

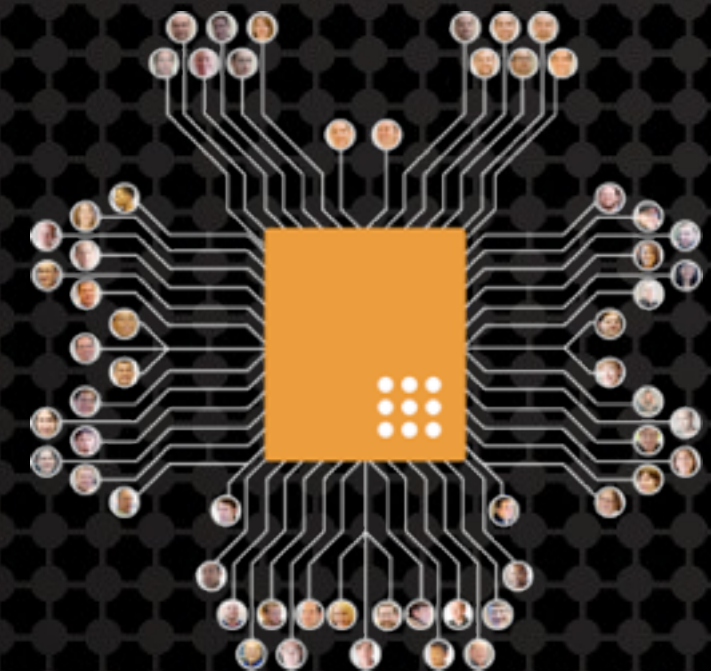
CrashPlan PROe 3

Presented By
Andrew Renz, Sr. Enterprise Engineer, Code 42

codefortytwo software

About Us

- Developing enterprise-level software since 2001
- Headquartered in Minneapolis - MN
- 150+ Employees worldwide*
- Serving the Fortune 1 to the Fortune 10000
- CrashPlan - Consumer
- CrashPlan PRO - SMB
- CrashPlan PROe - Enterprise
- 160 PB + 4PB/week!!!



MISSION : To protect the world's data

Quick about me:

- 6 Years Apple, IS&T Desktop Engineer
 - Global NetBoot/NetInstall
 - Global Backup solutions
 - CrashPlanPROe for Apple employees
 - Collaboration and Wiki services
 - New release software certification
 - Acquisition “Mac” training
 - Keynote training
- 2 Years Code 42, Enterprise Engineer
 - Oracle, Expedia, SanDisk, Intuit, Genentech, Intel, Nike



Truth about Backup: Industry Secrets

The industry's dirty secrets?

- Backup is only useful if its in more than one location
- It's not just for failed hardware
- Backup should be treated equally as original
- If it doesn't happen transparently and frequently, it will fail
 - (we're human after all)
- Garbage in, garbage out
- All about the restore



Theme: Protect the edge

- Data lives on laptops
 - 58% mission-critical corporate data
 - Gartner
 - Must be protected automatically and continuously
- Protect where data is created
- Continuous backup

Terminology: What is NOT backup?

- File servers
- Dropbox/Box/Sugarsync
- iCloud
- Network home directories
- That old HD
- RAID
- RSYNC*
- Time Machine



CrashPlanPROe Family

Total enterprise backup solution.

PROe Services



PROe Software

PROe Software: Client

General features

- Engineered for laptops/mobile
- Continuous, Automatic protection
- Client-side deduplication
- Invisible performance
- User-initiated restores
- Cross-platform
- Deployability
- Network “blacklist”
- Battery limits



PROe Software: Client

Mac specific

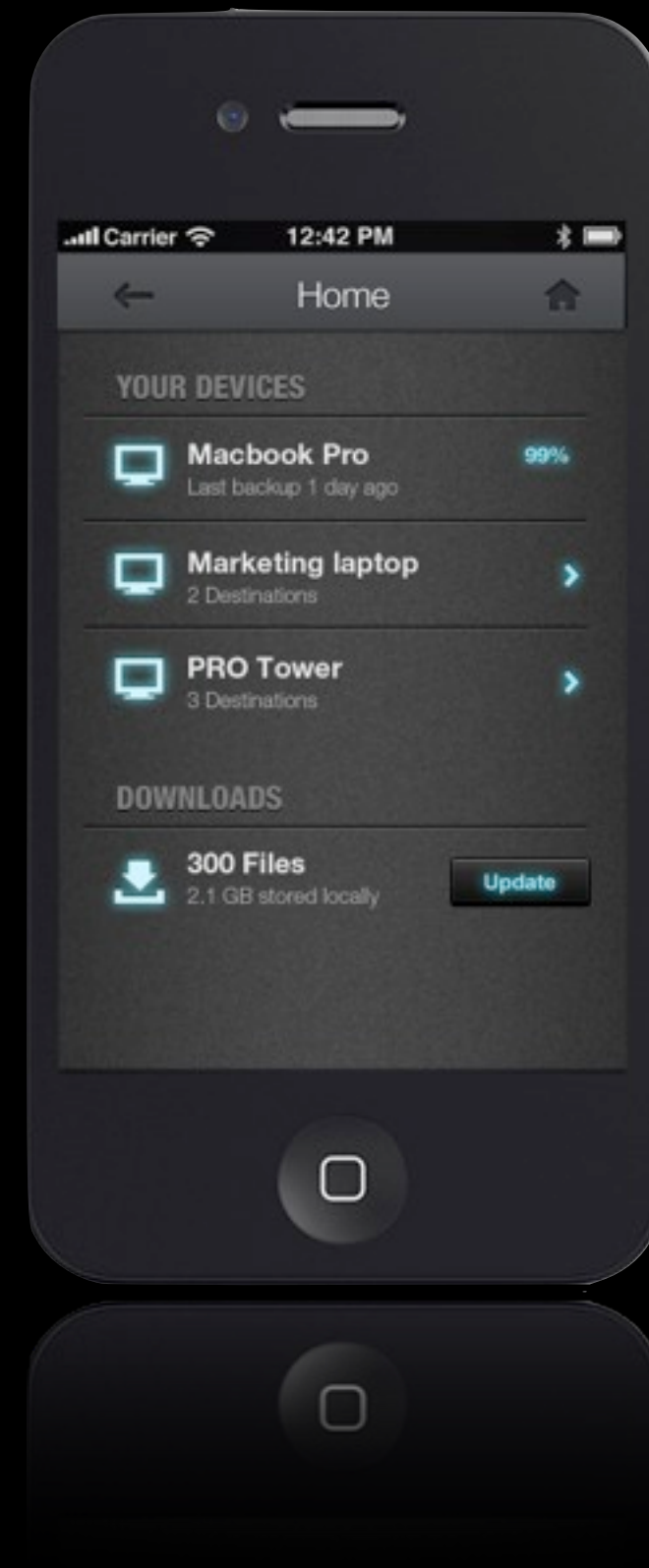
- Pre-built exclusions
- Menu bar
- Meta-data
- Gatekeeper
- Restore original permissions
- Automatic updates



PROe Software: Mobile

Access data from anywhere

- iPad/iPhone
- Android
- Win Phone 7
- One touch update
- On device decryption
- Central management



Software: Server

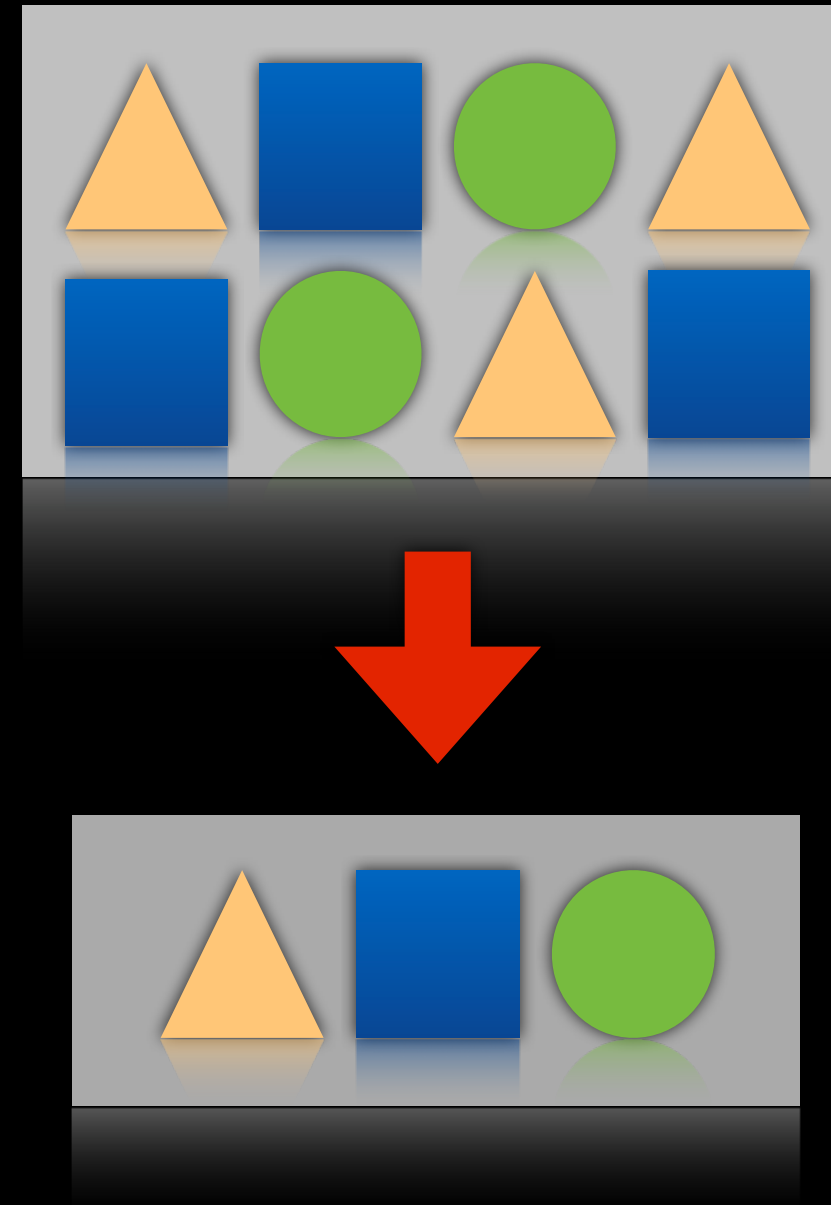
Features



- Centralized management
- Archive verification and gleaning
- Directory services integration
- Cross-platform
- Admin restore
- Automatic client upgrades
- Alerting and reporting
- Tiered administration
- Flexible roles
- API Integration

Technology: Deduplication

- Client-side vs server-side
 - Pitfalls of “global” deduplication
- Bandwidth
- Storage
- Scalability



Byte-level data de-duplication

Detect, Analyze, Compress & Encrypt Transmit

Store

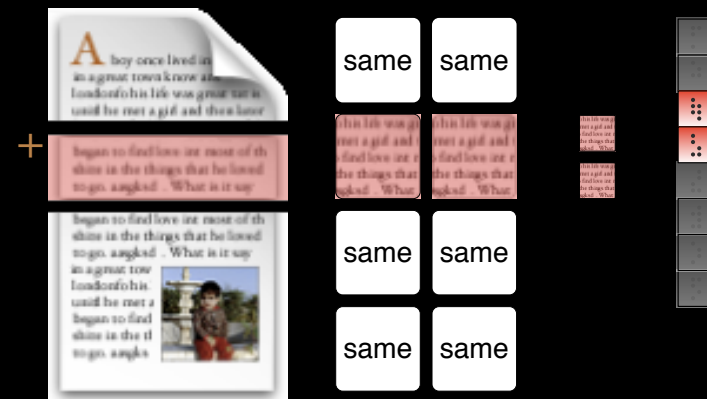
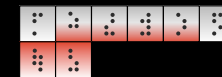
New file



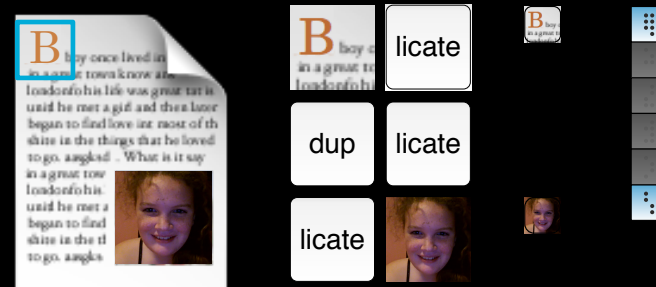
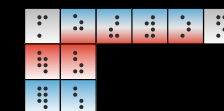
A₁ 



File changes

A₂ 

Save as

B₁ 

PROe Technology: Security

- Encryption
 - Data- 448-bit
 - Transmission - 128-bit
- Access controls
- Key escrow
- Admin restores
- Logging/Auditing



Cloud storage options with CrashPlan PROe

PROe Storage: Pure Cloud

- Zero Infrastructure
- Instant startup
- Signup, authenticate and restore from anywhere
- Data stored offsite
- Multi-tenant / Single-tenant
- Worldwide data centers
- Flexible pricing
- Australia!



PROe Storage: Pure Cloud - Sales

- Zero Infrastructure
- Instant startup
- Signup, authenticate and restore from anywhere
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PROe Storage: Managed Private Cloud

- Completely private cloud
- Expertly monitored and maintained
- Fastest possible backup and restore
- Easily exposed into DMZ for Internet backup
- Up to 90TB/4U
- Easily expandable



PROe Storage: Hybrid Cloud

- Onsite master + Cloud storage
- Policies and encryption keys stay private
- Ensure users are on corporate network before restore
- Full LDAP authentication
 - Location/dept, Admin attributes, status etc
- Onsite storage for VIP users, migrations, DRN holds
- API, logging and audit options



Backup is more than an
Insurance Policy

Beyond Backup: Legal & Discovery

- Instant computer snap-shot
- Unlimited versioning
 - File change history
- Archive containment
- Search



Beyond Backup: Migrations

- Transfer-free migration
- No additional software
- Across architecture
 - Win XP <-> Win 7
 - Win 7 -> Win 8
 - Win <-> Mac
 - Linux <-> Win
- Mac deployment
 - Win -> Mac



Beyond Backup: Lower IT headcount

- Self-service restores meets enterprise
- Tight directory services integration
 - Auto quarantine
 - Auto geographic routing
 - Auto policy management
- Code 42 is a services company
 - One stop shop
- Cloud

PROe 3

Features and tips in depth

Code 42: What's new

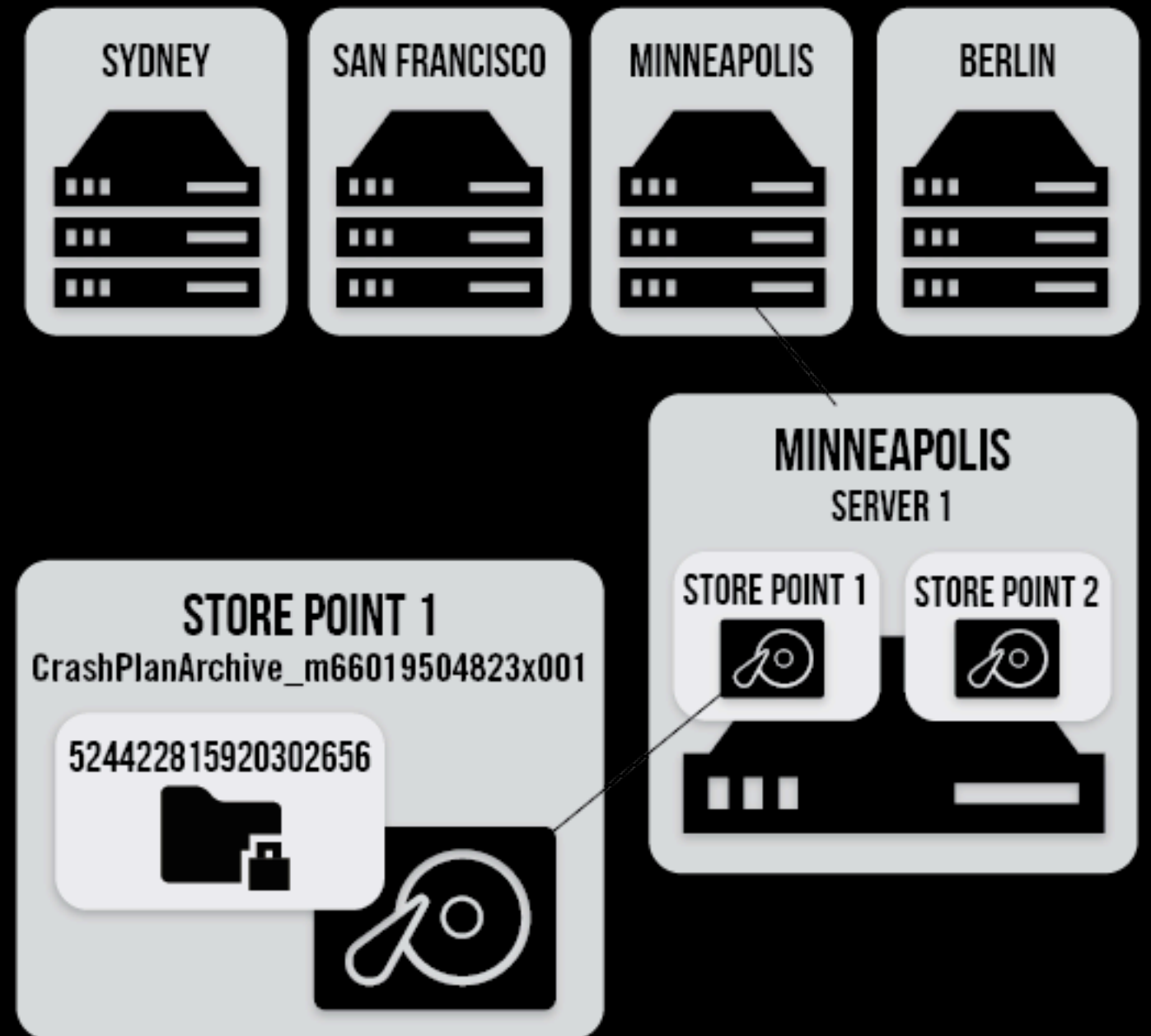
- CrashPlan PROe 3.2
 - Realtime HTML5 management console
 - Data balancing
 - Mobile devices
 - Push restores
 - Tons of new LDAP/Security features
 - Backup sets, network blacklists, adoption, custom roles, menu bar
- PROe 3.3
 - Gatekeeper installers
 - Proxy support, custom web themes
 - Bug fixes
 - Cloud exclusions
- New clouds! Australia



PROe 3 Feature: Destinations & Data Balancer

STORAGE BEHIND THE SCENES

- Virtual grouping of servers
- Data balancer to evenly utilize storage
- Assumes servers are on a LAN
- Allows horizontal scale
- Don't mess with defaults!



PROe 3 Feature: Backup Sets

- Control what data goes where
- Control frequencies for data types
- Control versioning and retention
- Order by priority
- Assignable by administrators

The screenshot shows the 'Backup Sets' configuration window in CRASHPLAN PROe. The window has tabs for 'General', 'Backup Sets', 'Account', 'Security', and 'Network'. The 'Backup Sets' tab is active, showing a list of backup sets. The 'Default' set is selected, with a 'Name' field containing 'Default' and a 'Priority' field set to '1'. Below these are 'Add', 'Remove', and 'Duplicate' buttons. The 'Files' section shows a folder named 'andrewrenz' with '214,111 files 65.3GB' and a 'Change...' button. The 'Destinations' section shows a table with columns 'Name', 'Type', 'Completed', and 'Last backup'. The table contains one entry: 'CrashPlan Central' with 'Cloud 99%' completion and '< 1 minute' last backup. A 'Change...' button is below the table. At the bottom, there are fields for 'Backup will run:' (set to 'Always'), 'Verify selection exec:' (set to '1'), 'at' (set to '3:00 AM'), and a 'Now' button.

CRASHPLANPROe

General Backup Sets Account Security Network

Default
Lower

Name: Default

Priority: 1

Add Remove Duplicate

Files

andrewrenz 214,111 files 65.3GB

Change... Total: 214,111 files / 65.3GB

Destinations

| Name | Type | Completed | Last backup |
|-------------------|-------|-----------|-------------|
| CrashPlan Central | Cloud | 99% | < 1 minute |

Change...

Backup will run: Always

Verify selection exec: 1 at 3:00 AM Now

Backup will run: Always

Change...

PROe 3 Feature: Enhanced LDAP

- Multiple LDAP servers
 - Perfect for multi-tenant
- Scriptable
 - Active
 - Org
 - Role

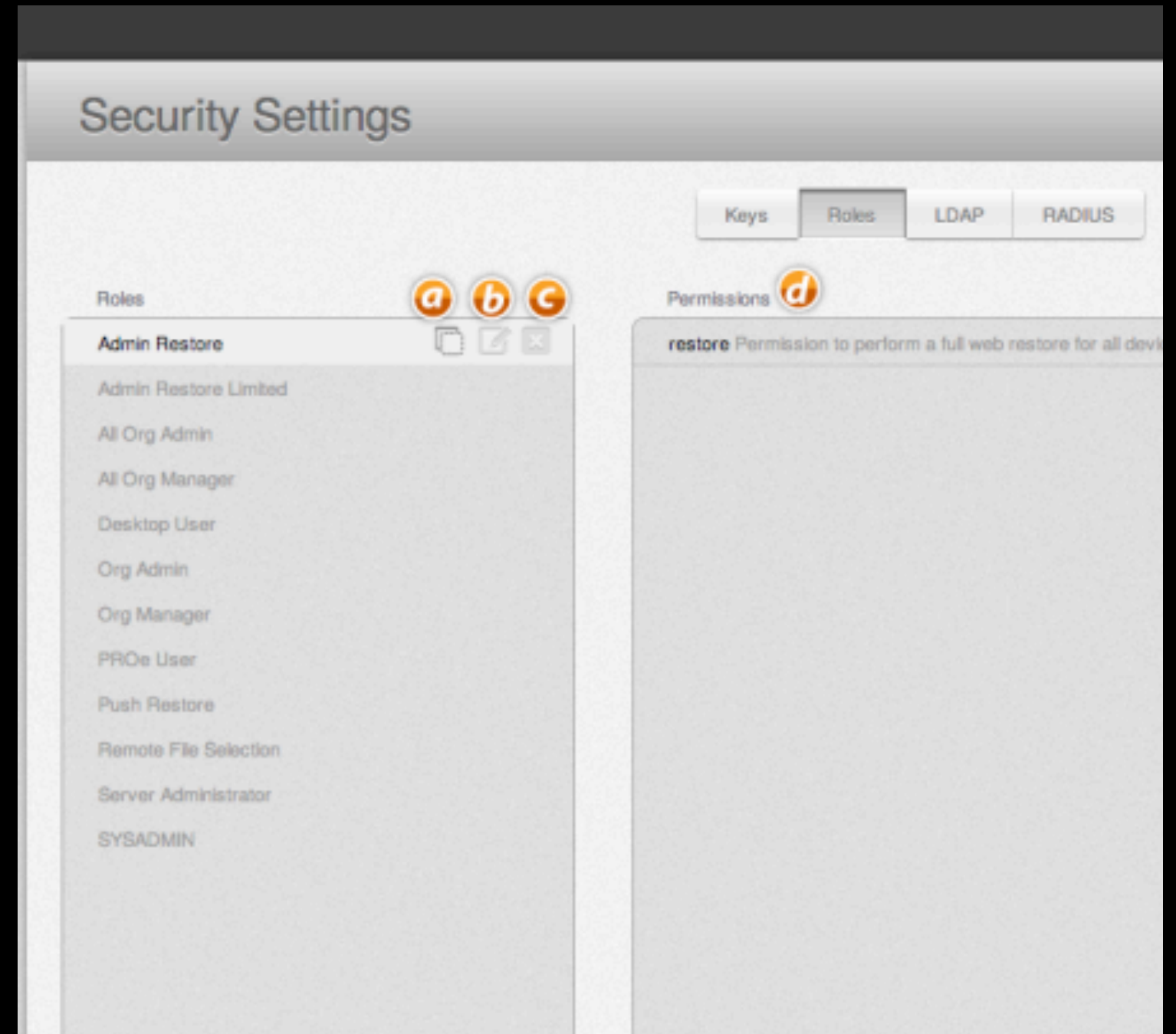
The screenshot displays the 'LDAP Server Setup' window, specifically the 'Attribute Mapping' tab. It shows the configuration for a user entry with the following attributes and values:

| Attribute | Value |
|---------------------|---|
| Username: | mail |
| Email: | mail=lisa.simpson@springfield.examp |
| First name: | cn=Lisa Simpson |
| Last name: | sn=Simpson |
| Active script: | function(entry) { return true; } |
| Org name script: | function(entry) { return entry.employeeType; } |
| Role name script: | function(entry) { // everybody gets these basic roles var defaultRoles = ['Desktop User', 'PROe User']; } |
| Distinguished name: | cn=Lisa Simpson,ou=Students,ou=Springfield Elementary School,ou=Springfield,dc=example,dc=org |
| Username search: | username |

At the bottom of the window, there are 'Close' and 'Save' buttons. The window also shows a '1 of 6' indicator, suggesting this is the first of six tabs in the setup process.

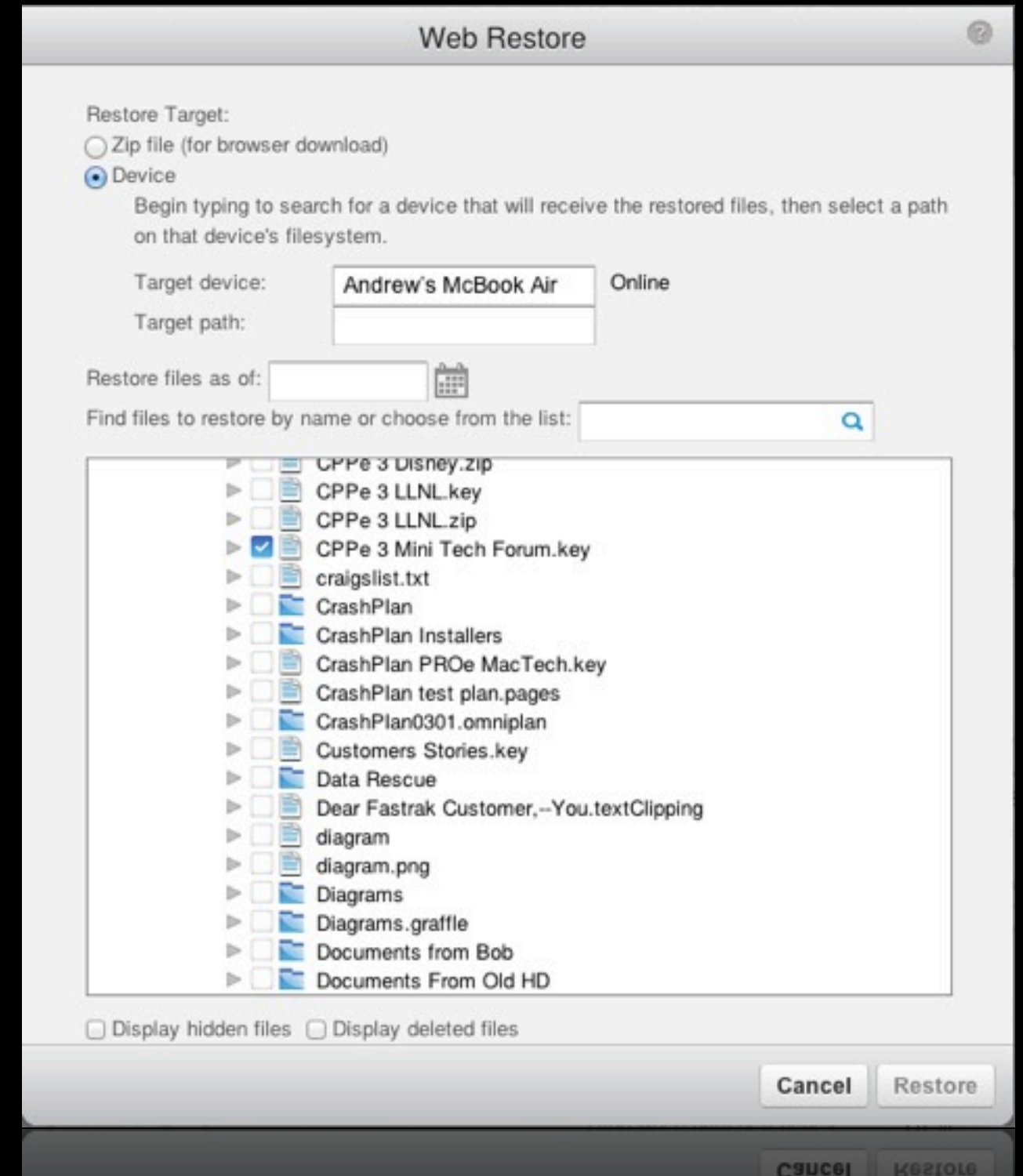
PROe 3 Feature: Role Builder

- Built-in roles
- Custom roles
- All permissions available
- Default role assigned at org level



PROe 3 Feature: Push Restore

- Remotely select and push data to devices
- Admin Restore required
- Target device must be online
- Shows as “crashplan-restore-...”



PROe 3 Feature: Network Throttling

- Deployment still best way to control bandwidth
- Use as emergency “big red button”
- LAN vs WAN
- Interface black-list
- SSID black-list
 - Verizon MIFI?
 - Regular expression match

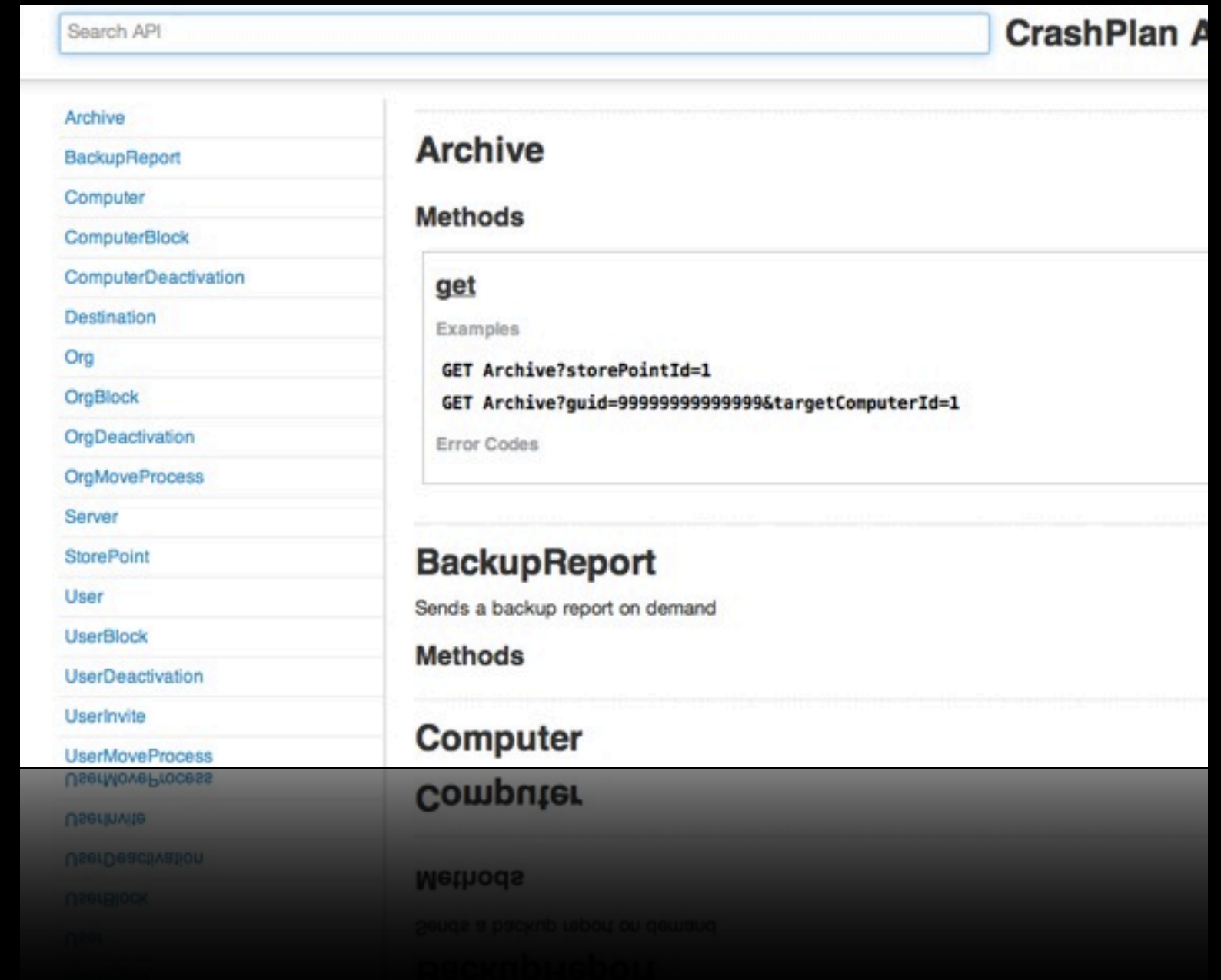
The screenshot shows the 'Network' tab of a configuration window. It displays internal and external IP addresses, a 'Discover' button, and NAT Traversal status. Below are sections for 'Network interfaces' and 'Wireless networks', each with a 'Configure...' button. The main part of the window is a table for configuring WAN and LAN settings.

| | WAN | LAN |
|--|----------|----------|
| Limit sending rate when away to: | None ▾ | None ▾ |
| Limit sending rate when present to: | None ▾ | None ▾ |
| Sending message buffer size: | 2048 KB | 2560 KB |
| Receiving message buffer size: | 2048 KB | 2048 KB |
| TCP packet TOS: <small>(requires restart)</small> | Normal ▾ | Normal ▾ |

At the bottom right, there are 'Undo Changes' and 'Save' buttons.

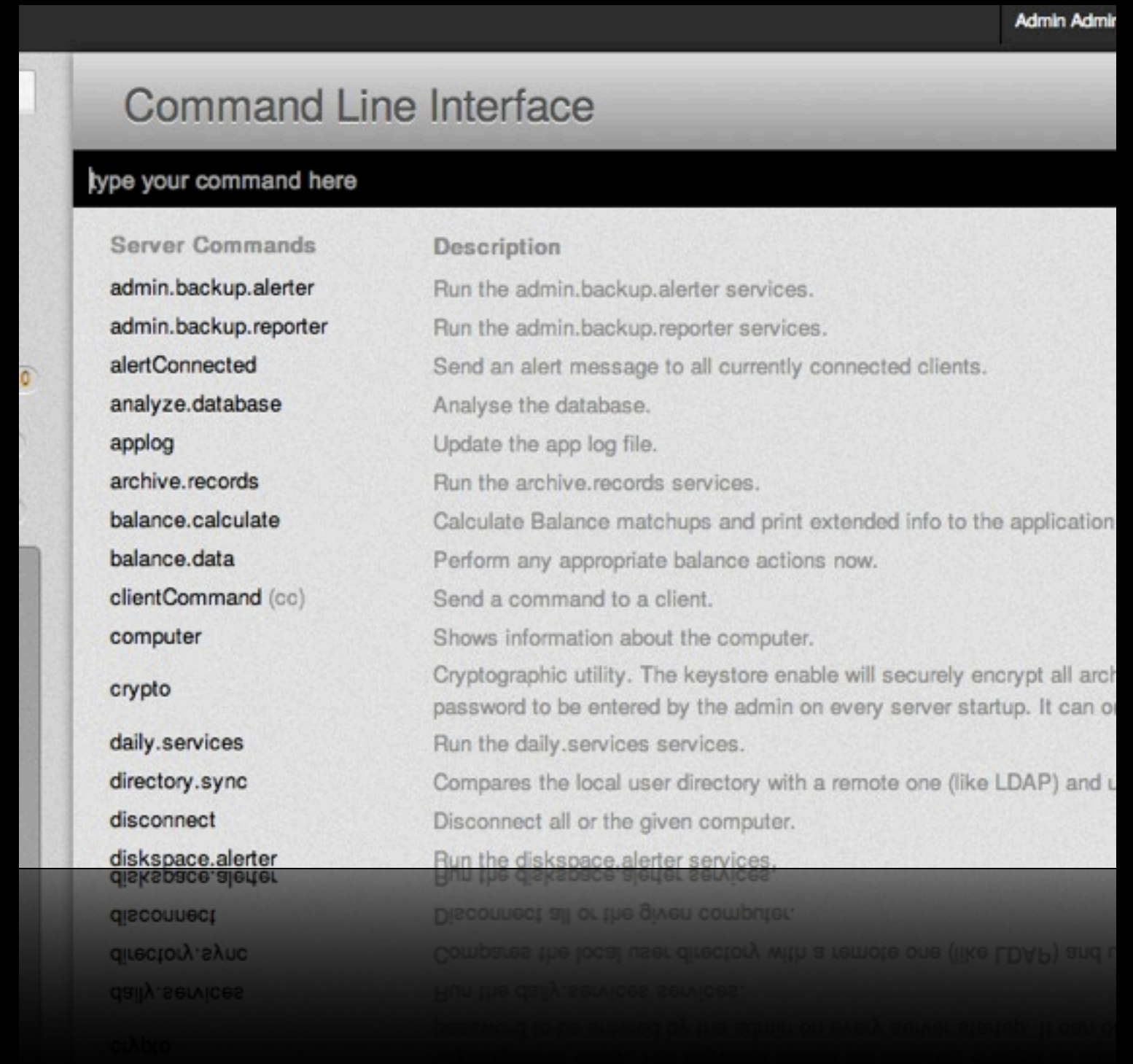
PROe 3 Feature: API Doc Viewer

- <http://myserver.example.com:4280/apidocviewer>
- Updated internally with new features
- If it's not in here it's not supposed to be used



PROe 3 Feature: Web CLI

- Access by double-clicking logo
- Command line interface for administrative functions
- Use with care



PROe 3 Feature: Gatekeeper installers

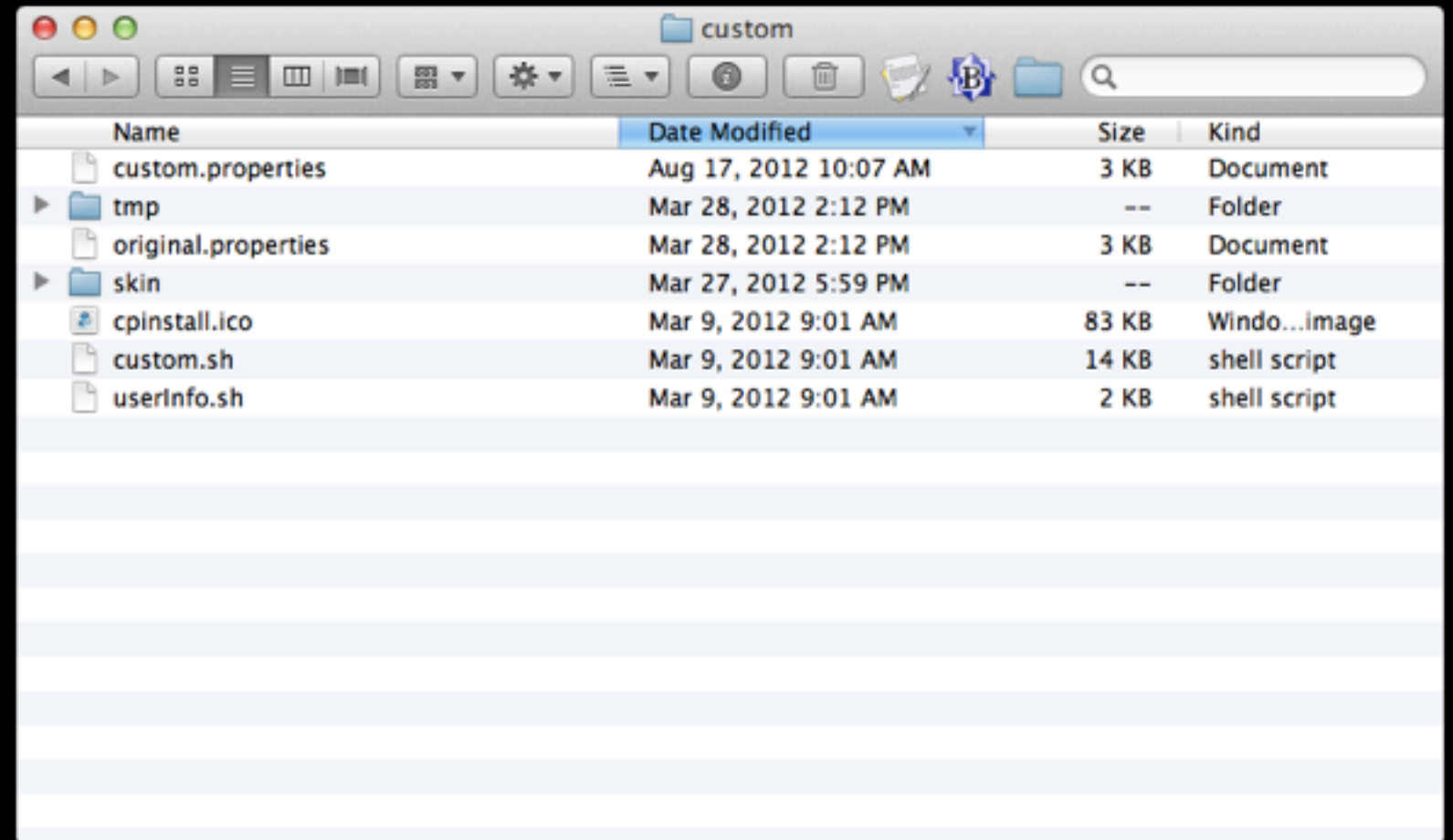
- Ensuring future compatibility
- Hosted internally in PROe Server
- http://example:4280/download/CrashPlanPROe_Mac.dmg



PROe 3 Tip: Custom installers

Customization

- The world is flat. Deal with it.
- Use custom.sh
 - http://serverIP:4280/download/CrashPlanPROe_Custom.zip
- Can even build Windoze installers!



PROe 3 Tip: Client Deployment

Deployment

- Two step process:
 1. .Custom will be remotely read in
 - /Library/Application Support/CrashPlan/
 2. Push and run “stock” CrashPlan.pkg
- “Run as user”
 - add one line to userInfo
 - touch "\$
{TMPDIR}/.cpRunAsUser"

```
#!/bin/sh

#
# Optional script by which you can control the user installation.
#
# Variables to set:
#   startDesktop: set to false if you don't want the desktop to start up i
#   CP_USER_HOME: Allows the app to start scanning the user's home fold
#   user:         Used to properly set file permissions
#   userGroup:    Also used for file permissions
#   CP_USER_NAME: This will become the unique ID for the user in the PR
#                 Leave CP_USER_NAME blank to require the user to enter
#                 If set this value, you'll want to set the username=""

#
# Set to false if you don't want the desktop UI to start up.
#
startDesktop=true

#
# When installing from the root account (for example) you will need to pop
# some or all of these variables differently than is done below.
# Note: whoami *always* returns "root" for this package so we had to get c
# Also: You will want to populate CP_USER_NAME with the right email address
#
CP_USER_HOME="$HOME"
user=`basename $CP_USER_HOME`
userGroup=`id -gn "$user"`
CP_USER_NAME="$user"
```

```
CP_USER_NAME="$HOME"
userGroup=`id -gn "$user"`
CP_USER_NAME="$HOME"
#
# Note: You will want to populate CP_USER_NAME with the right email address
```


PROe 3 Tip: Regular expressions

- **Case insensitivity**
 - `(?i)`
- **Negative match to include “all”**
 - `(?!).*\.doc`
- **Nested expressions**
 - `(?i)(?!(*filemaker.*))/Applications/*.*`
- **Envelope index**
 - `(?i).*Envelope Index.*`
- **VMware**
 - `(?i).*\.vm.*`

PROe 3 Tip: Storage Design

- Dedicated master for large deployments
- <50 archives/spindle
 - Example - 4 disk RAID 5 = 150
 - Less on slower hardware
- Direct attached for >250 archives*
- Backup sessions
- Maintenance queue is your lifeblood