



June 21, 2016



Is Your Data Center Prepared for the Zombie Apocalypse?

June 21, 2016

Is Your Data Center Prepared for the Zombie Apocalypse?

William Favre Slater, III, M.S. MBA, PMP, CISSP, CISA
Global Cybersecurity Manager and
Adjunct Industry Professor, IIT School of Applied Technology
A Presentation for SecureX 2016



Agenda

- ❖ Introduction
- ❖ What is a Data Center?
- ❖ Traditional Data Center Security Concepts and Limits
- ❖ The Zombie Apocalypse & How It Can Expose our Data Centers?
- ❖ How Can We Prepare our Data Centers for the Zombie Apocalypse?
- ❖ Conclusion
- ❖ Questions
- ❖ References



Introduction



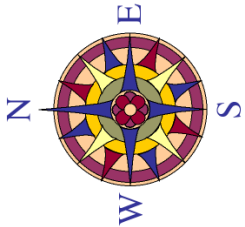
The Microsoft Chicago Data Center - Microsoft's Flagship Cloud Data Center

CH¹
CHICAGO
DATA CENTER



Microsoft Chicago Data Center in Northlake, IL. Actual street view photo from Google Maps

**William F. Slater, III
was the first
Data Center
Manager of this
Facility in 2008**



Microsoft Chicago Data Center in Northlake, IL. Actual architect's drawing from 2007 - 2008

The Microsoft Chicago Data Center - Microsoft's Flagship Cloud Data Center

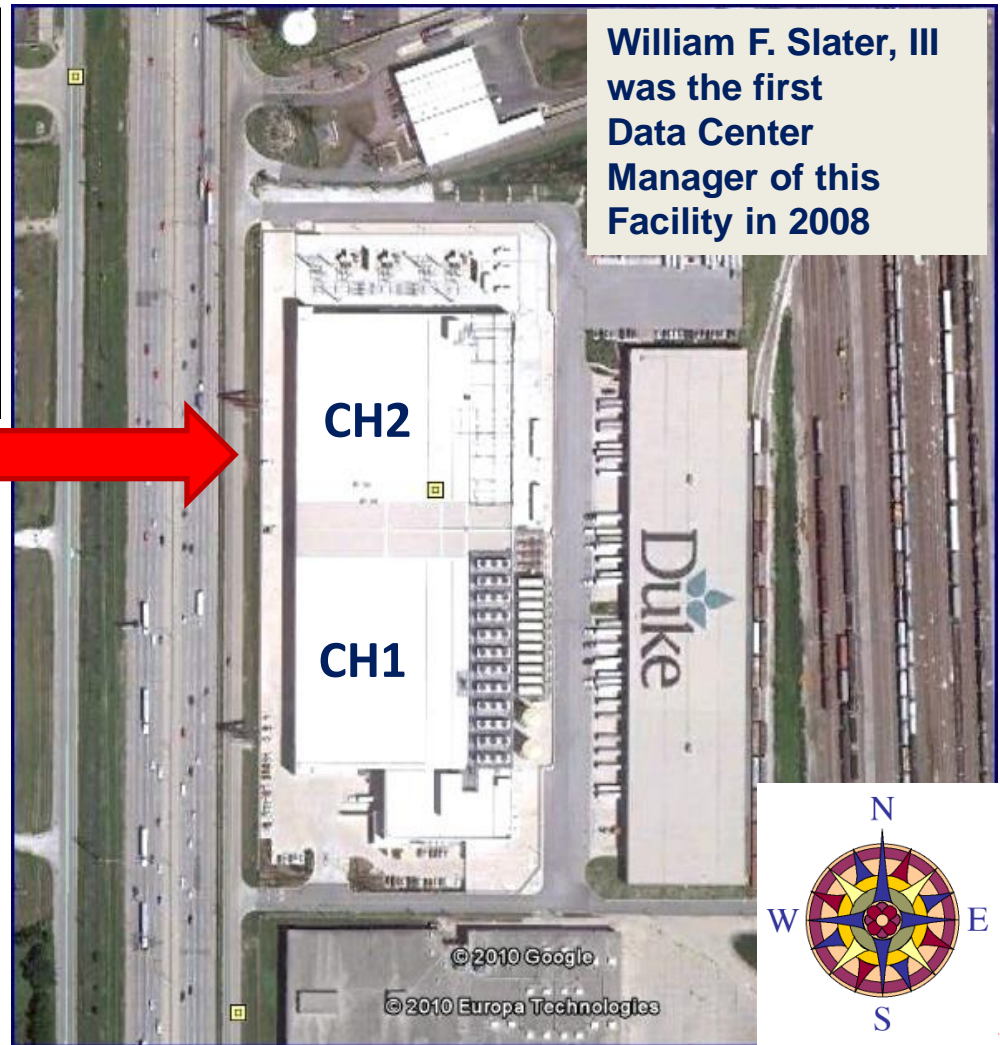
CH1				
	Colo Rooms	Cabinets	Servers per Cabinet	
Second Floor	4	240	42	40,320
		Modules		
First Floor	1	56	2400	134,400
CH2				
	Colo Rooms	Cabinets	Servers per Cabinet	
Second Floor	4	240	42	40,320
		Modules		
First Floor	1	48	2400	115,200
Total Production Servers				330,240



Size: 705,000 square feet
Power: 120 MW (enough to power 87,000 homes)
Critical Load for IT Equipment: 60 MW
No. of Physical Servers: > 330,000 Servers



**Microsoft
 Chicago Data
 Center
 Operations Team
 Summer 2008**



**William F. Slater, III
 was the first
 Data Center
 Manager of this
 Facility in 2008**

601 Northwest Hwy, Northlake, IL

Data Center Definition

A Data Center is a facility which usually has:

Thousands of servers and IT communication equipment

Elaborate power infrastructure

Redundant or backup power supplies

Redundant data communications redundant

Environmental controls (e.g., air conditioning, humidity, fire suppression, etc.)

Various security devices

Mega Data Centers are industrial scale operations using as much electrical power as a small town. (MS Chicago Data Center's 120 MW could power 87,000 homes)
Today, U.S.-based Data Centers use about 5% all the electrical power in the U.S.



Data Center Concepts - High Availability

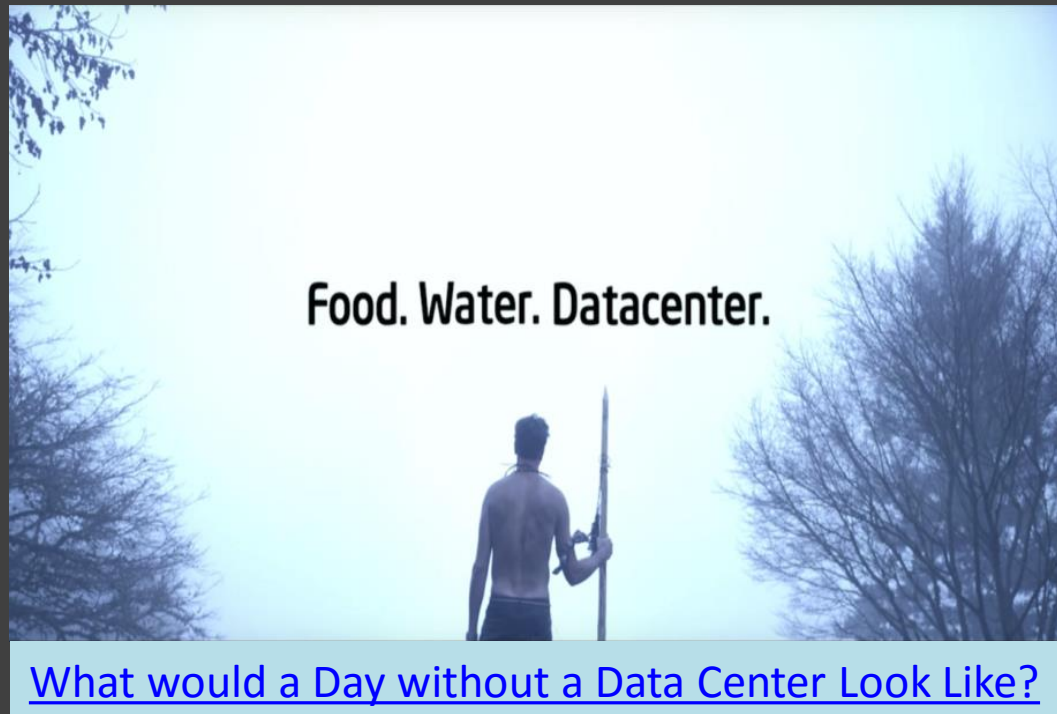
Elimination of Single Points of Failure (SPOF) to Ensure 100% Availability

Facility Component	SPOF Solution(s)	Comment(s)
Servers	Clustered Servers	Requires configuration, electricity, communications, and some maintenance, sometimes.
Server Power	Multiple PDUs and Dual-power supply servers.	Requires configuration, electricity, communications, and some maintenance, sometimes.
Power	Multiple Remote Power Panels, UPSs and redundant power architecture.	Requires configuration, electricity, communications, and some maintenance, sometimes.
Telecommunications	Multiple Telecommunication Providers	Requires configuration, electricity, communications, and some maintenance, sometimes.
Network	Multiple network devices, network interface cards, etc.	Requires configuration, electricity, communications, and some maintenance, sometimes.
Fire Protection	Multi-path fire protection architecture, in some cases, gas AND water	Requires configuration, electricity, communications, and some maintenance, sometimes.
People	Cross-training, redundant skills, succession planning, etc.	Requires management, communications, food, water, payroll, benefits, etc.



Why Data Centers Matter

- *“The Internet was done so well that most people think of it as a natural resource like the Pacific Ocean”*
- *-Alan Kay-*

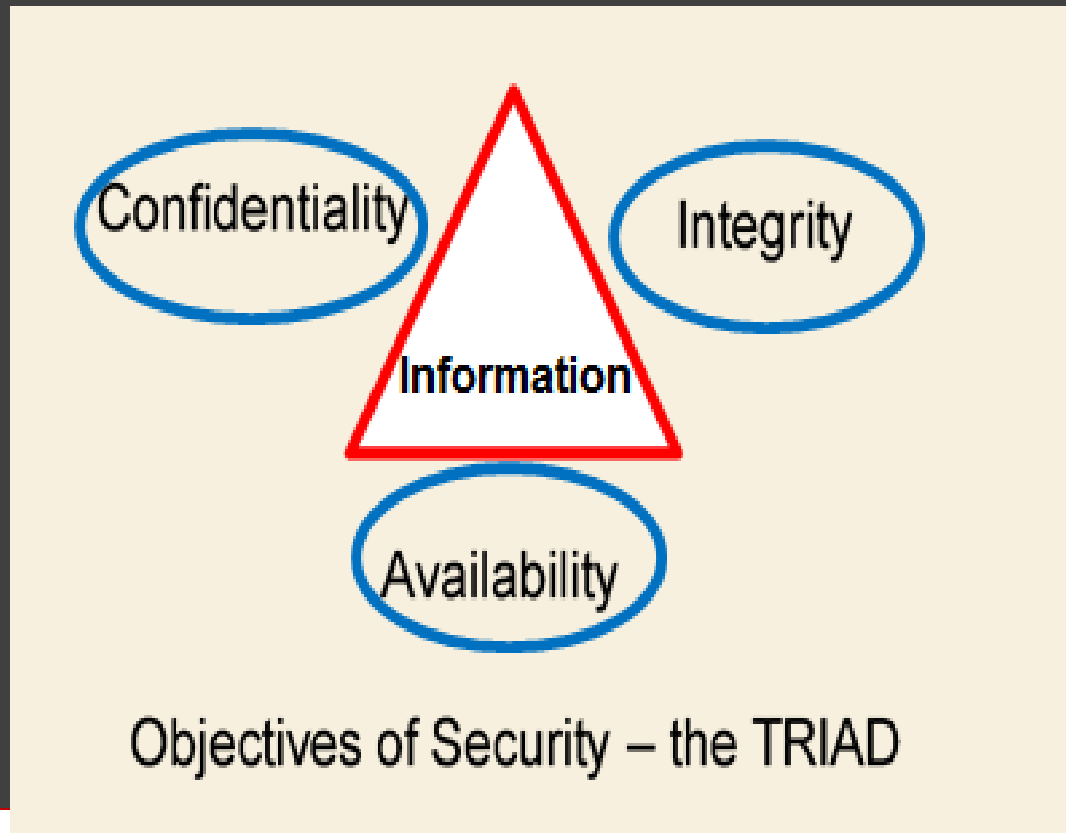


Traditional Data Center Security Concepts & Limits



Traditional Data Center Security Concepts

CIA - The Security Triad



Traditional Data Center Security Concepts

Typically, the security in a Data Center is based on safeguarding of data and other IT assets (the CIA TRIAD) and consists of three types:

- ❖ The Physical Security
- ❖ The Logical Security
- ❖ Policies & Operating Procedures

Traditional Data Center Security Concepts

Physical Security Facility Best Practices

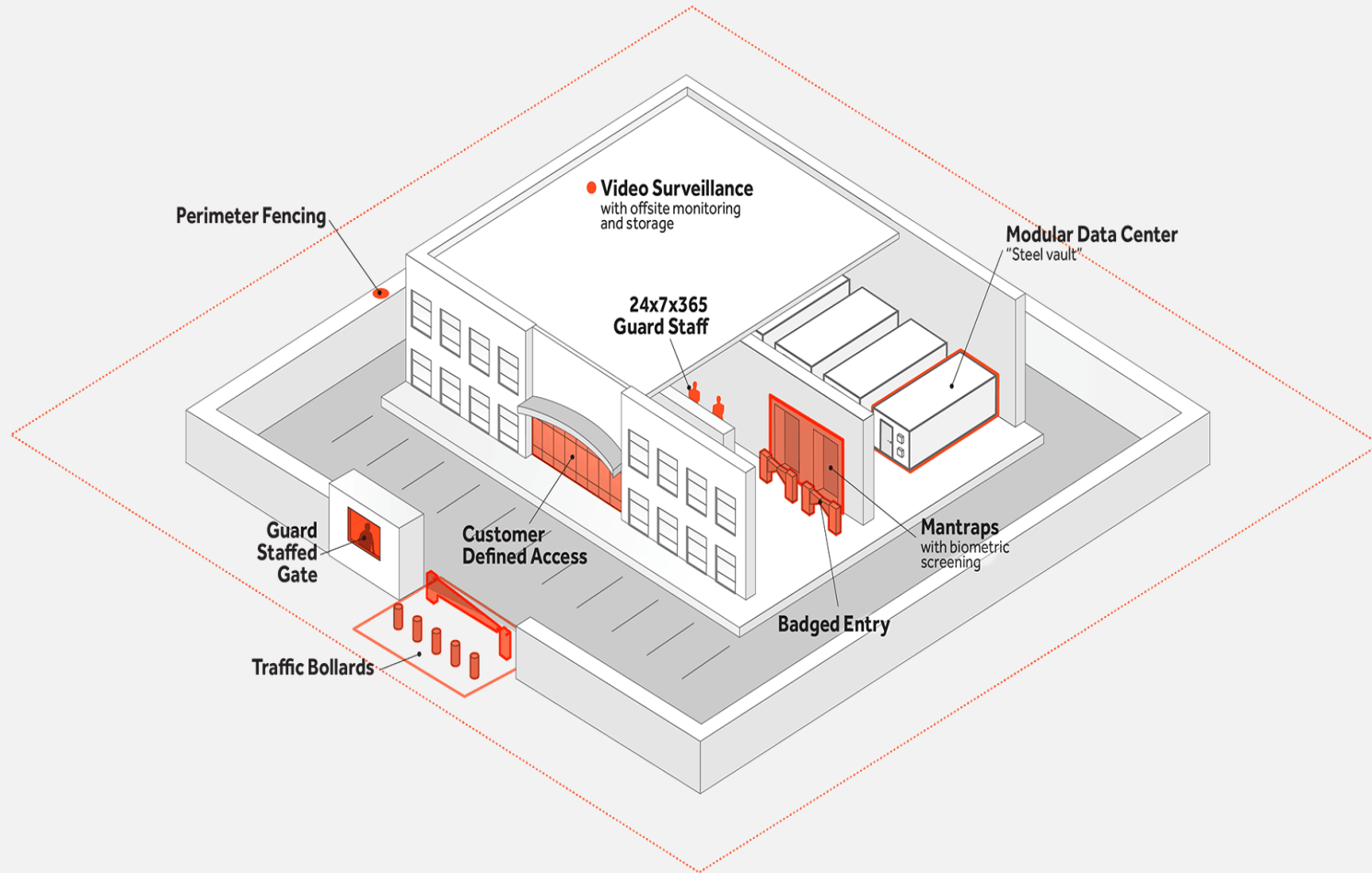
1. Build on the right spot
2. Have redundant utilities
3. Pay attention to the walls, how they are built
4. Avoid windows
5. Use landscaping for protection
6. Keep a 100-foot buffer zone around the site
7. Use retractable crash barriers at vehicle entry points
8. Plan for bomb detection
9. Limit entry points
10. Make fire doors exit only
11. Use cameras and DVR recording as much as possible
12. Protect the building's machinery
13. Plan for secure air handling
14. Ensure nothing can hide in the walls and ceilings
15. Use two-factor authentication
16. Harden the core with security layers
17. Watch the exits too
18. Prohibit food in the computer rooms
19. Install visitor restrooms

Source: Scalet, S. (2004). 19 Ways to Build Security into Your Data Center. CSO Article retrieved from:

<https://books.google.com/books?id=6F8EAAAAMBAJ&lpg=PA4&ots=3wpD0eIToa&dq=Sarah%20Scalet%2019%20ways&pg=PA41#v=onepage&q=Sarah%20Scalet%2019%20ways&f=false> September 1, 2015.



Traditional Data Center Security Concepts



Traditional Data Center Security Concepts

- ❖ The logical security. Examples:
 - ❖ Access Control Lists (ACLs)
 - ❖ Group Policies
 - ❖ Permissions
 - ❖ Antivirus software
 - ❖ Firewalls
 - ❖ Intrusion-detection / prevention systems

Limits

❖ Be Diligent About the Biggest Threat: People

- Whether it is intentional sabotage, social engineering, carelessness or lack of following a defined policy, people working in the facility can be the biggest risk. For example, social engineering is a common threat because most people by nature want to be helpful. It's important to train people to stick to the security policy and require them to be 100 percent accountable for their access.
- Furthermore, whereas the redundancy of IT equipment is the first goal to meet in the building of any data center to assure its availability, to make it free of disruption, the redundancy of people who are without doubt the most important « engine » in any Data Center is not taken care of.

THE ZOMBIE APOCALYPSE & HOW IT CAN EXPOSE OUR DATA CENTERS



What Are Zombies?



What Are Zombies?

- ❖ A **zombie** (Haitian French: *zombi*, Haitian Creole: *zonbi*) is a **fictional** undead being created through the reanimation of a human corpse.
- ❖ The English word "zombie" is first recorded in 1819, in a history of Brazil by the poet Robert Southey, in the form of "zombi". The Oxford English Dictionary gives the origin of the word as West African, and compares it to the Kongo words *nzambi* (god) and *zumbi* (fetish).
- ❖ One of the first books to expose Western culture to the concept of the voodoo zombie was *The Magic Island* by W.B. Seabrook in 1929. This is the sensationalized account of a narrator who encounters voodoo cults in Haiti and their resurrected thralls.



The Story Of Felicia Felix Mentor

Felicia Felix-Mentor was a Haitian woman believed to have been made into a zombie in the early part of the 20th century. She reportedly died in 1907, after a sudden illness of the type that Haitian belief finds to be characteristic of a person marked to be made into a zombie. In 1936 a woman in ragged clothing was found wandering the streets, and made her way to a farm which she claimed belonged to her father. The owners identified the woman as Felicia Felix-Mentor, long thought dead, and Felix-Mentor's husband also confirmed this. Due to her poor health, she was sent to a government hospital. A doctor who interviewed her described her behavior.

Her occasional outbursts of laughter were devoid of emotion, and very frequently she spoke of herself in either the first or the third person without any sense of discrimination. She had lost all sense of time and was quite indifferent to the world of things around her.



Felicia Felix-Mentor
A real-life Haitian Zombie
but she didn't kill anyone.

West African Zombies (Benin)



What Is The Zombie Apocalypse?

- ❖ Intimately tied to the concept of the modern zombie is the "zombie apocalypse"; the breakdown of society as a result of an initial zombie outbreak that spreads. This archetype has emerged as a prolific subgenre of apocalyptic fiction and has been portrayed in many zombie-related media after *Night of the Living Dead*. In a zombie apocalypse, a widespread (usually global) rise of zombies hostile to human life engages in a general assault on civilization. Victims of zombies may become zombies themselves. This causes the outbreak to become an exponentially growing crisis: the spreading phenomenon swamps normal military and law enforcement organizations, leading to the panicked collapse of civilized society until only isolated pockets of survivors remain, scavenging for food and supplies in a world reduced to a pre-industrial hostile wilderness.
- ❖ This fictional event has gained gradually recognition:
 - In government media
 - On 18 May 2011, the United States' Centers for Disease Control and Prevention (CDC) published a graphic novel, *Preparedness 101: Zombie Apocalypse* providing tips to survive a zombie invasion as a "fun new way of teaching the importance of emergency preparedness"

Zombies and Zombie Apocalypse in Popular Culture

- Music:

Michael Jackson's music video *Thriller* (1983), in which he dances with a troop of zombies, has been preserved as a cultural treasure by the Library of Congress' National Film Registry

- Literature:

Max Brooks's novel *World War Z* (2006) became a New York Times bestseller.

- Movies and TV:

The Serpent and the Rainbow, World War Z, The Walking Dead, Night of the Living Dead

- In theoretical academic papers

Adam Chodorow of the Sandra Day O'Connor College of Law at Arizona State University investigated the *estate and income tax implications* of a zombie apocalypse under United States federal and state tax codes.



Some Notable Organizations That Also Believe In The Zombie Apocalypse



FEMA



THE PENTAGON
WASHINGTON D.C.

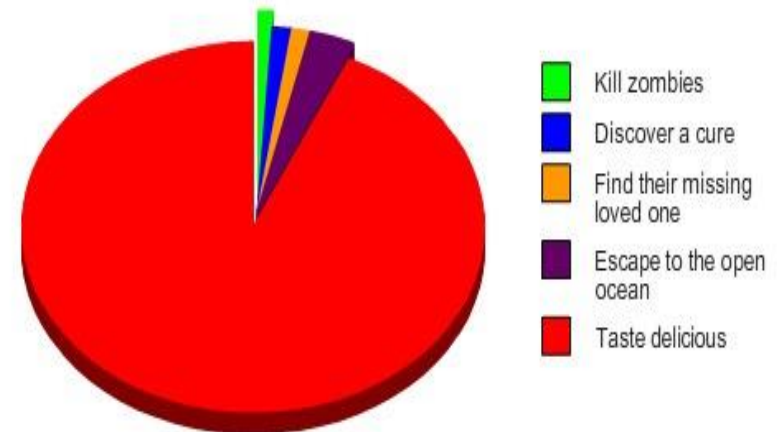
(Just Google this:
Conplan 8888)



What Could Happen During a Zombie Apocalypse?

- It depends on:
 - Severity and duration of the outbreak
 - The average strength and resilience of the Zombies
 - Your state of preparation

Things That An Average Person Would Do During A Zombie Apocalypse



American Cities - Best And Worst Places For The Zombie Apocalypse

Here are the final Zombie Apocalypse Index rankings:

Most Likely to Survive:

1. Boston, Massachusetts
2. Salt Lake City, Utah
3. Columbus, Ohio
4. Baltimore, Maryland
5. Virginia Beach and Norfolk, Virginia
6. Seattle, Washington
7. San Diego, California
8. Kansas City, Missouri
9. Denver, Colorado
10. Indianapolis, Indiana

Least Likely to Survive

44. Las Vegas, Nevada
45. Providence, Rhode Island
46. Milwaukee, Wisconsin
47. Jacksonville, Florida
48. Miami, Florida
49. Chicago, Illinois
50. Riverside/ San Bernadino, California
51. Los Angeles, California
52. Tampa, Florida,
53. New York, New York



American Cities - Another Survey For Cities and The Zombie Apocalypse

LEAST LIKELY TO SURVIVE

While New York has survived any number of horror, sci-fi and natural disasters in movies and TV shows, it's actually not the best place to be during a zombie apocalypse. New York's high population density and limited food supply contribute to its place as the least likely of all major U.S. metros to survive an invasion of reanimated, brain-hungry corpses.

1. New York-Newark-Jersey City, NY-NJ-PA (5.64 points)
2. Tampa-St. Petersburg-Clearwater, FL (11.03 points)
3. Los Angeles-Long Beach-Anaheim, CA (12.98 points)
4. Riverside-San Bernadino-Ontario, CA (13.34 points)
5. Chicago-Naperville-Elgin, IL-IN-WI (16.38 points)
6. Miami-Fort Lauderdale-West Palm Beach, FL (16.78 points)
7. Jacksonville, FL (17.21 points)
8. Milwaukee-Waukesha-West Allis, WI (18.31 points)
9. Providence-Warwick, RI-MA (19.24 points)
10. Las Vegas-Henderson-Paradise, NV (19.41 points)

Source: McKay, T. (2015). Would You Survive a Zombie Apocalypse? It Probably Depends on Where You Live Retrieved from <https://mic.com/articles/127744/would-you-survive-a-zombie-apocalypse-it-probably-depends-on-where-you-live#Jah8wfJx1>.

If the zombie apocalypse happens like....



The Zombie Apocalypse Threat & How Can It Expose Our Data Centers

- ❖ **Threat modeling** (often related to the logical security in Data Center)

- There are at least three general approaches to threat modeling:

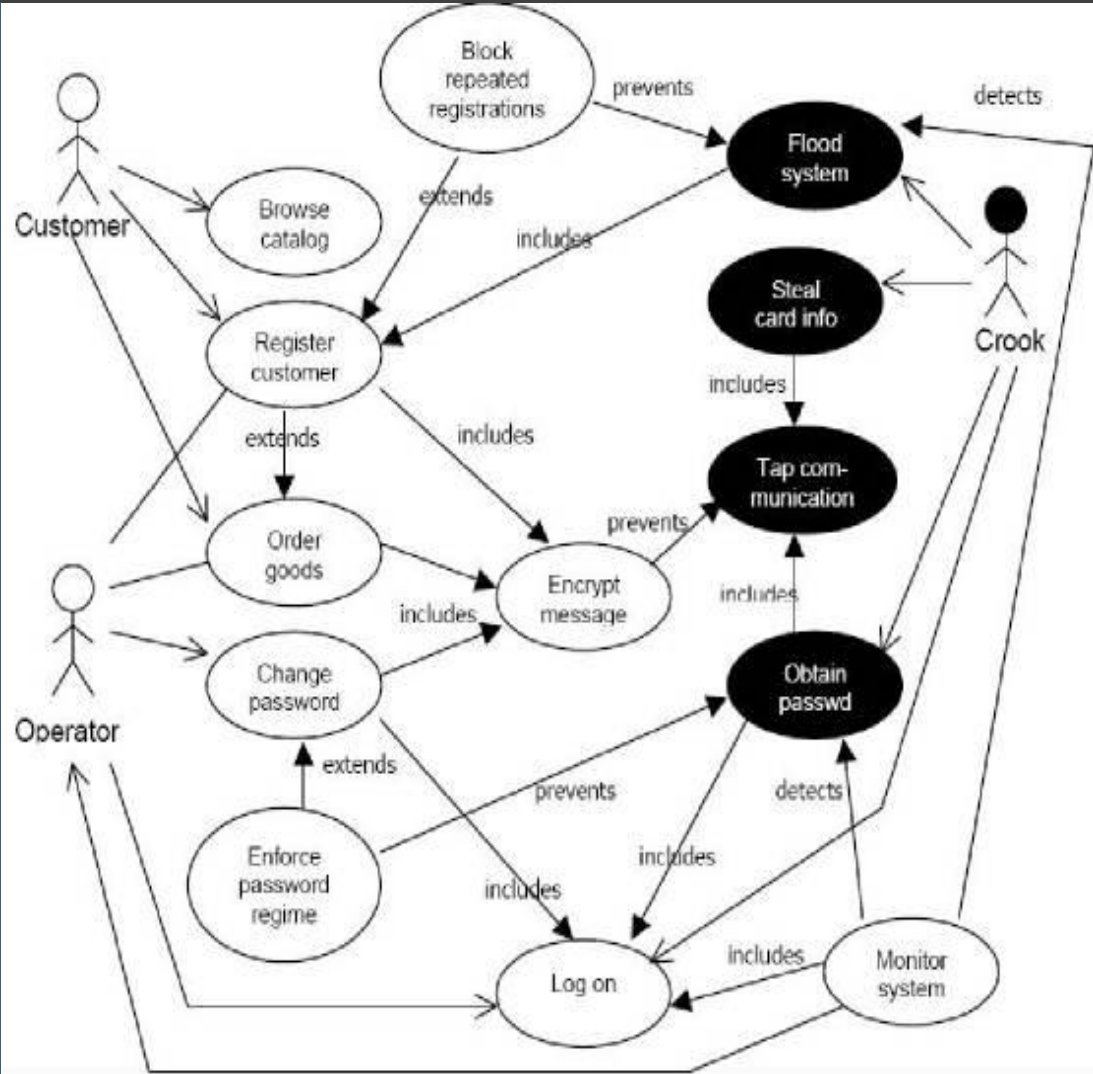
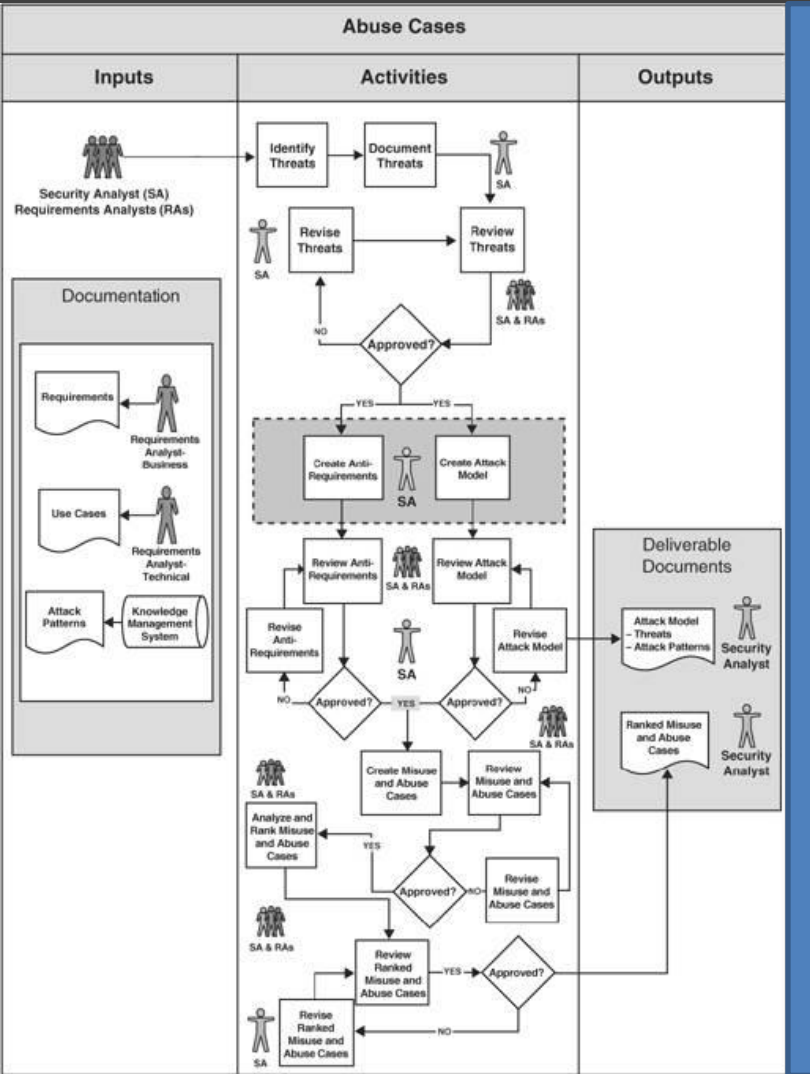
- ❖ Attacker-centric

- Attacker-centric threat modeling starts with an attacker, and evaluates their goals, and how they might achieve them. Attacker's motivations are often considered, for example, "The NSA wants to read this email," or "Jon wants to copy this DVD and share it with his friends." This approach usually starts from either entry points or assets

- ❖ Software-centric

- ❖ Asset-centric

Threat Modeling by Creating Abuse Cases - Examples



The Zombie Apocalypse Threat & How Can It Expose Our Data Centers

Any high security Data Center should have the potential to actually prevent any disaster including a zombie apocalypse :

- ❖ A hardened, **secure**, windowless facility will keep the staff and the servers safe and protect them from hordes of brain-hungry, shambling corpses pounding at the front door
- ❖ If “clever” zombies somehow manage to get hold of a keycard or passcode, multi-factor security that includes **biometrics** (zombies, after all, don't have the body warmth and heartbeats of a living human) should prevent the flesh-eaters from getting in
- ❖ What if the walking dead attack during a shift change at the local power plant? No problem: your uninterruptible power supply (UPS) will bridge the few seconds it takes for the **generators** to reach full power

The Zombie Apocalypse Threat & How Can It Expose Our Data Centers

- Having a secondary site can be a nice safeguard if zombies find a security weakness at a less secure site.
- The remaining questions:
 - What if your Facility and Staff is ill-equipped to ride out the Zombie Apocalypse
 - What if the danger comes from within the data center?

The Zombie Apocalypse Threat & How Can It Expose Our Data Centers

Are you going to quarantine them? Or kill them?

No logic would lead the contaminated staff so the worst has to be expected. The Data Center will be likely to be destroyed because:

- Deletion/modification of data
- Infect other people
- Causing a Virus to spread
- Press the RED button

The most astonishing fact is that there are no palliative solutions for those dramatic events up to now in any Data Center Disaster Recovery Plan (Probably because people don't take this seriously.)

How Will You Know The Zombie Apocalypse Is Happening?



RSOE - Emergency and Disaster Information Service

Source <http://hisz.rsoe.hu/alertmap/index2.php?area=usa&lang=eng>



“Better Safe Than Sorry”



“Noah did not wait until it was raining to start building the Ark.”



“Better Safe Than Sorry”

- Data Center designers generally do a good job preparing for conventional risks like earthquakes, fires, floods, and hurricanes, but if the Disaster Recovery Plan doesn't include provisions for dealing with the undead, the risk mitigation strategy has a gaping hole
- Unlike conventional disaster recovery (DR)/business continuity planning (BCP), Zombie Preparedness has a unique set of goals beyond data protection and business resumption:

Ensure the long-term Survivability of your facilities AND your people

HOW CAN WE PREPARE OUR DATA CENTERS FOR THE ZOMBIE APOCALYPSE?



Necessary for Your Survival Kit : Water

- Potable water is every human being's biggest challenge
 - Absolutely essential for survival
 - Without drinking water, you can die in 3 to 5 days
 - Potable water can be scarce, expensive and hard to find
 - Water is HEAVY and BULKY. It weighs 8 pounds to the gallon



The Miracle That Is WATER

What does water do for the human body?

75% of Americans are chronically dehydrated

A University of Washington study discovered that one glass of water stopped hunger pangs for almost 100% of studied dieters.

The Lesson to be Learned?

Drink More WATER

Necessary for Your Survival Kit : Food



Necessary for Your Survival Kit Planning: Food and Provisions Calculator(s)

Basic Needs Summary														
Source- Enter Source code from chart below	1	Actual Adult Goal Quantity Set	Units	Family Total Goal from Basic Foods	In Inventory	Current Months of Storage for Family	Still Needed for 12 months	Still Needed for 6 months	Still Needed for 3 months	Cost to Complete 12 Month Goal	Cost to Complete 6 Month Goal	Cost to Complete 3 Month Goal	Cost to Add 1 More Month of Storage	
Water - Emergency Supplies and Treatment (2 weeks)	14	16	gallons	160	0	0.0	160	For 2 weeks		\$ -	for 2 weeks			
Wheat, Other Whole Grains & Flours	625	462	lbs	4620	0	0.0	4620	2310	1155	\$ 801.50	\$ 400.75	\$ 200.38	\$ 66.79	
Legumes (dry beans, peas, lentils)	85	6	lbs	60	0	0.0	60	30	15	\$ -	\$ -	\$ -	\$ -	
Powdered Milk, Dairy Products, & Eggs	200	164	lbs	1641	0	0.0	1641	821	410	\$ 1,290.00	\$ 645.00	\$ 322.50	\$ 107.50	
Sweeteners - Honey, Sugar, & Syrup	100	75	lbs	750	0	0.0	750	375	188	\$ 38.00	\$ 19.00	\$ 9.50	\$ 3.17	
Cooking Catalyst	90	90	lbs	903	0	0.0	903	451	226	\$ 537.50	\$ 268.75	\$ 134.38	\$ 44.79	
Sprouting Seeds & Supplies	10	1	lbs	10	0	0.0	10	5	3	\$ -	\$ -	\$ -	\$ -	
Other Church Offered Food Storage Items and Additional Misc. Items	0	2	lbs	20	0	0.0	20	10	5	\$ 27.20	\$ 13.60	\$ 6.80	\$ 2.27	
										Cost to Complete 12 Month Goal	Cost to Complete 6 Month Goal	Cost to Complete 3 Month Goal	Cost to Add 1 More Month of Storage	
										Total Budget Needed	\$ 2,694.20	\$ 1,347.10	\$ 673.55	\$ 224.52

Recommended Adult Quantities from Various Sources					
		1	2	3	4
		Making the Best of Basics	LDS Church	Other Source	Personalized Yearly Amount
Storage Item	Units	Adult Goal Quantity	Adult Goal Quantity	Adult Goal Quantity	Adult Goal Quantity
Water - Emergency Supplies and Treatment (2 weeks)	gallons	14	14		
Wheat, Other Whole Grains & Flours	lbs	625	400		
Legumes (dry beans, peas, lentils)	lbs	85	60		
Powdered Milk, Dairy Products, & Eggs	lbs	200	16		
Sweeteners - Honey, Sugar, & Syrup	lbs	100	60		
Cooking Catalyst	lbs	90	19		
Sprouting Seeds & Supplies	lbs	10			
Other Church Offered Food Storage Items and Additional Misc. Items	lbs				

Source: <http://modernsurvivalonline.com/survival-database-downloads/survival-tools/>



Necessary for Your Survival Kit : Weapons



WEAPONS FOR THE ZOMBIE APOCALYPSE

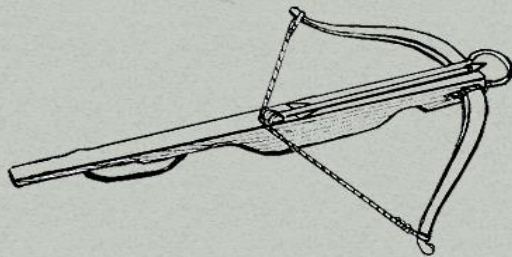
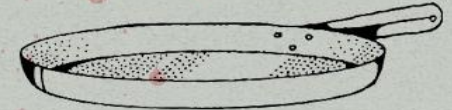
GUN



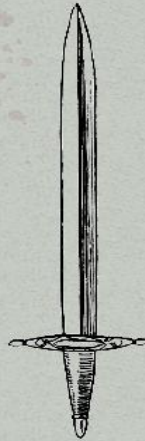
AXE



CAST IRON PAN



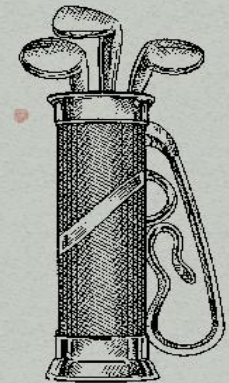
CROSSBOW



SWORD



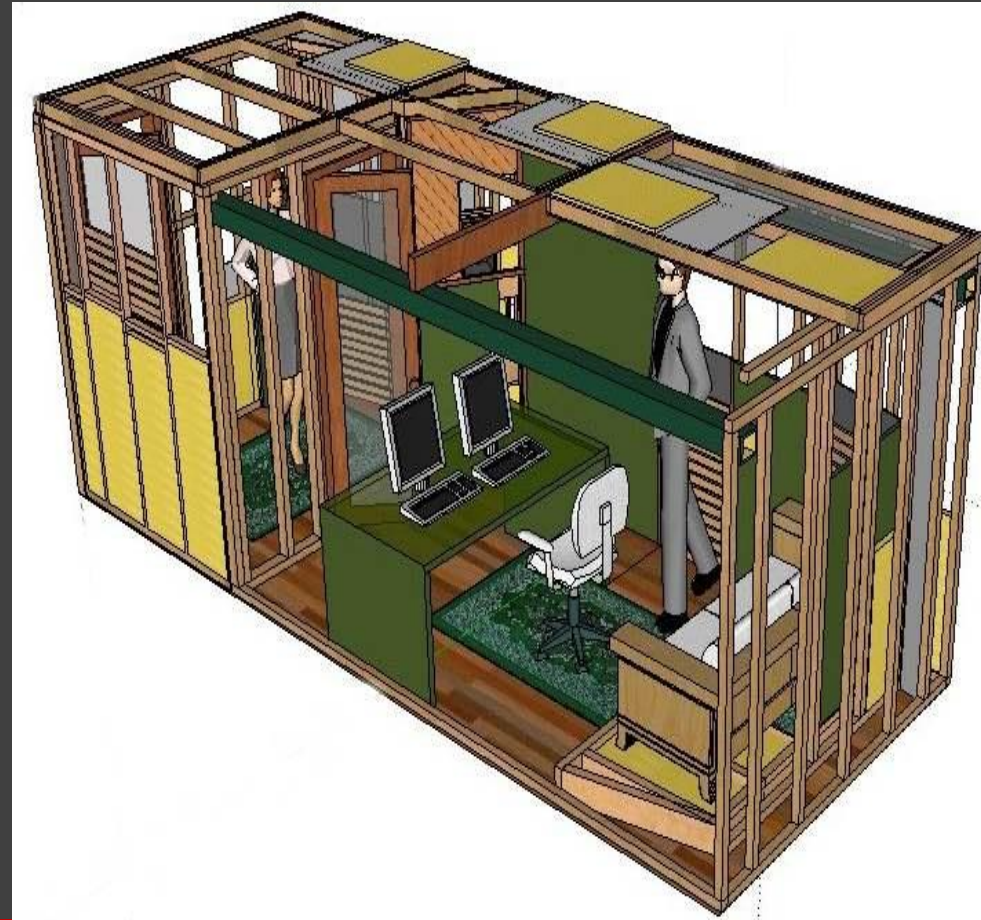
KICKBOXER



GOLF CLUBS

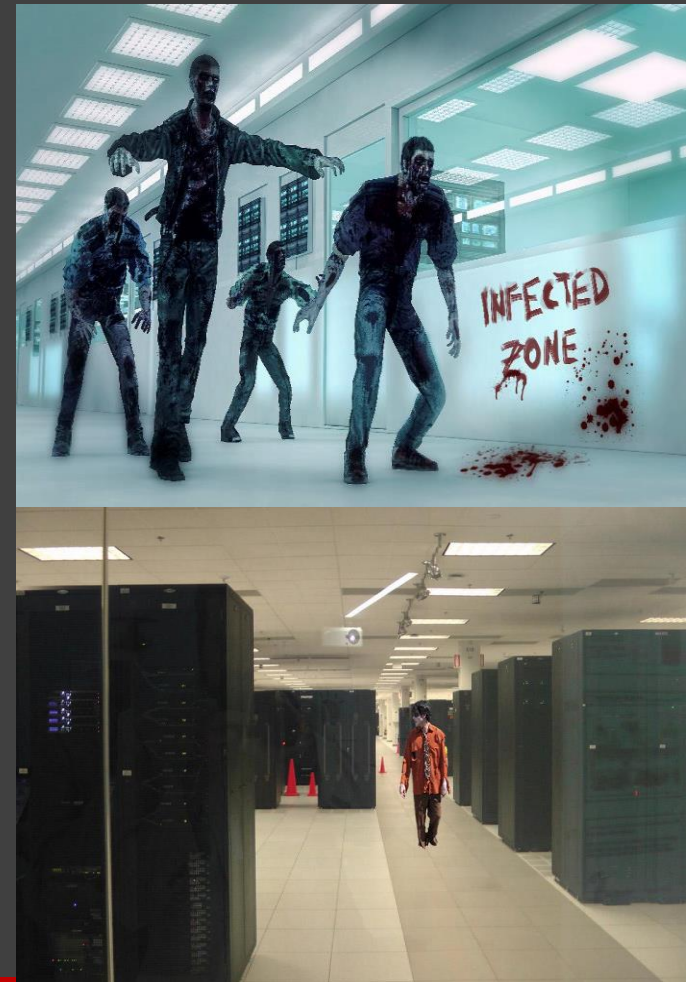
Data Center Fortification Concepts To Survive A Zombie Apocalypse

- ❖ Shelter in Place
- ❖ Highly-Available, Redundant
 - Power
 - Cooling
 - Communications
- ❖ Communications Equipment (FM Radio, SW Radio, CB Radio)
- ❖ Sleeping quarters
- ❖ Sanitary Facilities
- ❖ Sensors (presence sensors, etc.)
- ❖ First-Aid Kits
- ❖ Medical Supplies
- ❖ Entertainment



Let's Be Pragmatic!

- ❖ Odds are, an outbreak of zombies is for now unlikely to happen.
- ❖ But there are still plenty of other potential threats that could spell disaster for your Data Center if you're not prepared.
- ❖ Make sure you take the time to consider all possibilities as you build out your IT infrastructure, have a disaster plan in place
- ❖ Test your plans. Hold a test drill at least every six months to make sure everyone knows what to do to keep your facilities online.
- ❖ Always best to prepare for zombies, even when there is no perceived threat of zombies



Our Recommendations

- ❖ Improve your Disaster Recovery Plan and your Business Continuity Plan
- ❖ Actively fortify your Data Center
- ❖ Equip and Train every member of your Data Center Staff
- ❖ Plan to for the Long-Term Survivability of the Human Element
- ❖ To assess your own Zombie Apocalypse Survivability Odds, take the 38-question online Quiz: <http://bit.ly/1MJRVLn>

My Own Zombie Apocalypse Bug-Out Plans:

- ❖ 30 days of provisions for me and my Bride
- ❖ A 4-person inflatable raft
- ❖ Bugging out to one of the four Chicago Lake Michigan Cribbs.



My Own Zombie Apocalypse Bug-Out Plans:

- ❖ A Chicago Lake Michigan Crib
- ❖ Don't laugh
- ❖ Zombies can't swim
- ❖ The accommodations inside are pretty nice!



EVEN MORE ZOMBIES



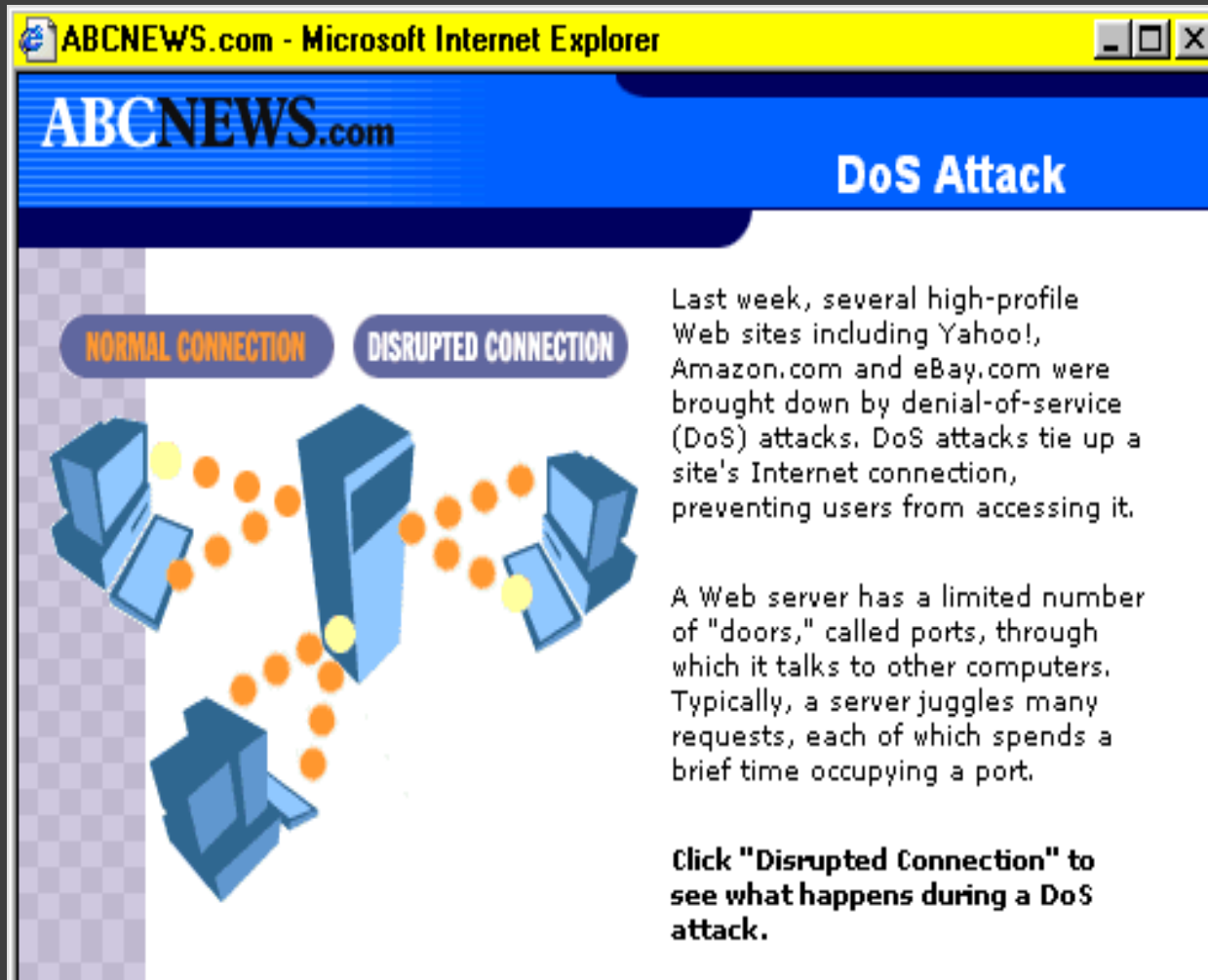
Brief Discussion of DoS Attacks

In early February 2000, a series of well organized denial-of-service attacks were launched against some major e-commerce websites... By Remotely Controlled “Zombie” computers.

This later resulted in ping being disabled on external routers of these companies and many others.



What Did the DoS Attacks Look Like?



ABCNEWS.com - Microsoft Internet Explorer

ABCNEWS.com

DoS Attack

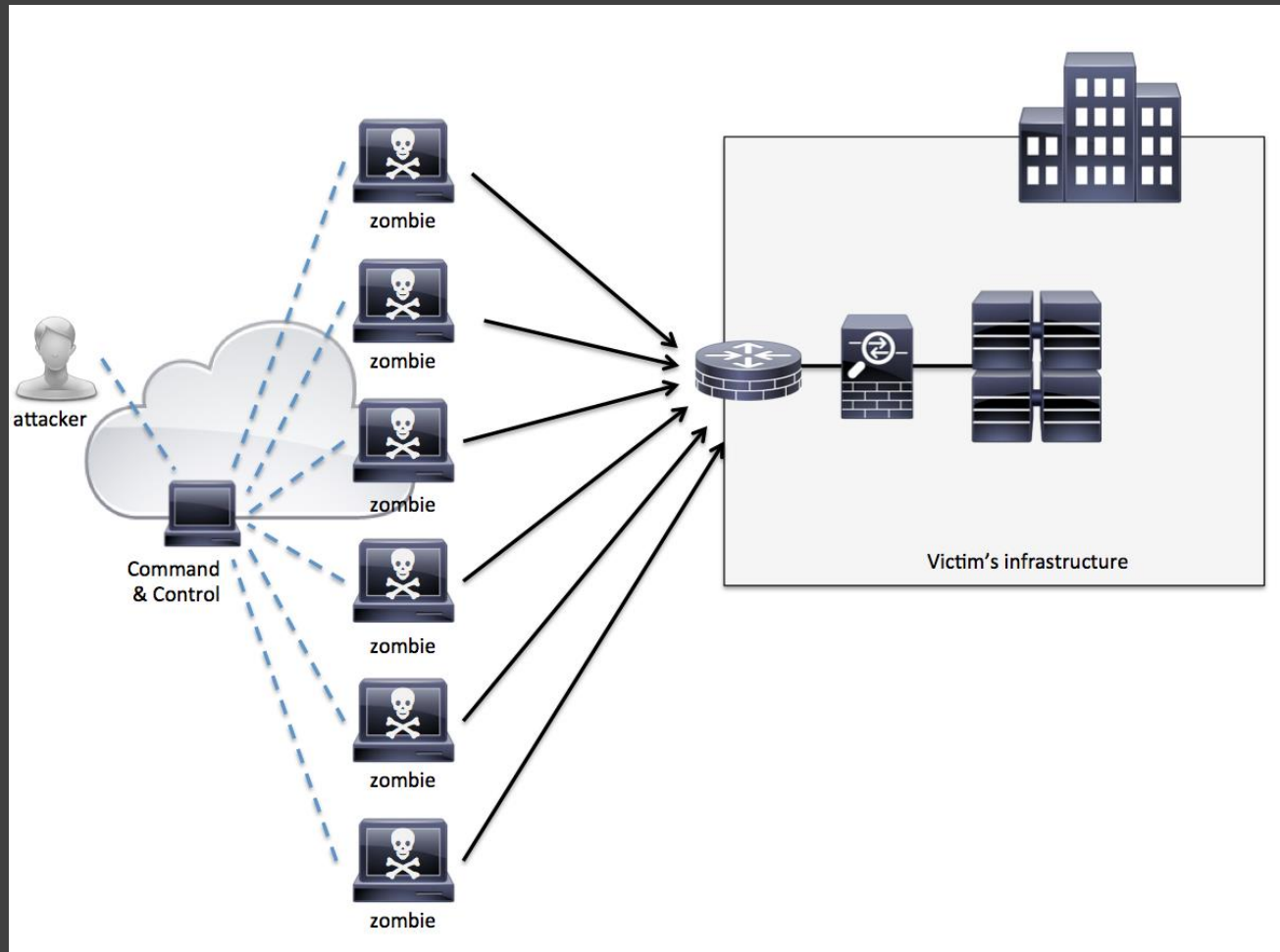
NORMAL CONNECTION **DISRUPTED CONNECTION**

Last week, several high-profile Web sites including Yahoo!, Amazon.com and eBay.com were brought down by denial-of-service (DoS) attacks. DoS attacks tie up a site's Internet connection, preventing users from accessing it.

A Web server has a limited number of "doors," called ports, through which it talks to other computers. Typically, a server juggles many requests, each of which spends a brief time occupying a port.

Click "Disrupted Connection" to see what happens during a DoS attack.

What Did the DoS Attacks Look Like?



Source: Cisco. (2010). Guide to DDoS Defense. Retrieved from <https://www.cisco.com/c/en/us/about/security-center/guide-ddos-defense.html>, on June 19, 2016.

Who Were the Targets?



The screenshot shows a Microsoft Internet Explorer browser window displaying the ABCNEWS.com website. The page title is "Attacked Sites". The main content area features a list of logos for various websites that were targeted by a cyber attack. The logos are arranged vertically on the left side of the page, each preceded by a small black dot. The logos include: amazon.com, buy.com, CNN.com, eBay, E*TRADE, msn, YAHOO!, and ZDNet. To the right of the list, there is a paragraph of text explaining the attack and a note about clicking on the logos.

ABCNEWS.com - Microsoft Internet Explorer

abc NEWS .com

Attacked Sites

- amazon.com
- buy.com
- CNN.com
- eBay
- E*TRADE
- msn
- YAHOO!
- ZDNet

Electronic vandals blasted popular Web sites with junk traffic over a three-day period, taking down sites as prominent as Yahoo!, eBay and Amazon.com.

Click on a site's logo to see the damage it suffered.

Where Were the Attacks Launched From?

ABCNEWS.com - Microsoft Internet Explorer

abc NEWS .com

Zombies

- UC SANTA BARBARA
- UCLA
- STANFORD UNIVERSITY**
- THE ICON GROUP
- ENVISIONEERING
- HOME BUSINESS COMPUTER
- OTHER SITES

Stanford University officials said that one of the university's Internet routers -- an interface device that relays data traffic -- was used in the attacks. Stanford said that a router located at a remote wildlife preserve was used to transmit some of the data aimed against eBay's Web site on Feb. 7 for about 30 minutes before engineers blocked hackers from using it.

Conclusion



Conclusion



Conclusion

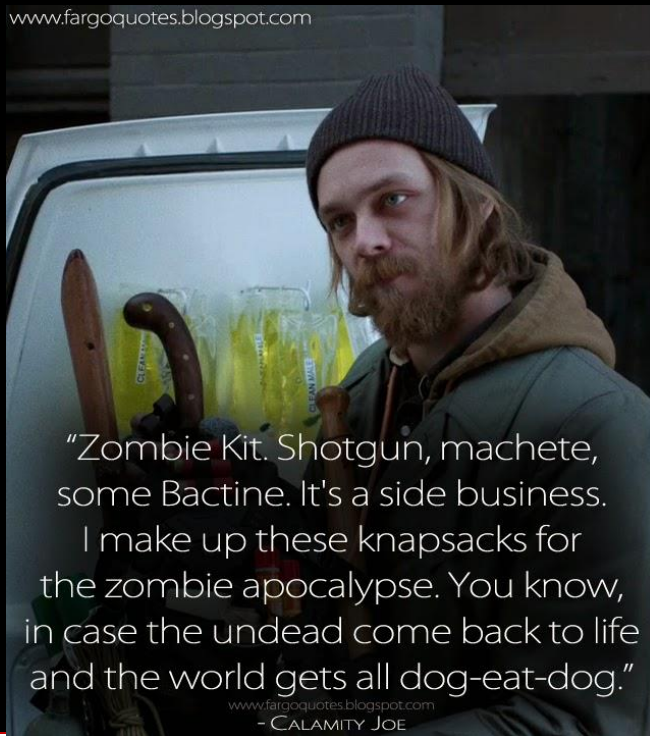
“If You Are Prepared For Zombies, You Are Prepared For Anything”





Questions?

www.fargoquotes.blogspot.com



"Zombie Kit. Shotgun, machete, some Bactine. It's a side business. I make up these knapsacks for the zombie apocalypse. You know, in case the undead come back to life and the world gets all dog-eat-dog."

www.fargoquotes.blogspot.com
- CALAMITY JOE



"It's already dog-eat-dog, friend. Not sure what worse a bunch a zombies could do."

www.fargoquotes.blogspot.com
- LORNE MALVO



IN THE EVENT OF ZOMBIE ATTACK

3 STEPS TO SURVIVING INFESTATION

1. Avoidance 2. Termination 3. Disposal

1. AVOIDANCE

All zombie situations involve the location of the victim. The victim's first duty is to escape the area and avoid immediately to an authorized Rescue Station. Only authorized Z.E.R.O. personnel will manage evacuation - not the way to an effective evacuation is COMPLETE AVOIDANCE OF HAZARDOUS CONDITIONS while en route.

EVACUATE



RELOCATE



Get hands and eyes small variables only. DO NOT attempt to assault or defend property or pass.

Proceed immediately to the Rescue Station assigned to your area. In the absence of Z.E.R.O. Rescue Management personnel, monitor local radio broadcasts for directions.

DO NOT ENGAGE!

It is critical to remember that any zombies encountered during evacuation are NOT to be engaged. UNDEAD ZOMBIES INFECTED WITH A DEADLY CONTAGION. Under NO circumstances should you engage them in any form of interaction. Contagion is transmitted via a bite and ANY interaction with a zombie results in potential exposure to bite.



IN THE EVENT OF A BITE



Apply pressure to the wound with a clean, white cloth. If the bite is deep, apply a tourniquet above the bite site and proper medical attention can be successful.



If the wounded individual expires while being taken, VACATE THE PREMISES IMMEDIATELY or follow guidelines found in next section.

2. TERMINATION

Engage this step only if in an unsecured location, and ONLY if you have sufficient control and control by using the Zombie Classification Cards (attached). Otherwise, any form of interaction should be referred to and executed by the authorized member of Z.E.R.O. or your local trained Zombie Expert/mentor.



CENTRAL NEURALIZATION

The ONLY reason to engage a zombie is to neutralize a zombie by using the Zombie Classification Cards (attached). Otherwise, any form of interaction should be referred to and executed by the authorized member of Z.E.R.O. or your local trained Zombie Expert/mentor.

CENTER MASS

For striking or disabling a zombie, aim for the center mass. This is the most effective target area.

LOWER EXTREMITIES

For striking or disabling a zombie, aim for the lower extremities. This is the most effective target area.

3. DISPOSAL



"TAPE & TAG"

After terminating the zombie, mark the perimeter to isolate the Z.E.R.O. (designated) personnel to secure the zombie and place a Mobile Area Designation (M.A.D.) unit for investigation. This can be completed in two simple "Tape & Tag" steps.

- Mark area containing the zombie with an appropriate level of CAUTION ZOMBIE CORPSE OR ZOMBIE REMAINS.
- Attach a FORM 200 tag (attached) to the toe of the shoe.

DO NOT INCINERATE!

Incineration releases airborne particles which spread rapidly to the atmosphere. Do not incinerate any zombie remains. The appropriate release location is:



EMERGENCY TELEPHONE NUMBERS

POLICE _____
FIRE _____
MEDICAL _____
E.M.S. _____

Medical Health and Safety has advised that the information displayed is a clear and undistorted space. Failure to do so in places of emergency, municipal offices and medical facilities will result in fines of \$1,000 or more, plus prosecution.



A HUMAN'S GUIDE TO ZOMBIE PREPAREDNESS

WESTLAKE HAS THE WIDEST SELECTION OF PRODUCTS FOR ALL OF YOUR ZOMBIE NEEDS. At any time, our preparedness experts can help you choose the right defense and offense. For now, here are some helpful zombie-preparedness products and tips.



1. ZOMBIE DEFENSE

FACE MASKS
If your zombie neighbor starts to smell, fight that next-door stench with these simple, yet effective masks. Great for the whole family.



POWER & HAND TOOLS
Scare off incoming zombies with our extensive line of power and hand tools.



TOOL CHESTS
Keep your zombie tools-of-defense organized and accessible, so you're ready to protect yourself and your family at a moment's notice.



2. ZOMBIE REPAIRS

AUTOMOTIVE TOOLS & ACCESSORIES
It's likely your automotive insurance doesn't cover zombie damages, so Westlake has everything you'd need, from auto tools to body repair to cleaning.



CLEANERS & DETERGENTS
After removing a zombie from your home, remove left-behind stains and "mess" with our extensive line of heavy-duty cleaners and detergents.



WINDOW & SCREEN REPAIR
With the outbreak of zombies comes the occasional broken window or screen. So, to avoid runny noses and coat-wearing indoors, we've got you covered.



3. ZOMBIE PROOFING

ALARM SYSTEMS
These systems are great for alerting the intrusion of zombies.



CHAIN SAWS & HAND SAWS
Make sure your hand saws are sharp and your chain saws have fuel, because these are great tools for clearing away hedges blocking your view of on-coming zombies.



DOOR LOCKS & DEADBOLTS
Keep the undead from entering your home, sheds and garages.

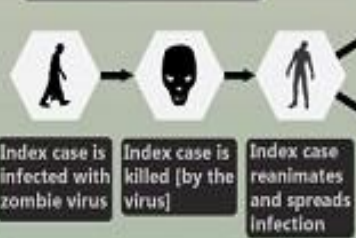


Westlake **ACE Hardware** MORE ZOMBIE QUESTIONS? ASK AWAY. VISIT JOINZOMBIECLUB.COM FOR FREQUENTLY ASKED QUESTIONS AND MORE.

HOW TO SURVIVE

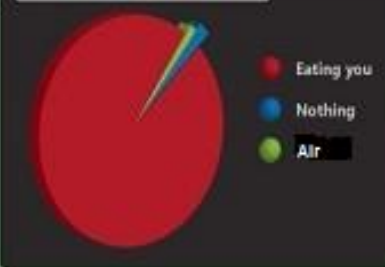
ZOMBIES

HOW INFECTION SPREADS



Infection is spread through bodily fluids. The most common being saliva and blood from bites of previously infected victims. Currently, there is no known cure to the virus. Zombification may occur between a couple of hours to a day, depending on the immune system of the victim.

WHAT'S ON A ZOMBIE'S MIND



TIPS

- Silence is golden
- Always travel light; bring only essential items
- Wear clothes that are light yet cover as much skin as possible
- The crowbar is the best melee weapon
- Avoid densely populated areas; more people = more zombies

WEAPONS



Fire only makes things worse! Avoid, if possible.



TRANSPORTATION



Common, easy to maneuver through small places, cheap, quiet



Common, provides extra protection but bulky, and gas is a drawback



Expensive, but very safe since zombies do not swim

The safest way to travel is by air, if air transport is available

It is always safer to travel in a group. For ideal performance, keep your team at three members. Four to ten is still manageable. Anything above that is just asking for trouble.

TOP 10 LESSONS

- Organize before they rise!
- Blades don't need reloading.
- They feel no fear, why should you?
- Use your head: cut off theirs.
- Ideal protection = tight clothes, short hair.
- No place is safe, only safer.

Zombies can only be stopped by removing the head or destroying the brain.

Shoot the center mass ONLY when distance does not permit a head shot. Only used for slowing down the target(s).

Shoot the lower extremities ONLY when distance does not permit a head shot. Only used for slowing down or incapacitating the target(s).



- Keep moving, keep low, keep quiet, keep alert!
- Get up the staircase, then destroy it.

Get out of the car, get onto the bike.

The zombie may be gone, but the threat lives on.

OUTBREAKS

- CLASS 1**
Number of zombies: 1 - 20
Total human casualties: 1 - 50
Infested area: ~20 mile radius
Total duration: 24 hours - 14 days
- CLASS 2**
Number of zombies: 20 - 100
Total human casualties: hundreds
Infested area: hundred-mile radius
Total duration: similar to Class 1
- CLASS 3**
Number of zombies: thousands
Total human casualties: thousands
Infested area: ~700 miles
Total duration: several months
- CLASS 4**
Doomday scenario

IN CASE OF ZOMBIES

- ZOMBIES EXHIBIT POOR SPACIAL AWARENESS AND ARE THEREFORE EASY TO SNEAK UP ON.
- ALWAYS AIM FOR HIGH GROUND. YOU WILL BE MORE DIFFICULT TO EAT.
- NEVER LEAVE A MAN BEHIND.
- ZOMBIES ARE SLOW AND DIM - WITTED. IT MAY BE POSSIBLE TO MOVE AMONGST THEM UNDETECTED.
- SHOW NO MERCY. THEY'RE NOT YOUR FAMILY ANYMORE.
- FIREARMS MAKE EXCELLENT ZOMBIE DETERRENTS. JUST REMEMBER TO AIM FOR THE HEAD.
- SPORTING GOODS CAN BE HANDY IN A PINCH.
- FAILURE TO FOLLOW THESE INSTRUCTIONS WILL RESULT IN DEATH AND/OR ZOMBIFICATION.



Contrary to popular belief, zombies do not want to eat just brains. They are driven by the need to consume fresh flesh that is why they do not eat other zombies.

Water towers can make ideal, though temporary, safe havens when fending off the undead.



THIS GUIDE WAS BROUGHT TO YOU IN CONJUNCTION WITH THE ZOMBIE AWARENESS COUNCIL.

KNOW THE SIGNS

Zombie infection has become a widespread hazard. It can be prevented through vigilance and avoidance. Know these signs and stay free from zombie infection. There is no cure.

1 EYES The eyes of a zombie are glazed over and may appear hazy. Zombies do not blink.

2 ODOR The tissue of a zombie continues to decay and produces a distinctive odor. New zombies may have little or no odor.

3 SKIN The skin of a zombie will appear pale, and in some cases will appear blue or grey. A zombie will feel cool to the touch, but you must *never* touch somebody suspected of being a zombie.

4 WALK Zombies walk in an unstable, shuffling pattern. They can withstand major trauma to their extremities and may be crawling or have limbs missing.

5 BITE A bite mark may or may not be apparent. The primary vector of transmission is a zombie bite. Anyone with a bite mark should be avoided.



SEE SOMETHING SAY SOMETHING
REPORT SUSPECTED ZOMBIE ACTIVITY IMMEDIATELY

Zombie Emergency Response Operations Form #011-K3-440211-0R (04/01/11)



HOUSE RULES IN THE EVENT OF THE ZOMBIE APOCALYPSE

1. Gather all essential supplies upstairs and destroy staircase.
2. Don't be a hero.
3. Fill all available containers with water whilst it is still available.
4. Black out windows, keep lights off, and keep quiet!
5. One person must be on lookout at all times.
6. Be prepared to bug-out at any moment.
7. Do not answer the door.
8. Be sensible with supplies. They are finite.

THINGS TO REMEMBER

- + Aim for the head or you're dead.
- + Zombies cannot be reasoned with. Maybe it used to be your Aunt, but it's not any more.
- + If you're bitten, it's game over.

REMEMBER: WE CAN WIN THIS!

These rules are a guideline only. They just not be considered a longterm solution. You are advised to find a more sustainable location as soon as possible.

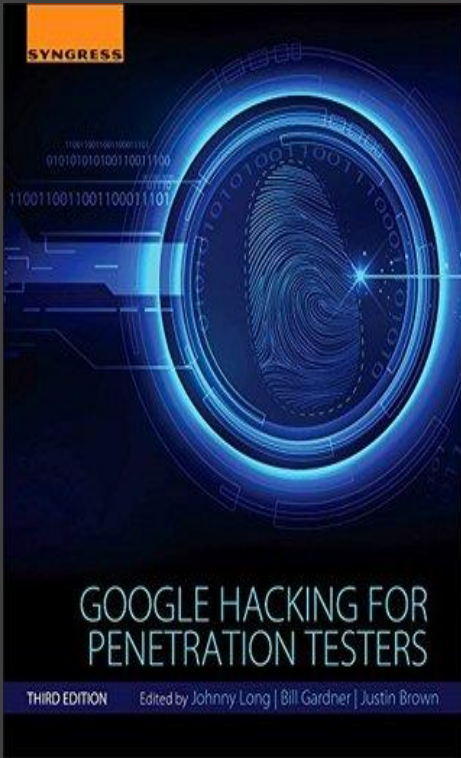




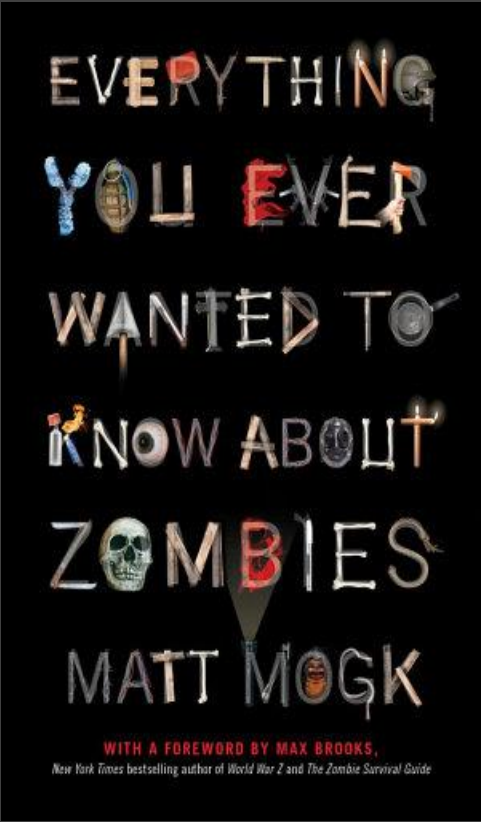
REFERENCES



References



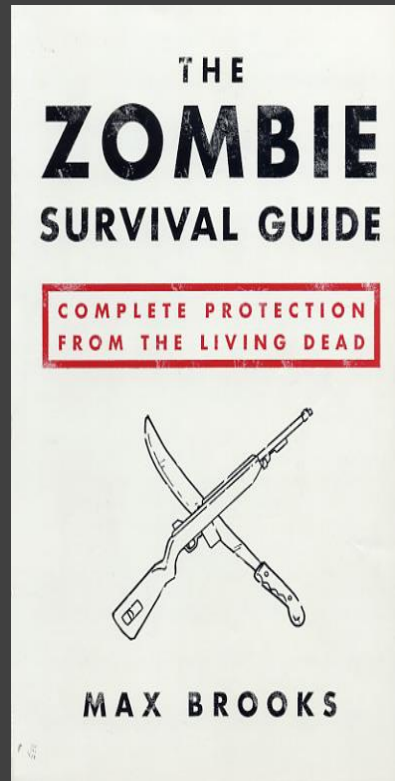
Google Hacking for penetration testers, By Long J. & Gardner B. & Brown J.



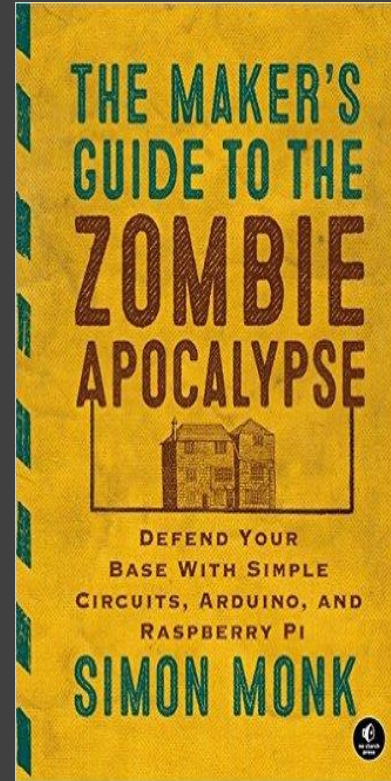
Everything you ever wanted to know about zombies, By Mogk, M.



References



The Zombie Survival Guide,
By Brooks, M.



*The Maker's Guide to the
Zombie Apocalypse,*
By Monk, S.

References

- Allsopp, W. (2009). **Unauthorised Access**. West Sussex, U.K. John Wiley & Sons.
- Anonymous (2011-slide 27) **Threat model**. Retrieved from https://en.wikipedia.org/wiki/Threat_model on March 22, 2016.
- Anonymous. (2014). **Security threats to evolving data centers**. Retrieved from http://www.trendmicro.com/cloud-content/us/pdfs/security-intelligence/reports/rpt_security-threats-to-datacenters.pdf on April 6, 2016.
- Anonymous. (2015). **“If you’re prepared for zombies you’re prepared for anything”**. Retrieved from: <http://caverntechnologies.com/cavern-news/is-your-data-center-ready-for-the-zombie-apocalypse> on April 2, 2016.
- Bradley, A. T. (2012). **Prepper’s Instruction Manual**.
- Brooks, M. (2003). **The Zombie Survival Guide**. New York, NY. Broadway Books.
- Calder, A. and Watkins, S. (2010). **IT Governance: A Manager’s Guide to Data Security and ISO27001/ISO27002**, 4th edition. London, UK: Kogan Page.
- Carr, B. (2011). **The Pepper’s Pocket Guide**. Berkely, CA. Ulysses Press.
- Castro, D. (2014). **Is US Tech Policy Ready For A Zombie Apocalypse?** Retrieved from <http://www.informationweek.com/it-life/is-us-tech-policy-ready-for-a-zombie-apocalypse/a/d-id/1316987> on March 28, 2016.
- Cobb, J. (2016). **Prepper’s Communication Handbook**. Berkely, CA. Ulysses Press.

References

- Dougherty, B. (2012). **Is your data center ready for the coming zombie apocalypse?** Retrieved from <http://www.ragingwire.com/blog/disaster-recovery-business-continuity-planning-and-zombie-preparedness> on March 31, 2016.
- Gibson, S. (2006). **Katrina: What Have We Learned?** An article published at eWeek.com on August 25, 2006. Retrieved from <http://www.eweek.com/c/a/IT-Infrastructure/Katrina-What-Have-We-Learned/> on September 2, 2012.
- Gregory, P. (2008). **IT Disaster Recovery and Planning for Dummies**. Indianapolis, IN: Wiley Publishing.
- Grimes, R. (2014). **Repeat after me: Model your security threats first.** Retrieved from <http://www.infoworld.com/article/2610847/security/repeat-after-me--model-your-security-threats-first.html> on March 28, 2016.
- Heimerl J. (2013). **Are you Ready for the Zombie Apocalypse?** Retrieved from: <http://www.securityweek.com/are-you-ready-zombie-apocalypse> on April 11, 2016.
- Horne, J. (2012). **Five myths about Hurricane Katrina.** An article published on August 31, 2012 at WashingtonPost.com. Retrieved from http://www.washingtonpost.com/opinions/five-myths-about-hurricane-katrina/2012/08/31/003f4064-f147-11e1-a612-3cfc842a6d89_story.html on September 2, 2012.
- Hudson, G. (2012): **6 Green Data Centers that Could Survive a Zombie Apocalypse.** Retrieved from <http://cleantechnica.com/2012/02/13/6-green-data-centers-that-could-survive-a-zombie-apocalypse/> on March 31, 2016.

References

- Jackson, M. (1982). **Thriller**. Retrieved from https://www.youtube.com/results?search_query=thriller+michael+jackson on March 31, 2016.
- Johnson, R. (2015). **The Ultimate Survival Manual**. Outdoor Life. New York, NY.
- Khan, A. (2011). **Preparedness 101: Zombie Apocalypse**. Retrieved from <http://blogs.cdc.gov/publichealthmatters/2011/05/preparedness-101-zombie-apocalypse/> on March 31, 2016.
- Kopp, E. (2011). **Business Continuity Plan (BCP) Template with Instructions and Example**. Princeton, NJ: EK Publications.
- Kranz, G. (2006). **Disaster recovery planning gets another look after Hurricane Katrina**. An article published at SearchCIO TechTarget.com in March 2006. Retrieved from <http://searchcio.techtarget.com/tip/Disaster-recovery-planning-gets-another-look-after-Hurricane-Katrina> on September 2, 2012.
- McKay, T. (2015). **Would You Survive a Zombie Apocalypse? It Probably Depends on Where You Live**. Retrieved from <https://mic.com/articles/127744/would-you-survive-a-zombie-apocalypse-it-probably-depends-on-where-you-live#.Jah8wfJx1>.
- Miller, R. (2013). **Brocade Data Center Repels Zombie Attack**. Retrieved from <http://www.datacenterknowledge.com/archives/2013/03/04/brocade-data-center-repeals-zombie-attack/> on March 31, 2016.
- Mogk, Matt. (2011). **Everything You Every Wanted to Know About Zombies**. New York, NY. Gallery Press.

References

- Monk, S. (2016). **The Maker's Guide to the Zombie Apocalypse**. San Francisco, CA. No Starch Press.
- Overby, S. (2006) Q&A: **Tom Oreck on recovering from Katrina**. An article published at ComputerWorld.com on March 21, 2006. Retrieved from http://www.computerworld.com/s/article/print/109753/Q_A_Tom_Oreck_on_recovering_from_Katrina?taxonomyName=Disaster+Recovery&taxonomyId=83 on September 1, 2012.
- Redfern, J. (2012). **Jay Talking: Wataga native puts lessons from Katrina into practice**. An article published on September 2, 2012 at Galesburg.com. Retrieved from <http://www.galesburg.com/features/x1903460882/Jay-Talking-Wataga-native-puts-lessons-from-Katrina-into-practice> on September 2, 2012.
- Savidge, M. (2007). **Oreck brushes off the Gulf Coast**. An article published at MSNBC.com on February 23, 2007. Retrieved from http://www.msnbc.msn.com/id/17300566/ns/nbcnightlynews-after_katrina/t/oreck-brushes-gulf-coast/ on September 2, 2012.
- Scalet, S. (2006). **19 Ways to Build Physical Security Into a Data Centre**. Retrieved from http://www.cio.com.au/article/181324/19_ways_build_physical_security_into_data_centre/ on March 24, 2016.
- Stewart, C. (2016). **Build the Perfect Bug Out Skills**. Living Ready.
- Stewart, C. (2016). **Survival Hacks**. Adams Media. Avon, MA.
- Van Wyk, K R. and Forno, R. (2001). **Incident Response**. Sebastopol, CA: O'Reilly.
- Wagley, J. (2012). **Continuity Program Buy-in**. An article published in Security Management, September 2012 edition, American Society of Industrial Security.

References

- Wallace, M. and Webber, L. (2011). **The Disaster Recover Handbook: A Step-by-Step Guide to Ensure Business Continuity and Protect Vital Operations, Facilities, and Assets**, second edition: New York, NY: American Management Association.
- Warwick, A. (2015). **Linking threat modelling and risk analysis key to cyber security**. Retrieved from <http://www.computerweekly.com/news/4500246898/Linking-threat-modelling-and-risk-analysis-key-to-cyber-security> on March 28, 2016.
- Watters, J. (2010). **The Business Continuity Management Desk Reference: Guide to Business Continuity Planning, Crisis Management & IT Disaster Recovery**. Northamptonshire, UK: Leverage Publishing.
- Whitman, M. E. and Mattord, H. J. (2007). **Principles of Incident Response & Disaster Recovery**. Boston, MA: Course Technology – Cengage Learning.
- Wiseman, J. (2014). **SAS Survival Handbook, third edition**. William Morrow. New York, NY.

OTHER SPEAKER INFORMATION



William F. Slater, III

❖ Current Positions -

Project Manager / Sr. IT Consultant, President & CEO of Slater Technologies, Inc., and Adjunct Professor at the Illinois Institute of Technology - Working on projects related to

- Subject Matter Expert in Risk Management and Security
- Security reviews and auditing
- ISO 27001 Project Implementations
- Global Cybersecurity Manager at a \$4.5 Billion company
- Software Development and Migration
- Created an eBook with articles about Security, Risk Management, Cyberwarfare, Project Management and Data Center Operations
- Providing subject matter expert services to Data Center product vendors and other local businesses.
- Also Developing and presenting technical training materials for undergraduate and graduate students at the Illinois Institute of Technology in the areas of Data Center Operations, Data Center Architecture, Cyber Security Management, and Information Technology hardware and software.



Contact Information & Other Information

William Favre Slater, III

MBA, M.S., PMP, CISSP, SSCP, CISA, ISO 27002, ISO 20000, ITIL v3, IP v6

Project Manager / Program Manager

slater@billslater.com

williamslater@gmail.com

Career Page: <http://billslater.com/career>

LinkedIn: <https://www.linkedin.com/profile/in/billslater>

Twitter: @billslater

SKYPE: billslater (by pre-arrangement reservation)

773 - 235 - 3080 - Home Office

312 - 758 - 0307 - Mobile

312 - 275 - 5757 - FAX

1337 N. Ashland Ave. No. 2

Chicago, IL 60622

United States of America

<http://billslater.com/career>

<http://billslater.com/certifications>

<http://billslater.com/interview>

<http://billslater.com/writing>

<http://billslater.com/datacentermanager>

<http://billslater.com/iso27001>

http://billslater.com/ms_cybersecurity

<http://on.fb.me/fw3wH0>

<http://on.fb.me/vfGRVi>



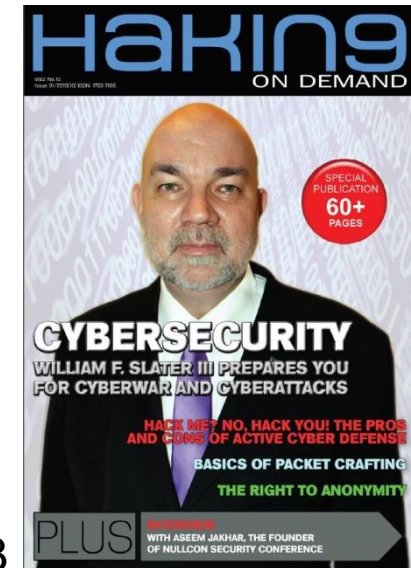
Then & Now

- A career Information Technology (IT) professional since July 1977 , starting as a young computer systems staff officer in the United States Air Force supporting the command control information systems that provided real-time war plan asset information to the Strategic Air Command Battle Staff (<http://billslater.com/myusaf>)
- Current a Sr. IT Consultant / Sr. IT Project Manager / Sr. Program Manager in Cybersecurity, Compliance, Auditing, and Data Centers
- Since October 2012, 18 published articles and one ebook (<http://billslater.com/ebook1>)

July 1977



January 2013



ILLINOIS INSTITUTE
OF TECHNOLOGY

1977 - First Job Out of College



**Strategic Air Command Headquarters
Offutt Air Force Base, NE
Circa late 1970s – UNCLASSIFIED Configuration**



**2LT William F. Slater, III
United States Air Force
Computer Systems Staff Officer
July 1977**

A Career in Information Technology

If you are interested, visit these Links:

<http://billslater.com/career>

<http://billslater.com/certifications>

<http://billslater.com/interview>

<http://billslater.com/writing>

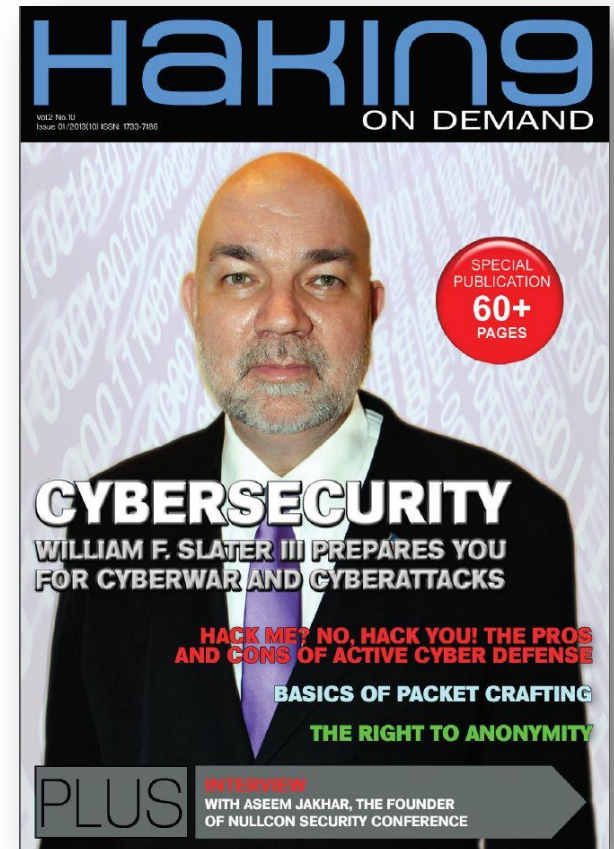
<http://billslater.com/datacentermanager>

<http://billslater.com/iso27001>

http://billslater.com/ms_cybersecurity

<http://on.fb.me/fw3wH0>

<http://on.fb.me/vfGRVi>



January 15, 2013

ILLINOIS INSTITUTE
OF TECHNOLOGY