



Best-of-Breed Higher Education Mac Management

Choose the right tool for the job

Since its origin, Apple has been instrumental in helping higher education institutions provide the right resources to faculty and students. As the must-have tool for researchers and on-the-go professors, Mac and its wealth of available apps help ensure success in studies ranging from medical to music to business. To get the most out of the Mac platform, an Apple-focused management solution is needed.

WITH MULTI-PLATFORM TOOLS, APPLE IS AN AFTERTHOUGHT

As Mac usage continues to increase within organizations, IT groups are looking for ways to extend their existing management processes to the Mac platform. One approach for management is using multi-platform tools that offer Windows and Mac management within a single tool. In most cases, these multi-platform tools are built for the Windows platform first with Mac support added as a secondary effort. This often leads to disparity in features and inconsistent updates to keep up with both Windows and macOS development cycles.

EMM TOOLS CAN'T SCALE WITH macOS

More recently, developers of EMM (Enterprise Mobility Management) solutions offer the ability to manage Mac as a mobile device using MDM (Mobile Device Management) commands. While it's true that Mac laptops are de facto mobile devices, managing macOS requires capabilities that go beyond smartphones and tablets due to the differences in the systems architecture and the way they're used. EMM solutions typically lack the capabilities that are needed to successfully manage macOS, such as deployment and imaging capabilities. And while they may address short-term needs, they are insufficient for large-scale deployment and management.

DON'T POUND A NAIL WITH A SCREWDRIVER

Leading IT organizations recognize the unique capabilities of macOS and choose a best-of-breed tool built for the Apple platform that integrates with their existing IT infrastructure. This approach offers the ideal balance of specialization and consolidation to drive IT efficiency and provide a great user experience.

This paper outlines three key areas of Mac management and highlights the benefits of a best-of-breed Mac management solution:

- 1. Inventory**
- 2. Deployment**
- 3. Security**

1. INVENTORY – WHERE SUCCESSFUL MANAGEMENT STARTS

Inventory is the foundation for any IT management system. To enable comprehensive device management, IT administrators require reliable and up-to-date inventory. This allows them to see the current status of all devices including hardware components, software versions, and security configurations.

Jamf Pro, a full Mac client management tool built to support the underlying architecture of macOS from the ground up, gives IT administrators the flexibility to gather inventory data in a way that's:

- **Extendable and customizable**
- **Integrated**
- **Actionable and auditable**

EXTENDABLE AND CUSTOMIZABLE: ENDLESS POSSIBILITIES

Dynamic inventory capabilities allow IT admins to create an unlimited number of customizable fields. These fields can be created to be free-form populated or collect data automatically from the Mac. To help audit technology inventories, Jamf Pro enables IT to monitor and manage software licenses, hardware warranty dates (by integrating with Apple's Global Service Exchange, or GSX), and report on security compliance.

Using its deep integration with macOS, Jamf Pro goes beyond simple static inventory and can be used to scope deployments of software, content, and settings based on the status of a device. For example, the inventory can be used to upgrade licensed software automatically on machines that are compatible with the update, are licensed to have it, and don't already have the update applied. Jamf Pro automates a fully customizable inventory by communicating with macOS machines during scheduled inventory collection.

These advanced inventory capabilities provide the data required to make informed decisions about hardware and software purchases, security compliance, and resource allocation — similar to Asset Intelligence in Microsoft System Center Configuration Manager (SCCM).

Multi-platform and EMM tools limit inventory capabilities

By contrast, multi-platform tools are often limited in their inventory capabilities because of the need to preserve parity between systems. A Windows PC and a Mac share many inventory attributes, but there is always a need for unique criteria on either system. The cost of using multi-platform tools is a trade-off over capabilities. Tools tend to be spread too thin, and lead to inconsistencies and unreliable inventory.

Similar problems arise with EMM solutions because they rely on MDM alone for inventory. Since the OS manufacturer defines which inventory options are available via MDM, EMM inventory solutions are limited and lacking extensibility. In this case, IT admins are forced to choose between limited inventory and implementing a second system to gather the data they need.

INTEGRATED: MAC AND MICROSOFT COMPATIBILITY

For organizations using a best-of-breed Windows client management tool like SCCM, Jamf Pro offers integration capabilities to share Mac inventory data. This offers the perfect balance, with best-of-breed management tools and a single system for inventory reporting. With this capability, IT administrators can easily integrate the management of macOS devices into their existing environment and maintain a single pane of glass for visibility of all devices in the environment.

Robust API makes integration easy In addition to the SCCM integration, Jamf Pro offers a robust API to enable integration with other IT systems. When combined with the extendable and dynamic inventory capabilities of Jamf Pro, the API offers a broad scope of integration opportunities to put inventory data to work throughout the organization.

ACTIONABLE: SCOPE DEPLOYMENTS TO THE RIGHT USERS AT THE RIGHT TIME

Once the inventory is collected, IT admins need the ability to generate actionable outcomes such as deploying software, content, settings, scripts, messages, or maintenance tasks. This turns inventory data into actionable intelligence.

Jamf Pro allows admins to manage based on device status, inventory criteria, or proximity-based location. This differentiates Jamf Pro from EMM and multi-platform tools and gives IT admins the ability to extend the inventory and scope to device status attributes. For example, IT could encrypt all devices that have sensitive application data and deploy software to machines within a specific building or department.

Jamf Pro offers an automated, dynamic inventory that allows IT to scope deployments based on any number of attributes for an infinitely expandable inventory. This ensures that IT can scope actions to the right locations and maintain consistency, compatibility, and compliance in an ever-changing environment.

2. DEPLOYMENT – MUST BE SCALABLE AND SUSTAINABLE

To support scalable deployment of Macs, IT administrators must plan for:

- **Deployment models**
- **Directory service integration**
- **Self Service tools**
- **Distribution**

DEPLOYMENT MODELS: MONOLITHIC VS. MODULAR IMAGING

Most multi-platform management solutions only offer the ability to image new devices with a single, monolithic image. But this methodology will rarely satisfy the requirements of a large organization.

In place of monolithic imaging, Jamf Pro offers package-based modular imaging that enables IT administrators to build a library of custom packages and organize any number of imaging configurations that draw from that library. By building and deploying images modularly, packages can be reused and rearranged to create new custom images without a time-consuming rebuild process.

Ensure the deployment model fits your needs

Unlike other management tools, Jamf Pro can take advantage of unique Apple technologies to support multiple deployment models. The high-speed Thunderbolt data bus, along with target-disk mode,

can be used for maximum imaging speed. Alternately, NetBoot (similar to Windows PXE) can be used for distributed imaging over a network. Jamf Pro also supports Apple's Device Enrollment Program (DEP) for Mac, iPad, and iPhone. This adds enrollment and configuration steps to the device activation workflow to streamline the deployment process. This flexibility allows IT administrators to quickly scale Mac deployments across a range of environments.

DIRECTORY SERVICE INTEGRATION: EASY AD BINDING

Many MDM tools that support Mac management require that devices be manually bound to directory services to provision user accounts. With Jamf Pro, IT administrators can bind Macs to Active Directory for user authentication as part of an imaging workflow — without requiring a change to the Active Directory schema. This helps reduce the number of manual provisioning steps needed to authenticate users via network accounts — saving hours of work and ensuring consistency.

SELF SERVICE: ON-DEMAND DEPLOYMENT

Basic MDM tools enable IT administrators to deploy software and applications on Macs via the Mac App Store and via MDM payloads. However, most don't allow customizable installation options. Multi-platform management tools are similarly limited in deployment options due to the OS disparity between Windows and macOS architecture.

Jamf Pro is different and offers a powerful policy engine for software deployment and patching.

Control for IT; Freedom for users

Policies can be created to deploy single or multiple software packages in multiple formats. Packages can be triggered automatically by a system event (e.g. startup, login, logout), at a given date and time, or by system inventory changes.

Your one-stop DIY shop

With Jamf Pro, software can also be installed on-demand by IT or initiated by users themselves through the Self Service app. Unlike most enterprise app catalogs that offer basic access to install apps, Jamf Pro's Self Service tool provides a single place to install apps, update software, run maintenance tasks, or configure their Mac.

Making these options available to users reduces help desk calls and eliminates disruptions, while still ensuring that IT can control and maintain the installation process.

iBEACON INTEGRATION: DISTRIBUTION AND MANAGEMENT BASED ON LOCATION

Many MDM solutions use GPS location data to distribute or manage applications, content, and/or settings based on a user's location. However, there are significant pitfalls with GPS that limit effectiveness in achieving the desired outcomes: GPS is not accurate indoors (due to atmospheric and building penetration limitations), it can drain device batteries, and it leaves users feeling like their privacy has been infringed upon by location tracking when away from the workplace.

Proximity triggers actions Jamf Pro integrates with Apple's iBeacon technology that enables devices to perform actions when in proximity to an iBeacon. With iBeacon integration, Jamf Pro can distribute or manage software, content, and/or settings based on a user's proximity to an iBeacon — in a way that is accurate, preserves user privacy, integrates seamlessly within the Apple ecosystem, and provides affordable scalability.

3. SECURITY – THIRD-PARTY CAN'T BEAT NATIVE

macOS includes powerful security controls for data security, application security, and user authentication. When paired with an Apple-aware best-of-breed management platform, this offers IT groups a great option for security without the additional complexity of third-party utilities.

DATA SECURITY: AT REST AND IN TRANSIT

FileVault 2 is the disk encryption system built-in to macOS that offers enterprise-grade data security with minimal user impact. Jamf Pro provides the FileVault 2 management controls that IT admins need to enforce encryption and escrow recovery keys. By using the native encryption framework in place of third-party tools, cost and complexity are reduced and OS upgrades are painless.

Security that's seamless and unobtrusive To protect data in transit, macOS offers native support for a number of Virtual Private Network (VPN) providers. Jamf Pro provides the tools to configure the built-in VPN client to connect securely, and users are presented with a

familiar user interface. This native approach to security is not always possible with EMM and multi-platform MDM solutions that often lag behind Apple's update cycle and may not support Apple-specific security controls.

APPLICATION SECURITY: TRUSTED AND TIMELESS

The first step to good application security is version control and patching. Jamf Pro's combined inventory and deployment tools make it easy to patch the OS and applications across a distributed Mac environment. By integrating with the Apple Software Update Service, all Apple software patches are easy to deploy with minimal disruption.

The software package library and robust deployment tools make third-party software patching easy as well. Dynamic inventory collection means there's never any guesswork about software versions and updates are targeted to only the systems that need them. For an added layer of protection, Jamf Pro supports

Gatekeeper, Apple's native application security system, to ensure that only trusted software is installed on each Mac.

USER SECURITY: COMPLIANT AND UNSURPASSED

Jamf Pro automates Active Directory binding for secure user authentication and password compliance. With deep macOS integration, it can also manage local user accounts for complete user security. As an additional safety measure, local management account password can be randomized to nullify the chances of unauthorized access.

Conclusion

The one-size fits all approach is rarely the best option and often forces severe trade-offs. Multi-platform tools only address the basic needs of IT and have limited inventory, deployment, and security capabilities. With Jamf Pro, IT admins have a tool that is built Apple-first, Apple-best.

Best-of-breed software is only the beginning. Jamf customers know the difference of working with a company that's focused on Apple IT. They get a friendly support staff, well versed in Apple technologies. Engineers on-call for project support. Certification and training courses designed to build expertise. And the Jamf Nation community of 20,000 fellow Apple IT experts.



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