing will verify that the Casper Suite can accomplish all of the tasks included in this list. There are also blank spaces in this checklist for additional features that you may be seeking in client management solution.

Self Service

Allow End Users to Trigger a Policy

Grant Access to Policies Based on Computer Groups, Departments, Building

Grant Access to Policies Based on Group Membership in an LDAP Server

Package Creation

Point and Click Package Creation

Creation of OS Packages

Creation of User Environment Packages

Build Packages of Installed Software

Convert Between .PKG and .DMG Packages

Built-In Permission Inspector

Universal Binary for Mac OS X

Package Management

Organize Packages into Configurations

Simple Drag and Drop Interface

Manage Printers

Manage Scripts

Manage Dock Items

Smart Configurations

Package Limitations

Package Swapping Based on Processor

Deploy Software Updates from Internally hosted SWU Servers

Block Copy Installation of OS Package

Universal Binary for Mac OS X

Deploy Adobe CS3 Natively

Inventory

Inventory of OS X and OS 9 Clients

Inventory of Windows Computers

LDAP Lookups

Track Purchase Information

Web Based Reporting

Send email Notifications on Changes

Custom Reporting Framework

Create Change Reports

S.M.A.R.T. Status

Universal Binary for Mac OS X

Battery Capacity

Remotely Acquire OS X Workstations

Export to .txt, .csv, xml

PDF Report Generation

Font Inventory

Plugin Inventory

Software License Tracking

Active Directory Status

File Vault Status

GSX Integration

CMDB/syslog Compliant

Contract Management

Running Services

Imaging/ Provisioning

Package Based Imaging

Set Computer Name

Fix ByHost Files

Set Network Settings

Run Scripts

Map Printers

Automatic Binding to Active Directory

Automated Imaging

Set Open Firmware/EFI Password

Universal Binary for Mac OS X

Pre-Staged Imaging

Remote Management

Push Packages

Uninstall Packages

Uninstall .PKG Packages

Run Scripts

Map Printers

Delete Printers

Add Items to End User Docks

Remove Items from End User Docks

Create Local Accounts

Reset Passwords on Local Accounts

Delete Local Accounts

Bind Active Directory

Flush Caches

Fix Permissions

Update Prebindings

Reset Computer Names

Verify Startup Disk

Search for File by Path

Search for File by Name

Spotlight Search

Run UNIX Command

Send email Notification on Defined Events

Enforce List of Restricted Applications

Set Default Home Page

Manage Scheduled Tasks

Remote Management Cont.

Integrate with OS X Server's SUS

Universal Binary for Mac OS X

Predefined Network Segments

Resumable Downloads

Set Open Firmware/EFI Password

Deploy over HTTP/HTTPS

Policy Based Management

Push Packages

Uninstall Packages

Uninstall .PKG Packages

Run Scripts

Map Printers

Delete Printers

Add Items to End User Docks

Remove Items from End User Docks

Create Local Accounts

Reset Passwords on Local Accounts

Delete Local Accounts

Bind Active Directory

Flush Caches

Fix Permissions

Update Prebindings

Reset Computer Names

Verify Startup Disk

Search for File by Path

Search for File by Name

Spotlight Search

Run UNIX Command

Send email Notification on Defined Events

Enforce List of Restricted Applications

Set Default Home Page

Manage Scheduled Tasks

Integrate with OS X Server's SUS

Universal Binary for Mac OS X

Predefined Network Segments

Resumable Downloads

Set Open Firmware/EFI Password

Deploy over HTTP/HTTPS
