

# **Apple Technologies at Axel Springer SE**

Harald Monihart - Axel Springer IT-Services - Client DevOps  
September 17, 2014, Gothenburg

**#macsysadmin**

# Apple Technologies at Axel Springer SE

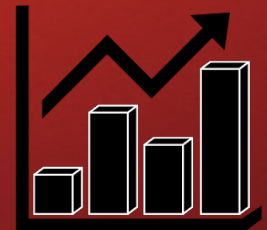
## Agenda

- 1** Client **DevOps** introduction and our lessons learned
- 2** Stakeholder **benefits** of OS X at Axel Springer SE
- 3** What's **next** for our corporate OS X release

# Axel Springer SE

## The leading digital publisher

- Axel Springer founded his publishing house in Hamburg in 1946
- Active in 47 countries through subsidiaries, joint ventures and licenses
- Company facts:
  - Employees: 12 800+
  - Total revenues: € 2 800 million
  - Operating profit (EBITDA): € 454 million
  - Listed on stock exchange since 1985
  - Doubled our internal IT staff in 2013



# **Client DevOps at Axel Springer SE**

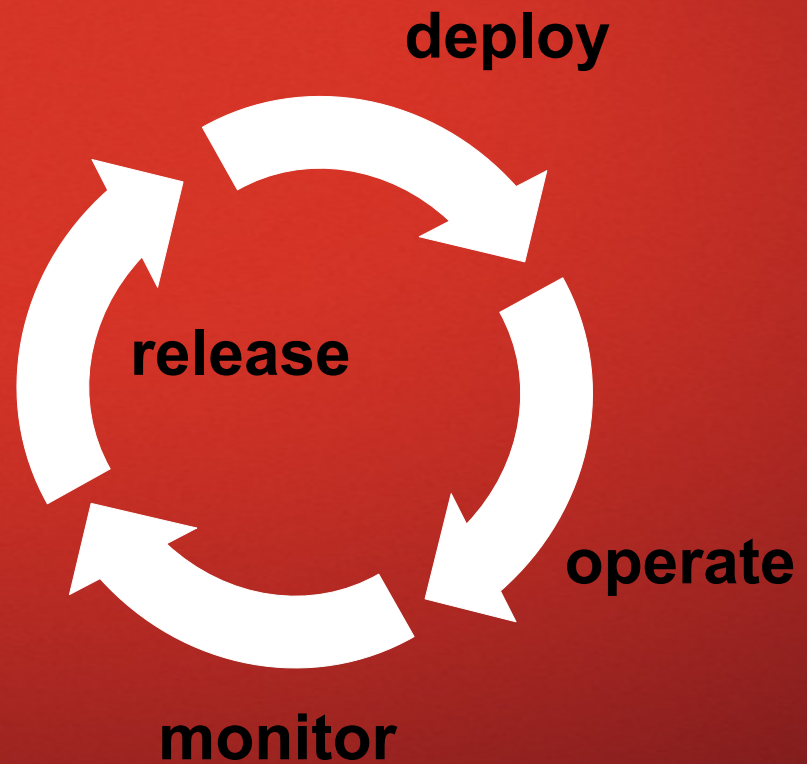
## **What do we do?**

**We are responsible for the client management infrastructure and offer services like software packaging and deployment.**

**In addition we design and develop state-of-the art native client and web-based tools for our end users and IT staff.**

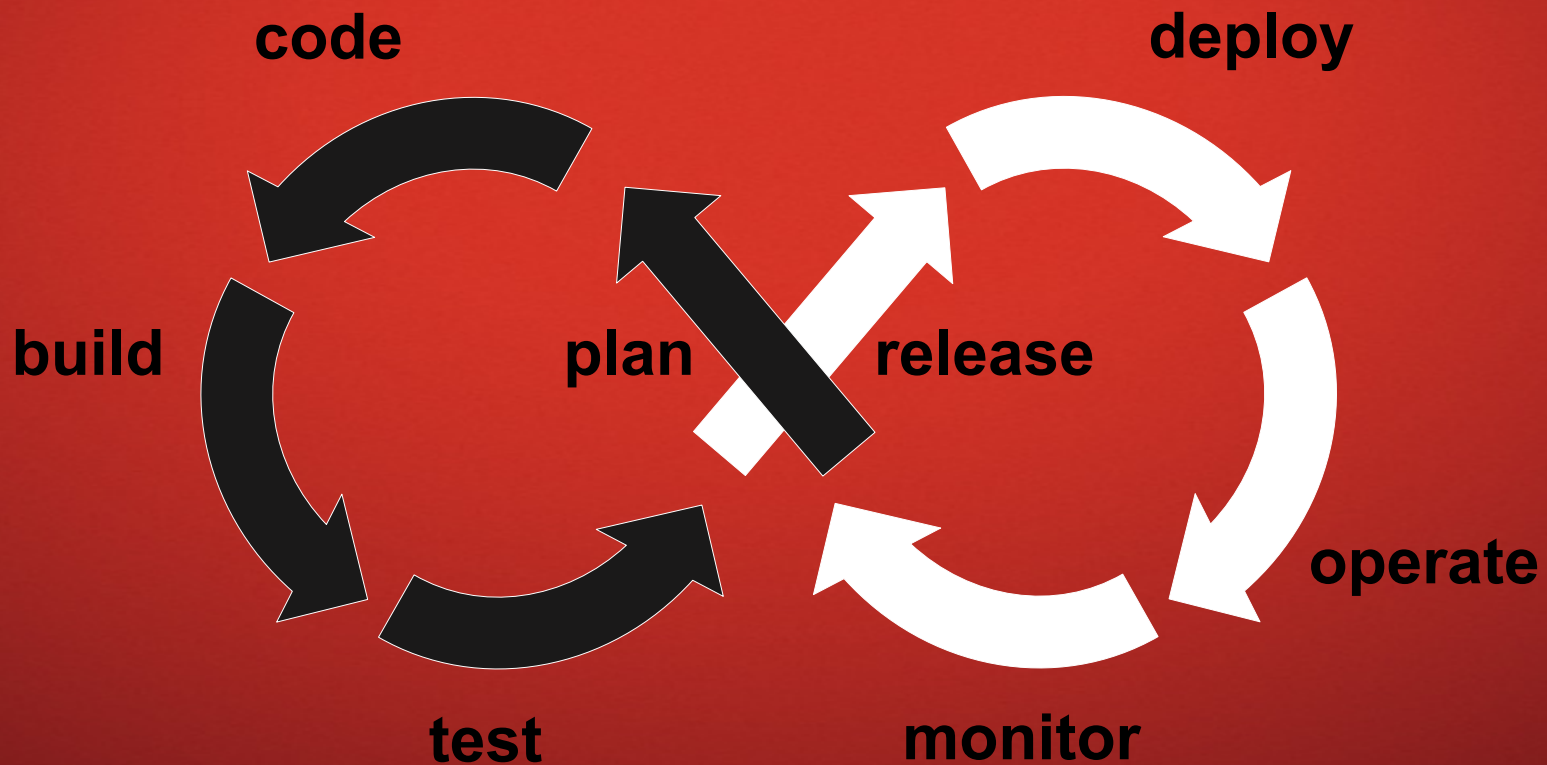
# What is DevOps?

More than just traditional operations



# What is DevOps?

More than just traditional operations



# Looking back

## Apple Project



**Looking back**

**Apple Project**

**The move to Apple technologies  
Is not just a technological  
Improvement**

**Looking back**

**Apple Project**

**But an important**

**Accelerator of cultural**

**Modernization in our company**

**Last time at MacSysAdmin**

**Rollout in 2010**



**Last time at MacSysAdmin**

**Rollout in 2010**

**2 brands with 1400 clients**

**15 locations in Germany**

**3 months**

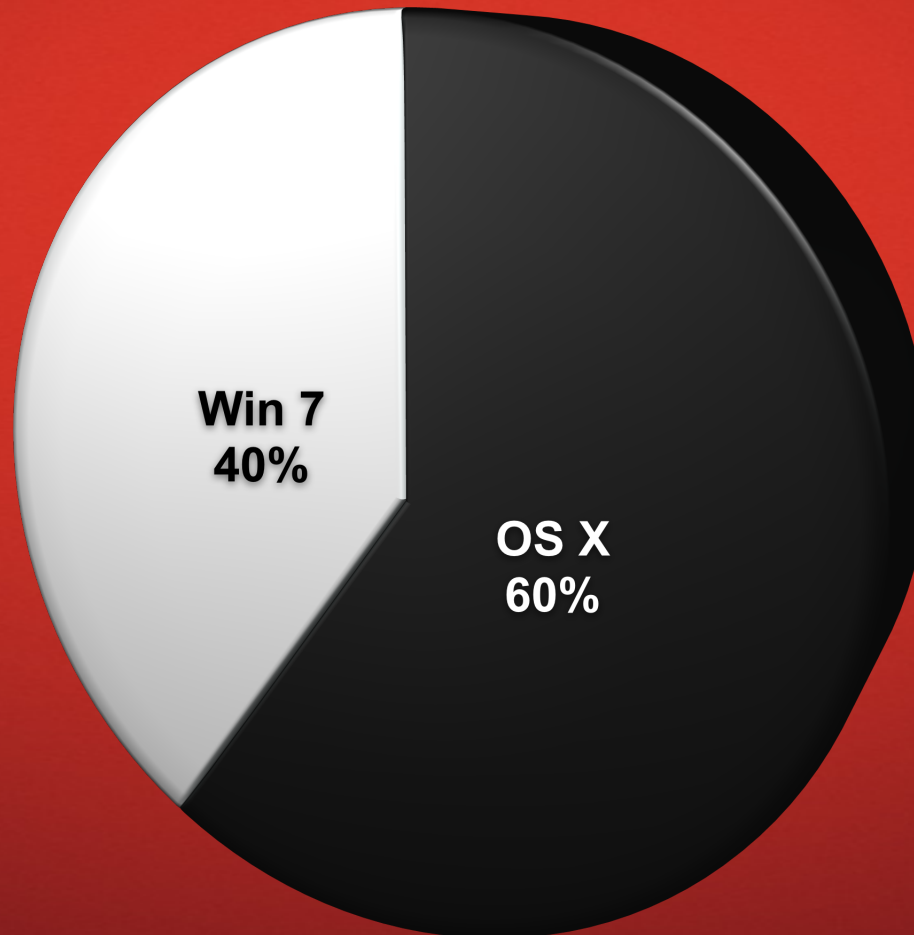
# Rollout

## Lessons learned

- Originally planned as a five-year-long project
- Focus on reviewing internally offered support services
- No goals to streamline application portfolio during project
- Modernize clients – act as an infrastructure catalyst in the future
- No problems giving end users admin access
- Build up dedicated Mac know-how!  
Don't force Windows/Linux admins to do the job
- Insource client related development tasks
- Adapt and rely on latest technologies rather than stick to legacy mechanisms

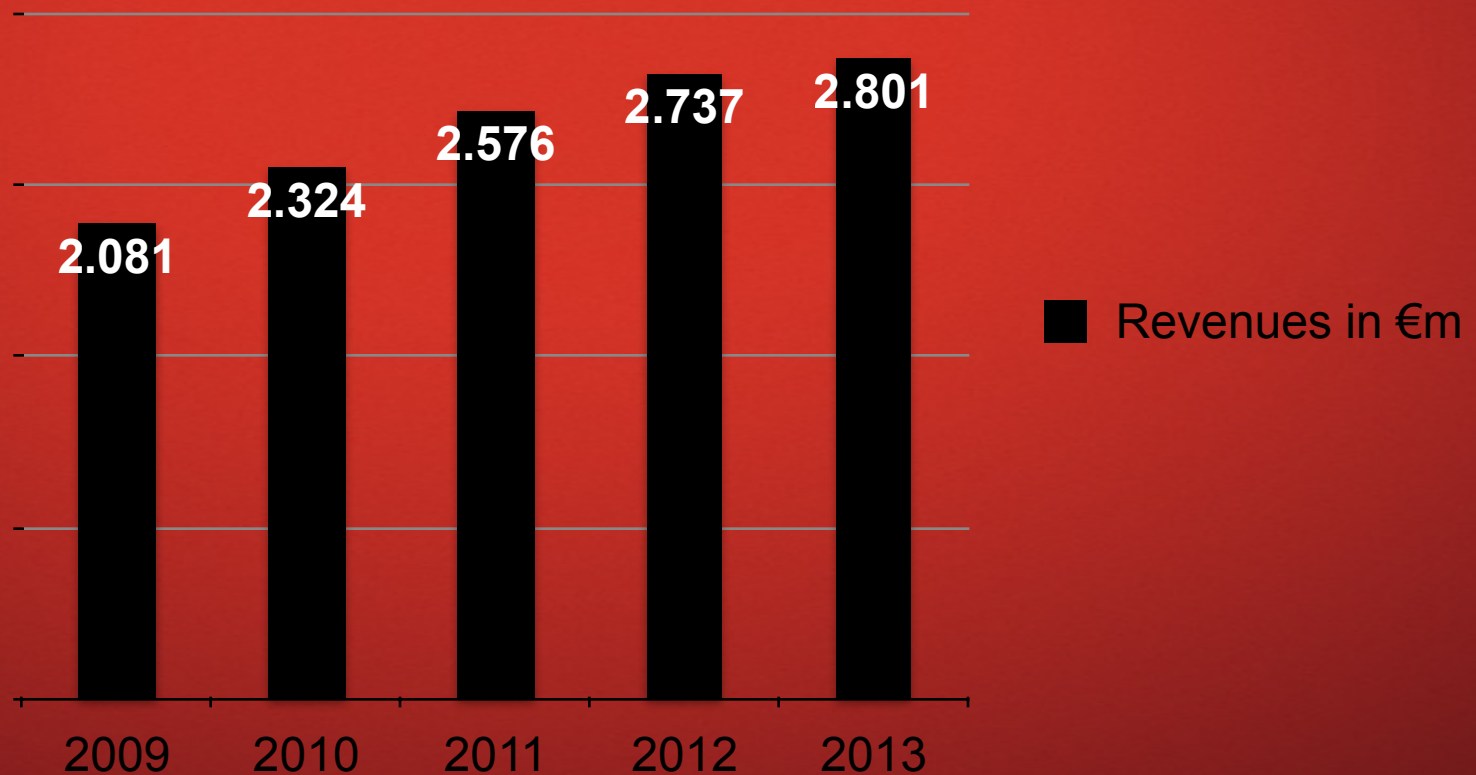
# Rollout

## Managed Apple clients



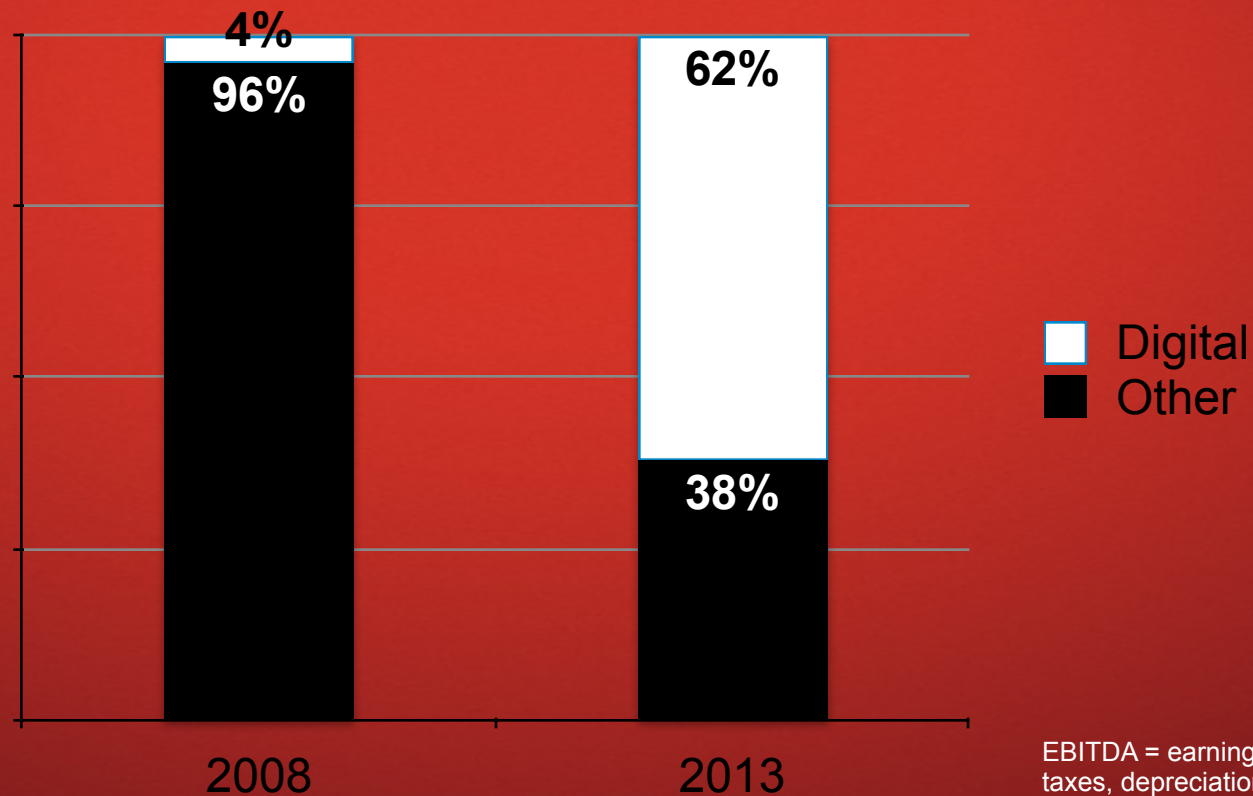
# Digital transformation

## Revenues in €m



# Digital transformation

## Earnings (EBITDA) 2008 - 2013



EBITDA = earnings before interest, taxes, depreciation and amortization

Data refers to continued activities

# Apple technologies

## Facilitated resources

- Yearly re-certification (Certified Technical Coordinator)
- Attend Apple Developer's conference - WWDC
- AppleCare OS Support - Alliance Agreement
- Regular AppleCare Support Engineer visits
- Apple Readiness Review
- Dedicated OS X and iOS Developer team account
- iOS for IT program
- Access to GSX



# Non-technical

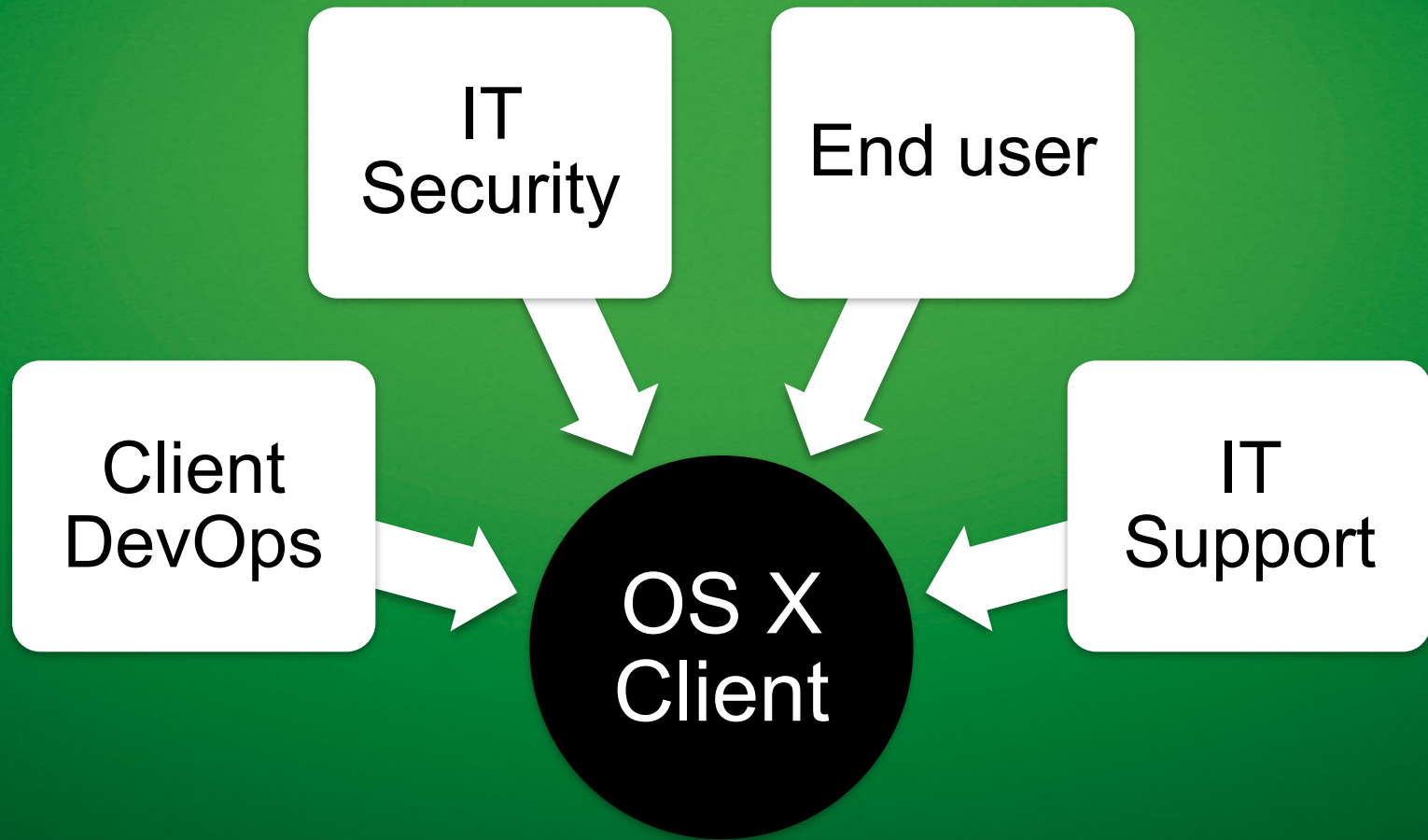
## Lessons learned

- Evolve and grow with your client base
- Build up a brilliant team
  - Invest in existing talent (training, interesting tasks)
  - Hire new talent (developers, project manager, ...)
  - Find the right partners (interview external staff members)
- Sell your ideas to management in a way they can understand
- Excel can help (e.g. value benefit analyses)
- Provide a service end-to-end for the end users



# Why OS X?

## Stakeholder benefits



# Client DevOps

## IT-standards and developer tools

- Hardware-Software integration
- Based on industry standards - UNIX, AD, RFCs, etc.
- Free developer tools on-board
- No detailed roadmap – developer program to participate in future releases
- Enterprise support



# IT-Security

## Not at the cost of user experience

- Screen sharing access only through requests
- SSH access based on AD-group
- Admin rights based on (different) AD-groups
- ISO-27001
  - No local accounts and random Casper Suite management password
- SOX
  - Automatically enable disk encryption (FileVault 2) for first logged-in user
  - On-demand Anti Virus protection
  - No bridging between multiple networks



# End users

## Corporate Axel Springer systems

- Internal 10.9 support on day of release
- No MCX or profiles usage for restrictions
- No hidden mechanisms
  - Client Management, LaunchAgents, LaunchDaemons
  - `/Library/Application Support/Axel Springer/`
- Native technologies first (Cocoa, Shell, ScriptEditor)
- Automatically enable new network-interfaces



# Attention to detail

## High-res icons

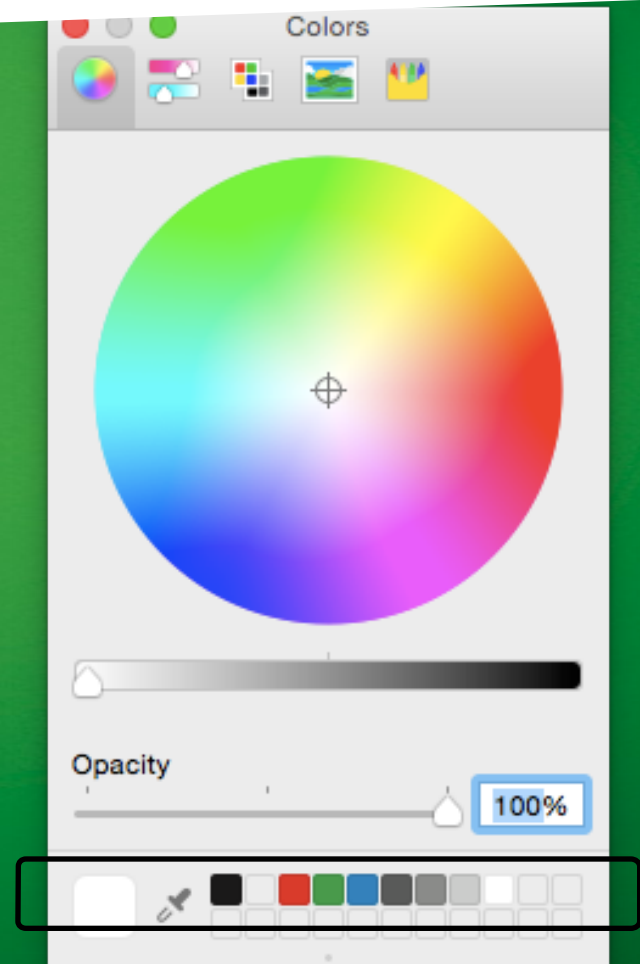
- Retina support before there were retina-displays
- Corporate look and feel
- OS X Human Interface Guidelines



# Attention to detail

## Axel Springer CI

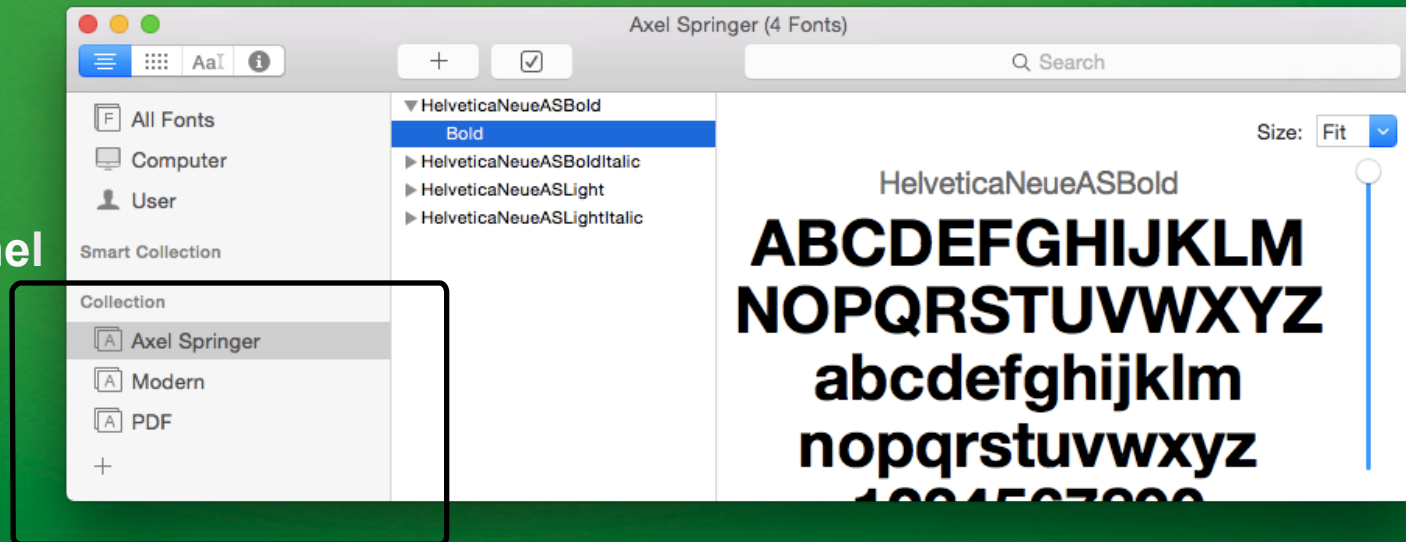
- Color picker panel
- Corporate fonts



# Attention to detail

## Axel Springer CI

- Color picker panel
- Corporate fonts



# Enduser apps

## Handle admin rights

- Users can give and take admin rights
- Has a command-line version embedded
- Replaced version depending on `/etc/sudoers` entry
- Uses `PrivilegedHelperTools`
- Multilingual and Notification Center support



# Enduser apps

## Handle admin rights

- Users can give and take admin rights
- Has a command-line version embedded
- Replaced version depending on `/etc/sudoers` entry
- Uses `PrivilegedHelperTools`
- Multilingual and Notification Center support



# Enduser apps

## Automatically setup MS office apps

- First-Run applications with app's dock icon
- Sets default apps and settings for Lync and Outlook settings
- User just has to click on Outlook/Lync icon to setup the app



# Support

## IT-Portal & Notification Center

- How Tos (Text & Video)
- News including RSS-feeds
- Notification Center
- Proof-Of-Concept - initiate major OS upgrade

### IT-Portal

axel springer  
it-services

So funktioniert's | Support | Sicherheit | Downloads

Suche

#### Tausche Feedback gegen iPad mini!



Willkommen im IT-Portal  
Hilfe, Informationen und Service rund um die IT

Microsoft Lync



Lync 2013 für Windows 7: Videoanleitungen [mehr ...](#)

Lync für Mac OS X: Videoanleitungen [mehr ...](#)

Online-Shop



So funktioniert's: Bestellungen im neuen Onlineshop [mehr ...](#)

Bestellung von Zubehör und Kleinteilen [mehr ...](#)

Mobiles



WLAN mit dem iPhone: So klappt's mit der Verbindung [mehr ...](#)

VPN: Von unterwegs sicher auf Firmen-Daten zugreifen [mehr ...](#)

IT Service Points



Brown Bag Sessions: Themen und Termine [mehr ...](#)

Verleihservice – Wie funktioniert das? [mehr ...](#)

#### Problem-Check

Hilfe und Lösungen bei IT-Problemen finden Sie hier [mehr...](#)

#### Kontakt

Service Desk



[alle Kontakte](#)

#### Aktuelles

03.03.14  
SSL-Sicherheitslücke: Update für alle OS X 10.9-Rechner [mehr ...](#)

28.02.14  
So funktioniert's: WLAN im ICE nutzen [mehr ...](#)

27.02.14  
Sicherheit: Infos zum Empfang von Mails des Providers 1&T [mehr ...](#)

26.02.14  
Aktion an den Service Points: Gewinnen Sie ein iPad Mini [mehr ...](#)

[alle News](#)

#### Experten-Blogs

Hart. Härter. Monihart.  
OS X Mavericks bei Axel Springer [mehr...](#)

Projekt - Pragmatische ITIL Einführung  
Bericht zur Q&A-Session vom 24.09.2013 [mehr...](#)

© Axel Springer SE 2014 | Impressum | Kontakt | Datenschutz

# Support

## Service Points



# Support

## Service Points



# Support

## Service Points



# Support

## Service Points



# Support

## Service Points



# Support

## Service Points



# Client Build

## Three types of OS X versions



# Client Build

## Corporate Machine Setup



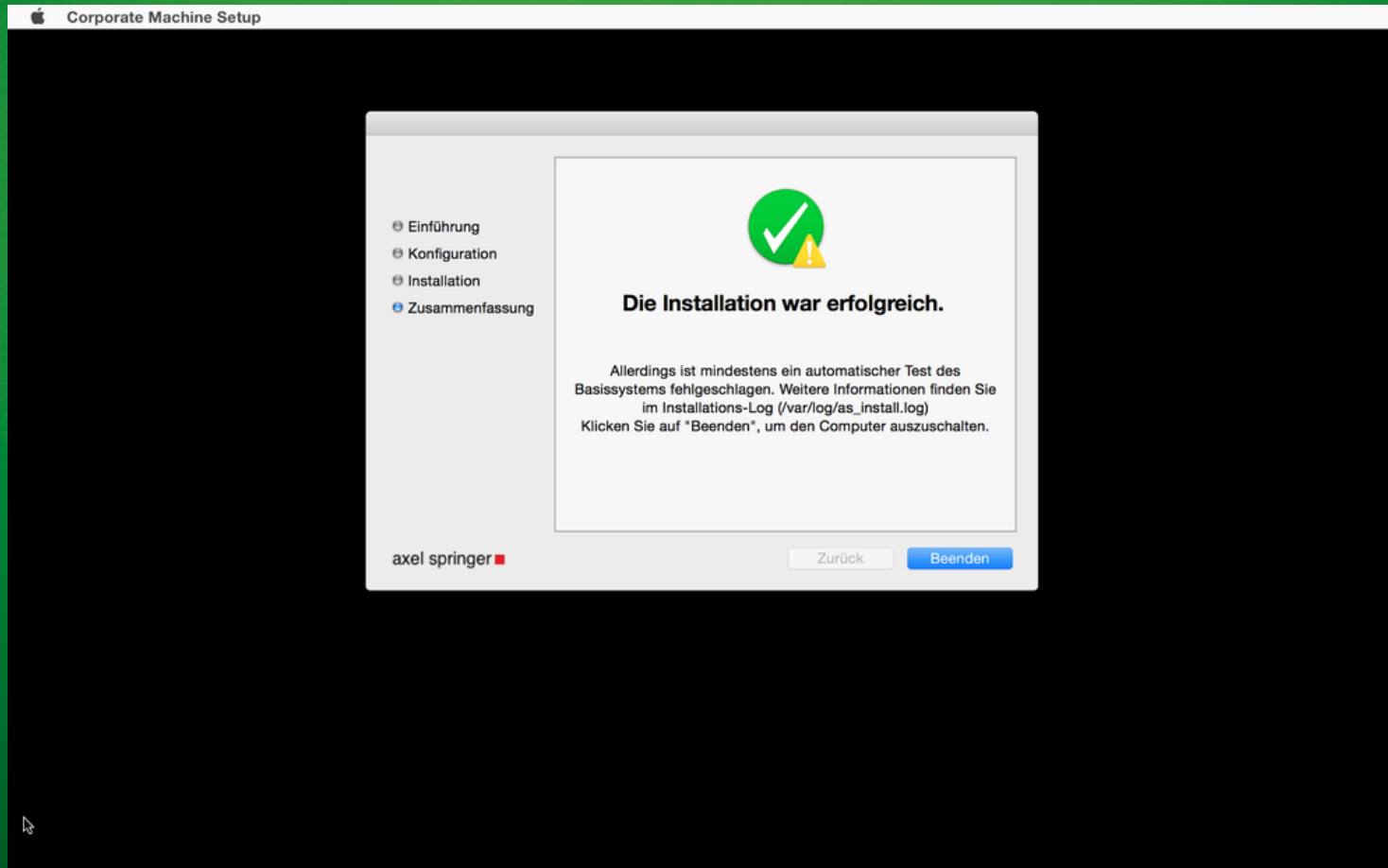
# Client Build

## Corporate Machine Setup



# Corporate Machine Setup

## Look and feel



# Corporate Machine Setup

## Workflow



- Deploy base system via NetBoot (OS X + Corp Setup)
- Corp Setup' two hardcoded values - client and asset management URLs
- Fetch client management binary
- Reading name, AD-OUs and installation policies from backend based on machine's MAC-address, OS build and machine type
- Customize with scripts and installation packages (Anti Virus, AD-Binding, ...)

# Corporate Machine Setup

## Workflow



- Fake attached printers and install drivers through software update mechanism
- Install all other available updates including Firmware and minor system updates (even update Apple's Setup Assistant)
- Restart the machine and start automatic tests
- Automatic tests include:
  - Time, internal and external HTTP communications, virus definition date, read AD data, remote access settings and kerberized access to smb-based network shares (including read/write operations)
- Install software listed in asset management

# Corporate Machine Setup

## Multilingual

Edit Policy: 011\_Update\_Virus\_Definitions\_(10.7/10.8.4)

General Scope Self Service Packages Scripts Printers Dock Accounts Reboot Advanced

**If Nobody Is Logged In**

☒ Do not Reboot  
☐ Reboot Immediately  
☐ Reboot only if a package or SWU requires

**If Anybody Is Logged In**

☒ Do not Reboot  
☐ Reboot  
☐ Reboot only if a package or SWU requires  
Give User  minutes after clicking OK  
☐ Reboot Immediately

**Reboot Options**

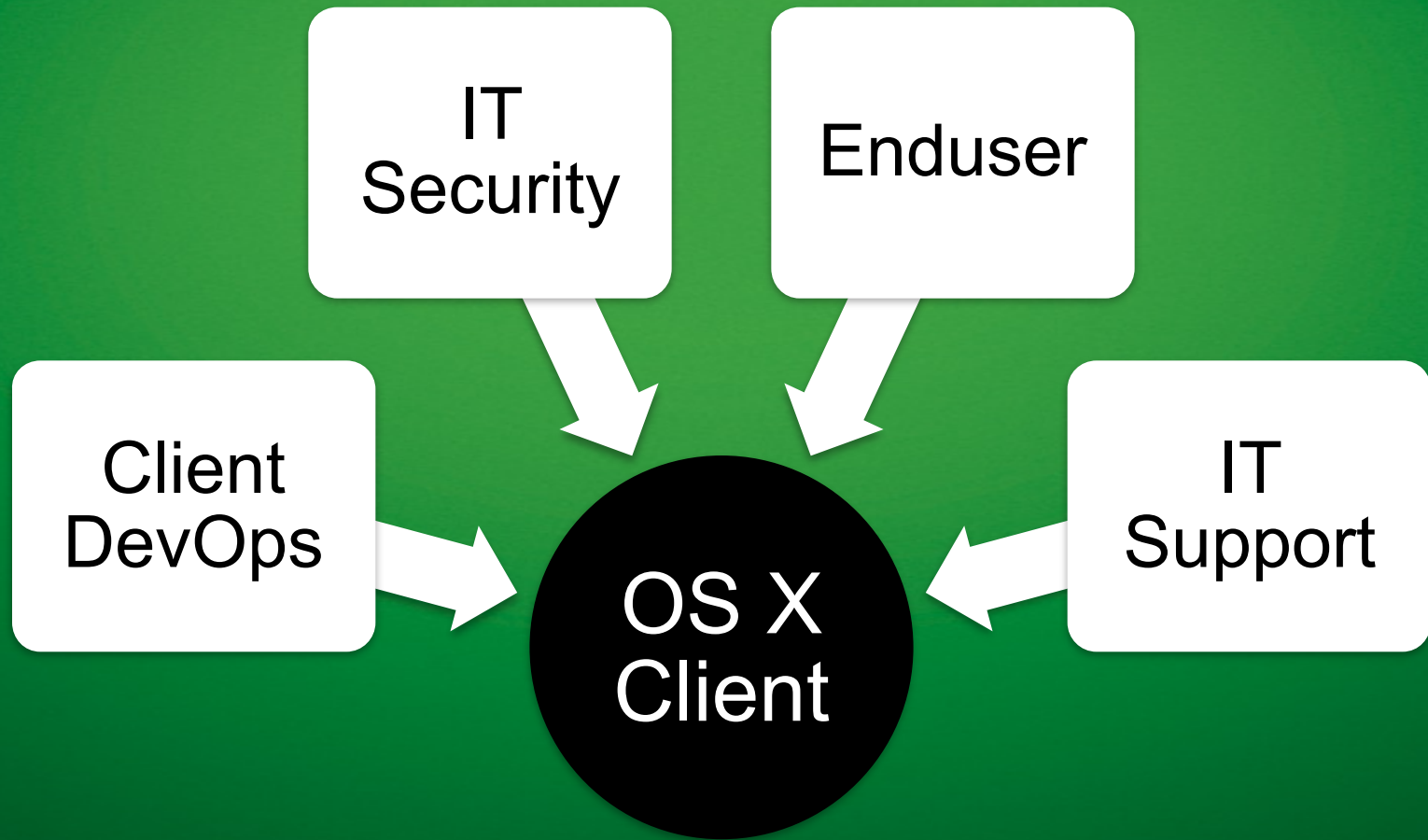
Message:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
  <key>de</key>
  <dict>
    <key>Title</key>
    <string>Anti-Virus Software wird aktualisiert ...</string>
    <key>Description</key>
    <string>Aktuelle Virusdefinitionen werden installiert.</string>
  </dict>
  <key>en</key>
  <dict>
    <key>Title</key>
    <string>Antivirus software will be updated ...</string>
    <key>Description</key>
    <string>Most recent virus definitions will be installed.</string>
  </dict>
</dict>
```

Display message if not rebooting

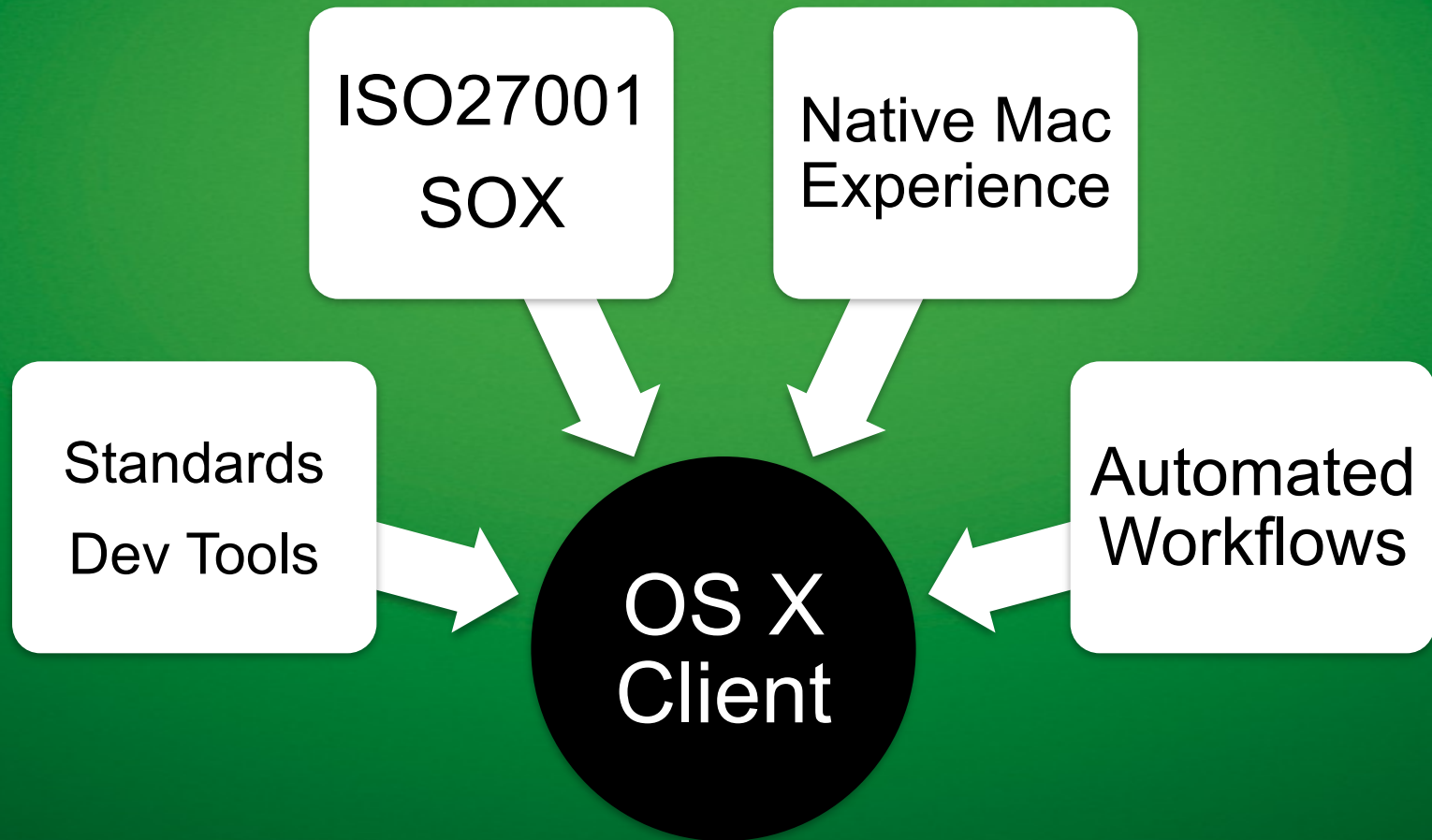
# Why OS X?

## Stakeholder benefits



# Why OS X?

## Stakeholder benefits



**Why OS X?**

**Stakeholder benefits**

**Closer look at an example**

**Backup tool**

**Henry Stamerjohann**

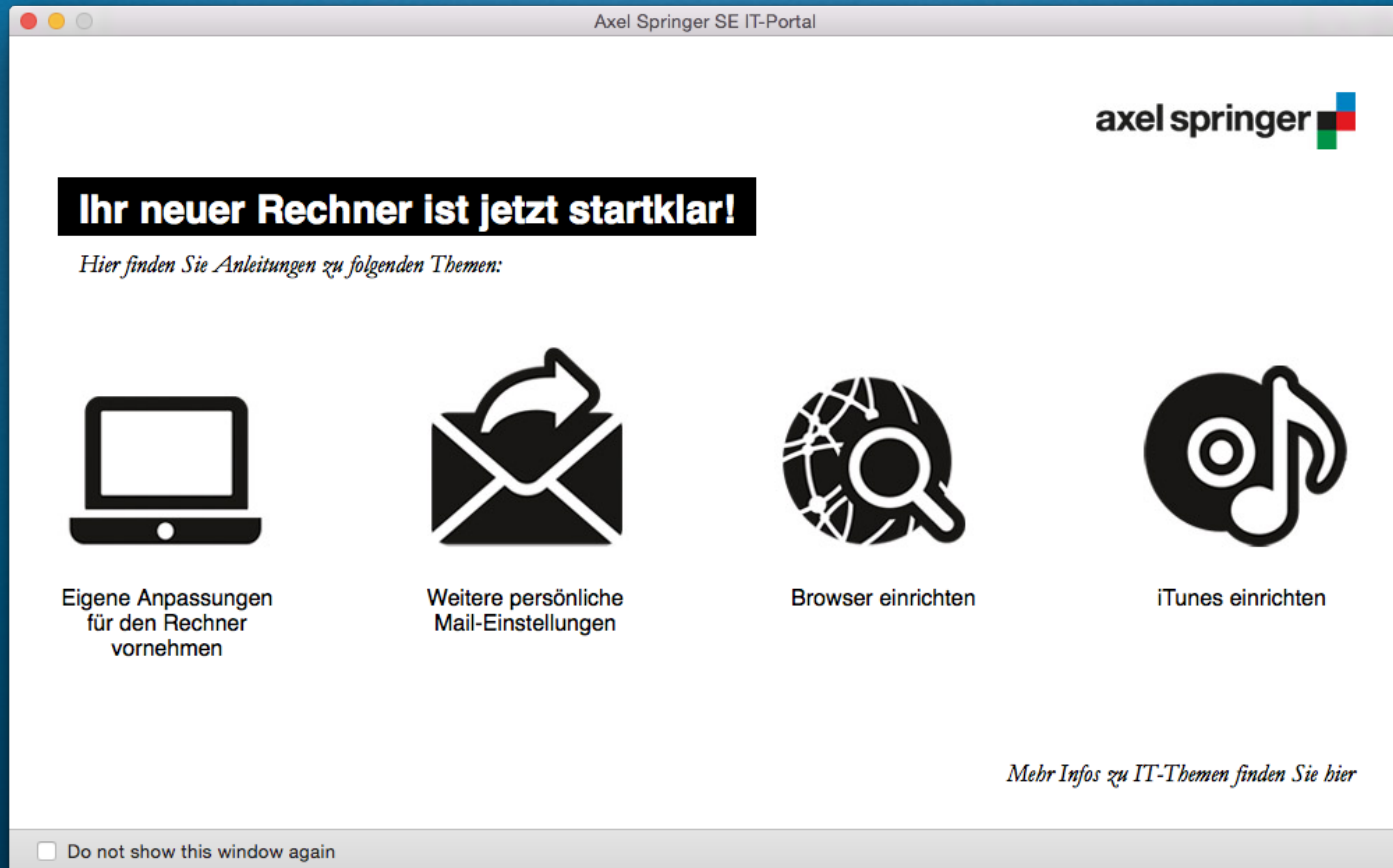
**What's next for our corp Yosemite release**

**As easy as iOS - upgrade through AppStore**



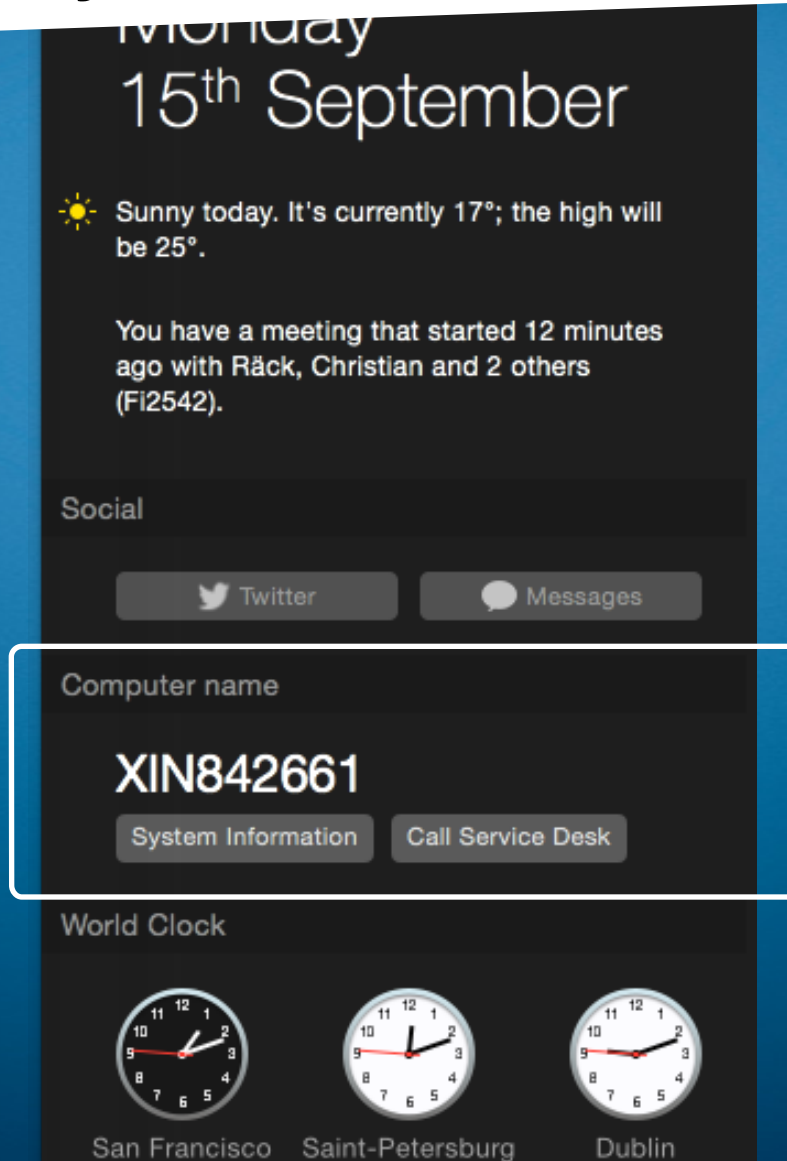
# What's next for our corp Yosemite release

## Custom welcome screen



# What's next for our corp Yosemite release

## Extending the Today View



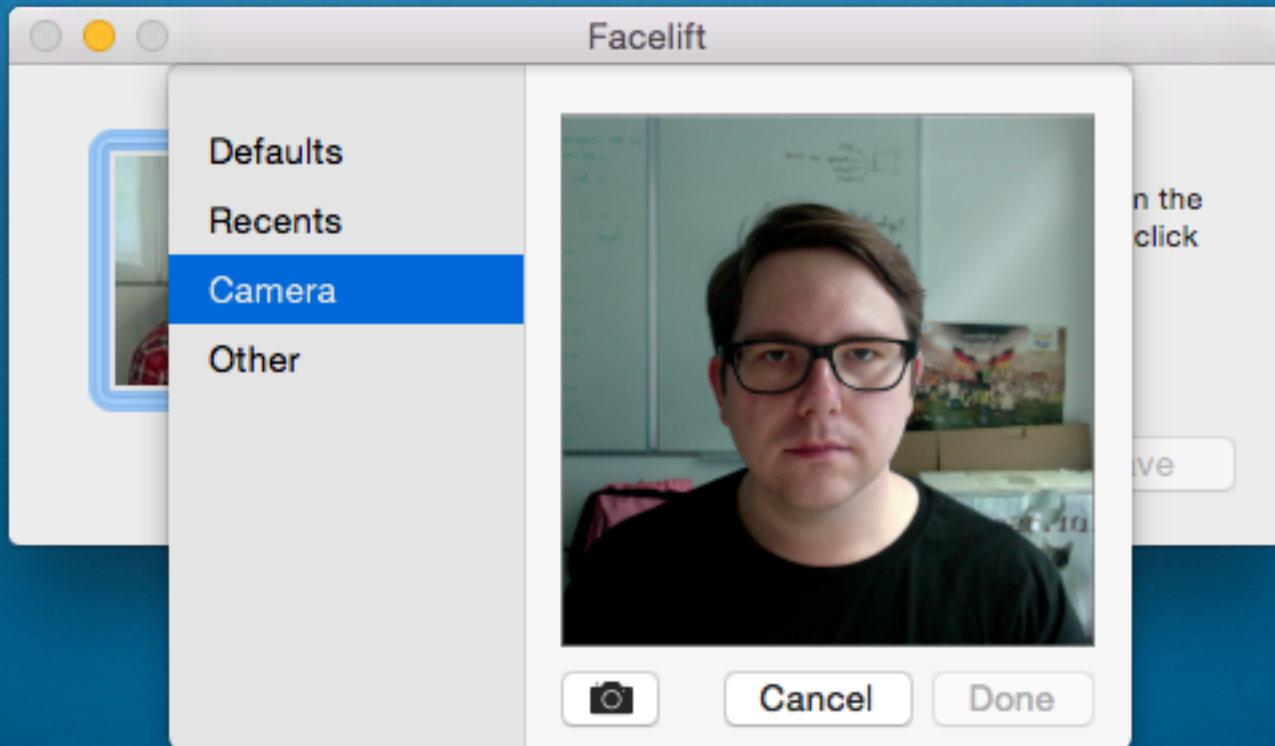
# What's next for our corp Yosemite release

## Easy way to change your AD profile picture



# What's next for our corp Yosemite release

## Easy way to change your AD profile picture



# Wrap up

- **OS X is a multilingual system that is build on top of industry standards – it is a perfect citizen in a global enterprise environment**
- **Overcome missing roadmaps by participating in developer and beta programs (Apple as well as third-party)**
- **Mac users expect a great look and feel from their system**
- **Offer additional services – rich self service / video tutorials / Genius bar like support**
- **Provide sufficient security but not at the expense of user experience**
- **Put the same amount of time and thought into all your solutions (even things that only a part of your IT support staff is using)**
- **Your solutions should always feel native to the system**
- **Always bet on the latest technologies rather than stick to legacy solutions**
- **Objecitve-C/Swift enables you to offer those latest native experiences**

# Thank You!

**Harald Monihart - Manager Client DevOps**



**Jens Ahrens - System Manager (Client Management)**



**Henry Stamerjohann - Developer / Systems Engineer**



# Additional Ressources

## Switching to Apple Technologies at Axel Springer AG

@ MacSysAdmin 2010

<http://documentation.macsysadmin.se/2010/2010doc.html>

## Creating Images Is So 2010

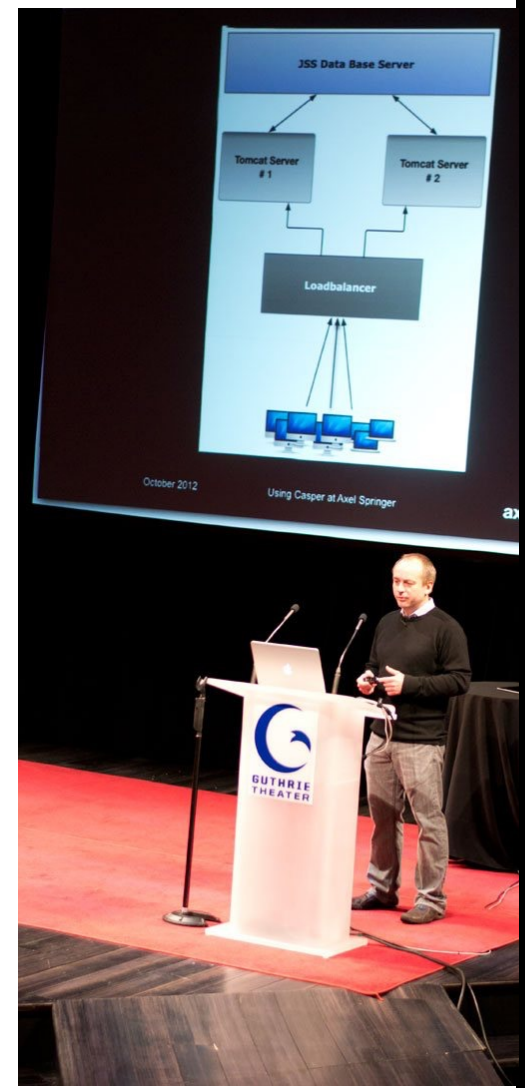
@ MacTech Conference 2011

<http://vimeo.com/38472605>

## Using the Casper Suite at Axel Springer

@ JAMF Nation User Conference 2012

<http://www.jamfsoftware.com/resources/using-the-casper-suite-at-axel-springer/>



# A twin story

@ Axel Springer SE, Client DevOps Team

# Story - Scene 1

August - 2013

# Request from a department

“We need a script that will help users to backup their personal user data to a server based home directory”

# Detailed requests

- GUI App to backup and restore personal data
- Indicate progress and basic error handling
- Migrate personal data from OS X 10.6 to new machines installed with OS X 10.9
- Save user data compliant with works council (Betriebsrat) - only accessible for her/himself

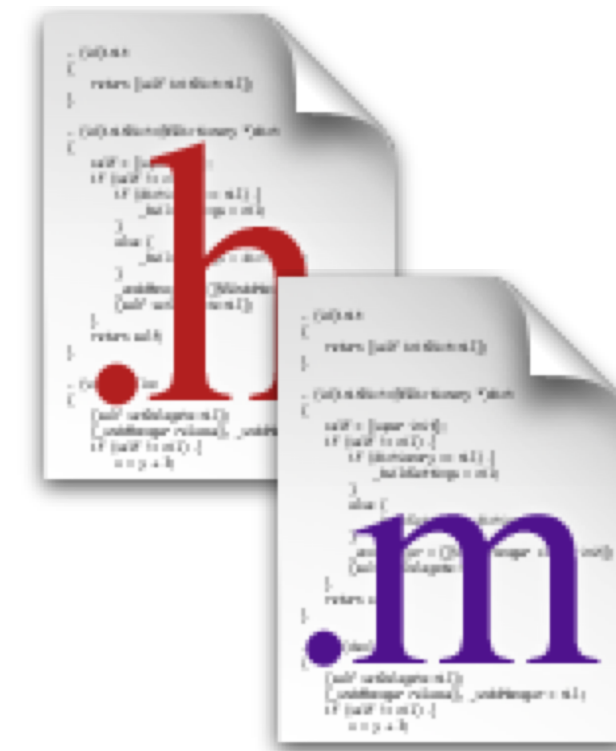
# Conclusion

- GUI for Users to trigger backup & restore
- One App for backup
- One App for restore
- Required to run on all OS X 10.6 -10.9 releases

# Start development with



Xcode

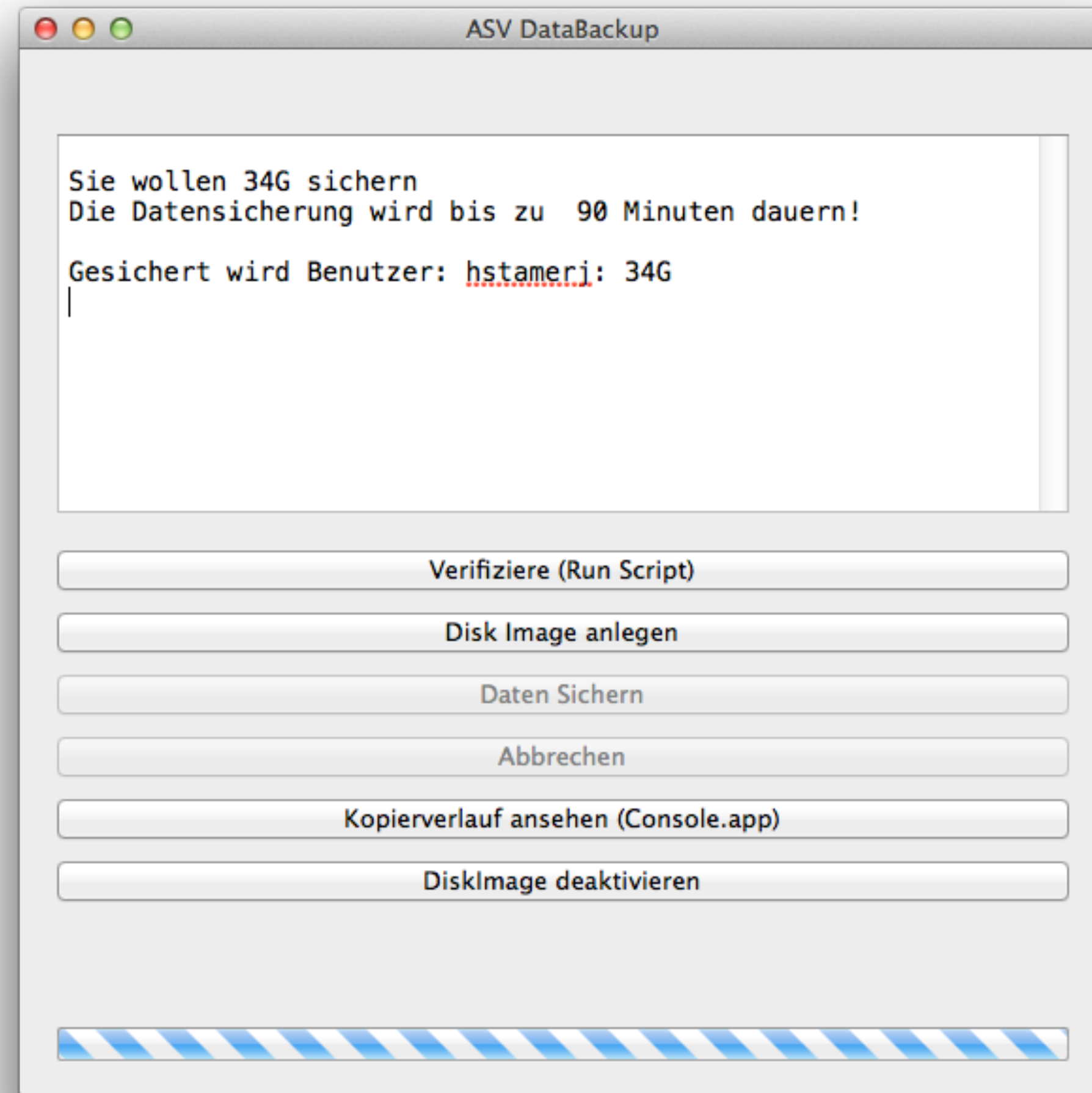


Objective-C

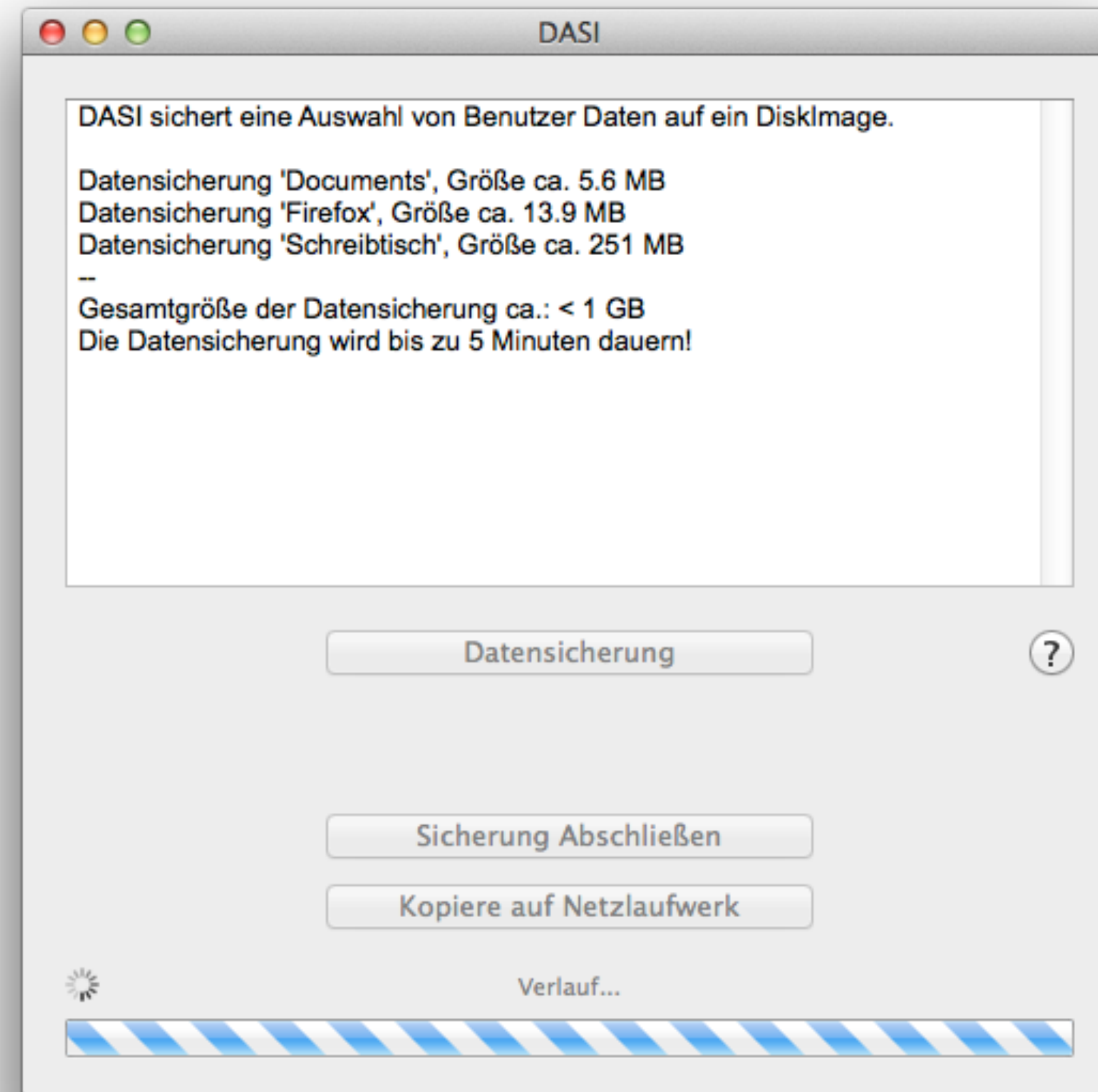
# Why Cocoa / Objective-C ?

- Objective-C used for internal tools already
- AppleScript was too obfuscated
- PyObj-C has a steep learning curve too
- Limited in time (to go live)
- Safety to optionally mix in existing technologies (i.e. use scripts, code, etc.)

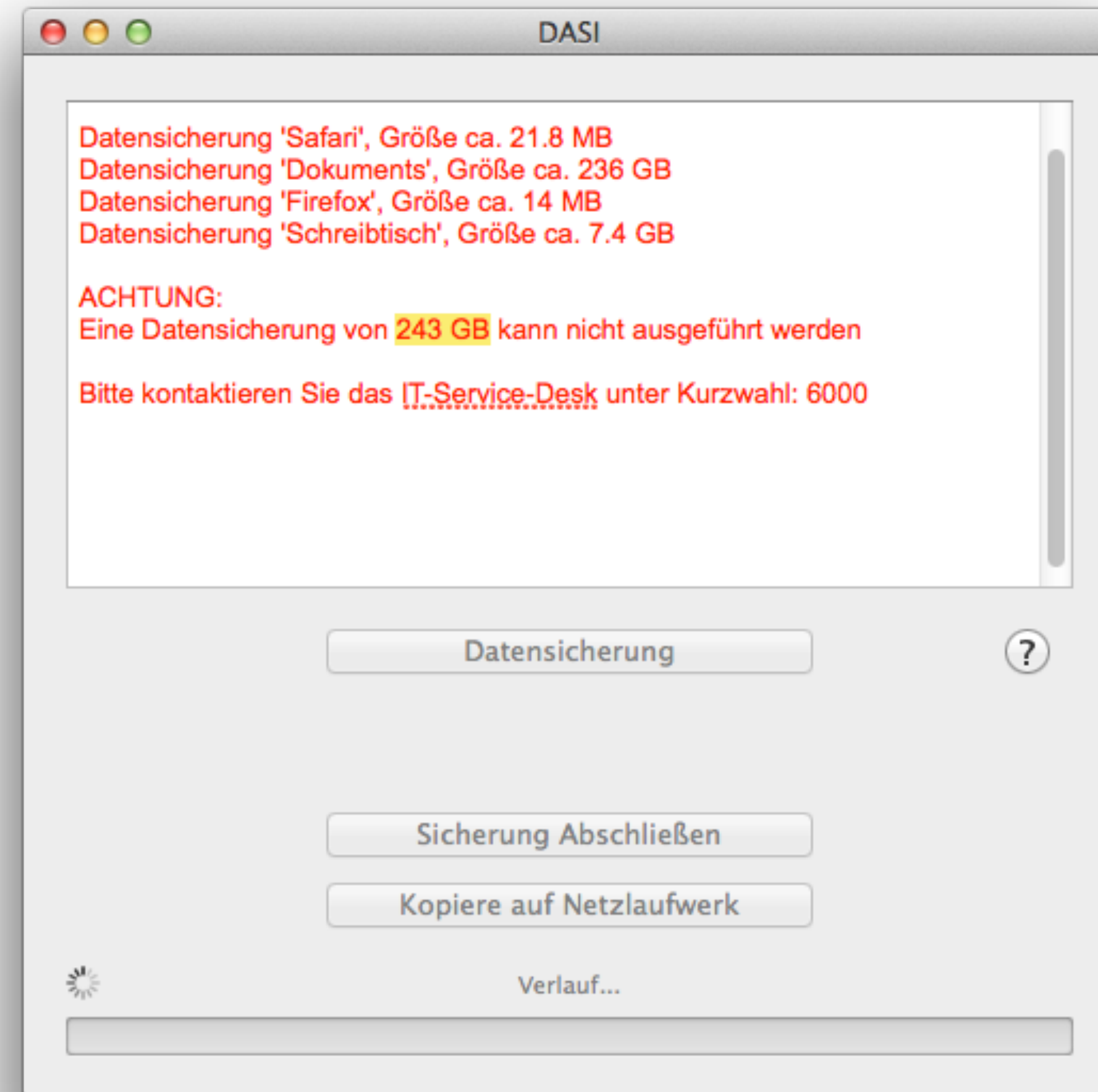
# Prototype



# GUI interface



# GUI interface



# Tools in action



a feature to highlight

# adjustable save paths

defaults write /DASi.app/Contents/Resources/PathList "display name" "/path/to/save"

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.
3 <plist version="1.0">
4 <dict>
5     <key>Dokumente</key>
6     <string>Documents</string>
7     <key>Firefox</key>
8     <string>Library/Application Support/Firefox</string>
9     <key>Safari</key>
10    <string>Library/Safari</string>
11    <key>Schreibtisch</key>
12    <string>Desktop</string>
13 </dict>
14 </plist>
15
```

# Lessons learned

- Tools worked mainly well for purpose
- We re-used existing “mount home share” scripts
- Required user interaction got wrong occasionally
- Manual copy over to restore was not intuitive
- Feel the UI and experience could have been better

# Story - Scene 2

January - 2014

few months later...

other departments got aware of a  
“migration tool” which can doing things...

2.0

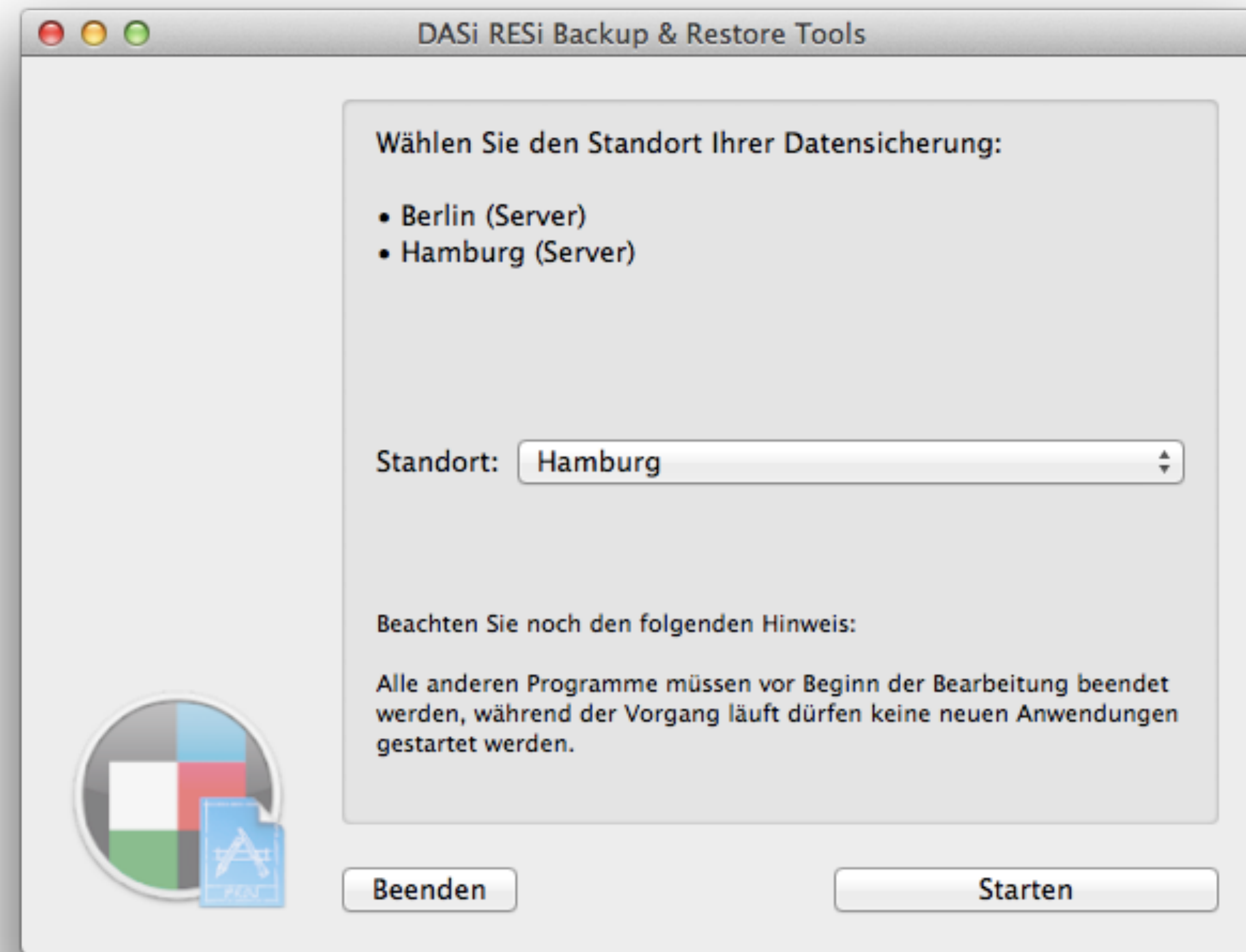
# Updated requests

- Save user data to dedicated server locations
- More automation and better user feedback
- User migration from multiple to one machine
- Alert for known conflict situations  
(check for applications running while backup)

# GUI 2.0

Overview and features

# Assistant style



# Display more details



# Error handling



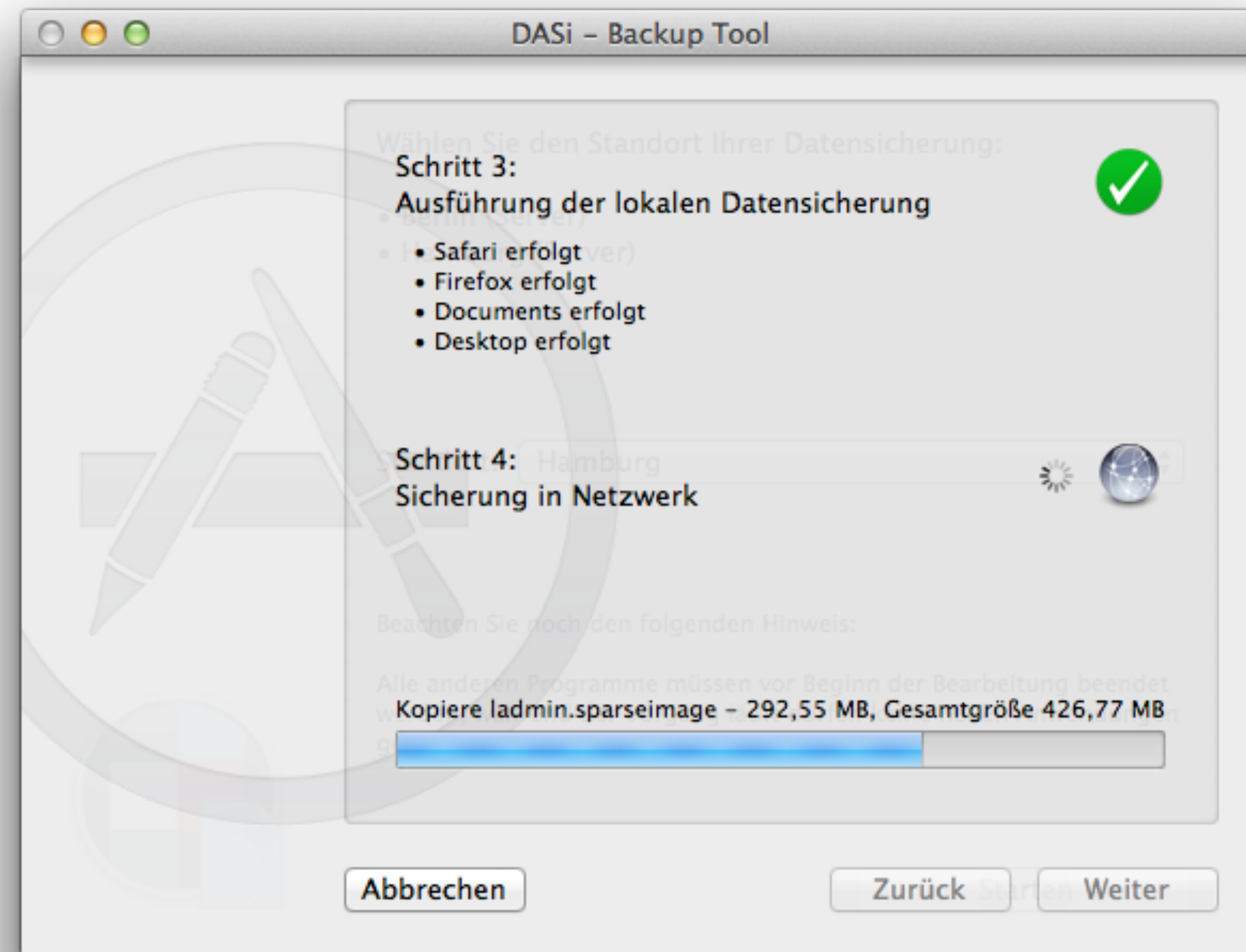
# Success indicators



# Detailed step progress



# Detailed step progress



# Statefull conflict checks



# Example:

## Blacklisting running applications

```
28     </dict>
29     <key>Blacklist</key>
30     <array>
31         <string>Safari</string>
32         <string>Microsoft Outlook</string>
33         <string>Firefox</string>
34     </array>
35 </dict>
36 </plist>
37
```

# Revised tools in action



# The twin apps

- Code base is 98% identical
- Assistant approach for better user experience
- Error handling to ensure users gracefully succeed
- Enable to restore multiple backups to a single new machine
- Gain overall performance improvement

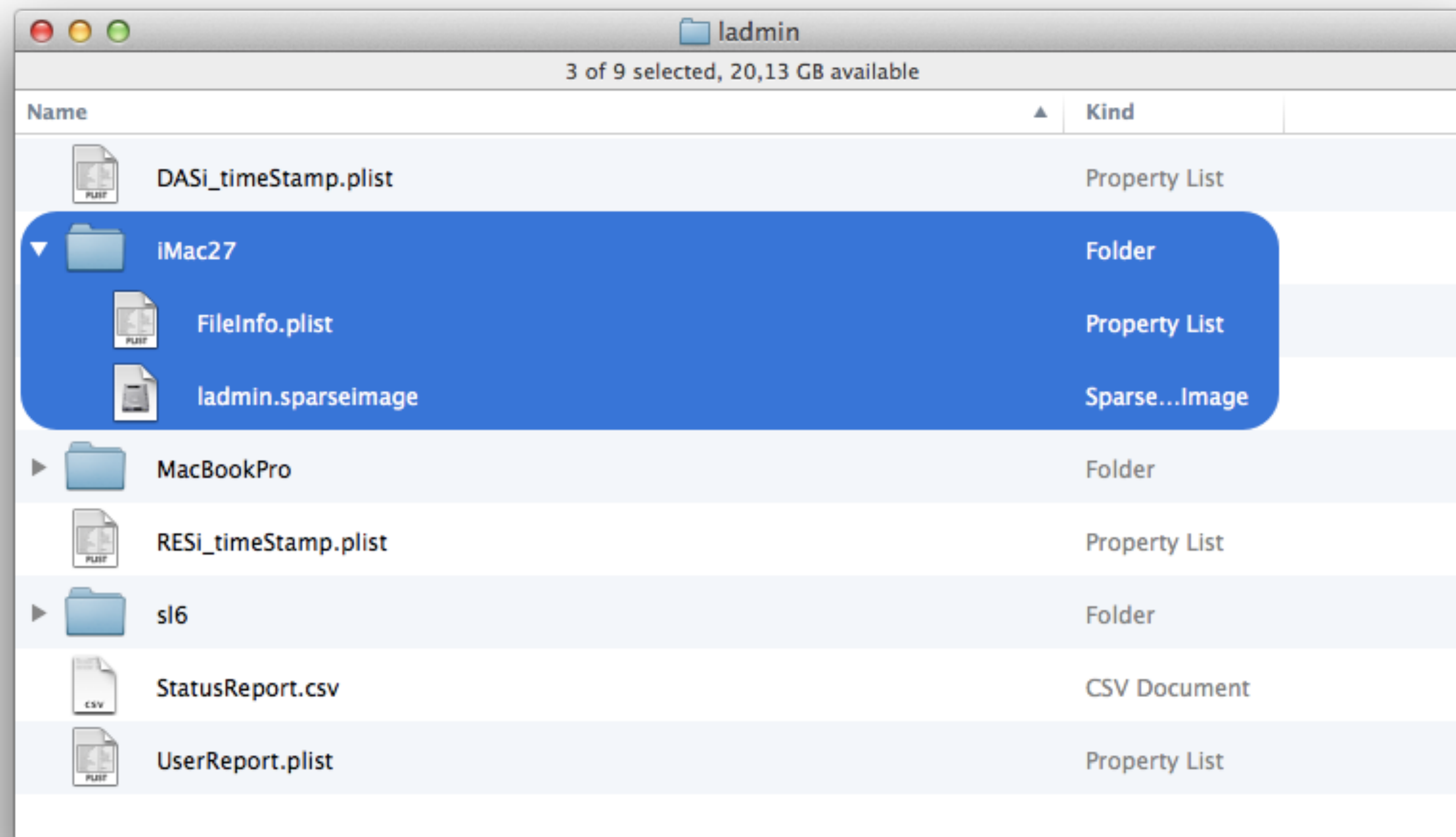
Highlight on features:

# Add new destinations

defaults write /DASi.app/Contents/Resources/Settings "Munich" "172.16.100.22/share"

```
21 </dict>
22 <key>Server</key>
23 <dict>
24     <key>Berlin</key>
25     <string>someDomain/anw20f</string>
26     <key>Hamburg</key>
27     <string>anotherDomian/anw21f</string>
28 </dict>
29 <key>Blacklist</key>
30 <array>
31     <string>Safari</string>
32     <string>Microsoft Outlook</string>
33     <string>Firefox</string>
34 </array>
```

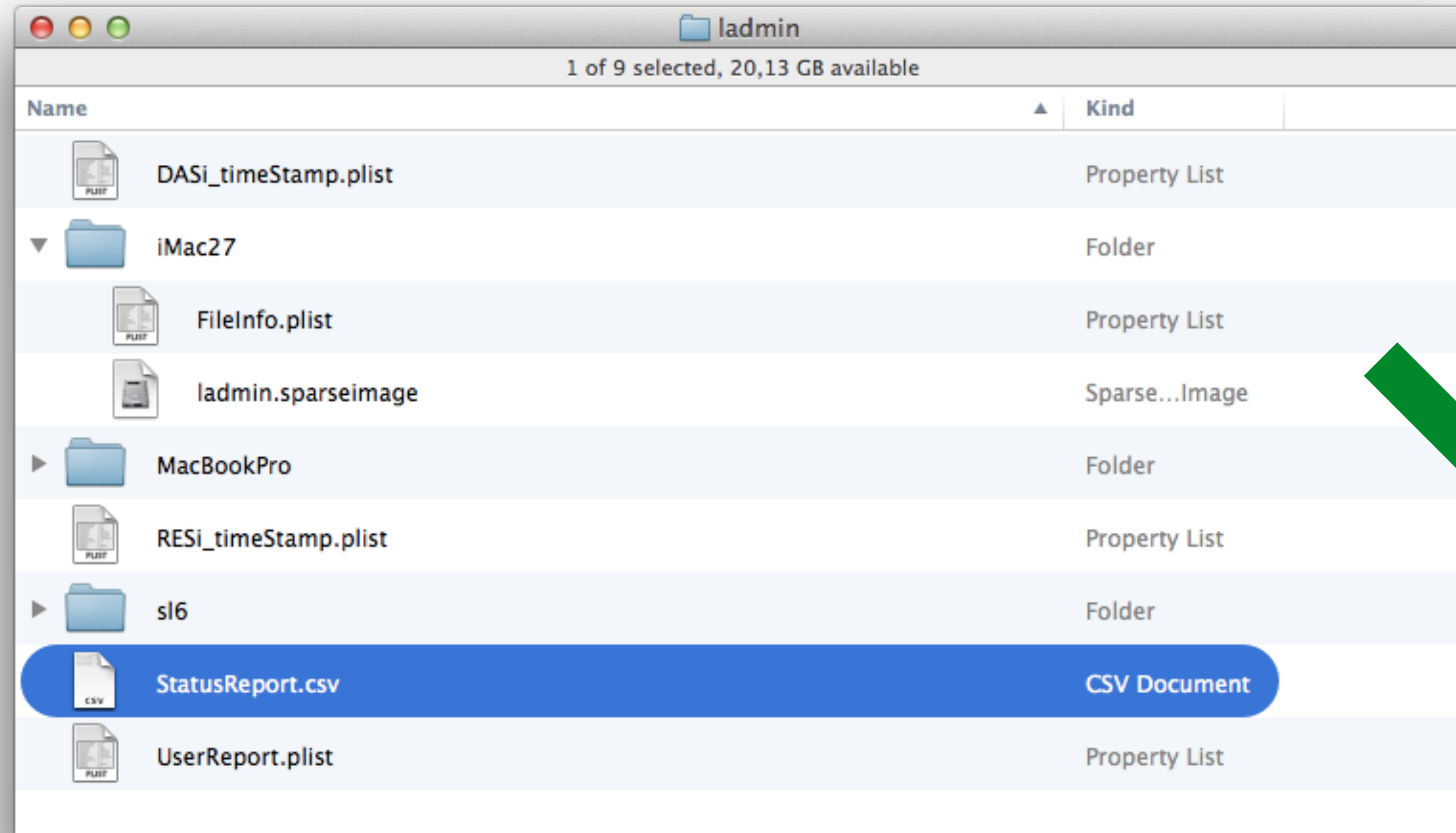
# Metadata saved along with backup image



# Post success statistics via REST API

```
9    <key>Reporting</key>
10    <dict>
11        <key>shouldReport</key>
12        <false/>
13        <key>reportServerURL</key>
14        <string>10.0.0.137</string>
15        <key>webPort</key>
16        <string>8080</string>
17        <key>webPathBackup</key>
18        <string>/statistics/rest/backup</string>
19        <key>webPathRestore</key>
20        <string>/statistics/rest/restore</string>
21    </dict>
22    <key>Server</key>
23    <dict>
24        <key>Berlin</key>
25        <string>some...in/anw20f</string>
```

# Status report in .CSV format



# Lessons learned 2.0

- UI and programming took  $> 2$  x longer to finish
- User feedback helped to improve the new version
- Not every (cool) feature is finally needed
- Coding for multiple OS X versions can be a pain

Final results

# Total migrations performed



**DASI / RESi 1.0**

**DASI / RESi 2.0**

560 users

425 users

September 2014

Henry Stamerjohann  
 @head\_min

Thank you !