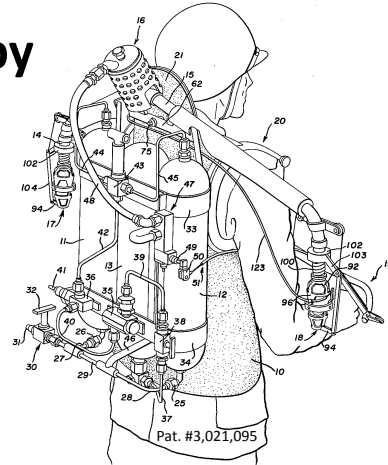


I Got My Jet Pack... and I'm Still Not Happy

David N. Blank-Edelman
Director of Technology
Northeastern University
College of Computer and Information Science
CHIMIT 2008 Plenary Talk



It is important to pick the
right metaphor
...for your talk

HOME PAGE MY TIMES TODAY'S PAPER VIDEO MOST POPULAR TIMES TOPICS

The New York Times **Science**

WORLD U.S. N.Y. / REGION BUSINESS TECHNOLOGY SCIENCE HEALTH SPORTS OPINION

ENVIRONMENT SPACE & COSMOS

The Jetpack: From Comics to a Liftoff in the Yard



Andy Maris for The New York Times

John Schwartz of The New York Times tested a jetpack with its inventor, Glenn Martin, left, and Ray Thomsen guiding him. The device was unveiled Tuesday at an air show in Wisconsin.

By JOHN SCHWARTZ
Published: July 29, 2008

OSHKOSH, Wis. — To rise off the ground wearing a jetpack is to feel the force of dreams. Very, very noisy dreams.

COMMENTS (81)

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Jetpack Competitors Start Dogfight With Flashy New Startup

The Martin Jetpack, like the three big rocket belts before it, took off this month in a surge of buzz and headlines. Now other pioneering rocketeers are speaking out for the first time, going so far as to call the new device a "widow maker." Could the new battle finally spell takeoff for this futuristic industry—or just more prolonged promise?

By Erik Sofge
Published on: August 18, 2008

TAM



Past work on Interactions

Past work on interactions

LEARNING TO TEACH DIAGNOSIS

If I Could Talk To The Animals



David N. Blank-Edelman
Northeastern University CCS
LISA 2001 Invited Talk

Should We Ask a Mechanic?

No.

- They can pull parts and put them back in again.
- Their world does not fluctuate as much.
- They have much better instrumentation than we do.



Should We Ask a Doctor?

Getting warmer, but no.

- Works on the same species.
- Largely has the luxury of communicating directly with the patient for diagnostic information.



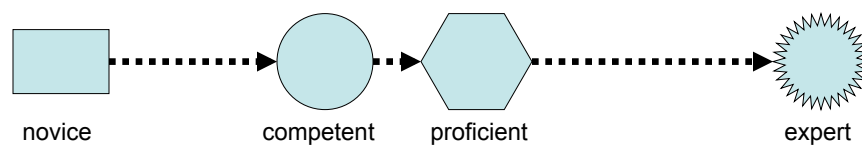
Should We Ask a Veterinarian?

Yes.

- In common:
 - Large variety of different species
 - Can't easily replace parts and have patient live.
 - Diagnostic information comes from a third source.



Expertise Levels



How Are Vets Taught?

- 27 accredited schools in the US
- 4 in Canada
- Largely 4 year schools, last year is heavily clinical
- Extremely competitive, rigorous admission standards.
- They are *hard* work after you get in too.

My “Research”

- I reviewed all the available curricula listings from US schools (~70%)
- I followed up with question to representatives from ~ $\frac{1}{3}$ of the schools
- Getting hold of veterinarians is hard, getting hold of veterinarians that teach is *very* hard.
- I asked at least these two questions:
 - Where/how do you explicitly teach diagnostic skills?
 - Where/how do you teach about acquisition of diagnostic information from an owner of an animal?

Example Answers

- Some standard answers:
 - Everywhere and nowhere (you fool)
 - Problem Based Learning
 - Clinical years (rounds, etc)
- Cornell university:
 - Entirely PBL in the 1st 2½ years
 - Clinics in the second year sometimes videotaped
 - Community practices service (see healthy animals)
- Iowa State:
 - PBL-hybrid class in 1st 4 semesters which includes fake patients with problems
 - Communications skills class taught by counselors, not vets

Past work on interactions

IMPROVING INTRA- AND INTER-SPECIES TECHNICAL COMMUNICATION

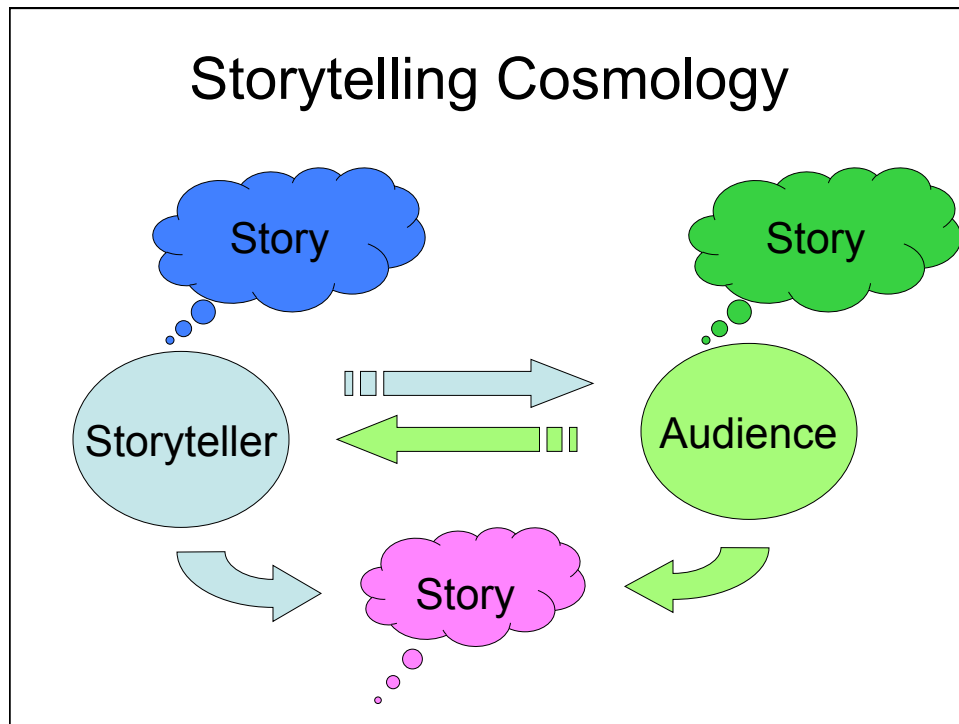
SysAdmin, Stories and Signing: **Learning from Communication Experts**



David N. Blank-Edelman
Northeastern University CCIS
LISA2002

Stories are Good for...

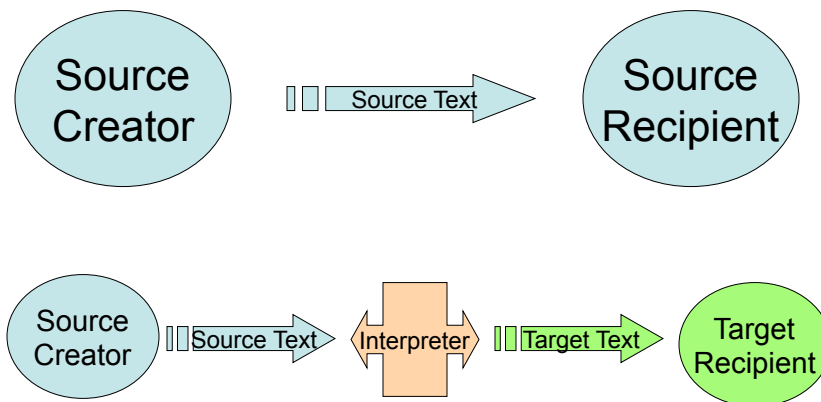
- Describing sequential or related events
- Making diverse information coherent
- Being a credible conduit for information
- Passing on lessons or exhortations
 - Frozen stories
 - Stories with a specific lesson/moral
 - Stories with a lesson the listener must find
- Fulfilling a number of social roles:
 - Establishing membership in a community
 - Establishing an individual's identity
 - Establishing a community's identity (shared interpretations)
- Making experience reproducible and reusable (safely)



Nice PowerPoint-fu, but what does it mean?

- This is a real-time process
- You are not the story, but don't isolate it within yourself
- The storyteller creates the story *in the members of the audience*
- Storytelling is a negotiation
 - The storyteller creates and manages a set of expectations
 - You can violate them, but you must do it in a safe way
- The storyteller must honor the two-way contract that has been created

Interpretation Cosmology



Skopostheorie

- *skopos* == purpose
- Hans J. Vermeer's translation theory
- Function over direct equivalence
- "Dethroning" of source text (*Entthronung*)

Like any text, a text used as a source in a translational action may be regarded as an 'offer of information.' ... Faced with this offer, any receiver (among them, the translator) choose the items they regard as interesting, useful or adequate to the desired purposes...a translation is thus a new offer of information in the target culture about some information offered in the source culture and language.

(Nord, citing Reiss and Vermeer)

Interpretation

Interpretation is

the competent and coherent use of one naturally evolved language to express the meanings and intentions conveyed in another naturally evolved language for the purpose of negotiating an opportunity for successful communicative interaction in real time within a triad involving two principal individuals or groups who are incapable of using, or who prefer not to use, the language of the other individual or group. (Cokely)

Past work on interactions

**UNDERSTANDING THE EXTERNAL
PERCEPTION OF SYSTEM
ADMINISTRATORS**

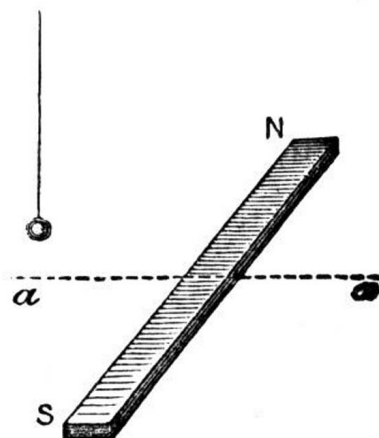
Through the Lens Geekly: How SysAdmins Are Portrayed in Pop Culture

David N. Blank-Edelman
Northeastern University CCIS
LISA 2003



The Three Stereotype Polarities

- Competence
- Morality
- Hipness



Past work on interactions

EXPLORING THE DEBUGGING PROCESS FOR COMPLEX SYSTEMS

System Administration and Sex Therapy:

The Gentle Art of Debugging

David N. Blank-Edelman
Northeastern University CCIS
LISA 2004



Why SysAdmin & Sex Therapy?

- Draws a crowd, no?
- Our debugging tasks are getting harder
- Debugging is not just binary
- Two fields share a few things in common:
 - complex systems without authorship or control
 - “Should just work”



Our Debugging Tasks are Getting Harder

- Tendency towards complex and distributed dependency
- Don't control all of the parts and we haven't written all of the software
- Source code availability increasing...but the level it helps is decreasing



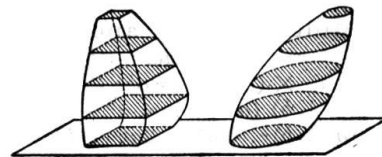
Sex Should “Just Work”

1. All other couples have sexual intercourse several times a week.
2. Sex for all other couples includes orgasm on every occasion.
3. All other couples are able to obtain orgasm simultaneously.
4. If sex is not good then there must be something wrong with the relationship generally.
5. Partners should instinctively know what type of stimulation their partner needs.
6. If a partner does not respond sexually to his/her partner then he/she does not find the partner sexually attractive.

(Spence, 1991)

Relational Approach (Flemons & Green)

- Focused on shifting relationship between things (e.g. clients, clients and their problems)
- Efforts at negation only serve to heighten [a problem's] significance, problems are not localizable or transformable *things* in a particular person/part
- Relationships are most viable when the *relata* are free to change or stay stable *in coordination* with each other



Past work in interactionss

**DOCUMENTING COMPLEX
MULTIVARIATE PROCESSES SO NOVICES
CAN REPEAT THEM**

+

**PERFECT AND CONTINUOUS
FUNCTIONING IN HIGH-PRESSURE
TEAM SITUATIONS**



Why Cooking is Hard

"To make a fine sauce, you can't just follow the recipe exactly, it's never exactly the same, so you always have to adjust. But that takes experience," he says.

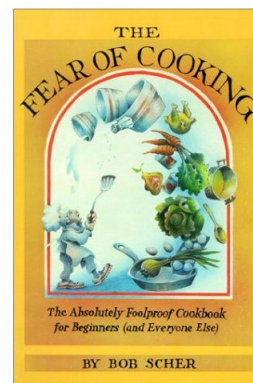
"Do you need to add a touch of port to it, add a few more beets to the Bordelaise, reduce it down a bit to achieve a deeper, richer color? There are different things you need to adjust each time to make a sauce consistent. *You don't achieve consistency just by doing it the same way every time.*"

—Terrance Brennan in *Culinary Artistry* (emphasis mine)

Why Cooking is Hard

(Bob Scher)

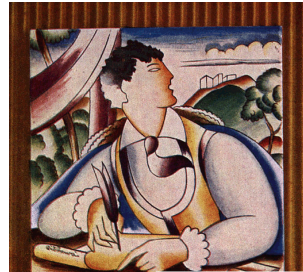
- You aren't cooking.
 - At best, managing the conditions
- Number of variables are huge:
 - the weather, the season, the cook's disposition and mood, the quality and state of the ingredients, the equipment, altitude, etc.
- Cooking is very rarely a linear process.



Why Writing about Cooking is Harder

(Lorna Sass)

- You never make the same food twice.
- Really describing how to make a dish would scare readers.
- People no longer use common sense when cooking so you have to be more precise.
- Hard to write good instructions (requires repeated crossing of left/right brain divide).



Testing Recipes (the ATK Way)

1. Research, yield 5-7 recipes
2. Kitchen test all recipes to determine variables, important attributes, goals
3. Start to test each variable, one at a time (several weeks, 40-50 tests)
4. Find final candidate, approved by Test Kitchen director
5. Sent out to professional recipe tester, writes up formal report
6. Sent to “friends of Cooks” (1000-2000 people, 50-200 responses), sent back to #3?

What Do You Need to Be A Line Cook in Their Kitchen?

- Chef Lynch says:
 - Urgency
 - Ability to take direction
 - Cleanliness
 - Precision
 - Food know-how
 - Initiative



What Do You Need to Be A Line Cook in Their Kitchen?

- Chef McClelland adds:
 - Focus
 - Dedication to craft/willingness to succeed in environment
 - Accepting the contract: will be professional, will chase perfection on a daily basis
 - Willingness to realize not an individual, work in unison/rhythms
 - Willingness to jump in to help
 - Ability to receive new information and produce with it



Mise En Place

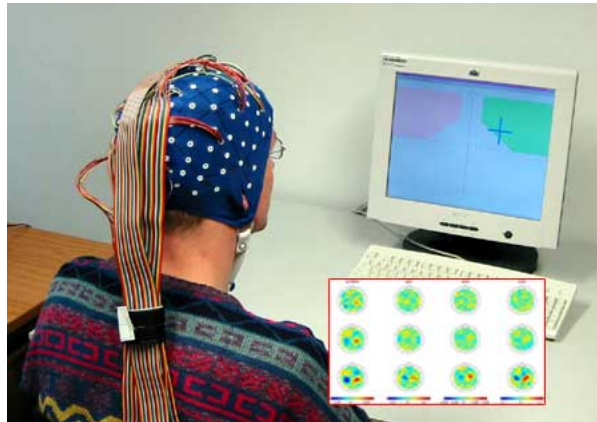
“Everything in place”

- Physical
 - All food prepared and ready to cook
 - All sauces and garnishes
 - Cooking foods (oils, salts, etc)
 - Utensils/Equipment
 - Towels
- Arrangement
- Lynch: no cutting during service, only one slicing thing out if it is called for
- Team prepared at No.9 Park and L’Espalier, special highly trained chefs all day at L’Espalier

Working Clean

- McClelland: Clean as you go. Clean between tasks. Keeping yourself (apron, floor, cutting boards/knives) clean.
- Lynch: Start project, finish project (total focus).
- Why?
 - Clears your brain
 - Helps prepare for next task, clearing out the last
 - You are “working organized”
 - Ultimately saves time
- Bourdain recalls...

Interfaces



United States
Change

Microsoft
Help and Support

Help and Support Home
Select a Product
Advanced Search

Computer Randomly Plays Classical Music

View products that this article applies to.

This article was previously published under Q261186

Article ID : 261186
Last Review : March 27, 2007
Revision : 3.3

SUMMARY

During normal operation or in Safe mode, your computer may play "Für Elise" or "It's a Small, Small World" seemingly at random. This is an indication sent to the PC speaker from the computer's BIOS that the CPU fan is failing or has failed, or that the power supply voltages have drifted out of tolerance. This is a design feature of a detection circuit and system BIOSes developed by Award/Unicore from 1997 on.

MORE INFORMATION

Although these symptoms may appear to be virus-like, they are the result of an electronic hardware monitoring component of the motherboard and BIOS. You may want to have your computer checked or serviced.

For additional related information, please see the following DFI Technologies Web site:

<http://www.dfiusa.com/support/tech-support.html>

Microsoft provides third-party contact information to help you find technical support. This contact information may change without notice. Microsoft does not guarantee the accuracy of this third-party contact information.

APPLIES TO

- Microsoft Windows 2000 Server
- Microsoft Windows 2000 Professional Edition
- Microsoft Windows 95
- Microsoft Windows 98 Standard Edition
- Microsoft Windows 98 Second Edition
- Microsoft Windows NT Server 4.0 Standard Edition

[Back to the top](#)

Article Tra

Arabic

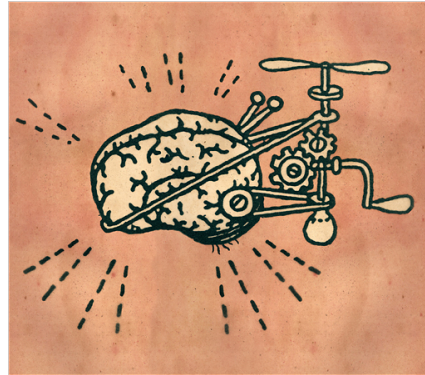
Related S

Other Su

Page Toc

Why is SysAdmin Hard (meta)

- Translation between vague human needs and the tech world
- People-Machine boundary
 - Make people more like machines
 - Make machines more like people



Prediction: The CAPTCHA spam arms race will lead to the creation of A.I.

Are you human? Please answer this question:

~~DESCRIBE~~ what ~~LOVE~~
feels like IN 200 words.

WellingtonGrey.net

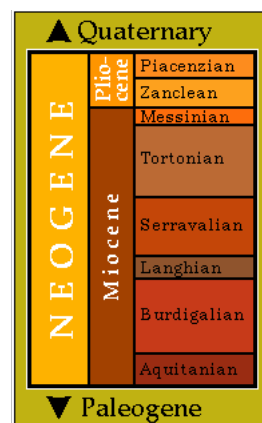
What Are We Up Against Now

- Human Weaknesses
 - Memory
 - Complexity
 - Systems understanding (mental modeling)
 - Communication
 - Slant



Epochs

- CLI
- GUI
- Automation
- Config mgmt



Command line

- Information sparse
- Leads to:
 - Terse and “efficient” communication
 - Mental vs. visual abstraction (regex, globbing)
 - Leveragable/building block work
 - Specific learning curve with very few affordances
 - High accessibility
- Very small experiential difference between user and system administrator
- Most sysadmins dig this approach

```
tc qdisc del dev $ETH root 2>&1 > /dev/
null
tc qdisc add dev $ETH root handle 1: htb
default 2

tc class add dev $ETH parent 1: classid
1:1 htb rate 1000mbit
tc class add dev $ETH parent 1: classid
1:2 htb rate ${RESTRICTMEGABITS}mbit

tc filter add dev $ETH protocol ip parent
1: prio 1 u32 match ip dst 129.10.0.0/16
flowid 1:1
tc filter add dev $ETH protocol ip parent
1: prio 1 u32 match ip dst 155.33.0.0/16
flowid 1:1
```

From: "MacZOT Team support-at-maczot.com IMacZot!" <jek5j6yei0t@sneakemail.com>
 Subject: **CommandCenter - System Administration Made Easy!**
 Date: August 27, 2008 3:02:11 AM EDT
 To: dnb@ccs.neu.edu
 Reply-To: "support-at-maczot.com IMacZot!" <jek5j6yei0t@sneakemail.com>

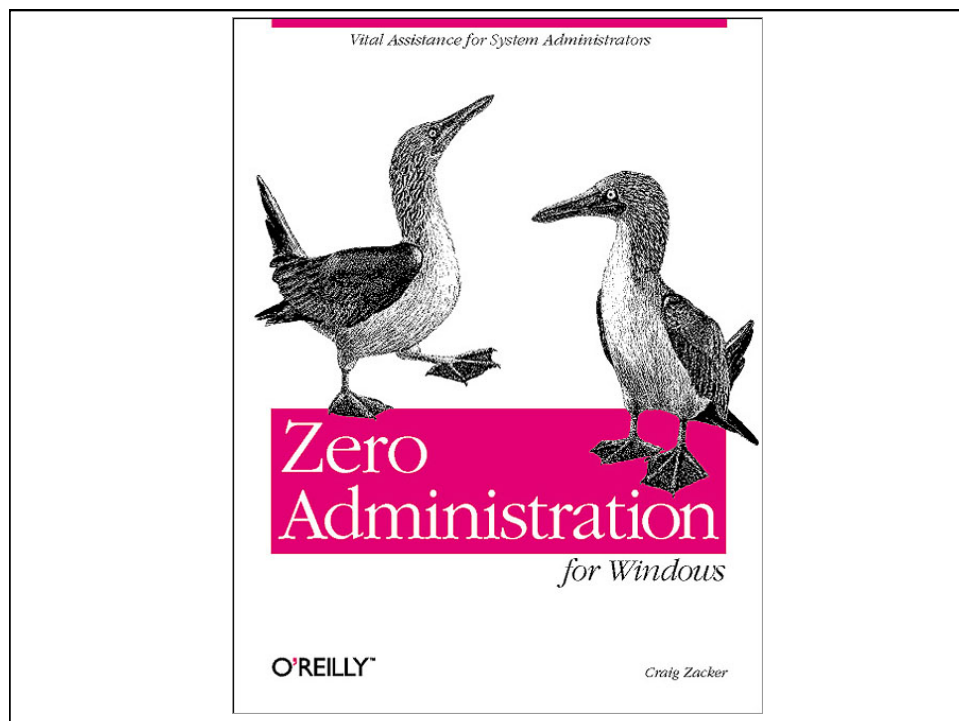
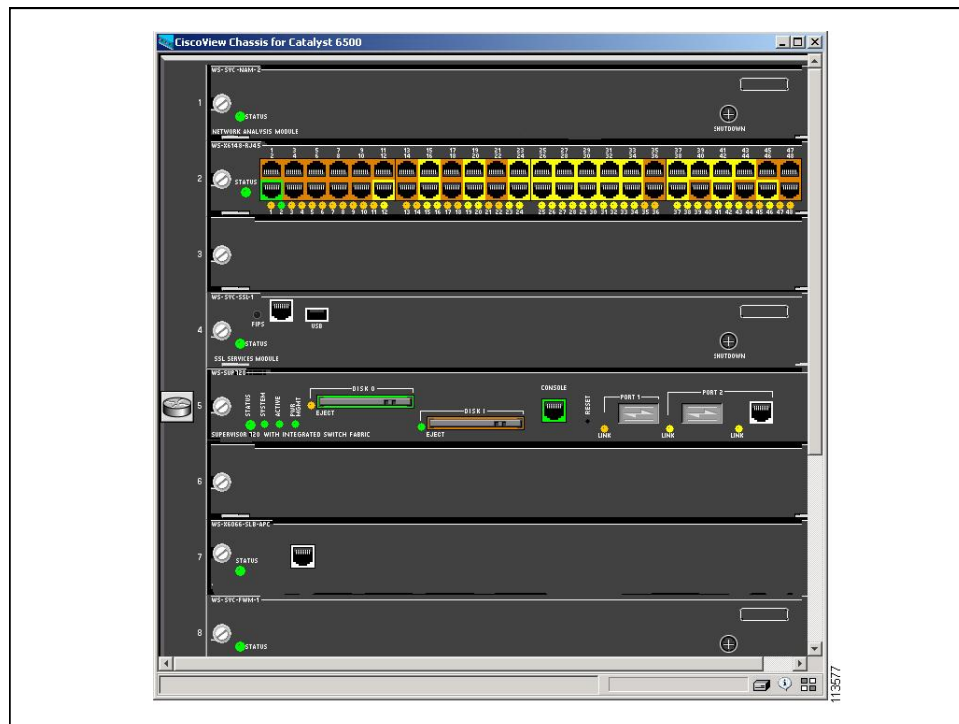


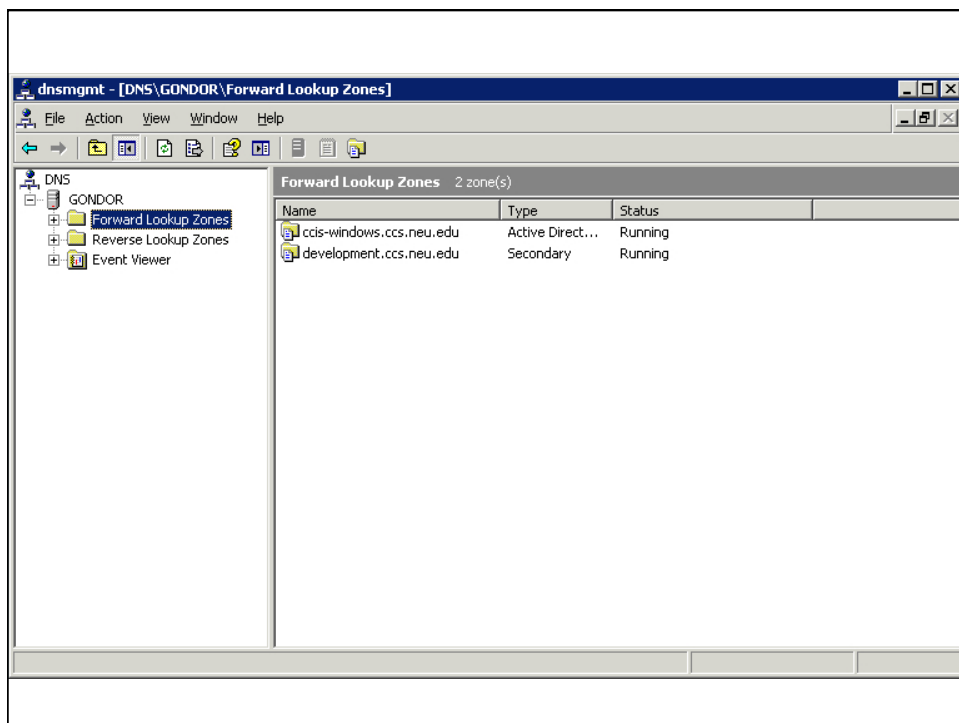
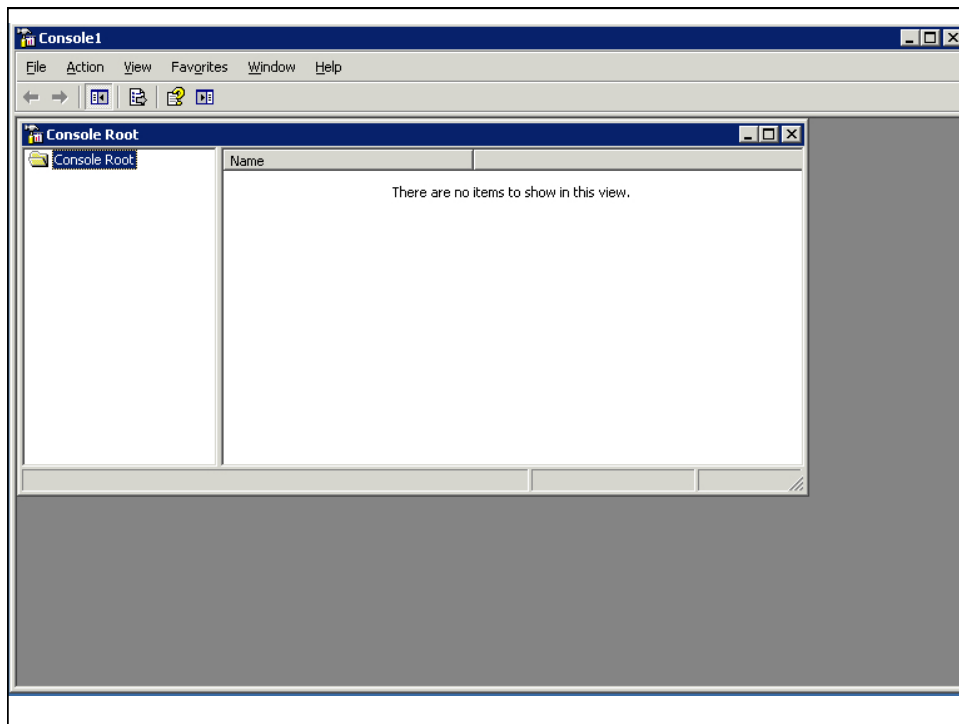
The advertisement features a green background with the "macZOT!" logo in blue and green. On the left, a vertical sidebar contains the text "TODAY CONTACT FAQ MY ACCOUNT". The main content area displays "CommandCenter 1.0.9" with the tagline "Scripts Unlimited". Below this is a screenshot of the CommandCenter application window, which shows a list of hosts on the left and a list of scripts on the right. The scripts include "Optimize", "Check space usage", "What's online", "Last users w/ head", "Schedule reboot in 15 minutes", "Schedule shutdown in 3 minutes", "Script to check general health", and "Web server report generation script". To the right of the screenshot is a red Swiss Army knife icon with a "\$>" symbol next to it. Below the knife are "Try" and "Buy" buttons. Further down, the pricing is listed: "Retail Price: \$ 29.95", "ZOT Price: \$ 18.00", and "Save: 40% Now". At the top right of the main content area, it says "Did you win today?".

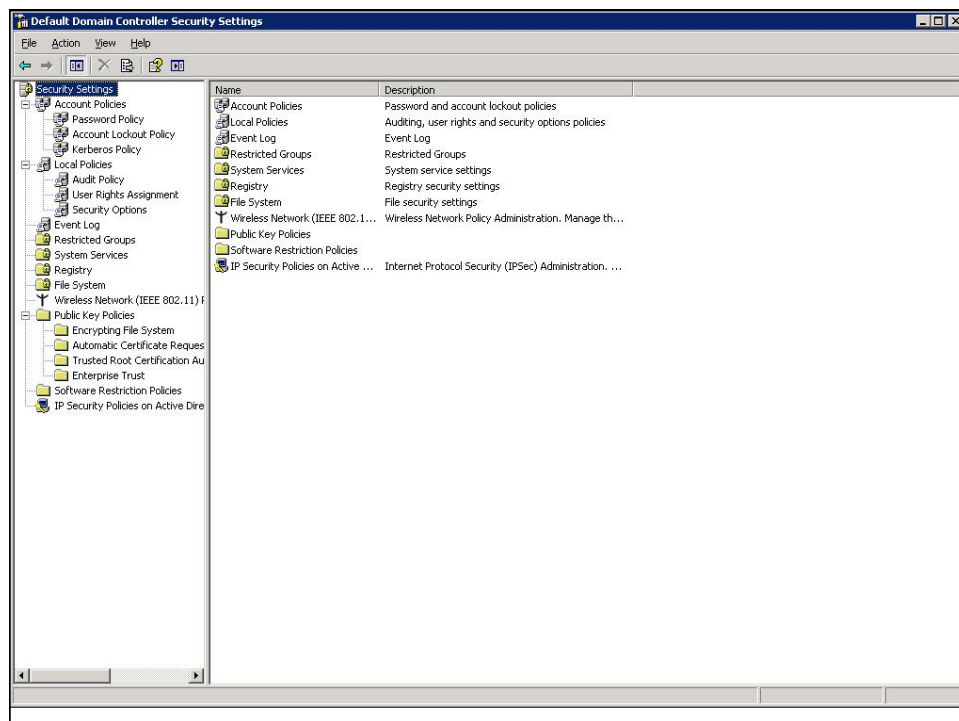
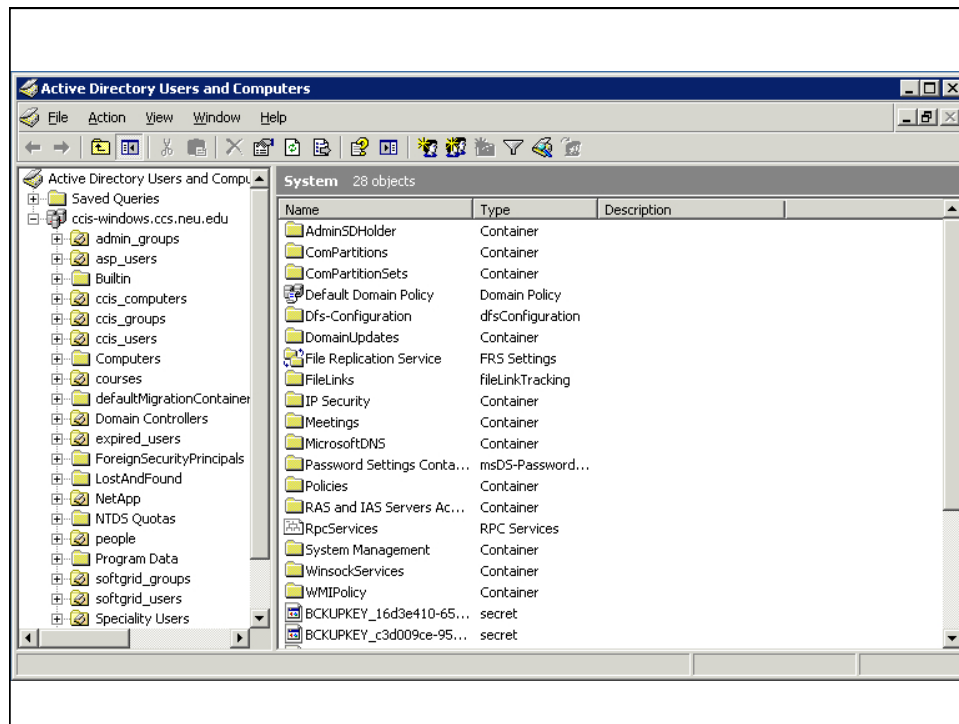
GUI

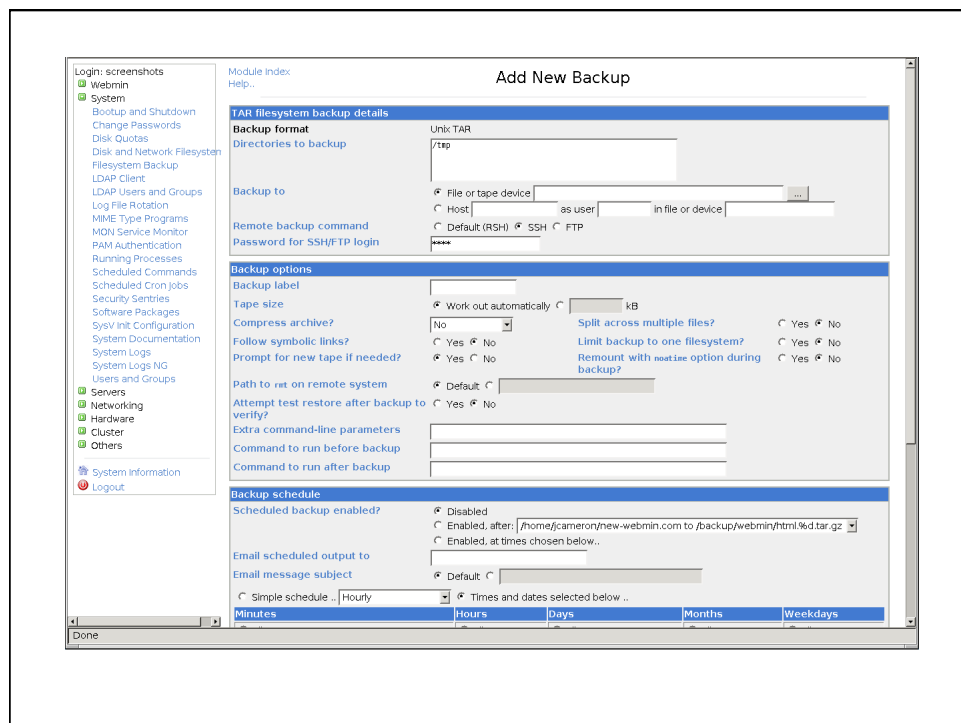
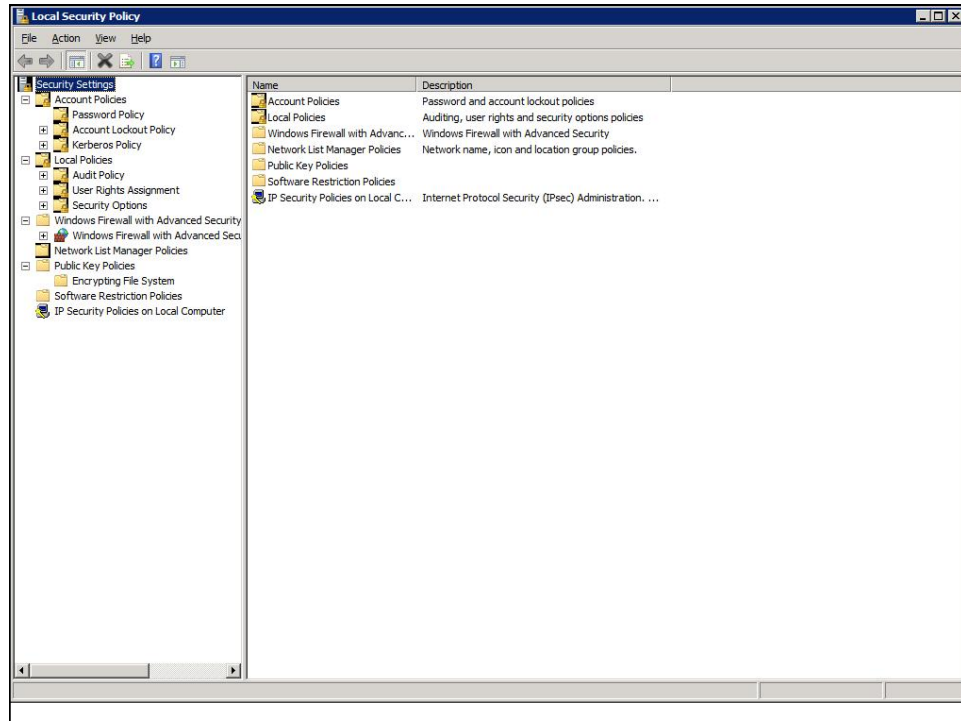
- Move from one kind of abstraction to another
- Stick with examples from my history
- Not going to do an extensive historical survey
- Evolution











Automation

- (current) GUIs do a bad job with:
 - Collections and Selection
 - Repetition
 - Specifying complex actions
- Scripting languages
- Knit together tools
- Fairly mature
- Powershell

Perils of Automation



Configuration Management

- Next step up is config management
- Still working out what this means (host, network, router, package, abstraction...)
- Acknowledge need to get away from low level in order to scale
- Maybe toddler age
- Next wave? Autonomic computing?

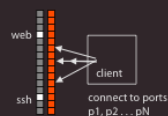
Port Knocking in Practice



STEP 1

Knocking Phase

client knocks on
N closed ports



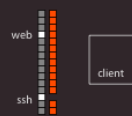
no data sent back to client

client *a priori* cannot tell
whether knocking
daemon is listening

STEP 2

Firewall Rule Relaxation

server responds to
authentic knock



daemon opens ssh port
to client IP for 30 minutes

response to knock completely
arbitrary (e.g. disallow second
identical port knock attempt)

STEP 3

Client Starts Session

client connects and
authenticates with application



client connects to ssh
and authenticates with
system password

WCSE 2003

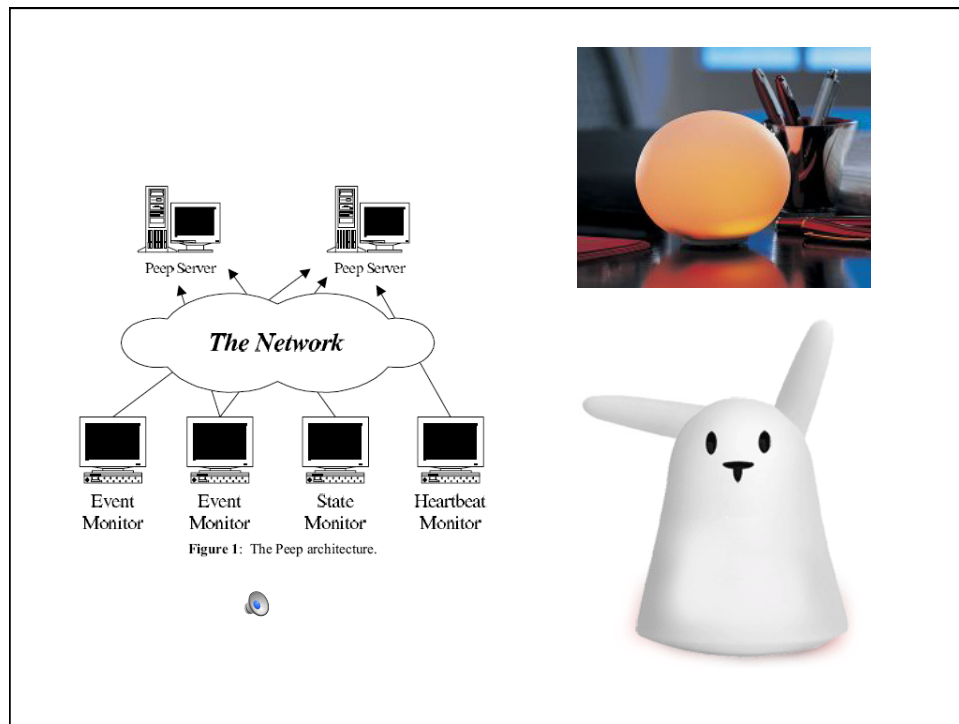
17 November 2003

Martin Krzywinski (martink@bcgsc.ca)

portknocking.org

18

Source: www.portknocking.org/docs/wcsf2003.pdf, used with permission



Two New Interesting Interfaces

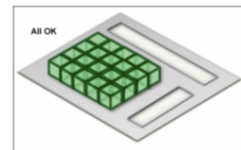
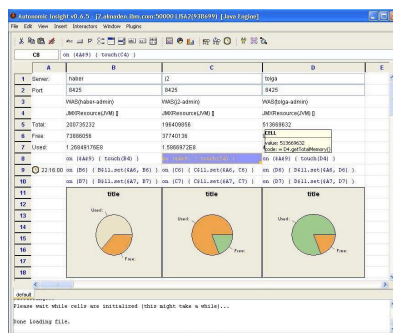


Figure 4: No Problems in the System

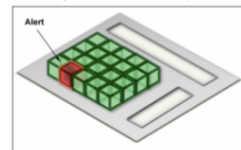


Figure 5: Alert in Site B

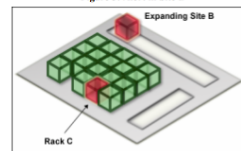
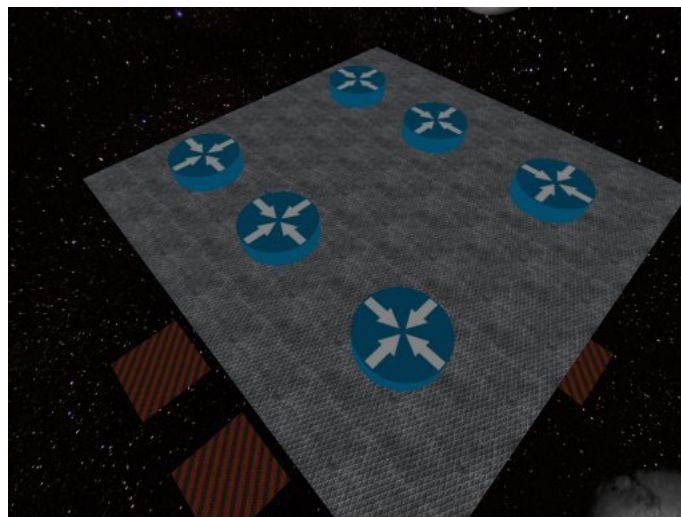


Figure 6: Expanding site B to find a problem in Rack C



psDoom



L3DGEWorld

CHIMIT, You're Our Only Hope

- Distributed apps
- Systems/web services
- Cloudcuckooland (Cloud computing)
- Virtualization
- Ubitquity

