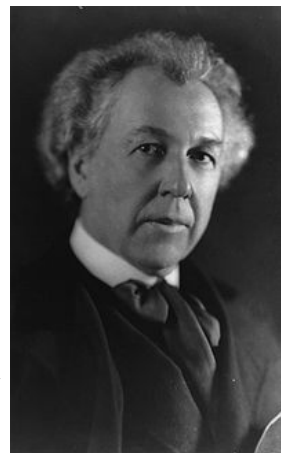


Frank Lloyd Wright was Right

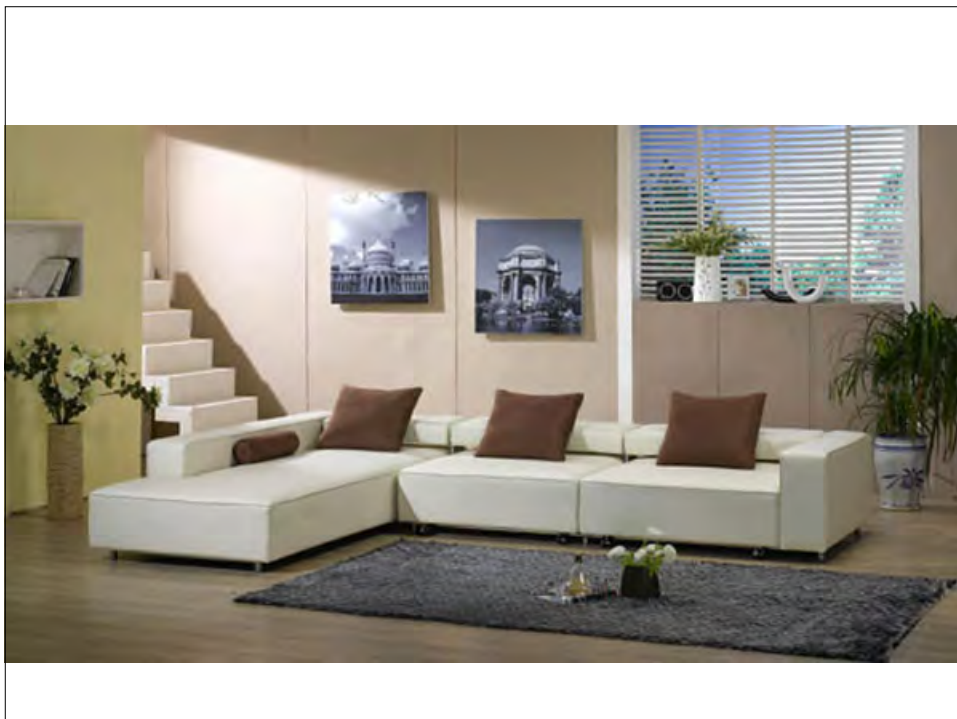
Reflections on Architecture,
Computer Security,
Risk and Investments

Frank Lloyd Wright (1867-1959)

- Architect
- Curmudgeon
 - BAFH
- High School Dropout
- University Dropout
- Art Dealer, Philanderer, Fraud
- Genius



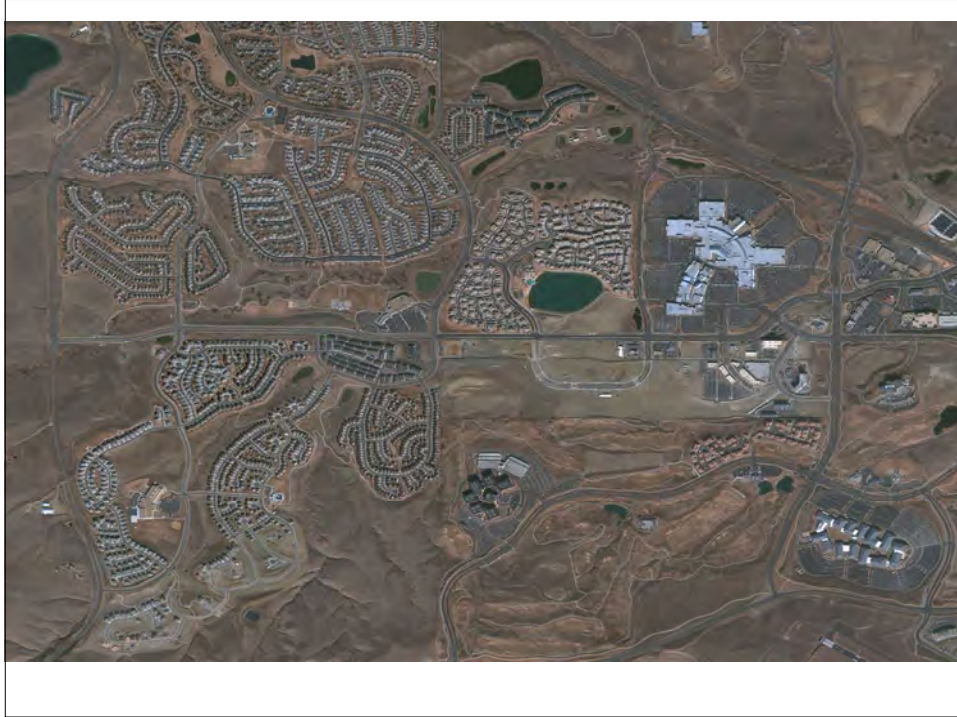
Le Corbusier











Taliesen (1911)

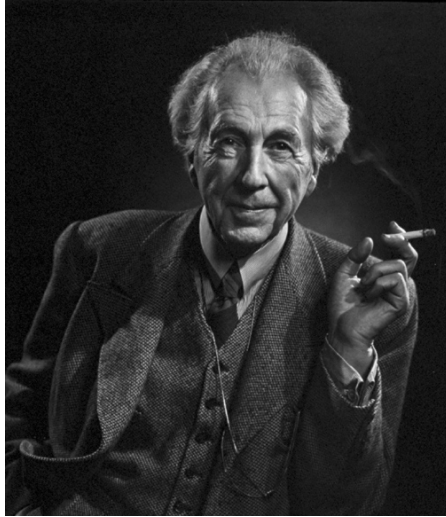


Florida Southern College (1938)



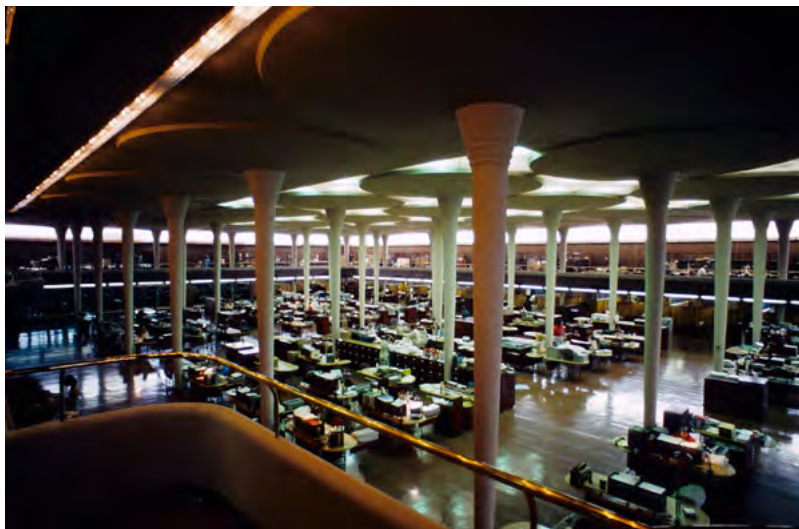
Fallingwater (1934)

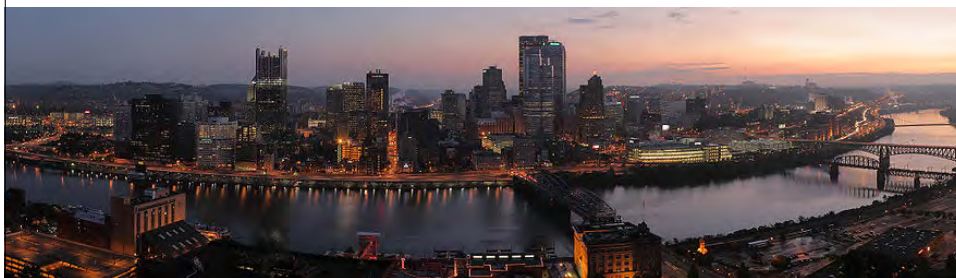




Early in life I had to choose between honest arrogance and hypocritical humility. I chose the former and have seen no reason to change.

Johnson Wax Headquarters (1939)

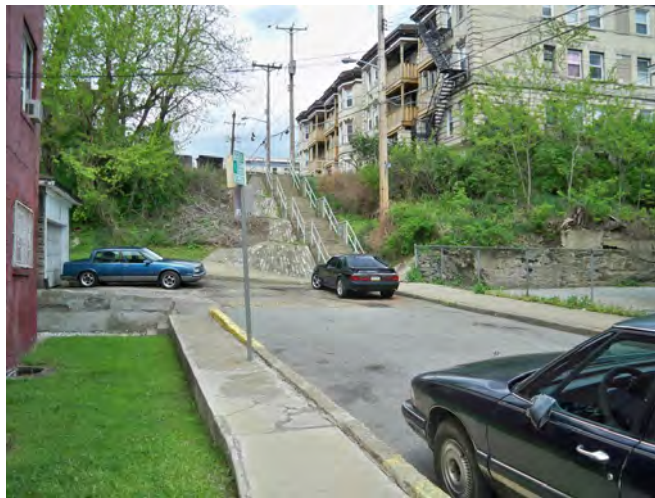




Hell With The Lid Off



Louisa St.





Downing St.



Harding Way



Orion St.



Toboggan St. & Rising Main St.



Vinecliffe St.



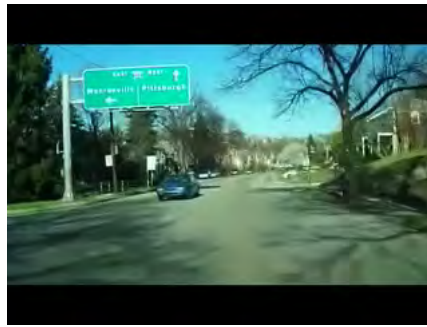
Sycamore St.



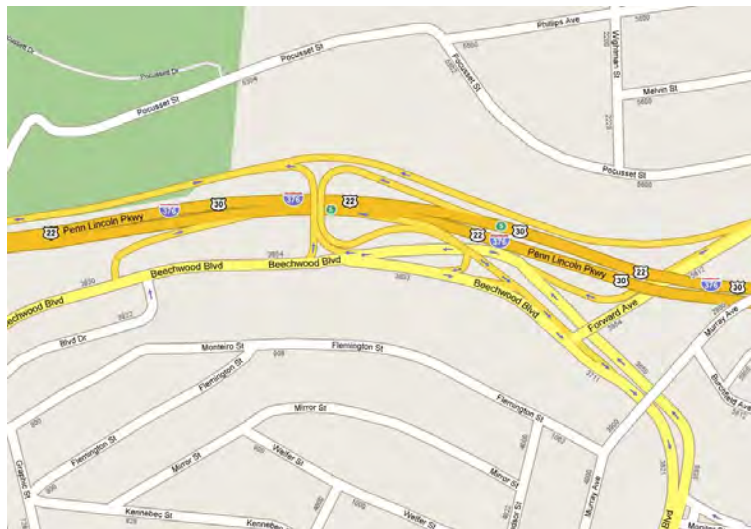
Interstate 376



Interstate 376



Interstate 376



Topography



City Fathers: What do you think?

Frank: I liked it better when I couldn't see it.

City: Okaaaay... What should we do?

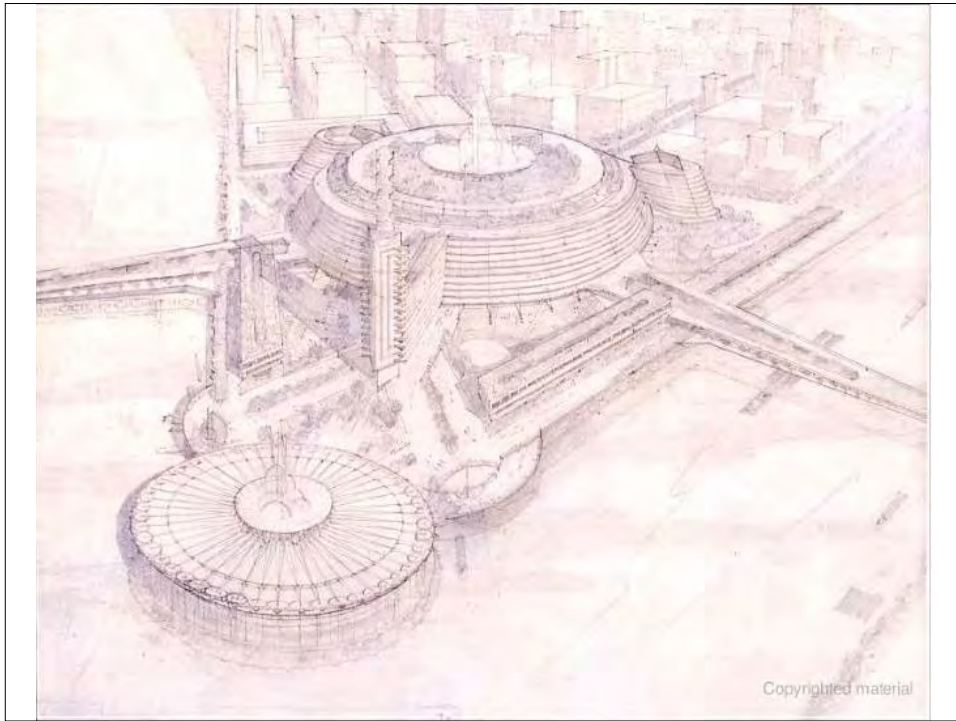
Frank: Raze it and start over!

Raze It and Start Over?

- Never gonna happen
- Too expensive
- Too inconvenient
- They'll find a way to fix it

- **We'll never be unemployed**





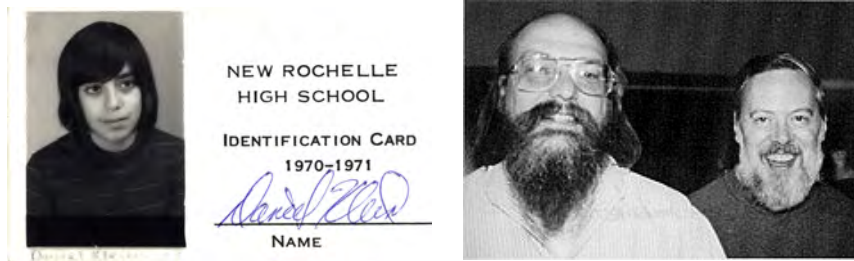
History

- Frank Lloyd Wright died 50 years ago [1959]



History

- Frank Lloyd Wright died 50 years ago [1959]
- ARPANet was born 40 years ago [1969]
- Unix created 40 years ago [1969]



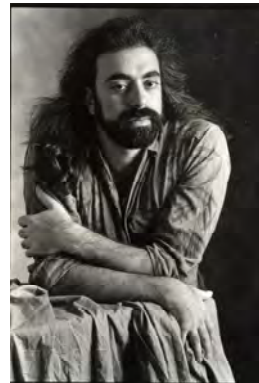
History

- Frank Lloyd Wright died 50 years ago [1959]
- ARPANet was born 40 years ago [1969]
- Unix was born 40 years ago [1969]
- I start using Unix [1976]



History

- Frank Lloyd Wright died 50 years ago [1959]
- ARPANet was born 40 years ago [1969]
- Unix was born 40 years ago [1969]
- I start using Unix [1976]
- Macintosh released 25 years ago [1984]
- Morris Worm released 21 years ago [1988]
- Windows 3.0 released 20 years ago [1989]
- First WWW Conference 15 years ago [1994]
- Linux 1.0 released 15 years ago [1994]



History

- Frank Lloyd Wright died 50 years ago [1959]
- ARPANet was born 40 years ago [1969]
- Unix was born 40 years ago [1969]
- I start using Unix [1976]
- Macintosh released 25 years ago [1984]
- Morris Worm released 21 years ago [1988]
- Windows 3.0 released 20 years ago [1989]
- First WWW Conference 15 years ago [1994]
- Linux 1.0 released 15 years ago [1994]
- Thompson & Ritchie: National Medal of Technology [1999]
- Google [1999]
- My mother embraces email 10 years ago [1999]



We're In Deep Kimchee

- Viruses
- Worms
- Trojans
- Keyloggers
- Botnets
- Phishing
- Phlashing
- Spam
- SQL Injection
- Phone viruses!
- Internet
- Intranet
- LAN
- WAN
- PAN
- Bluetooth
- RFID
- GPRS
- Pacemakers!
- Active Infiltration
- Cyberterrorism

RFID as a Malware Vector

- RFID can spread viruses & worms
<http://www.rfidvirus.org/>
- Classic attacks
 - Buffer overflow
 - SQL injection
- My cats have an RFID chip...

Well, that's hard to do, right?



Best Company Name *Ever!*

Registrering og tinglysing Produkter og tjenester Om Brønøysundregistrene

Oppslag i registrene

Nøkkelopplysninger fra Enhetsregisteret

Organisasjonsnummer:	979 829 299
Navn/foretaksnavn:	','UPDATE TAXRATE SET RATE = 0 WHERE NAME = 'EDVIN SYSE'
Organisasjonsform:	Enkeltpersonforetak
Forretningsadresse:	Stokkegaten 10 3112 TØNSBERG
Kommune:	TØNSBERG
Postadresse:	-
E-postadresse:	-
Internettadresse:	-
Telefon:	-
Mobil:	-
Telefaks:	-
Registrert i Enhetsregisteret:	07.05.1998
Stiftelsesdato:	-
Innehaver:	Edvin Syse
Næringskode(r):	30.020 Prod. av datamaskiner og annet databehandlingsutstyr
Sektorkode:	790 Personlig næringsdrivende
Også registrert i:	Foretaksregisteret

Utskrifter, attester, kopier m.m.
Abonnement og Web Services
Oversikter og lister
Jegeravgiftskort
Kurs, seminarer, bedriftsbesøk
Brosjyrer og annen trykt informasjon
Statistikk
Gebyrer

RBAC

Where Am I?

20 developers

15 timezones

- I have an HTML page
- that was built using SSI → Apache Sandboxes
Auto-recompile
- that has a <FORM>
- the invokes a CGI Query → Session Keys
MVC MySQL
- that runs a Perl script
- (that uses **Template::Toolkit**) → Caching Class DBI
- to create an Ajax response → Selective JS Upload
- (in a frameset) dev, test, beta, RFS, stage, demo, prod
- that updates a <DIV>
- that invokes some Javascript → jQuery
Dynamically generated
- (with onLoad, of course)
- that triggers an asynchronous timeout event
- that redraws the page by changing the CSS

We have technological ADD

This is “normal” coding practice

Yahoo 1999

The image shows a screenshot of the Yahoo! homepage from 1999. At the top, the word "YAHOO!" is written in its characteristic red, bold font. Below the logo, there are several navigation links and advertisements. On the left, there are links for "South Park" and "Movie Trailer". In the center, there is a banner for "Yahoo! Pager" with the text "now works with chat". On the right, there is a link for "Yahoo! Pager" with the text "instant messaging". Below these, there is a search bar with the text "Search" and "advanced search".

Below the search bar, there is a section for "Yahoo! Auctions" with the text "100,000's of items to bid on" and "Star Wars, Pokemon, Hot Wheels...". Below this, there is a list of links for "Shopping", "Yellow Pages", "People Search", "Maps", "Travel Agent", "Classifieds", "Personals", "Games", "Chat", "Email", "Calendar", "Pager", "My Yahoo!", "Index", "News", "Sports", "Weather", "TV", "Stock Quotes", "more...".

The main content area is divided into several columns of links. The first column includes "Arts & Humanities", "Business & Economy", "Computers & Internet", "Education", "Entertainment", "Government", and "Health". The second column includes "News & Media", "Recreation & Sports", "Reference", "Regional", "Science", "Social Science", and "Society & Culture". The third column includes "In the News", "Marketplace", and "Inside Yahoo!".

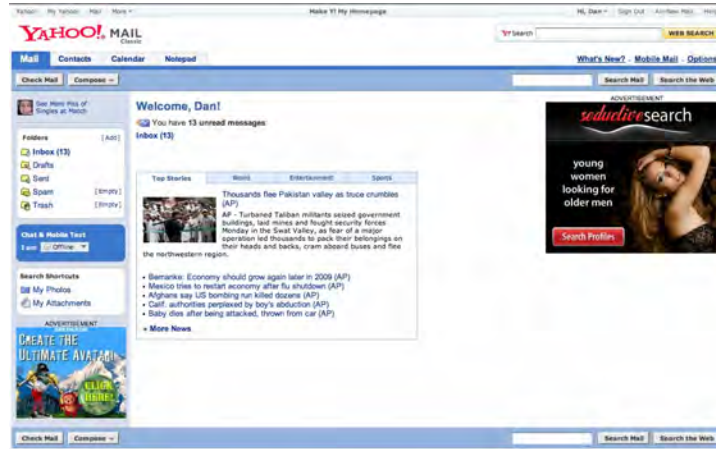
At the bottom of the page, there is a section for "World Yahoo!" with links for "Europe", "Denmark", "France", "Germany", "Italy", "Norway", "Spain", "Sweden", "UK & Ireland", "Pacific Rim", "Australia & NZ", "HK", "Japan", "Korea", "Singapore", "Taiwan", "Asia", "Chinese", "America", "Canada", "Spanish". Below this, there is a section for "Yahoo! Get Local" with links for "LA", "NYC", "SE Asia", "Chicago", "more...". There is also a "Enter Zip Code" field.

At the very bottom, there is a section for "Other Guides" with links for "Autom", "Computers", "Employment", "Local Events", "Not Events", "Message Boards", "Movies", "Music", "Real Estate", "Small Business", "Site & Search", "TV", "Internet Link", "Yahoo! Local".

At the bottom right, there is a link for "Yahoo! Local" with the text "1999".

At the bottom left, there is a link for "Help us Suggest a Site" with the text "Comments", "Info", "Privacy Policy", "Contributions", "Directions at Yahoo!".

Yahoo 2009



Copyright © 1999-2009 Yahoo! Inc. All rights reserved. Terms of Service | Copyright Policy | Customer Feedback | The Yahoo! network of companies and services | Privacy Policy

Lycos 1999



Copyright © 1999 Lycos, Inc. All Rights Reserved. Lycos is a registered trademark of Carnegie Mellon University. The Lycos logo is a trademark of Lycos, Inc. and/or its affiliates. All other trademarks are the property of their respective owners.

Lycos 2009



“Form Follows Function”... that has been misunderstood. Form and function should be one, joined in a spiritual union.

Frank Lloyd Wright

Google 1999



Search the web using Google

[Google Search](#) [I'm feeling lucky](#)

[More Google!](#)

Copyright ©1999 Google Inc.



Google 2009



[Google Search](#) [I'm Feeling Lucky](#)

[Advanced Search](#)
[Preferences](#)
[Language Tools](#)

[Advertising Programs](#) - [Business Solutions](#) - [About Google](#)

©2009 - [Privacy](#)

K.I.S.S.

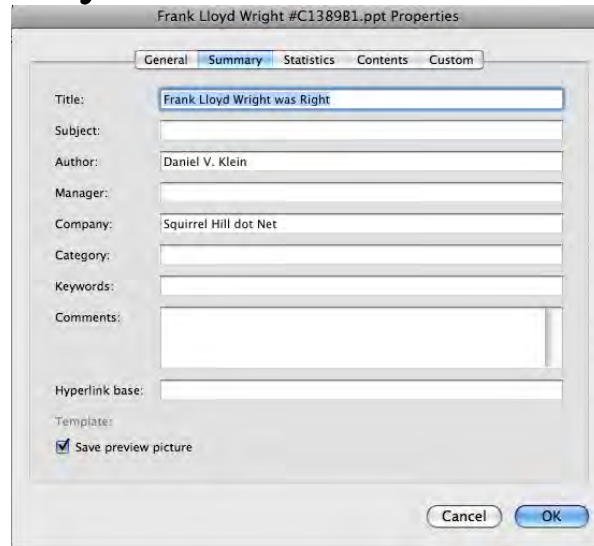
- The United States Internal Revenue Service code is codified in 26 USC
- Tax Exempt Status is defined in Subtitle A, Chapter 1, Subchapter F, Part I, §501, ¶(a)
 - Also called 501(a)
- 501(b) discusses taxation of tax-exempt groups
- 501©1 through 501©28 lists specific criteria
- 501® discusses non-exemption of Communist Controlled organizations

How Can I Fix That?

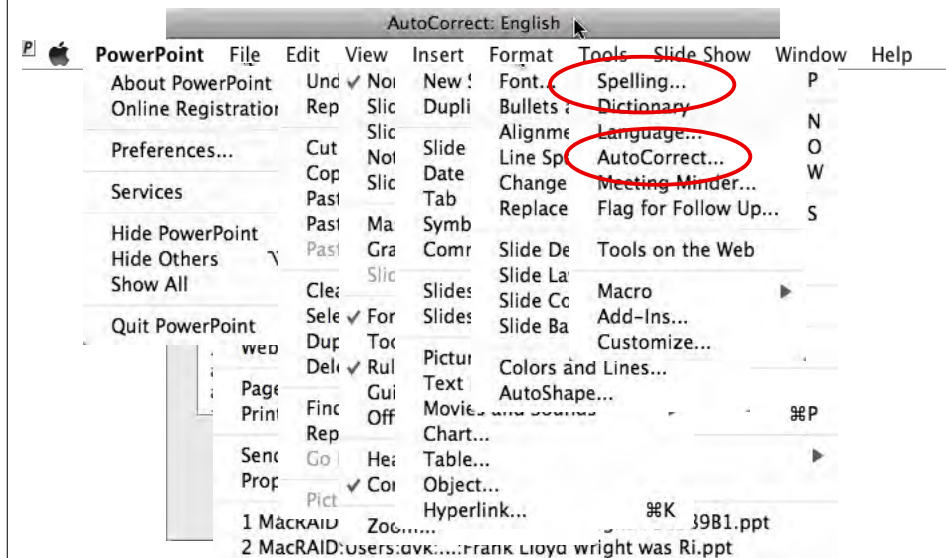
- Pr



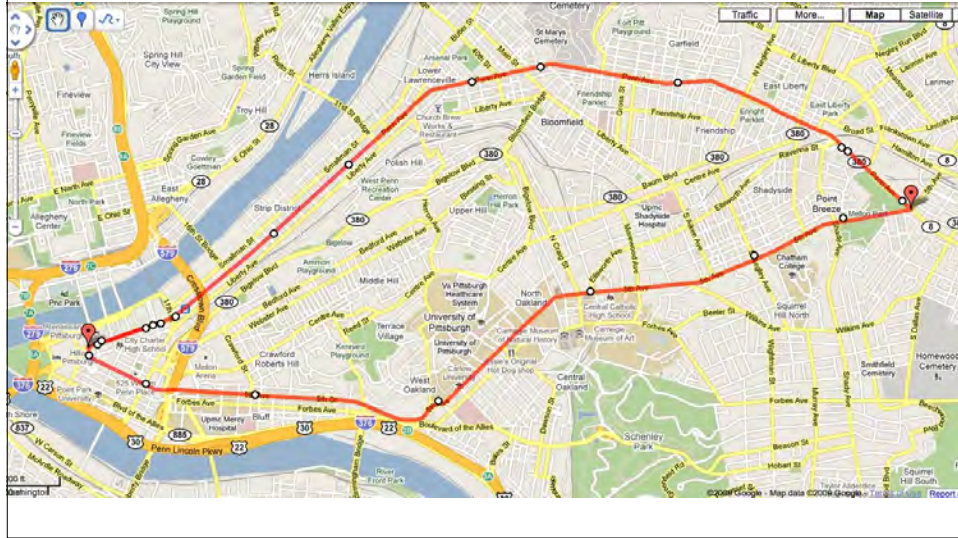
Okay, How Can I Fix That?



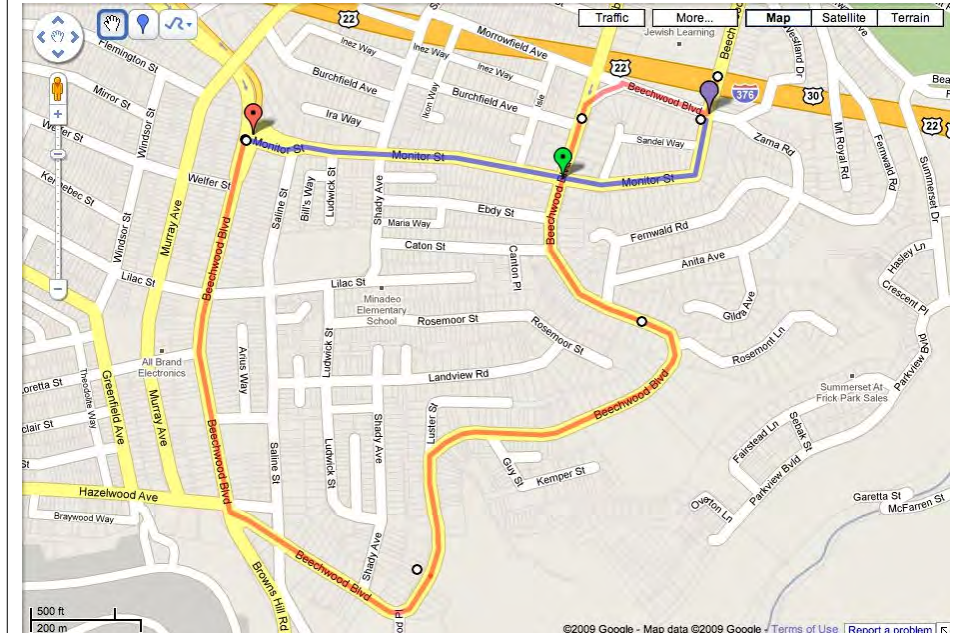
No, Really, I Want to *Fix That!*



Fifth Ave & Penn Ave



Beechwood Blvd & Monitor St



K.I.S.S.

- Keep It Simple, Stupid
- Keep it Simple for **Security**
- Keep it Simple for **Safety**
- Keep it Simple for **Sanity**

Less is only more
when more is no good.

Frank Lloyd Wright

It'll only get worse: Moore's Law



Why does this happen?



Why does *this* happen?



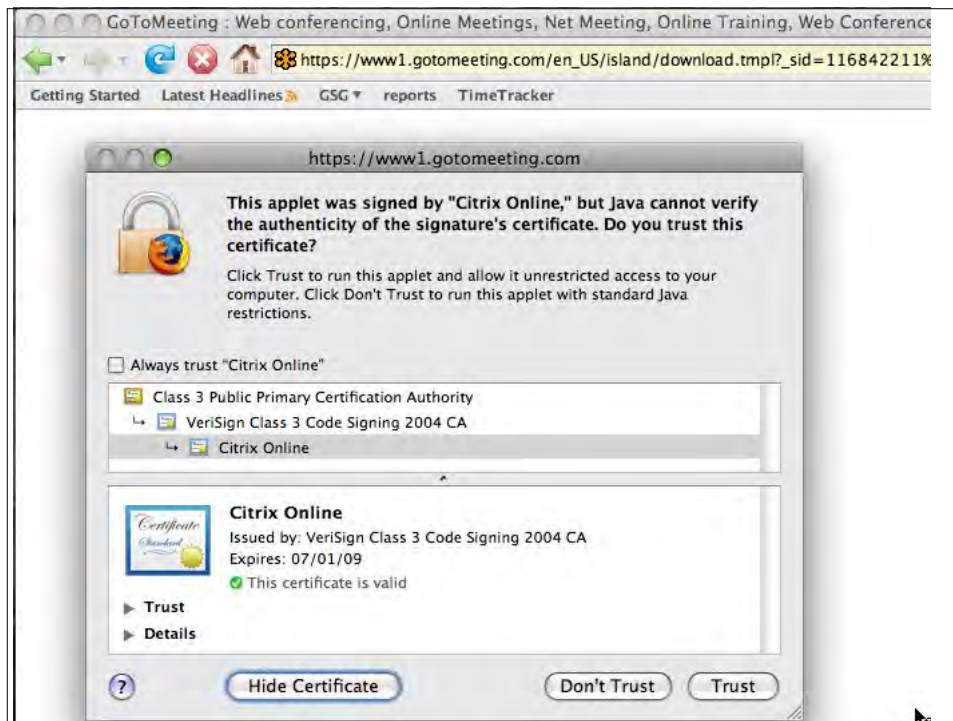
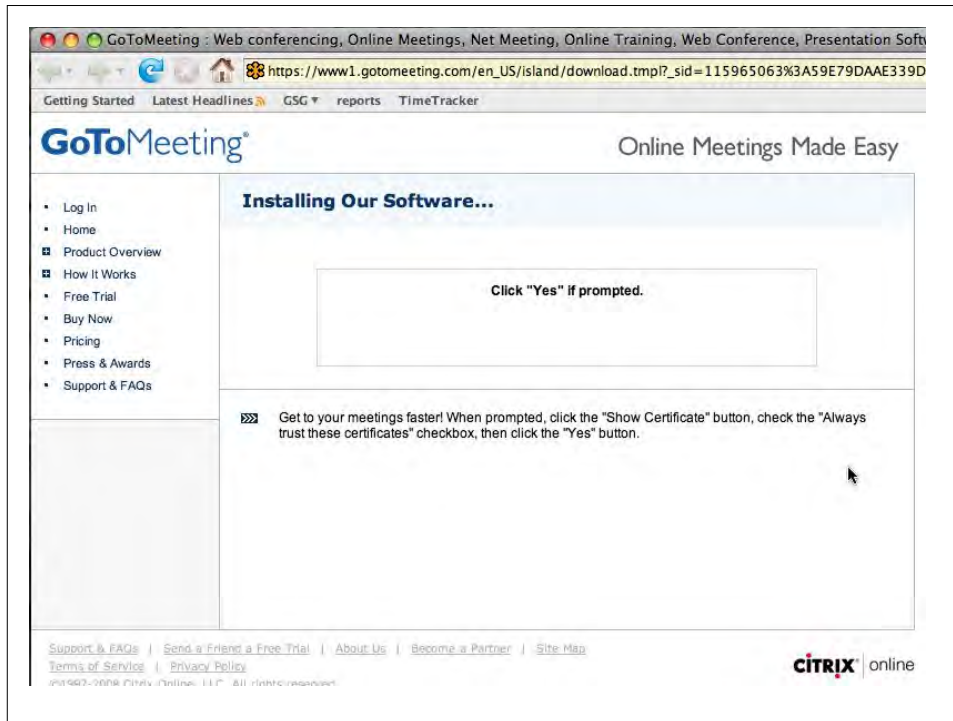
Autorun

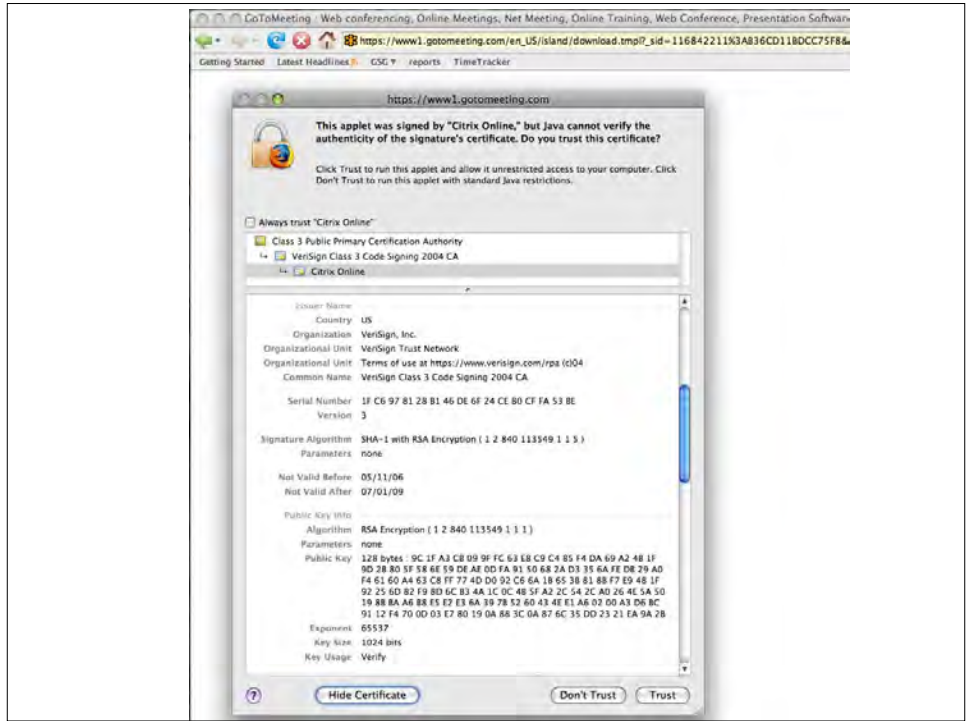
- Microsoft will (theoretically) disable it in
 - Windows 7
 - Future versions of Vista and XP<http://tech.slashdot.org/article.pl?sid=09/04/29/2110241>
- About time!
 - Conficker, etc

Beauty is skin deep. Ugly goes
clear to the bone.

unknown



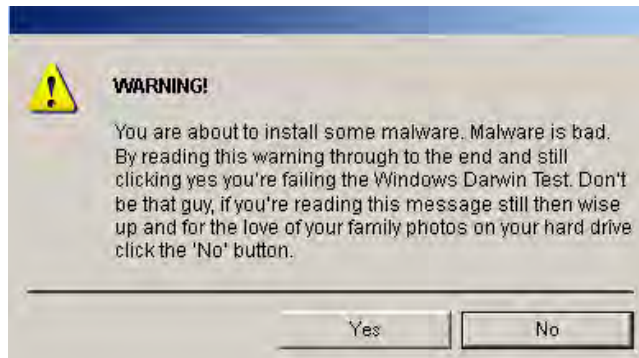




Most Users are Idiots

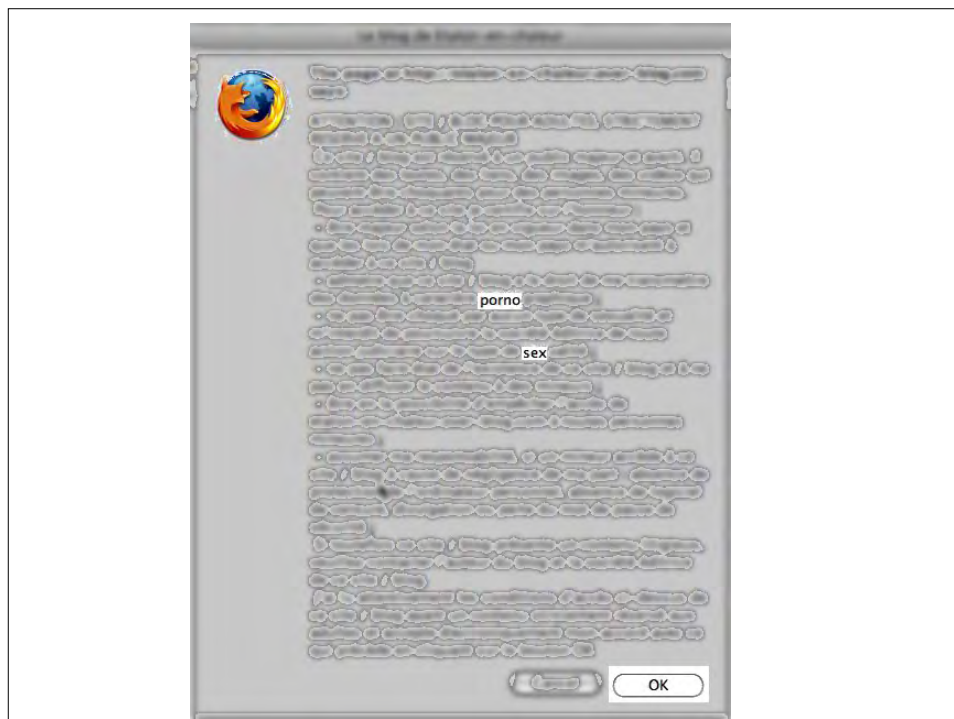
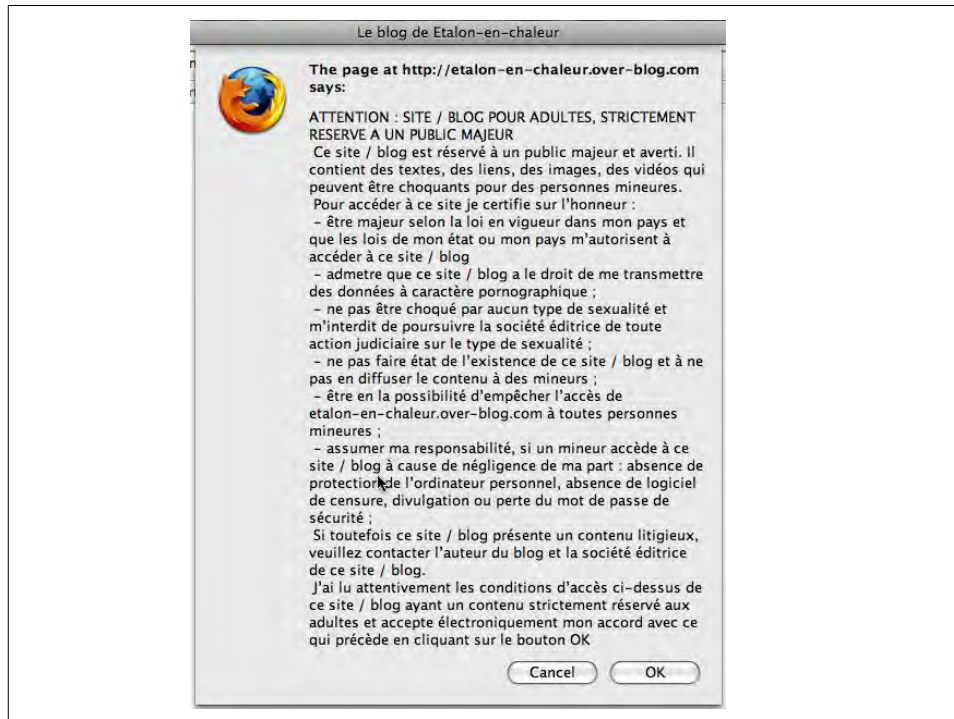
<http://arstechnica.com/news.ars/post/20080923-study-confirms-users-are-idiot.html>

Proceedings of the Human Factors and Ergonomics Society



So why...

- Do we expect them to understand
 - Authentication?
 - Authorization?
 - Certificates?
 - Certificate Authorities?
- They cannot make informed decisions...
 - But we *require* them to!
- **WE** are the problem!

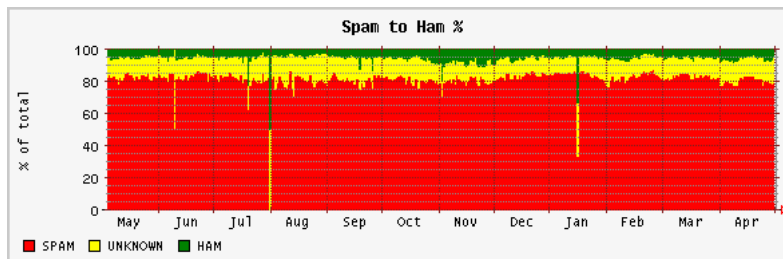


Spam

- 94% (at least) of all email is spam!

<http://bits.blogs.nytimes.com/2009/03/31/spam-back-to-94-of-all-e-mail/>

- 97% of *my* email is spam!



62,000,000,000,000

- 62×10^{12} spam emails/year

- 33×10^9 KWh

http://img.en25.com/Web/McAfee/CarbonFootprint_12pg_web_REV_NA.pdf

- What will it take to fix?
- Microsoft, Apple, and Unix/Linux to *agree* on a new protocol

NEWS FLASH! Microsoft/Apple/Linux Agree!



The Sorrow and the Pity

- We get crap because there is no market pressure for the good stuff
 - IPv6
 - DNSSEC
 - Tagged packet support (IPSO vs. 802.1Q)
 - Secure wireless
- Market shortsightedness
 - Cheap / fast / good
- We can provide openness *and* security!
 - Have the design account for topography

If I have seen further it is only by
standing on the shoulders of giants

–*Sir Isaac Newton*

Mathematicians stand on each other's
shoulders while computer scientists
stand on each other's toes

–*Richard Hamming*

Users Don't See As Far...

...because they stand in the
footprints of giants!



Date: Mon, 08 Sep 2008 14:02:50 +0100
From: ROBERT SWAN MUELLER III <online12135@earthlink.net>
Subject: FEDERAL BUREAU OF INVESTIGATION FBI.

FEDERAL BUREAU OF INVESTIGATION FBI.WASHINGTON DC.
WASHINGTON D.C ROOM, 7367
J. EDGAR HOOVER FBI BUILDING
935 PENNSYLVANIA AVENUE,
NW WASHINGTON, DC 20535.

RE: FEDERAL BUREAU OF INVESTIGATION SEEKING TO WIRETAP THE INTERNET

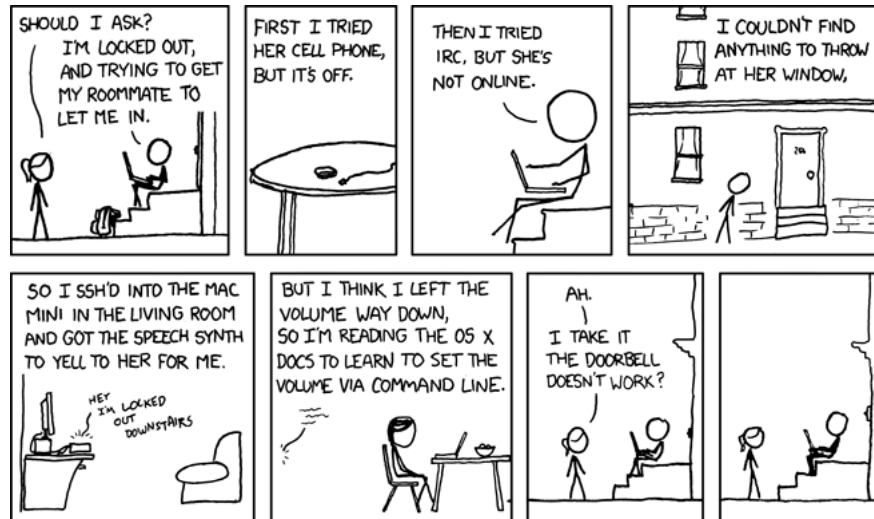
We believe this notification meets you in a very good state of mind and health. We the Federal bureau of investigation (FBI) Washington, DC in conjunction with Internet Crime Complaint Center (IC3), National White Collar Crime Center (NW 3C), Bureau of Justice Assistance (BJA) and some other relevant Investigation Agencies here in the United States of America have recently been informed through our Global intelligence monitoring network that you presently have a transaction going on with the Central Bank of Nigeria (CBN) as regards your over-due contract payment which was fully endorsed in your favour accordingly.

It might interest you to know that we have taken out time in screening through this project as stipulated on our protocol of operation and have finally confirmed that your contract payment is 100% genuine and hitch free from all facet and of which you have the lawful right to claim your payment without further delay. Having said all these we will further advise that you go ahead in dealing with the Central Bank office accordingly as we will be monitoring all their activities with you as well as your correspondence at all level. Also be informed that we recently had a meeting with the Executive Governor of the Central Bank of Nigeria, in the person of Prof. Chukwuma Soludo along with some of the top officials of the Ministry regarding your case and they made us understand that your file has been held in abase depending on when you personally come for the claim.

They also told us that the only problem they are facing right now is that some unscrupulous elements are using this project as an avenue to Scam innocent people off their hard earned money by impersonating the Executive Governor and the Central Bank office.

We were also made to understand that a lady with name Mrs. Joan C.Bailey from OHIO has already contacted them and also presented to them all the necessary documentations evidencing your claim purported to have been signed personally by you prior to the release of your contract fund valued at about US\$10,700,000.00 (Ten million Seven Hundred Thousand United States Dollars), but the Central Bank office did the wise thing by insisting on hearing from you personally before they go ahead on wiring your fund to the Bank's information which was forwarded to them by the above named Lady, so that was the main reason why they contacted us so as to assist them in making the investigations.

Missing the obvious...



<http://xkcd.com/530/>

Easy targets, sacred cows

- Windows 7
 - Vulnerable to first 8/10 wild viruses
<http://tech.slashdot.org/story/09/11/03/2123258/>
- Null pointer dereference bug grants root
 - Fixed this week in 2.6.32rc
 - RHEL doesn't have mmap_min_addr quick fix
http://www.theregister.co.uk/2009/11/03/linux_kernel_vulnerability

Why Is This *Still* Happening?



PRODUCTS

SUPPORT & DOWNLOADS

Support & Downloads

Downloads

Ethernet Disk mini v2 (Gigabit) & Ethernet Big Disk Updater v1.1.2.1

Posted: February 19, 2008

PC, Mac (Downloads) [18.10 MB]

Prerequisite 1.0.10 for PC, Mac (Downloads) [1.08 MB]

Must have installed the 1.0.10 version prior to installing this update.

- 1) Download and unzip this update package to get the latest functionalities
- 2) Connect to your LaCie Ethernet Disk mini administration page, please refer to the manual
- 3) Go to the "Configuration" tab and click on the blue dot to the right of the 'Update' line in the Software category
- 4) Select the unzipped update package by using the "Browse" button and click on "Send"
- 5) Once the package is accepted, please restart your Ethernet Disk mini to apply the latest updates

Why are there...

- Wireless routers w/default SSID and password?
- Administrative accounts with no password?
- People on the net using Windows 98?

- Why are we the burial society?
- Why aren't we like the CDC?

GPS Enabled Asthma Inhalers

- Great Idea!
 - Prevent asthma attacks through correlation
 - <http://i.gizmodo.com/5207511/>
- Can be used maliciously, too...

We have **FAILED** at our job...

...by misinterpreting what our job is!

We Can See The Problem!



Are We Willing to See the
Solution?

*Or do we just want
Security Job Security?*



A physician can bury his mistakes,
but the architect can only advise
his clients to plant vines.

Frank Lloyd Wright

We Are Planting Ivy

- **Patches**
- **Hacks**
- **Backwards compatibility**
- Revisions
- Bug-for-bug compliance
- Pretty graphics!
- Flash animation!
- *Clippy!*

Pictures deface walls oftener than
they decorate them.

--Frank Lloyd Wright

Raze It and Start Over?

- Never gonna happen
- Too expensive
- Too inconvenient
- They'll find a way to fix it

- **We'll never be unemployed**

Y Gwir yn Erbyn y Byd

The Truth Against the World

Or we can change jobs...

- Switch from reactive...
 - to proactive
- From neutral...
 - to advocacy
- Or it will all fall down...
 - it is already happening!

CitiGroup Center (NYC)





Hacks are Bad

- Replace welded joints with bolts
 - Cheaper
 - Quicker
- Building might collapse in hurricane winds
 - Every 55 years on average
 - Every 16 years, if tuned mass damper failed
- Newspaper strikes are “good”
 - Repair work done in secret
 - Hurricane Ella veered away with hours to spare





Examples

- Write it right!
 - *NASA does it...*
- Apolitical improvements to email
 - *Refuse to interface w/old protocol after 3-5 years*
- Proper security decisions by software
 - *Take the stupid human out of the loop*
 - *Quarantine infected machines*

Examples

- Refuse to allow users to be stupid
 - *No bad passwords*
 - *Start with good configurations*
- Alter the market pressure
 - *Embarrass the purveyors of crap*
 - *Tout (or push for!) the good solutions*

There *are* precedents!

- The Big Stink ⇨ London Sewers (1850's)
- B&W ⇨ Color TV in Europe
- Analog ⇨ Digital TV in US/Australia
- NCP ⇨ TCP (ARPAnet ⇨ Internet)
- A big mess ⇨ The Big Dig (Boston)
- Sydney Harbor Bridge

- Problems/solutions are not purely technical

The thing always happens that
you really believe in; and the
belief in a thing makes it happen

--Frank Lloyd Wright

Frank Lloyd Wright was Right

Reflections on Architecture,
Computer Security,
Risk and Investments