VirGraf101: An Introduction to Virtual Graffiti

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What is virtual graffiti?

• Virtual objects and/or digital messages, images, animations, etc.
• Applied to or viewable from public locations
• Can be viewed through:
  – Computers
  – Mobile devices
  – Billboards
  – Signs
  – Side of buildings
What we’re covering

• History of graffiti
• Examples
• Legal concerns and implications
• Who and why?
History: Prehistoric

• Supposedly done over 30,000 years ago
• Started with cave paintings
  – Used animal bone and pigments
• Debatable because:
  – Used during religious ceremonies
  – Sometimes endorsed by society
History: Ancient Greece

• First instance was in Ephesus
• Etched in stone and mosaics
• Supposedly a prostitution advert
• Picture of:
  – Heart-shaped handprint
  – Footprint
  – Number
History: Ancient Rome

• Included: curses, quotes, alphabets, declarations of love, slogans

• Some was preserved in Pompeii

• Most well-known:
  – “suspirium puellarum Celadus thraex”
  – Address for Novellia Primigenia of Nuceria
  – “mansueta tene”
History: Misc. Pre-Modern

- Mayans at the site of Tikal in Guatemala
- Vikings in Rome, Ireland, and Constantinople
- Renaissance artists at Nero’s Domus Aurea
- Signature Rock
- French soldiers during the Napoleonic campaign of Egypt
History: Modern Graffiti (60s-70s)

• Used mostly by political activists and gangs
• Moved from streets to subway systems
• Goal: out-tag and out-bomb other artists
• Polka dots, cross-hatches, and checkers became popular
• Spray paint helped a lot
• “Top-to-bottoms” came about
History: Modern Graffiti (1980s)

- Harder to be a graffiti artist because:
  - Crack
  - Police
  - Store owners
  - Metropolitan Transit Authority

- As a result, street and rooftop graffiti became more popular.
History: Modern Graffiti (2000s)

• Utilized as guerilla advertising by companies
  – IBM
  – Sony

• Mainstream pop culture started to catch on
  – Video games (Jet Set Radio Future, Rakugaki Okaku)
  – Clothes design (Marc Ecko)
“Tried and True” brought to you by:

[Image: G.R.I. Department of Homeland Graffiti logo]
Throwies and Floaties

• Most common and popular forms of Virtual Graffiti
• Cheap, fun
• Materials:
  – LEDs
  – Batteries
  – Tape
  – Magnet(s)-or-Balloons
Electrograf

- Varying difficulty
- Varying price
- (Basic) Materials:
  - Stencil(s)
  - Paint
  - Magnetic paint
  - Conductive Paint
  - LEDs
L.A.S.E.R. Tag

- Difficulty lies in the setup
- Can get expensive
- Materials:
  - 1 Laptop - Core 2 Duo 1.83 Ghz
    1GB Ram Nvideo Geforce Go 7300
    256MB - VGA and DVI out.
  - 1 5000 ANSI Lumens 1024x768 DLP Projector.
  - 1 Watec 221S Security/Astronomy
    Camera with manual iris zoom lens
  - 1 Magicarm and super clamp
  - 1 Pinnacle PCTV USB capture card
  - 1 60mW Green Laser
  - Loads of AAA batteries.
Examples: Shiny and New
Electronic Roadside Construction Signs (ERCS)
ERCS

• Started showing up in mid- to late-2008
• One manufacturer in particular is used by DoT
• Started with “zombies ahead” and deteriorated from there
• Post from i-hacked has step-by-step instructions on how to do it
  – Posted in January of 2009, but is still accurate
  – Has pictures!
ERCS: Vulnerabilities

• Easy to find
• Unlocked or “secured” by a small master lock
• Control pad is in the access panel
• Usually no password
  – If there is a password, it’s usually a default password
• If not default, can easily be changed
ERCS: Don’t be a dumbass

- Usually on a busy road (or right before one)
- If it warns of impending construction, don’t do it right before or during construction hours
- Some areas may have cameras
- Use common sense
  - Gloves
  - Be a hoodie ninja
  - Walk, don’t drive directly up to it
Outdoor Digital Billboard Network
ODBN: Types

- Verizon Telephone Network Interface
  - Testing instructions on site
- Wireless/Satellite
  - Open
  - Unencrypted
- Plug in
  - “secured” with a masterlock
ODBN: Vulnerabilities

• Network:
  – Packet sniffing
  – War dialing
  – Open ports

• Physical:
  – Social engineering
  – Security camera fail
  – No barrier/obstacle around base of billboard
ODBN: Update and Notes

• Uses digital signage software that is ran mostly on XP machines
  – They actively discourage the use of Apple or Linux machines (unless there’s a XP virtual running)
  – Thinks XP security issues are irrelevant to digital signage software.

• Don’t do this during peak hours
• Be inconspicuous
• Always mind the orange sticker
WARNING
Potential Arc Flash Hazard
Can shock, burn, or cause death.
Digital Menus
Digital Menus

• No known cases of them being hacked (yet)
• Starting to grow in popularity in:
  – Movie theaters
  – Airports
• Uses same software as the digital billboards do
• Controlled usually in a manager’s office
Legal Concerns and Implications
Governments Responses to Graffiti

• North America
• Australia
• Europe
• Asia
You could be charged with...

- Vandalism
- Hacking
- Breaking and Entering
- Upsetting public disorder
  - Graffiti Research Lab
- Murder
Who would be interested?

- Artists
- Extremists
- Governments
- “Damn kids”
- Hax0rz
Why are they interested?

- Guerilla advertising
- Advertise political goals
- Call for social emancipation
- Artistic expression
- Propaganda
- The lulz
Questions? Comments?