Cool Stuff and ARD

Edith Cowan University
Perth
Australia

ichat: stevendoyle@mac.com
Background Slides

- Firstly.
- Where is Perth? :)

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About CCI

- School of Communications and Multimedia
- Largest in Australia, over 500 students do a common foundation year as a first year
- Disparate streams offered
- Supporting minors from SOCA or compSci
## Streams

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CCI Resources

- 14 labs
- All Mac
- Full time Support staff of 3
- (do all staff support as well, 80+ staff)
Challenges

- Fall into three main categories
  - machines
  - people
  - management
Machines

- How to image them
- How to maintain them imaged
- How to monitor them
- How to asset track them
- How to track their usage
User Management

- Transient student population
- 24/7 isn’t enough
- license challenges
- powerbooks
- peecee’s
3 separate yet connected areas

- All IT management related
- Lab isn’t a lab anymore
- A workstation isn’t one person’s or in one place!
- If it’s a computer it ends up with us
- Impossible to manage/control/forecast/plan
Help Desk System

• we wrote a help desk
• open sourced
• php/mysql/shell
• leverages heavily on ARD 2
Why?

- Didn’t like any of the off-the-shelf ones
  - why?
  - their shelf is expensive
  - didn’t meet our needs
  - scalability issues
How?

Spent the last 3 months writing and testing based on our specific needs

Not aimed at just a higher ed. organization

Hopefully people will write modules too :)
Why?

- We were constantly entering the same data
- purchasing system
- login system
- management system
- But Still loosing track of information
- machines would go “missing”
- new machines would magically appear
Feature Summary

- MySQL
- PHP
- needs documentation :)
- module based
- scaleable
- designed for low end users (aka helper monkeys)
- today i’m just going to talk about the ARD stuff
Highlight Summary

- ARD Features
- Powerful hardware searches
- Lab Organisation/Imaging Options
- WorkGroup Manager
- Machine on network status
- Imaging
- Packaging making
ARD 2

- client / server model
- comes with a data collection model
- stores data in centralised server
- in a postgres database
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Should administrators using OpenWBEM tools be permitted to request system data directly from clients?

- [ ] Set OpenWBEM access:
  - [ ] Not allowed
  - [ ] Allowed
Help Desk Workflow model

• incredible leverage opportunities from ARD’s thorough database capabilities

• powerful integration options with our own mysql database

• goal for one stop management console for admins and nominated admins

• i want it powerful for the powerful, but simple enough to delegate
Mysql Layout Screenshots

- non destructive data operations
- We summarise the pertinent ARD PG data into a flexible mysql system
- It’s portable if you’d prefer to keep PG across the system
- It’ll scale to MSSQL
### Mysql Layout Screenshots

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Work Flow

• The data that we manipulate on a regular basis lives in local mysql database

• Regular scans of ARD database to update mysql (user defined)
Machine Search

- So once we have the machines in our mysql database it makes it very easy to do complex machine searches

- We use it extensively to find emerging problems on machines, such as machines low in drive space

- example of search types:
Machine additions to system

Labs

This page allows you to define labs that are associated with each school.

Define New Lab:

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wait...there’s more!

• Once the lab is defined in the help desk system you can run the ARD scans then allocate the machines there

• So a new lab can be quickly created by either defining the machines in the help desk system itself, or installing the machines, running ARD scans then allocating them to lab groups
• We use it to allocate a lab’s software image. So machines can be setup or re-imaged from here

• We also use it to set imaging protocol and server settings to allow pseudo load balancing.
  • afp/http
  • different servers
  • round robin dns :)
Double Entry?

• We do a lot of work with WorkGroup Manager (WGM) to handle client management
• We do most of our stuff at the computer list level
• WGM has no facility for easily adding multiple computers
• The help desk system allows you to generate a text list suitable for importing directly into WGM
WGM

- Scan the list with ARD
- Import into Help Desk
- Export into WGM
- 30 seconds :)
Machine Tracking

- searches the ard generated list (set ard scheduled task for X minutes)
- searches the mysql databases
- looks for missing or extra ones..alerts the admin user
Automated Actions

- Emails nominated admin about missing (or found) machine
- Logs in a database the event
  - why?
- student laptops / staff laptops
- if you use etherpeek (or similar) this gives u a good record if anything goes “rogue”
Machine Monitoring

• Running a large environment its best to be proactive rather than reactive

• The system can be configured to ‘watch’ for change states between scans on the machines, and then alert people of the change in states

• Why?
  • projector disconnects
  • student altering machine settings
  • theft/damage
  • “this mouse has never worked”
Machines in ARD Postgres Database

ARD SCAN every 6 hours

Machines in MySQL HelpDesk Database

Watch for changes in selected criteria

ALERT!
ALERT!

Email on call tech

send .ics event

RSS
Machine Monitoring

- Alerts are:
  - iCal events for on task person
  - logged jobs
  - emails
  - (or a combination)
  - managers love it...staff not so much :)
  - [yes it can do SMS s well but they begged me to not implement it]
Sample Alerts

Drive Free Space  (user specified range alteration)

SSH Status (on/off)

System Version (changed?)

Free RAM Slots (changed or defined)

Web sharing status (on/off)

Windows sharing status (on/off)

Wireless status (on/off)

Mouse / Keyboard connection (on/off)
Desktop Maintenance

- One problem is that ARD allows for package pushing, but package making remains a task for the power users.

- We needed a way of delegating packaging making to sub-sys admins.

- For example, if we wanted to change the desktop pattern of a group of machines.
Automated Packaging

- Create a sample volume adjust package
- Create a login package
- Change a Desktop pattern
- Change a set of permissions
- Scope for ANY TYPE package
Desktop Maintenance

• handles simple tasks such as setting machine volume levels on start up (we needed this as there was an exam on next door when we wanted to reboot 50 machine lab)

• handles examples for more complex tasks such as repurposing OD access

• This is where I hope there is some knowledge sharing in the community
Webbrowser access to help desk page

Specify variables, package destination etc.

Use command line packagemaker tool

Generate .pkg for ARD distribution
User Management

• system ships with a login hook that can be deployed to desktop
  • so we eat our own dog food and push it out with a package we make within the system
• on login/logout username/time & mac address of the machine is logged
• drops into a SQL database so we can process information
use web browser to set location of login hook(s)

1. path to file
2. name of file
3. login/logout?

package is built with alteration to /etc/ttys to call login hook

Generate .pkg for ARD distribution
user stats

hours logged in
average log in time
hours used
peak usage time

machine stats

hours used
user stats
network traffic*
apps launched*
machine usage
Login/Logout hook pushed via ARD

User Login.sh
- mac address
- username
- time

SQL
- user
- print
- machine

User Logout.sh
- mac address
- username
- time

User Logout.sh
- cp /var/log/cups/page_log
- rip contents ia php
Full Automation
Machine Delivered

barcode scanned

Data entered into HelpDesk system

Destination selected

Machine Net Boots and installs Image

Logs its imaging time

Record user interactions
What I Didn’t Talk About

• Integrates into an asset management system
• HelpDesk system fully customisable
Thanks

- HelpDesk Code - David Polinelli, Andrew Dunbar
- ARD Code - Michael Bartosh, Mike Lopp
- Apple Australia (http://apple.com.au) - esp. the ed team, they always help me get to such events and spread the word :)
- Apple University Consortium - Stephen Young, Rob Osborn, Andrew Jeffery (http://www.auc.edu.au)
- IM diversions: Thomas Easmie, Peter Varitimidis, Joel Rennich
- “Hi” - Kate Barrett
- General all round PITA’s - Brett Greay, Justin Krisko, Patima Tantiprasut, Mike Young (Go the Villa), Angelyne Wolfe, Ryan “Table Milk” Beaton.
Resources

- online demo
- http://www.thepublicitymachine.com/helpdesk
  - (apple/apple)
  - The ARD stuff will be up soon..needs a little more testing
  - (it needs a gui!!)
- download code -
  - email me stevendoyle@mac.com
  - available for d/l once documentation is done :(
  - but you can grab a .tar from me
Contact

Steven Doyle

stevendoyle@mac.com

icChat/email